

CEO Mobility, Performance-Turnover Sensitivity, and Compensation: Evidence from Non-Compete Agreements

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This Draft: December 2017

ABSTRACT

In this paper, we examine the determinants of CEO non-compete agreements as well as the impact of these agreements on how the CEO is monitored and compensated by the board of directors. Using hand collected data on CEO non-compete agreements, we find that the CEO is less likely to have a non-compete agreement if she faces greater employment risk and more likely when the firm expects to suffer greater economic harm if the CEO joins a competitor. Consistent with the idea that non-compete agreements reduce the economic damage a departing CEO can cause a firm by restricting her ability to join a competitor, we find that the CEO performance-turnover sensitivity is significantly stronger when the CEO has a non-compete agreement in place. Finally, we find that CEO total compensation and incentive pay are higher if CEOs have non-compete contracts - this result is stronger in regimes with more stringent enforceability of these contracts and holds true primarily in situations where the non-compete agreement is more likely to have a significant impact on the CEO's outside options. We exploit staggered state-level changes in non-compete enforceability to establish causality. Our paper illustrates the impact of restrictions on CEO mobility on how the board monitors and sets the compensation of the CEO.

JEL classification: G30, G32, G34, K22, L22, L25

Keywords: CEO Non-Compete Contracts; CEO Mobility, CEO Performance-Turnover Sensitivity; CEO Pay; CEO Compensation Structure

☆We thank Mark Chen, Sandy Klasa, and Harley (Chip) Ryan for helpful comments. Federico Giuliano provided excellent research assistance. The usual disclaimer applies.

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1. Introduction

Non-compete agreements hamper the mobility of employees, thereby imposing significant costs on them by reducing their outside options. Most rank-and-file employees sign non-compete agreements soon after accepting the job, which is at a point in time when they have little leverage left over the firm (Estlund, 2006). Unlike rank-and-file employees, CEOs can negotiate their employment contracts because they not only have greater bargaining power relative to rank-and-file employees, but typically are also represented by legal counsel in their negotiations with firms (Bishara, Martin, and Thomas, 2015; and Garmaise, 2011). From the firm's perspective, losing a CEO to a competitor can cause severe harm because the CEO will have knowledge of a firm's trade secrets, information on key suppliers and customers, knowledge of the firm's strategic plans, and familiarity with the strengths and vulnerabilities of the firm vis-à-vis its competitors (Bishara, Martin, and Thomas, 2015; and Schwab and Thomas, 2006). Thus, the presence of a non-compete agreement in a CEO's employment contract is the likely outcome of a bargaining game between the CEO and the firm. In this paper, we examine the determinants of CEO non-compete agreements. In addition, we study the implications of non-compete agreements on how CEOs are monitored by the board of directors. Finally, we examine the implications of CEO non-compete agreements on the level and structure of the CEO's compensation.

In terms of the determinants of CEO non-compete agreements, we expect that the CEO will not agree to have a non-compete agreement if the personal costs to her are likely to be very high in the event of termination. This is more likely to be the case if her job risk is higher, she is farther away from retirement age, and she has more outside local employment options, i.e., the firm faces greater in-state competition. From the perspective of the firm, it will bargain to have a CEO non-compete agreement in place if it assesses that it will incur severe economic losses if the CEO

joined a rival firm. Conversely, the firm is unlikely to constrain CEO mobility if the incentives of the CEO to do economic harm to the firm upon departure are small and/or the demand for the CEO's services by competitors is low. Finally, the limited geographical reach of non-compete agreements makes it more likely that a CEO will have this covenant in her employment contract if there is stricter enforcement by state courts.

The presence of a non-compete agreement will influence how strongly the board of directors disciplines the CEO for poor performance.¹ In the absence of a non-compete agreement, the firm may be reluctant to fire the CEO for poor performance because the CEO can do significant economic damage to it by joining a competitor. On the other hand, in the presence of a non-compete agreement, the firm is more likely to pull the trigger and fire the CEO for poor performance because the CEO is restricted from joining a competitor for some specified period. We, thus, hypothesize that the performance-turnover sensitivity will be higher if the CEO has a non-compete contract in place.

Clearly, non-compete agreements impose costs on the CEO through decreased mobility. In addition, the CEO will recognize that her risk of being fired for poor performance is likely to be higher if she signs a non-compete contract. She will accordingly demand higher compensation for her increased job risk and decreased mobility. We, therefore, hypothesize that CEOs with non-compete agreements will have higher compensation. Once the CEO signs the non-compete agreement, she will have incentives to take certain actions that can potentially reduce these costs to her. For example, she may make financial reporting more opaque or take less risky projects. Recognizing these potential agency problems, the firm will structure her increased compensation

¹ Benston (1985), Coughlan and Schmidt (1985), Weisbach (1988), Warner, Watts, and Wruck (1988), and Parrino (1997) are examples of some of the earlier studies that document a negative relation between CEO turnover and firm performance.

in such a way that it aligns her interests with those of shareholders. We, thus, predict that in the presence of a non-compete clause in her employment contract, the CEO's equity-based compensation will constitute a larger percentage of her total compensation, and that she will receive higher risk-taking incentives to offset her increased motivation to take less risky projects in the face of greater personal job risk.

To test these predictions, we hand-collect data on CEO non-compete contracts for all Execucomp firms over the period 1992 – 2104. We manually read 10-K filings for all Execucomp-CEO years to identify employment contracts for the CEO. When available, we hand-collect information related to CEO non-compete agreements from the contract. In addition to the original employment contract, we also collect all contract amendments. We drop observations where there is no employment contract on EDGAR as we are unable to distinguish between firms without CEO employment contracts from firms that simply neglect to report their CEO employment contacts. Our main sample consists of 17,486 firm-year observations and 3,192 unique CEOs from 1992 to 2014. These CEOs represent 41.66% (3,192/7,661) of all CEOs from the Execucomp database. Among the sample of CEOs with employment contracts, we find that 62.47% (1,997 /3,192) sign a non-compete contract.

We find that the CEO is less likely to have a non-compete agreement if she faces greater employment risk, is closer to retirement, and if there is more in-state competition. We further document that there is a higher likelihood of a CEO non-compete agreement if the firm is in a more similar lifecycle stage as its competitors, has more intangible assets, and is located in a stronger enforceability regime. These results are consistent with the idea that the presence of a non-compete clause in a CEO's employment contract is the outcome of a bargaining game between the CEO and the firm. Specifically, the CEO is less likely to have a non-compete agreement if she

faces greater employment risk and more likely to have such an agreement when the firm expects to suffer greater economic harm if the CEO joins a competitor

In addition, we find that the performance-turnover sensitivity is significantly stronger when the CEO has a non-compete agreement in place. These results are consistent with the hypothesis that boards are more likely to fire a CEO for poor performance if she has a non-compete agreement. Further, these results are amplified if there is more stringent state-level enforcement of non-compete agreements as well as if there are no state-level wrongful discharge laws, i.e., in situations where the likelihood of joining a competitor is lower and firing costs are smaller. These additional tests suggest that our basic finding that CEO turnover is more sensitive to performance if the CEO has a non-compete agreement is not likely to be spurious.

Finally, we find that CEO total compensation, CEO alignment of interest incentives (CEO delta) and risk taking incentives (CEO vega), and the CEO's percentage of equity-based pay are higher when CEOs have non-compete contracts. These results are stronger in regimes with more stringent enforceability of non-compete contracts and holds true primarily in situations where the non-compete agreement is more likely to have a significant adverse impact on the CEO's outside options, i.e., when there more in-state competition. These subsample tests provide some support to the notion that the impact of non-compete agreements on CEO compensation are unlikely to be spurious and are possibly causal.

In the above analysis, we exploit exogenous staggered changes in state-level enforceability of non-compete agreements to test whether the above evidence on the impact of non-compete agreements on both the CEO performance-turnover sensitivity and CEO compensation is causal.² Specifically, increased (decreased) enforceability will make it more (less) likely that the contract

² See Garmaise (2011) for arguments why these staggered changes in state-level enforceability of non-compete agreements are likely to be exogenous.

will be enforced in state courts. Thus, an exogenous increase in enforceability will make the firm more willing to fire the CEO for poor performance because the greater enforceability of her non-compete agreement will reduce the chance of her joining a competitor. The CEO will demand higher compensation as payment for the higher costs to her from increased enforcement of non-compete agreements. To reduce the impact of enhanced agency problems (reduced alignment of interest and risk taking incentives) arising from stricter enforcement of non-compete agreements, an even higher percentage of the CEO's total compensation will need to be incentive-based pay. The reverse will be true for state-level decreases in enforceability. Specifically, we estimate difference-in-differences regressions to test whether exogenous increases (decreases) to state-level enforcement regimes strengthen (weaken) the impact of non-compete agreements. The results from our quasi-natural experiment are consistent with the above predictions, thereby suggesting that the relations we have documented in the paper are likely to be causal in nature.

Our paper illustrates how placing restrictions on CEO mobility has important implications for how the CEO is monitored as well as the manner in which her compensation is set. One of the long lasting puzzles in financial economics is the finding of a very weak relation between firm performance and CEO turnover. Our paper provides a partial explanation for this puzzle – firms without CEO non-compete agreements may be hesitant to fire their CEOs for poor performance because these CEOs may do greater economic damage to them by joining competitors.

The results in our paper suggest that the presence of a non-compete agreement in a CEO's employment contract, the level of CEO compensation, and the structure of the CEO's compensation are the result of a bargaining game between the CEO and the board of directors, and represent an equilibrium outcome of this game. It, therefore, contributes to existing studies that

use a bargaining framework in a corporate governance setting (see, e.g., Hermalin and Weisbach, 1998; Ryan and Wiggins, 2004; and Venkateswaran, 2004).

There has been a secular increase in CEO total compensation since the 1970s. Gabaix and Landier (2008) suggest that the sixfold increase in in CEO total compensation between 1980 and 2003 can be explained by the sixfold increase in the size of large firms over that period. In Figure 2 in our paper, we find that there has been a secular increase in the use of non-compete clauses in CEO employment contracts over our 1992 – 2014 sample period. Our finding that CEO total pay is larger in the presence of non-compete covenants as a compensatory mechanism for increased mobility constraints and higher job risk in conjunction with the secular increase in the use of non-compete agreements can, thus, at least partially explain the rising trend in CEO total compensation.

Finally, our paper contributes to the growing literature in financial economics that examines the impact of changes in labor mobility on firm value and corporate policies. A number of these papers examine the impact of changes in state-level non-compete enforceability (as the shock to labor mobility) on executive compensation, firm innovation, investments, entrepreneurship, and mergers and acquisitions (see, e.g., Garmaise, 2011; Samila and Sorenson, 2011; Png, 2015; Starr, 2015; Jeffers, 2017; and Younge, Tong, and Fleming, 2015).³ Our paper is distinct from the above studies in some important ways. First, we use hand-collected data on actual CEO non-compete agreements and then exploit exogenous changes in state-level enforceability of non-compete agreements to establish whether there is a causal relation between the presence of non-compete agreements and the performance-turnover relation, CEO total pay, and CEO compensation structure. Second, we focus our attention on restrictions to CEO mobility rather than to rank-and-

³ Marx, Strumsky, and Fleming (2009) exploit Michigan's 1985 reversal of its non-compete enforcement policy, and using a difference-in-differences setting find that state-level enforcement of non-compete agreements does reduce mobility.

file employee mobility. This distinction is important because the departure of a CEO (amongst all employees of the firm) to join a competitor is likely to cause the greatest financial damage to the focal firm.

The remainder of the paper is organized as follows. Section 2 describes our data collection procedures (CEO non-compete contracts, state-level enforcement index, and CEO forced turnover) and provides descriptive statistics on key variables. In Section 3, we discuss our results related to the determinants of CEO non-compete agreements. Section 4 examines the impact of CEO non-compete agreements on the CEO performance-turnover sensitivity. Section 5 examines the implications of non-complete agreements for CEO pay and the structure of CEO compensation. Section 6 provides a summary and concludes the paper.

2. CEO non-compete contracts, state-level enforceability, and sample descriptive statistics

2.1. CEO non-compete contracts

Our initial sample consists of all Execucomp firms with fiscal year-ends between 1992 and 2014. We require these firms to have financial data available on CRSP and Compustat. In addition, we require the availability of CEO employment contracts on the SEC's EDGAR system for these firms. We use SEC filings to identify CEOs with employment contracts. We manually read 10K filings for each Execucomp-CEO year to identify whether the employment contract is for the CEO and, if that is the case, we hand-collect relevant information from the contract. Most companies provide references to the employment contract in the Exhibit Section of the annual 10-K filings. The actual contracts are generally attached with the 8-K, 10-Q, and 10-K filings. In addition to the original employment contract, we also collect all contract amendments. These amendments are very short documents that contain minor changes to existing CEO contracts. As noted in Bishara, Martin, and Thomas (2012), many firms do not report CEO employment contracts to the SEC even though it is required. We drop observations where there is no employment contract on EDGAR

as we are unable to distinguish between firms without CEO employment contracts from firms that simply neglected to report their CEO employment contacts.

Non-compete clauses restrict CEOs from competing with the company during the period of employment and often have post-employment durations of either one-year or two-years. In addition, non-compete clauses are often enforceable only within a limited geographic region. These geographical areas are often the company's operating regions (or pending operating regions), but some states instead enforce a geographic radius of 50 or 100 miles from the company's headquarters. Further, non-compete clauses often carry non-solicitation clauses, which prohibit former CEOs from soliciting employees and customers from the company during the non-compete period. Finally, while most employment contracts are governed by the law of the company's headquarter state, there are cases where the contract explicitly states that the state of the governing law is different from the headquarter state. We collect all this information on non-compete agreements from CEO employment contracts.

Appendix A illustrates three examples of CEO employment contracts from our sample firms that include a non-compete clause. As courts often reject overly broad non-compete contracts, non-compete clauses follow a similar structure to one another. We, however, do observe differences in these clauses across firms. For example, the employment agreement between The Boeing Company and W. James McNerney, Jr. includes a non-compete clause. It states that the executive acknowledges that he performs "services of a unique nature for the Company that are irreplaceable" and that his performance of such services to a competing business will result in "irreparable harm to the Company." This clause is, however, not specific about what is a competing business. In addition, the geographic reach of the clause is very wide as it applies to "any locale of any country in which the Company conducts business." The employment agreement between

DIRECTV and Michael D. White also contains a non-compete clause that applies for a period of two years after he leaves the company. Although the company is headquartered in Delaware, the employment agreement explicitly states that the agreement shall be “governed by and construed in accordance with the laws of the State of New York.” The third contract in the appendix represents an amendment or restatement of employment agreements. In the amended contract between PetSmart, Inc. and Robert F. Moran, the non-compete period is defined as one (1) year after his termination date. PetSmart, Inc. is also the most specific regarding what is considered competing activity by stating it includes “any pet food, pet supplies, or pet superstore business.”

After hand-collecting employment contracts, our main sample consists of 17,486 firm-year observations and 3,192 unique CEOs from 1992 to 2014. These CEOs represent 41.66% (3,192/7,661) of all CEOs from the Execucomp database. Our data collection confirms the observation in Bishara, Martin, and Thomas (2012) and Gillan, Hartzell, and Parrino (2009) that more than 50% of firms do not have explicit CEO employment contracts.⁴ Among the sample of CEOs with an employment contract, we find that 62.47% (1,997 /3,192) sign a non-compete contract. This statistic is in line with that reported in Gillan, Hartzell, and Parrino (2009), who find that approximately 64% of the explicit contracts that they identified have non-compete agreements.

2.2.State-level non-compete enforceability index

To introduce time-series variation on non-compete enforceability into our panel data and assist with empirical identification, we consider exogenous changes in the state-level non-compete enforceability index employed in Garmaise (2011). We use the index in Garmaise (2011) from 1992 until 2004, which is the last year of his sample period. We update his state-level non-compete

⁴ Bishara, Martin, and Thomas (2012) collect CEO employment contract data for a random sample of 500 firms from the S&P 1500 for the period 1996-2010. Gillan, Hartzell, and Parrino (2009) collect explicit CEO employment contract data that are in place on January 1, 2000 for S&P 500 firms. In contrast, we collect CEO employment contract information for all Execucomp firms over the 1992-2014 period.

enforcement index through 2014 by closely following his methodology. From 2005 onwards, we consider the 12 questions analyzed by Malsberger (2016) and update the index based on the changes in the state-level non-compete enforcement. Our data source for these years is the annual state-level index produced by Beck Reed Riden LLP.⁵ When there is a change, we research the relevant court case or state-level legislation and update the index based on Garmaise's thresholds. We list cases that result in changes to the Garmaise index in Appendix B. While most states do not experience any changes in the enforcement of non-compete agreements, 13 states experienced significant changes in the treatment of non-compete agreements during our sample period. Notably, some of these 13 states also experience multiple changes. These state-level staggered changes provide both time-series and cross-sectional variations that we exploit to make casual interpretations. The updated enforcement index covers all state-years from 1992 to 2014. We provide this information in Table 1.

Table 1 also reports information on the percentage of CEOs with non-compete contracts in each state and non-compete enforceability period. Although one may worry that the percentage can be biased in states with fewer Execucomp firms, we do observe that states with stricter non-compete enforceability generally have a higher percentage of CEOs with non-compete contracts. We further consider this relation in a univariate setting by presenting a linear fit plot in Figure 1. The trend line documents a monotonic increase in the use of non-compete agreements with the state-level enforcement index, consistent with non-compete contracts being more common in states with higher levels of enforcement.

One of the criteria considered by Garmaise (2011) in constructing his index is whether a non-compete contract is enforceable in the event of a forced turnover. Given our focus on the relation

⁵ We thank Russell Beck for providing this data.

between non-compete contracts and CEO turnover, we collect this data from the information provided by Beck Reed Riden LLP and report it in Table 1. Note that many states have not taken a stand on enforceability in these situations. In some of our later tests that use this variable, we restrict the sample to firms headquartered in states that either explicitly enforce or do not enforce non-compete contracts in the event of forced termination.

Given our use of time-series variation in non-compete enforcement, we plot the use of non-compete contracts through time in Figure 2. Each dot represents the percentage of CEOs with a non-compete contract in that year. We observe an increasing trend in the inclusion of non-compete clauses in CEO employment contracts over time. At the beginning of the sample period, only 42% of CEOs have non-compete agreements. By the end of our sample period, about 67% of CEOs have a non-compete agreement. The percentage increase in the use of non-compete agreements is approximately 2.5% per year.

2.3. Descriptive statistics: Full sample and subsamples based on presence of non-competes

We report descriptive statistics for all our key variables in Table 2. We winsorize all continuous variables at their 1st and 99th percentiles. Further, all variables denominated in dollars are normalized by the GDP deflator to 2004 dollars. We provide detailed descriptions of the construction of these variables and the relevant data sources in Appendix C.

We find that 22.2% of CEOs in our sample are above the age of 60. The mean (median) CEO ownership of equity is 2.27% (0.72%). The mean (median) CEO salary, total compensation, and percentage of compensation that is equity based is \$0.679 (\$0.621) million, \$4.537 (\$2.631) million, and 58.0% (66.3%), respectively. The mean (median) tenure of a CEO is 6.65 (5) years and, on average, 10.3% of CEOs turn over each year. About 25.2% of these CEO turnovers are forced turnovers. Our overall forced turnover rate of 2.6% (0.103×0.252) is consistent with 2.5%

forced turnover rate reported in Coles, Daniel, and Naveen (2014). The mean (median) institutional ownership is 71.7% (75%). The mean (median) proportion of independent directors is 73.2% (75.0%).

The mean (median) value of *Tobin's Q* is 1.82% (1.44%). Consistent with the CEO turnover literature, our main measures of stock price performance is industry-adjusted stock return performance (*Ind_Adj Stock Return*). We use the three-digit SIC industry classification as the benchmark industry. The mean (median) value for *Ind_Adj Stock Return* is 6.0% (0.0%). Finally, the mean (median) value for *HQ Enforce* and *Legal Enforce* are 3.98 (4.00) and 4.12 (5.00). *HQ Enforcement* is state-level enforcement index of non-compete agreements for the headquarter state. *Legal Enforce* is the state-level enforcement index of non-compete agreements based on the state of adjudication of the non-compete agreement specified in the employment contract. This state is predominantly the headquarter state.⁶ Descriptive statistics on these and other sample characteristics reported in Table 2 generally reflect those reported in existing studies using Execucomp firms over a similar sample period.

3. Determinants of CEO non-compete contracts

In this section, we examine the determinants of CEO non-compete contracts both in a univariate setting and a multivariate setting. In Section 3.1., we compare the mean and median values of potential determinants of CEO non-compete contracts for subsamples based on whether the CEO has a non-compete contract or not. In Section 3.2., we estimate the determinants of CEO non-compete agreements using probit regression models.

3.1. Determinants of CEO non-compete contracts: Univariate tests

Table 3 compares the mean and the median values of all the variables described in Table 2 for

⁶ We assume that the state of enforcement is the headquarter state if there is no mention of legal jurisdiction in the CEO's employment contract.

CEOs who have signed non-compete contracts and CEOs who have employment contracts but do not have non-compete contracts. Columns (1) – (4) present summary statistics of CEOs with non-compete contracts, and Columns (5) – (8) present summary statistics of CEOs without non-compete contracts. Column (9) provides the difference in sample means and Column (10) presents t-statistics to test whether the sample means are significantly different from each other. Column (11) presents the difference in median values and Column (12) presents the Wilcoxon two sample z-statistic to test whether the sample medians are significantly different from each other.

We had argued earlier that having a non-compete agreement in a CEO's employment contract is the outcome of a bargaining game between the CEO and the firm. We, therefore, expect the CEO not have a non-compete agreement if the personal costs to her through reduced mobility are likely to be very high, and the firm to bargain harder to have a CEO non-compete agreement in place if the firm is expected to incur severe economic losses if the CEO joins a rival firm. Peters and Wagner (2014) find that CEO job risk is higher in industries facing uncertain economic environments. In their paper, they use industry-level volatility and industry credit rating as proxies for industry risk, with CEOs having higher exposure to higher job risk if industry volatility (industry credit rating) is higher (lower). Consistent with the idea that CEOs are more willing to include non-compete covenants in their employment contracts if their employment risk is lower, we find that industry cash flow volatility (*Ind-Median CF Vol*) is significantly lower, and industry credit rating (*Industry Credit Rating*) is significantly higher, for the subsample of firms that have CEOs with non-compete contracts in place.

We further find that CEOs who have non-compete contracts tend to be significantly younger (*CEO Above 60*) and have smaller equity ownership (*CEO Ownership*). These findings suggest that CEOs who are more likely to seek employment with a competing firm (younger CEOs) or

have relatively less skin in the game (smaller equity ownership) and, thus, have greater potential to cause economic harm to their current employers are more likely to have non-compete contracts. Further, we find that CEOs with non-compete clauses manage firms that are in similar life cycle stages as their competitors (*Lifecycle Diff*) and, as such, have skills that are more easily transferable to rival firms. Further, firms whose CEOs have non-compete agreements have significantly larger investments in intangible assets (*Intangible Assets*) than firms whose CEOs do not have non-compete agreements. Firms with larger investments in intangible assets will likely have valuable trade secrets and, therefore, losing a CEO to a competitor will cause severe economic harm to these firms. In addition, we find that CEOs with non-compete agreements operate in significant more concentrated industries (*HHI*), i.e., industries where economic rents are potentially larger. These results suggest that the firm is more likely to bargain harder for the inclusion of a non-compete contract in the CEO's employment contract in situations where its potential for higher economic losses is greater if the CEO moves to a rival firm.

In addition, CEOs with non-compete contracts are associated with firms that have significantly larger institutional ownership (*Institutional Ownership*) and higher proportion of independent directors (*Ind Directors*). Further, the number of in-state industry competitors (*# of In-State Competitors*) and in-state competition measured as the percentage of industry revenues generated by in-state competitors (excluding the focal firm) (*In-State Competition*) are significantly smaller for the subsample of firms that have CEOs with non-compete agreements. These findings suggest that CEOs are less likely to agree to non-compete covenants if these agreement have a more deleterious effect on their local labor market mobility. Finally, CEOs with non-compete contracts are employed by firms that are headquartered in U.S. States that have significantly more stringent enforcement of non-compete contracts (*HQ Enforce*).

3.2. Determinants of CEO non-compete contracts: Multivariate tests

We begin our multivariate analysis by modeling the determinants of non-compete contracts. We report the results from our estimated probit regressions in Table 4. In these regressions, the dependent variable, *Non-compete agreement* is a dummy variable that is set to one if the CEO has a non-compete agreement in her employment contract, and is set to zero otherwise. The results from our multivariate analysis largely reflect the univariate results reported in the previous section. Across all the estimated models, we find the following consistent findings. The coefficient either on *HQ Enforce* (Models 1-5) or *Legal Enforce* (Models 7-8) is significantly positive at the 1% level in all regressions, thereby indicating that firms are more likely to include non-compete clauses in CEO employment contracts if the enforcement regime of these contracts is more stringent (either in the headquarter state or state of adjudication of the contract).

We consider two different proxy variables for CEO job risk – industry-adjusted cash flow volatility (*Ind-Median CF Vol*) (Models 2, 5, and 7) and industry credit rating (*Industry Credit Rating*) (Models 3, 6, and 8). Specifically, the industry risk and, thus, CEO employment risk will be higher if *Ind-Median CF Vol* (*Industry Credit Rating*) is higher (lower). We document a significantly negative (positive) relation between *Ind-Median CF Vol* (*Industry Credit Rating*) and the CEO's probability of having a non-compete contract, thereby suggesting that CEOs are less likely to agree to a non-compete clause if her job risk is higher. Additionally, we document a negative relation between the number of the firm's in-state competitors and the presence of non-compete contracts (Models 2, 3, and 5-8), which is consistent with the explanation that non-competes are less likely when their impact on the CEO's labor market mobility is more stringent. Finally, CEOs closer to retirement age are significantly less likely to have non-compete contracts

(Models 4-8) because they are unlikely to seek alternative employment after they leave the focal firm.

In addition, we document a significant negative relation between *Lifecycle Diff* and the presence of non-compete agreements (Models 4-8). This result implies that if the firm and its competitors are in different life cycle stages, then the CEO is less likely to have a non-compete contract. A possible explanation of this result is that the skill set of these CEOs do not match the needs of the competitors and, thus, the threat of them joining rival firms and/or damaging the economic interests of their current employer is smaller. We also document weak evidence that the firm's investments in intellectual property (*Intangible Assets*) increase the probability of non-compete contracts. While the coefficient on this variable is positive in all estimated regressions, it is only significant at the 10% level in Model 4.

Overall, we find evidence that is consistent with the argument that the presence of a non-compete agreement is the outcome of a bargaining game between the CEO and the firm. Specifically, the CEO will negotiate for the exclusion of a non-compete contract if her job risk is higher and the firm will negotiate to include a non-compete contract if the firm assesses that there will be significant economic losses to it if the CEO joins a competitor.

4. CEO turnover–performance sensitivity and non-compete contracts

Next, we examine the impact of non-compete contracts on the relation between CEO turnover–performance sensitivity. We also assess the impact of the non-compete agreement enforcement regime on these results. Finally, we exploit staggered changes in state-level enforceability of non-compete contracts to establish whether our documented influence of non-compete agreements on the CEO turnover–performance relation is causal or not.

4.1. Impact of CEO non-compete agreements on the CEO turnover-performance relation

We next consider the effect of non-compete contracts on the performance-turnover relation. As in the extant literature, we begin by considering the effect of industry-adjusted stock price performance (*Ind_Adj Stock Return*) on the probability of CEO turnover. In Table 5, we consider the direct effect of this performance metric on CEO turnover. Our focus is, however, on the influence of *CEO Non-compete* on the CEO turnover-performance relation. Thus, the first regression examines the direct effect of firm performance on CEO turnover, while the remaining regressions examine how CEO non-compete agreements influence this relation. We report linear probability models that include industry and year fixed-effects to be consistent with the empirical methodology we employ later in the paper.⁷ Our inferences remain unchanged if we instead estimate these models using probit regressions.

In Model 1, we estimate the direct effect of *Ind_Adj Stock Return* on *CEO Turnover*. The coefficient on *Ind_Adj Stock Return* is -0.03, and is significantly negative at the 1% level. In Models 2 and 3, we split the sample into firm-years that report a CEO non-compete contract (Model 2) and those that do not (Model 3). The coefficient on *Ind_Adj Stock Return* is -0.05 (significant at the 1% level) if the CEO has a non-compete clause. In contrast, the coefficient on *Ind_Adj Stock Return* is -0.02 (significant at the 10% level) if the CEO does not have a non-compete clause. We next report results from regressions that include an interaction term instead of reporting results for each subsample separately. Specifically, we include *CEO Non-Compete x Ind_Adj Stock Return* with no additional control variables (Model 4) and *CEO Non-Compete x Ind_Adj Stock Return* with a full set of control variables included in existing studies that examine the CEO turnover-performance relation (Model 5). We note that the direct effect of *Ind_Adj Stock*

⁷ See Angrist and Pischke (2008) for the efficacy of using linear probability models in lieu of either probit or logit regression models.

Return is either insignificant (Model 5) or significantly negative at the 10% level (Model 4). However, the coefficient on the interaction term, *CEO Non-Compete x Ind_Adj Stock Return* is -0.05 (-0.03) in Model 5 (Model 4), and is significantly negative at the 1% level (5% level). These results suggest that the CEO is more likely to be lose her job for poor stock price performance if she has a non-compete agreement in place.

We perform a similar analysis in Table 6 using *CEO Forced Turnover* as the dependent variable. These results are consistent with those reported in Table 5. Specifically, we document a statistically significant negative relation between forced CEO turnover with stock price performance (Model 1). In Models 2 – 5, we observe that this result is significantly stronger for firms that have a CEO non-compete contract in place. For example, in Model 5, the coefficient on the on the interaction term, *CEO Non-Compete x Ind_Adj Stock Return* is -0.02 (-0.02) in Model 5 (Model 4), and is significantly negative at the 5% level (1% level). Thus, the results reported in Tables 5 and 6 are consistent with our hypothesis that the performance-turnover sensitivity should be higher if the CEO has a non-compete contract in place. Specifically, in the absence of such an agreement, the board may be reluctant to fire the CEO for poor performance because the CEO can cause significant economic damage to the focal firm by joining a competitor. On the other hand, in the presence of a non-compete agreement, the firm is more likely to fire the CEO for poor performance because the CEO is restricted from joining a competitor for some specified period and, as a result, she will be unable to harm the firm as much even if she eventually joins a competitor.

4.2. *Cross-sectional variation in state-level non-compete enforceability*

In this section, we consider whether the effect of non-compete agreements on CEO performance-turnover sensitivity is affected by state-level enforcement characteristics. We

separately estimate our baseline regressions from Table 6 (Model 5) for a variety of subsamples based on state-level characteristics that can affect the performance-turnover relation. We again use *Ind_Adj Stock Return* as the performance variable in Table 7. We begin by separately estimating the baseline regression for high and low *HQ Enforce* (Models 1 and 2) and *Legal Enforce* (Models 3 and 4). Our hypothesis is that we should find stronger results in high-enforcement regimes as the judicial systems in low-enforcement states are less likely to enforce a non-compete agreement. We indeed note that the coefficient on the interaction term, *CEO Non-Compete x Ind_Adj Stock Return* is significantly negative only in the headquarter state (Model 1) or the legal enforcement state (Model 3) where there is more stringent enforcement of non-compete agreements.

We had noted earlier that not all states enforce non-compete agreements if the employee is fired. We, therefore, additionally consider the impact of state enforcement of non-competes if the employee is fired. In this analysis, we only consider states that have explicitly decided whether they will or will not enforce a non-compete agreement in these circumstances. Specifically, we consider whether the headquarters state (legal jurisdiction state) enforces a non-compete in the event of forced termination or not in Models 5 and 6 (Models 7 and 8), respectively. Our hypothesis is that the results should be stronger when the state explicitly enforces non-compete contracts in the event of forced termination. One caveat is that many states have not yet decided the enforceability of non-competes in these situations (see Table 1 for a summary). We again document that the impact of non-compete agreements on the performance-turnover sensitivity is significant only in cases where the contract is enforceable in the event of termination (Models 5 and 7).

Finally, we consider the effect of local labor laws on the sensitivity of performance-turnover relation to the presence of non-compete contracts. Specifically, we consider whether the firm is located in a state that has passed a *Wrongful Discharge* law or not (Models 9 and 10). The intuition for this test is that a state with a wrongful discharge law gives the employee an easier path to pursue legal action against the firm after termination, thereby making it more expensive to fire a CEO for poor performance.⁸ We, therefore, expect the sensitivity of the performance-turnover relation to the presence of non-compete agreements to be stronger (weaker) in states without (with) wrongful discharge laws. As predicted, we only document a statistically significant impact of non-compete agreements on the performance-turnover relation in non-wrongful discharge states (Model 10).

Overall, our cross-sectional results are consistent with the hypothesis that non-compete agreements enhance the sensitivity of CEO turnover to performance, and that this effect is either amplified or dampened based on whether state-level legal characteristics increase or decrease the enforceability of these non-compete agreements, respectively. These subsample tests suggest that our basic finding that CEO turnover is more sensitive to performance if the CEO has a non-compete agreement is not likely to be spurious. In the following section, we conduct difference-in-differences tests that exploit staggered state-level changes in non-compete enforceability to address the issue of whether our findings are causal in nature.

3.4. Quasi-natural experiment: Staggered variation in state-level non-compete enforceability

The above results are consistent with the hypothesis that non-compete agreements enhance the sensitivity of CEO turnover to firm performance. However, it is hard to attribute causality because

⁸ Wrongful discharge laws are state-level common law exceptions (good faith, implied contract, and public policy) to at-will employment. The purpose behind these laws is to protect employees from wrongful firing. Existing studies suggest that these laws increase employee firing costs. See Serfling (2016) for a detailed discussion of these laws as well as a review of existing studies that suggest that they increase firing costs.

our findings may suffer from an endogeneity bias arising from the fact that the decision to include a non-compete agreement in the CEO’s employment contract is endogenous. For example, our findings may be driven by a missing latent factor like an “activist” board of directors that insists on the inclusion of a non-compete agreement in CEO employment contracts and is quick to pull the trigger to fire a CEO for poor performance. We, therefore, conclude our empirical investigation on the performance-turnover relation by estimating difference-in-differences models that exploit “exogenous” staggered changes in state-level non-compete enforceability to inform on whether our documented relation is likely to be causal or not.

Non-compete agreements represent covenants in employment contracts designed to prevent managers from accepting jobs with competing firms. The ability to deter managers from joining rival firms will, however, depend on the enforceability of these agreements (Garmaise, 2011; and Jeffers, 2017). Thus, exogenous increases (decreases) to state-level enforceability of non-compete agreements will make non-compete agreements more (less) binding and, therefore, represent exogenous shocks to the applicability of these agreements. We, therefore, exploit exogenous variations in the state-level enforceability of these contracts to evaluate whether the impact of non-compete agreements on the sensitivity of the performance-turnover relation is causal or not. Specifically, more stringent enforcement of non-compete agreements will make it more difficult for a CEO to join a competitor and, thus, limit the economic harm the CEO can cause the firm upon her departure. Thus, stricter state-level enforcement should make the firm more likely to fire a CEO with a non-compete agreement for poor performance.

To test the above prediction, we estimate forms of the following difference-in-differences linear probability model in Table 8:

$$CEO \text{ Forced Turnover} = \beta_1 Ind_Adj \text{ Stock Return} + \beta_2 CEO \text{ Non} - \\ \text{Compete} \times Ind_Adj \text{ Stock Return} \times HQ \text{ Enforce} + \sum_{i=3}^N \beta_i X_i + \varepsilon$$

where X is a vector of N control variables, including the direct effects and two-way interaction terms. All models include firm and industry \times year fixed effects to capture firm-level unobserved factors, as well as any potential time trends within the firm's industry. Model 1 clusters standard errors at the firm level, Models 2 at the state level, and Model 3 cluster at the industry*year level. We present clustering at all three levels because the triple interaction term includes a firm-level variable, a state-level variable, and an industry-year-adjusted variable. Note that we rely on changes in *HQ Enforce* in these tests because firms are unlikely to move their headquarters because of anticipated changes in state-level non-compete enforceability. However, it is possible that firms select the legal regime of a non-compete agreement based on that state's non-compete law, leading to potential concerns about self-selection and reverse causality. We predict that the coefficient on the triple interaction term, *CEO Non-Compete \times Ind_Adj Stock Return \times HQ Enforce* should be significantly negative, i.e., exogenous increases in state-level enforcement of non-compete agreements should increase the impact of the presence of non-compete agreements on the sensitivity of CEO turnover to stock price performance.

In all models, we note that the coefficients on *CEO Non-Compete \times Ind_Adj Stock Return \times HQ Enforce* are significantly negative at the 5% level. This evidence suggests that the performance-turnover relation in the presence of non-compete agreements is enhanced when there is an exogenous increase in the state-level enforcement of these agreements. Overall, our evidence supports the assertion that CEO non-compete agreements and state-level non-compete enforcement can at least partly explain the weak performance-turnover sensitivity documented in existing studies.

5. CEO non-compete contracts and compensation

The cumulative evidence that we document in the previous section strongly supports the

assertion that non-compete agreements increase the probability that CEOs will be fired for poor performance. We next consider the equilibrium CEO response to this increase in CEO job risk. If stricter non-compete enforcement increases a CEO's turnover risk and her outside options in the event of a turnover, a CEO then has incentives to demand higher compensation to offset the increased job risk. We test this prediction in Table 9.

The dependent variable is one of four compensation variables: the natural logarithm of CEO total compensation ($\ln(\text{CEO Total Comp})$) (Models 1 – 3), CEO alignment of interest incentives (CEO Delta) (Models 4 – 6), CEO risk-taking incentives (CEO Vega) (Models 7 – 9), and the percentage of equity compensation ($\%Equity\ Comp$) (Models 10 – 12). On the right-hand side, we include whether the CEO has a non-compete agreement (CEO Non-Compete), the state-level enforcement score ($HQ\ Enforce$), and the interaction effect of non-compete contract and the state-level enforcement score ($\text{CEO Non-Compete} \times HQ\ Enforce$). The main variable of interest is the interaction term between CEO non-compete and the state-level non-compete enforcement because it captures how changes in state-level non-compete enforcement affect CEO compensation. We include firm and industry \times year fixed effects to control for firm-level unobserved factors and time trends within the firm's industry. The control variables are based on existing studies on CEO compensation (see, for example, Peters and Wagner, 2014; and Shue and Townsend, 2017).

5.1. CEO total compensation and non-compete contracts

We first test the effect of an increase in non-compete enforcement on CEO total compensation. Consistent with our prediction that the CEO will demand a higher compensation to offset the increase in job risk, the coefficient on the interaction term ($\text{CEO Non-Compete} \times HQ\ Enforce$) is significantly positive in Model 1, suggesting that CEOs with non-compete agreements receive an

increase in total compensation when the state increases non-compete enforcement. This result is consistent with the intuition that CEOs demand higher compensation when job risk increases.

We also examine subsample based on in-state competition to explore cross-sectional variation in this effect. As noted above, non-compete contracts usually have a limited geographic scope and enforcement is easier when both the old and the new employer operate in the same state. Therefore, signing a non-compete agreement when there is more in-state competition has a more deleterious effect on CEO mobility in the future. Therefore, CEOs will demand a higher risk-premium for her increased job risk arising from the greater curtailment in her alternative employment opportunities. As a result, we should observe a greater impact of non-compete agreements on CEO total compensation in states where the number of in-state competitors is larger.

Following Garmaise (2011), we define in-state competition (*In-State Competition*) as the fraction of total industry sales (excluding those of the firm itself) generated by in-state competitors in the same two-digit SIC industry. We then split the sample based on the median value of in-state competition and estimate the effect in the two subsamples. Models 2 and 3 of Table 10 suggest that increased non-compete enforcement only has a significant effect on CEO compensation among CEOs in states with above median in-state competition. This is consistent with the notion that CEOs who are likely to be more affected by stricter non-compete enforcement should receive a larger increase in total compensation. Specifically, the coefficient on *CEO Non-compete x HQ Enforce* is 0.065 in the above median subsample (significant at the 1% level) (Model 2) and 0.002 in the below median subsample (insignificantly different from zero) (Model 3).

5.2. CEO incentive compensation and non-compete contracts

We next consider the possibility that the increased job risk can give CEO incentives to engage in agency-related empire building or to reduce risk taking if these projects reduce her personal job

risk. If that is the case, the board should to realign the interest of the CEO with the shareholders. One way to encourage alignment (risk taking) is to increase CEO delta (CEO vega) compensation (Coles, Daniel, Naveen, 2006). We test these predictions in Models 4 – 9 of Table 9. The dependent variable in Models 4 – 6 is *CEO Delta* and, in Models 7 – 9, it is *CEO Vega*. Models 4 and 7 of Table 9 presents the estimation results using the full sample. Consistent with our prediction, the coefficient on the interaction term, *CEO Non-Compete x HQ Enforce*, is positive and significant at the 5% level for *CEO Delta* (Model 4) and the 1% level for *CEO Vega* (Model 7). This suggests that the board increases the CEO's incentive compensation (both alignment of interests and risk taking incentives) after the exogenous increase in non-compete enforcement to mitigate the effect of an increase in job risk.

Models 5 – 9 examine cross-sectional effects based on the degree of in-state competition. As discussed above, CEOs in states with more in-state competition stand to lose more career opportunities by having non-compete clauses in their employment contracts. This tension should push them to take more actions in order to reduce their job risk. The need to realign the risk-taking incentives of the CEO is, therefore, stronger among firms facing higher in-state competition. Consistent with this notion, the estimation results suggest that the positive coefficient on the interaction term between *CEO Non-Compete x HQ Enforce* is only significant in the subsample of firms with above-median in-state competition (Model 5 for *CEO Delta* and Model 8 for *CEO Vega*).

We conclude by examining whether the board responds to the higher compensation demanded by the CEO for accepting a non-compete agreement by giving her more equity-based compensation (*%Equity Pay*) in an effort to better-align the interest of the CEO with that of the shareholders and also to increase the decision making horizon of the CEO. We report these results

in Models 10 – 12 of Table 9. Model 10 of Table 9 examines the effect using the full sample. The coefficient on the interaction term, *CEO Non-compete x HQ Enforce*, is positive but statistically insignificant, suggesting that, on average, the percentage of equity-based compensation in total does not go up with changes in state-level non-compete enforcement.

We next examine the impact of exogenous changes in state-level enforcement on the sensitivity of equity-based compensation to the presence of non-compete contracts based on whether in-state competition is high or low. Estimation results from Models 11 and 12 suggest that changes in state-level enforcement only have a significant positive effect on the use of equity-based compensation when within-state competition is high (Model 11). Specifically, the coefficient on the interaction term, *CEO Non-compete x HQ Enforce*, for the subsample of CEOs with above (below) median in-state competition is significantly positive (insignificant), suggesting that the board of directors will give CEOs with non-compete contracts more equity-based compensations only in higher enforcement regimes.

Overall, the evidence from the above analyses suggests that changes in state-level non-compete enforcement have real effects on the sensitivity of both the level and the structure of CEO compensation to the presence of non-compete contracts. As stricter non-compete enforcement enhances the likelihood that a CEO with a non-compete agreement will be fired for poor performance and also limits the CEO's outside options after a turnover, the CEO will demand an increase in total compensation for bearing increased job risk. The board agrees to the higher compensation, but at the same time increases alignment of interest and risk taking incentives to align the CEO's interests with shareholders. Further, our cross-sectional evidence suggests that these effects are stronger among CEOs who face greater in-state competition, i.e., CEOs whose mobility will be more adversely affected by stricter non-compete enforcement.

6. Summary and conclusions

Non-compete agreements limit the mobility of employees, thereby imposing significant costs on them by reducing their outside options. In this paper, we focus on CEO non-compete agreements primarily because CEOs have a better ability to negotiate their employment contracts than rank-and-file employees and their joining a competitor is likely to cause the greatest economic damage to the firm. Specifically, using hand collected data on CEO non-compete agreements, we examine: (i) the determinants of CEO non-compete agreements, (ii) the impact of CEO non-compete agreements on the CEO performance-turnover sensitivity, and (iii) how CEO non-compete agreements affect the level and structure of compensation. We find evidence that is consistent with the argument that the presence of a non-compete agreement is the outcome of a bargaining game between the CEO and the firm. In particular, we find that the CEO is less likely to have a non-compete agreement if she faces greater employment risk, has more alternative local employment opportunities, and is closer to retirement age. In addition, we find that the CEO is more likely to have a non-compete agreement if the firm is in a stronger non-compete enforceability regime, has greater investments in intangible assets, and is in a similar life cycle stage as its competitors.

Consistent with the idea that non-compete agreements lower the likelihood that a departing CEO can create economic harm to the firm by joining a competitor, we find that the CEO performance-turnover sensitivity is significantly stronger when the CEO has a non-compete agreement in place. This effect is mainly observed in situations where non-compete contracts are more enforceable, when they are enforced even in the event of termination, and when the state has no wrongful discharge laws.

Finally, we find that CEO total compensation (CEO alignment of interests) is higher if CEOs have non-compete contracts – this result is stronger in regimes with more stringent enforceability of these contracts and holds true primarily in situations where the non-compete agreement is more likely to have a significant impact on the CEO’s outside options (when there is more in-state competition). In these tests, we exploit staggered state-level changes in non-compete enforceability to establish causality. Our results illustrate the impact of restrictions on CEO mobility on both how CEOs are monitored by the board and compensated by the firm.

Our paper documents how placing restrictions on CEO mobility has important implications for how the CEO is monitored as well as the manner in which her compensation is set. One of the long lasting puzzles in financial economics is the finding of a weak relation between firm performance and CEO turnover. Our paper provides a partial solution to this puzzle – firms without CEO non-compete agreements may be hesitant to fire their CEOs for poor performance because these CEOs may do greater economic damage to them by joining competitors. Our finding that there has been increased use of non-compete agreements over time can also somewhat explain the rising trend in CEO total compensation. Finally, our paper contributes to the growing literature in financial economics that examines the impact of changes in labor mobility on firm value and corporate policies. Our distinct contribution to this literature is that we can provide new insights by using employee-level non-compete agreements (while also exploiting state-level enforceability of these contracts) in our study and focusing our attention on inarguably the most important employee of the firm.

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Appendix A. Examples of CEO employment contracts

This appendix provides three examples of CEO employment contracts with a non-compete clause.

The Boeing Company

Link: <https://www.sec.gov/Archives/edgar/data/12927/000119312505138157/dex991.htm>

EMPLOYMENT AGREEMENT (the “Agreement”) dated as of June 29, 2005, between The Boeing Company, a Delaware corporation (the “Company”), and W. James McNerney, Jr. (the “Executive”).

NONCOMPETITION. The Executive acknowledges that he performs services of a unique nature for the Company that are irreplaceable, and that his performance of such services to a competing business (other than respecting a product or service of the Company involving less than one percent (1%) of the Company’s revenues in the prior fiscal year will result in irreparable harm to the Company.

Accordingly, during the Executive’s employment hereunder and for the one (1) year period thereafter, the Executive agrees that the Executive will not, directly or indirectly, own, manage, operate, control, be employed by (whether as an employee, consultant, independent contractor or otherwise, and whether or not for compensation) or render services to any person, firm, corporation or other entity, in whatever form, engaged in any business of the same type as any business in which the Company or any of its subsidiaries or affiliates is engaged on the date of termination or in which they have proposed, on or prior to such date, to be engaged in on or after such date and in which the Executive has been involved to any extent (other than De Minimis) at any time during the twelve (12)-month period ending with the date of termination, in any locale of any country in which the Company conducts business. This Section 11(c) shall not prevent the Executive from owning not more than one percent (1%) of the total shares of all classes of stock outstanding of any publicly held entity engaged in such business, nor will it restrict the Executive from rendering services to charitable organizations, as such term is defined in Section 501(c) of the Code.

DIRECTV

Link: https://www.sec.gov/Archives/edgar/data/1465112/000146511210000002/exhibit_10-1.htm

EMPLOYMENT AGREEMENT (the “Agreement”), is entered into effective as of January 1, 2010 (“Effective Date”), by and between DIRECTV, a Delaware corporation (the “Company”), and Michael D. White (“Executive”).

Non-Compete. Executive agrees that, while employed by the Company and for a period of two years thereafter, he will not, in any manner directly or indirectly, own, manage, operate, join, control or participate in the ownership, management, operation or control of, or be employed by, or connected in any manner with, in any capacity (including, without limitation, as an employee, consultant, officer, director, partner, advisor or joint venturer), or provide services to or on behalf of, any corporation, firm or business, or any affiliate of any corporation, firm or business, that directly or indirectly engages in any business which competes with the Company or any of its affiliates in the multi-channel video programming distribution business in the United States or in Latin America (whether satellite, cable, telephone or other method of distribution). The foregoing does not prohibit Executive’s ownership of less than five percent (5%) of the outstanding common stock of any company whose shares are publicly traded on a national stock exchange, are reported on NASDAQ, or are regularly traded in the over-the-counter market by a member of a national securities exchange.

Governing Law; Consent to Jurisdiction. This Agreement shall be governed by and construed in accordance with the laws of the State of New York applicable to agreements made within the State of New York, without regard to its conflict of law rules which are deemed applicable herein. The parties hereto agree that any controversy which may arise under this Agreement or out of the relationship established by this Agreement would involve complicated and difficult factual and legal issues and that, therefore, any action brought by the Company against Executive or brought by Executive, alone or in combination with others, against the Company, whether arising out of this Agreement or otherwise, shall be determined by a judge sitting without a jury.

PetSmart, Inc.,

Link:

<https://www.sec.gov/Archives/edgar/data/863157/000095015308002004/p13594exv10w13.htm>

This Amended and Restated Employment Agreement (this “*Agreement*”) is made and entered into as of the 24th day of September, 2008 (the “*Effective Date*”) by and between PetSmart, Inc., a Delaware corporation (the “*Company*”), and Robert F. Moran (“*Executive*”). As of the Effective Date, this Agreement shall replace and supersede in its entirety that certain Employment Agreement between Executive and the Company entered into effective as of August 25, 1999 (the “*Prior Agreement*”).

NON-SOLICITATION OF EMPLOYEES/NON COMPETE. Executive agrees to the following terms:

(a) As used in the Agreement, to “compete” shall include any action by Executive, directly or indirectly, to own, manage, operate, join, control, be employed by, participate in, or become a director, officer, shareholder (holding more than 1% of shares) of, consultant to, or otherwise a participant in, any pet food, pet supplies or pet services superstore business. For the purposes of this Agreement, “superstore business” is defined to mean a business with: (a) at least one store with at least 10,000 square feet of retail space; or (b) more than one store with at least 8,000 square feet of retail space.

(b) During the term of Executive’s employment by the Company and continuing for a period of one (1) year after the termination of Executive’s employment for any reason (whether by resignation, dismissal, retirement or otherwise), Executive shall not compete with the Company anywhere within the Company’s sales territory as it exists during the period of Executive’s employment or in any sales territory added by the Company during the one (1) year period after Executive’s departure provided that during Executive’s employment with the Company, the Company distributes to Executive information indicating a plan to add such sales territory or publicly announces such a plan; or Executive or Executive’s subsequent employer otherwise acquires knowledge of such a plan. In view of the Company’s business style and character, its marketing methods, and its strategy, Executive agrees that it is reasonable to reconsider that the Company’s sales territory extends throughout each state in which it is doing business and Executive shall not Compete within such area.

(c) Executive understands that while this Agreement allows Executive to compete with the Company following the expiration of the one-year period, it does not give Executive license to engage in acts which would constitute unfair competition in violation of the applicable law.

Appendix B. Cases that resulted in changes to state-level enforcement scores

This Appendix outlines the cases that led to changes in the state-level non-compete enforcement score.

State	Case	Year
Texas	<i>Light v. Centel Cellular Co.</i>	1994
Florida	<i>Florida Legislature</i>	1996
Louisiana	<i>SWAT 24 Shreveport Bossier, Inc. v. Bond</i>	2001
Kentucky	<i>Gardner Denver Drum LLC v. Peter Goodier and Tuthill Vacuum and Blower Systems</i>	2006
Texas	<i>Baker Petrolite Corp. v. Spicer</i>	2006
Idaho	<i>Idaho Legislature</i>	2008
Oregon	<i>Oregon Legislature</i>	2008
Texas	<i>Mann Frankfort Stein & Lipp Advisors, Inc. v. Fielding</i>	2009
Wisconsin	<i>Star Direct, Inc. v. Dal Pra.</i>	2009
South Carolina	<i>Poynter Investments, Inc. v. Century Builders of Piedmont, Inc.</i>	2010
Colorado	<i>Lucht's Concrete Pumping, Inc. v. Horner</i>	2011
Georgia	<i>Georgia Legislature</i>	2011
Illinois	<i>Fire Equipment v. Arredondo et al (2011)</i>	2011
Texas	<i>Marsh USA, Inc. v. Cook</i>	2011
Illinois	<i>Fifield v. Premier Dealership Servs.</i>	2013
Virginia	<i>Assurance Data Inc. v. Malyevac</i>	2013
Colorado	<i>Lucht's Concrete Pumping, Inc. v. Horner</i>	2013

Appendix C. Definition of variables

Variable Name	Definition	Source
CEO characteristics		
<i>CEO Non-compete</i>	An indicator variable that equals one if the CEO has a non-compete clause in her contract and zero otherwise.	Hand-collected
<i>CEO Above 62</i>	An indicator variable that equals one if the CEO is above 62 years old and zero otherwise.	Execucomp
<i>CEO Ownership</i>	The fraction of stock and option deltas held by a CEO following Kim and Lu (2011).	Execucomp
<i>CEO Salary</i>	CEO salary compensation.	Execucomp
<i>CEO Total Comp</i>	CEO total compensation. We follow the approach outlined in Kini and Williams (2012) and Coles, Daniel, and Naveen (2013; 2014) to compute total compensation for the post-2005 period in response to the passage of Financial Accounting Standards (FAS) 123R on December 12, 2004.	Execucomp
<i>CEO Delta</i>	The change in the dollar value of the CEOs wealth for a one percentage point change in stock price.	Execucomp
<i>CEO Vega</i>	The change in the dollar value of the CEOs wealth for a one percentage change in the annualized standard deviation of stock returns.	Execucomp
<i>CEO %Equity Comp</i>	Percentage of CEO's total compensation that is attributable to restricted stock awards and stock option compensation.	Execucomp
<i>CEO Tenure</i>	CEO tenure.	Execucomp
<i>CEO Turnover</i>	An indicator variable that equals one if there is a CEO turnover during a fiscal year, and zero otherwise.	Hand-collected
<i>CEO Forced Turnover</i>	An indicator variable that equals one if a firm "fires" a CEO during the turnover and zero otherwise. We follow Parrino (1997) and Huson, Parrino, and Starks (2001) to classify a CEO turnover as a forced turnover.	Hand-collected
Firm general characteristics		
<i>Book Leverage</i>	The book value of long-term debt (DLTT) plus debt in current liabilities (DLC) divided by book value of assets (AT).	Compustat
<i>Ln(Total Assets)</i>	The natural logarithm of the value of total book assets (AT) in millions.	Compustat
<i>Lifecycle Diff</i>	The lifecycle difference between the firm and the industry average calculated using the two-digit SIC industry code. Lifecycle is defined following Dickinson (2011).	Compustat
<i>Intangible Assets</i>	Firm's intangible capital estimated replacement cost from Peters and Taylor (2017) adjusted by the sum of intangible capital and total book assets (AT)	Compustat
<i>Return Vol</i>	The standard deviation of daily stock returns during the fiscal year.	CRSP
Firm governance characteristics		
<i>Institutional Ownership</i>	The fraction of shares outstanding owned by institutions.	Thomson Reuters
<i>Ind Directors</i>	The number of independent directors scaled by the total number of directors.	Institutional Shareholder Services (ISS)
Firm performance/value		
<i>Tobin's Q</i>	The market value of assets (AT) plus the market value of equity (PRCC_F x CSHO) minus book value of equity (CEQ) divided by book value of assets (AT).	Compustat
<i>Stock Return</i>	The total stock return over the fiscal year.	CRSP

<i>ROA</i>	Net income (NI) on book value of asset (AT).	Compustat
<i>Ind_Adj Stock Return</i>	Stock return over the fiscal year adjusted by the primary three-digit SIC industry average in the same year.	CRSP
<hr/>		
Industry characteristics		
<i>Ind-Median CF Vol</i>	The seasonally adjusted standard deviation of EBITDA from year $t-4$ to t , adjusted by the primary three-digit SIC industry.	Compustat
<i>Industry Credit Rating</i>	The mean S&P long-term issuer credit ratings in the same three-digit SIC industry code, from 2 (AAA) to 23 (CC).	Compustat
<i>HHI</i>	Sales-based Herfindahl-Hirschman Index within TNIC-3 industries.	Hoberg-Phillips Data Library
<i>Industry Homogeneity</i>	Mean partial correlation between firm's returns and an equally weighted industry index, for all firms in the same three-digit SIC industry code, holding market return constant (see Parrino (1997)).	CRSP
<hr/>		
State-level variables		
<i>HQ Enforcement</i>	The headquarter-state-level non-compete enforcement score.	Hand-collected
<i>Legal Enforcement</i>	The state-level non-compete enforcement score based on governing state on the employment contract.	Hand-collected
<i>Number of In-state Competitors</i>	The number of firms that are in the same three-digit SIC industry and headquartered in the same state as the firm.	Compustat
<i>In-State Competition</i>	The fraction of total two-digit SIC industry sales (excluding those of the firm itself) generated by in-state competitors (see Garmaise (2011)).	Compustat

Figure 2. Use of Non-compete contracts over time

This figure plots the average use of non-compete contracts during our sample period. Each dot represents the percentage of CEOs in that year covered by a non-compete contract.

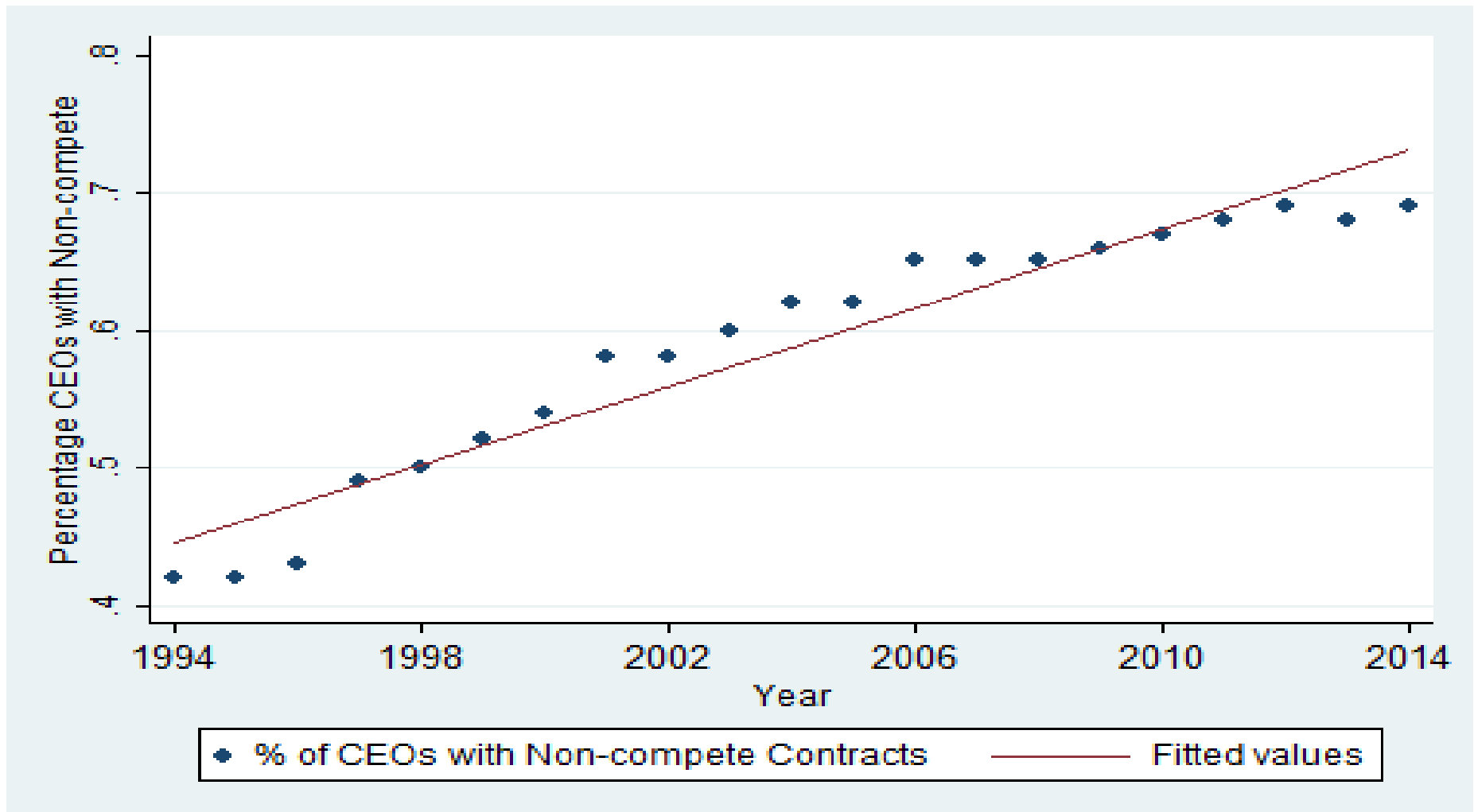


Table 1. State-level non-compete enforceability index and percentage of CEOs with non-compete agreements (NCA)

This table presents the state-level non-compete enforcement index over the sample period from 1992 to 2014. Score is the state-level non-compete enforcement score that takes a value between 0 and 9, with 0 being the weakest enforcement and 9 being the strictest enforcement. Appendix B lists the detailed case laws that lead to changes to the non-compete enforcement score over the sample period. % CEOs with non-compete agreements (NCA) is the percentage of CEOs covered by a non-compete contract during the period. Fire enforce is a dummy variable that equals one if the non-compete is enforceable when the employee is fired.

State	From	Score	% CEOs with NCA	Fire Enforce	State	From	Score	% CEOs with NCA	Fire Enforce
ND	1992-2014	0	0.00%	Unsettled	TX	1992-1994, 2009-2011	5	56.93%	Unsettled
CA	1992-2014	0	42.67%	0	GA	1992-2011	5	58.86%	1
LA	2002-2003	0	66.67%	1	WA	1992-2014	5	60.87%	1
OK	1992-2014	1	47.57%	Unsettled	WI	2010-2014	5	62.22%	Unsettled
NM	1992-2014	2	17.65%	Unsettled	IL	1992-2011, 2014	5	63.32%	1
WV	1992-2014	2	18.18%	Unsettled	VT	1992-2014	5	65.22%	Unsettled
CO	1992-2011, 2014	2	53.07%	Unsettled	OH	1992-2014	5	66.91%	1
NH	1992-2014	2	72.22%	Unsettled	AR	1992-2014	5	67.82%	Unsettled
MT	1992-2014	2	100.00%	0	MN	1992-2014	5	76.13%	1
HI	1992-2014	3	17.86%	Unsettled	NV	1992-2014	5	80.20%	Unsettled
WI	1992-2009	3	53.70%	Unsettled	IN	1992-2014	5	81.08%	1
VA	1992-2013	3	54.35%	1	AL	1992-2014	5	71.83%	1
TX	1995-2006	3	59.54%	Unsettled	DE	1992-2014	6	19.32%	1
CO	2012-2013	3	60.00%	Unsettled	ID	1992-2008	6	20.00%	1
NY	1992-2014	3	65.09%	1	IA	1992-2014	6	24.04%	1
AZ	1992-2014	3	66.07%	Unsettled	OR	1992-2008	6	53.54%	Unsettled
RI	1992-2014	3	71.70%	Unsettled	KY	1992-2006	6	60.66%	Unsettled
CT	1992-2014	3	71.90%	1	MA	1992-2014	6	64.72%	1
SC	2011-2014	4	33.33%	Unsettled	KS	1992-2014	6	64.96%	1
MS	1992-2014	4	44.93%	1	PA	1992-2014	6	65.48%	1
NE	1992-2014	4	50.98%	Unsettled	TX	2012-2014	6	67.15%	Unsettled
ME	1992-2014	4	54.55%	1	GA	2012-2014	6	68.33%	1
NC	1992-2014	4	60.68%	1	UT	1992-2014	6	69.23%	1
TX	2007-2009	4	65.34%	Unsettled	IL	2012-2013	6	72.32%	1
NJ	1992-2014	4	70.14%	1	ID	2009-2014	7	40.00%	1
LA	1992-2001, 2004-2014	4	75.29%	1	FL	1992-1996	7	58.73%	Unsettled
VA	2014	4	80.00%	1	DC	1992-2014	7	62.16%	0
WY	1992-2014	4	100.00%	1	TN	1992-2014	7	70.29%	1
SC	1992-2010	5	45.35%	Unsettled	MO	1992-2014	7	71.94%	1
SD	1992-2014	5	48.48%	1	OR	2009-2014	7	77.19%	Unsettled
MI	1992-2014	5	54.55%	1	KY	2007-2014	8	74.07%	Unsettled
MD	1992-2014	5	54.62%	0	FL	1997-2014	9	64.52%	Unsettled

Table 2. Summary statistics

This table reports summary statistics for the main variables in the regression models. The sample period is from 1992 to 2014. Continuous variables are winsorized at their 1st and 99th percentiles. We express dollar-denominated variables in 2014 dollars. Appendix C provides definitions of all the variables.

Variable name	N	Mean	Std.	P25	Median	P75	Min	Max
Panel A: CEO characteristics								
<i>CEO Non-Compete</i>	17,486	0.603	0.489	0	1	1	0	1
<i>CEO Above 60</i>	16,959	0.222	0.416	0	0	0	0	1
<i>CEO Ownership (%)</i>	17,486	2.265	4.356	0.142	0.721	2.175	0	26.59
<i>CEO Salary (000s)</i>	17,486	678.7	327.9	442.5	620.6	864.4	120	2,000
<i>CEO Total Comp (000s)</i>	17,486	4,537	5,398	1,292	2,631	5,556	273.5	32,322
<i>CEO Delta</i>	17,486	394.733	799.328	20.626	126.169	384.010	0	5464.749
<i>CEO Vega</i>	17,486	113.963	198.27	3.938	38.079	123.902	0	1181.104
<i>CEO %Equity Comp</i>	17,486	0.58	0.293	0.382	0.663	0.822	0	0.971
<i>CEO Tenure</i>	17,486	6.65	6.458	2	5	9	1	32
<i>CEO Turnover</i>	17,486	0.103	0.304	0	0	0	0	1
<i>CEO Forced Turnover</i>	1,757	0.252	0.434	0	0	1	0	1
Panel B: Firm general characteristics								
<i>Book Leverage</i>	17,486	0.229	0.194	0.059	0.204	0.348	0	0.858
<i>Ln(Total Assets)</i>	17,486	7.44	1.654	6.232	7.313	8.539	4.036	11.75
<i>Lifecycle Diff</i>	17,486	0.581	0.693	0	0	1	0	3
<i>Return Vol</i>	17,486	0.027	0.014	0.018	0.024	0.034	0.009	0.083
<i>Intangible Assets</i>	17,486	0.290	0.187	0.109	0.319	0.434	0	0.703
Panel C: Firm governance characteristics								
<i>Institutional Ownership</i>	17,486	0.717	0.212	0.584	0.75	0.883	0.134	1
<i>Ind Directors</i>	13,307	0.732	0.156	0.636	0.750	0.857	0	1
Panel D: Firm value/performance								
<i>Tobin's Q</i>	17,486	1.821	1.137	1.125	1.444	2.053	0.732	7.433
<i>Ind_Adj Stock Return</i>	17,486	0.060	0.412	-0.146	0	0.185	-0.756	1.944
Panel E: Industry characteristics								
<i>Ind-Median CF Vol</i>	17,087	0.019	0.010	0.012	0.016	0.023	0.004	0.061
<i>HHI</i>	16,215	0.203	0.188	0.0781	0.137	0.26	0.0231	0.996
<i>Industry Homogeneity</i>	13,610	0.322	0.182	0.198	0.278	0.395	0.0925	1
<i>Industry Credit Rating</i>	17,152	11.45	2.042	10	11.60	12.93	6.976	16
Panel F: State-level variables								
<i>HQ Enforcement</i>	17,486	3.982	2.275	3	4	5	0	9
<i>Legal Enforcement</i>	17,486	4.123	2.267	3	5	6	0	9
<i>In-State Competition</i>	17,486	0.091	0.135	0.005	0.030	0.124	0	0.633
<i># of In-State Competitors</i>	17,486	28.27	42.4	3	10	31	0	186

Table 3: Summary statistics based on whether the CEO has a non-compete agreement (NCA) or not in her employment contract

This table compares the mean and median values of variables for CEOs with and without non-compete contracts. Columns (1) - (4) presents summary statistics for CEOs without non-compete contracts. Columns (5) – (8) presents summary statistics for CEOs with non-compete contracts. Columns (9) and (11) show the mean and median difference between the two samples. Columns (10) and (12) show the t-test results for whether the two samples have equal means and the Wilcoxon median tests results for whether the two samples have equal medians. The sample period is from 1992 to 2014. Continuous variables are winsorized at their 1st and 99th percentiles. We express dollar-denominated variables in 2014 dollars. Appendix C provides definitions of all variables.

	CEOs without NCA				CEOs with NCA				Mean Diff.	T-stat.	Median Diff.	z-stat.
	N	Mean	Median	Std.	N	Mean	Median	Std.				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A: CEO characteristics												
<i>CEO Above 60</i>	6,706	0.263	0	0.440	10,253	0.196	0	0.397	0.066***	10.191	0***	10.160
<i>CEO Ownership</i>	6,934	2.453	0.692	4.693	10,552	2.141	0.744	4.116	0.313***	4.643	-0.052	0.346
<i>CEO Salary (000s)</i>	6,934	647	589	323	10,552	700	649	330	-52.946***	-10.477	-60.400***	-11.605
<i>CEO Total Comp (000s)</i>	6,934	4355	2,332	5584	10,552	4657	2880	5269	-301.443***	-3.571	-548***	-9.907
<i>CEO Delta</i>	6,934	407.521	121.000	844.925	10,552	386.331	129.789	767.818	21.190*	1.715	-8.789**	-2.388
<i>CEO Vega</i>	6,934	113.813	34.261	208.523	10,552	112.678	41.275	191.242	1.135	0.370	-7.014***	-4.314
<i>CEO %Equity Comp</i>	6,934	0.552	0.623	0.301	10,552	0.598	0.685	0.286	-0.046***	-10.132	-0.062***	-9.672
<i>CEO Tenure</i>	6,934	7.071	5	7.117	10,552	6.374	4	5.971	0.698***	6.997	1***	3.172
<i>CEO Turnover</i>	6,934	0.097	0	0.296	10,552	0.107	0	0.310	-0.011**	-2.275	0**	-2.274
<i>Forced Turnover</i>	702	0.236	0	0.425	1,055	0.262	0	0.440	-0.025	-1.190	0	-1.189
<i>CEO Stayed with Firm</i>	6,706	0.263	0	0.440	10,253	0.196	0	0.397	0.066***	10.191	0***	10.160
Panel B: Firm general characteristics												
<i>Book Leverage</i>	6,934	0.226	0.203	0.191	10,552	0.231	0.205	0.195	-0.006**	-1.919	-0.002*	-1.904
<i>Ln(Total Assets)</i>	6,934	7.406	7.295	1.681	10,552	7.462	7.33	1.636	-0.056**	-2.195	-0.035**	-2.273
<i>Lifecycle Diff</i>	6,934	0.615	0.5	0.717	10,552	0.559	0	0.676	0.056***	5.250	0.500***	4.600
<i>Return Vol</i>	6,934	0.028	0.0243	0.015	10,552	0.028	0.0243	0.014	0	0.947	0	-0.167
<i>Intangible Assets</i>	6,934	0.278	0.301	0.195	10,552	0.297	0.328	0.181	-0.019***	-6.658	-0.120***	-7.157
Panel C: Firm governance characteristics												
<i>Institutional Ownership</i>	6,934	0.694	0.725	0.220	10,552	0.732	0.767	0.205	-0.038***	-11.608	-0.042***	-10.939
<i>Ind Directors</i>	5,147	0.713	0.75	0.163	8,160	0.743	0.778	0.150	-0.030***	-10.948	-0.028***	-10.689
Panel D: Firm value/performance												
<i>Tobin's Q</i>	6,934	1.848	1.429	1.197	10,552	1.803	1.453	1.096	0.045**	2.559	-0.024	0.594
<i>Ind_Adj Stock Return</i>	6,934	0.063	0	0.422	10,552	0.059	0	0.405	0.005	0.717	0.000	-0.198

Continued...

Table 3 (Continued)

Panel E: Industry characteristics												
<i>Ind-Median CF Vol</i>	6,743	0.020	0.0184	0.011	10,344	0.018	0.0153	0.010	0.002***	12.295	0.003***	13.202
<i>HHI</i>	5,266	0.316	0.126	0.174	8,344	0.325	0.145	0.186	-0.009**	-2.679	-0.019***	-9.210
<i>Industry Homogeneity</i>	6,225	0.187	0.276	0.176	9,990	0.214	0.278	0.195	-0.027***	-8.854	-0.002	-1.337
<i>Industry Credit Rating</i>	6,804	11.255	11.481	2.042	10,348	11.586	11.639	2.031	-0.330***	-10.396	-0.158***	-9.789
Panel F: State-level variables												
<i>HQ Enforce</i>	6,934	3.596	4	2.435	10,552	4.236	5	2.126	-0.640***	-18.368	-1***	-15.818
<i>Legal Enforce</i>	6,934	3.741	4	2.428	10,552	4.375	5	2.118	-0.634	-18.270	-1***	-15.290
<i># of In-State Competitors</i>	6,934	34.928	12	48.591	10,552	23.888	8	37.135	11.040***	16.982	4***	13.526
<i>In-State Competition</i>	6,934	0.103	0.036	0.148	10,552	0.082	0.027	0.125	0.021***	10.009	0.009***	7.905

Table 4. Determinants of CEO non-compete contracts

In this table, we examine the determinants of CEO non-compete contracts using probit models. The dependent variable, *Non-compete agreement* is a dummy variable that takes the value one if the CEO has a non-compete agreement in her employment contract, and is zero otherwise. We define all the independent variables in detail in Appendix A. All regressions include year indicator variables. Continuous variables are winsorized at their 1st and 99th percentile levels. We adjust standard errors for clustering at the firm level, and report t-statistics in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Dependent variable	<i>Non-compete agreement</i>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>HQ Enforce</i>	0.12*** (5.80)	0.11*** (4.70)	0.11*** (4.62)	0.12*** (5.67)	0.11*** (4.61)	0.11*** (4.54)		
<i>Legal Enforce</i>							0.11*** (4.64)	0.11*** (4.60)
<i>Ind-Median CF Vol</i>		-8.49** (-2.44)			-7.86** (-2.12)		-7.87** (-2.12)	
<i>Industry Credit Rating</i>			0.05** (2.22)			0.05* (1.96)		0.04* (1.90)
<i>Ln(# In-State Competitors)</i>		-0.07* (-1.81)	-0.08** (-2.09)		-0.07* (-1.75)	-0.08* (-1.93)	-0.08* (-1.89)	-0.08** (-2.07)
<i>Lifecycle Diff</i>				-0.09*** (-2.78)	-0.06* (-1.86)	-0.07** (-2.15)	-0.06* (-1.88)	-0.08** (-2.16)
<i>Intangible Assets</i>				0.49* (1.70)	0.46 (1.58)	0.43 (1.48)	0.44 (1.51)	0.41 (1.40)
<i>CEO above 62</i>				-0.45*** (-4.51)	-0.47*** (-4.59)	-0.46*** (-4.50)	-0.47*** (-4.59)	-0.46*** (-4.50)
<i>CEO Ownership</i>				-0.00 (-0.26)	-0.00 (-0.38)	-0.00 (-0.39)	-0.00 (-0.43)	-0.00 (-0.44)
<i>Ln(Total Assets)</i>	-0.01 (-0.44)	-0.01 (-0.52)	0.00 (0.09)	0.02 (0.51)	0.01 (0.24)	0.02 (0.73)	0.01 (0.22)	0.02 (0.70)
Constant	-0.42 (-1.29)	-0.12 (-0.34)	-0.90** (-1.98)	-0.85 (-1.41)	-0.45 (-0.74)	-1.19 (-1.62)	-0.43 (-0.71)	-1.16 (-1.59)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo-R2	0.0321	0.0366	0.0371	0.0376	0.0422	0.0421	0.0421	0.0420
# of Observations	17,972	17,274	17,346	16,976	16,425	16,365	16,425	16,365

Table 5**CEO performance-turnover sensitivity and non-compete contracts – All CEO turnovers (forced and unforced)**

In this table, we estimate linear probability models to assess the effect of CEO non-compete contracts (*CEO Non-Compete*) on the CEO performance-turnover relation for all CEO turnovers (forced and unforced). We use industry-adjusted stock price performance (*Ind_Adj Stock Return*) as the measure of firm performance. We define all the independent variables in detail in Appendix A. All regressions include industry and year fixed effects. Industry fixed effects are at the two-digit SIC classification level. Continuous variables are winsorized at their 1st and 99th percentile levels. We adjust standard errors for clustering at the firm level, and report t-statistics in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Dependent variable	<i>CEO Turnover</i>				
	(1) Full	(2) <i>CEO Non-Compete</i>	(3) No <i>CEO Non-Compete</i>	(4)	(5) Full
<i>Ind_Adj Stock Return</i>	-0.03*** (-5.69)	-0.05*** (-5.78)	-0.02* (-1.78)	-0.02* (-1.88)	0.01 (0.36)
<i>CEO Non-Compete</i> × <i>Ind_Adj Stock Return</i>				-0.03** (-2.27)	-0.05*** (-2.74)
<i>CEO Non-Compete</i> _{<i>t</i>-1}				-0.01* (-1.89)	-0.00 (-0.52)
<i>CEO Ownership</i> _{<i>t</i>-1}					-0.00*** (-5.95)
<i>CEO Total Comp</i> _{<i>t</i>-1}					-0.00 (-0.13)
<i>Institutional Ownership</i> _{<i>t</i>-1}					-0.09*** (-3.88)
<i>CEO Salary</i> _{<i>t</i>-1}					0.00 (0.82)
<i>CEO Tenure</i> _{<i>t</i>-1}					-0.00 (-0.27)
<i>Industry Homogeneity</i> _{<i>t</i>-1}					0.00 (0.01)
<i>Ind Directors</i> _{<i>t</i>-1}					-0.02 (-0.83)
<i>Book Leverage</i> _{<i>t</i>-1}					0.00 (0.20)
<i>Tobin's Q</i> _{<i>t</i>-1}					-0.00 (-0.92)
<i>Ln(Total Assets)</i> _{<i>t</i>-1}					0.00 (0.58)
<i>CEO above 62</i> _{<i>t</i>-1}					0.11*** (10.83)
Constant	0.10*** (3.04)	0.08* (1.85)	0.08* (1.67)	0.08*** (2.61)	0.14*** (3.67)
Ind. Fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.012	0.019	0.018	0.015	0.040
# of Observations	17,158	9,224	5,915	15,139	8,543

Table 6**CEO performance-turnover sensitivity and non-compete contracts – Forced CEO turnovers**

In this table, we estimate linear probability models to assess the effect of CEO non-compete contracts (*CEO Non-Compete*) on the CEO performance-turnover relation only for forced CEO turnovers (*CEO Forced Turnover*). We use industry-adjusted stock price performance (*Ind_Adj Stock Return*) as the measure of firm performance. We define all the independent variables in detail in Appendix A. All regressions include industry and year fixed effects. Industry fixed effects are at the two-digit SIC classification level. Continuous variables are winsorized at their 1st and 99th percentile levels. We adjust standard errors for clustering at the firm level, and report t-statistics in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Dependent variable	<i>CEO Forced Turnover</i>				
	(1)	(2)	(3)	(4)	(5)
Sample	Full	<i>CEO Non-Compete</i>	No <i>CEO Non-Compete</i>		Full
<i>Ind_Adj Stock Return</i>	-0.02*** (-6.12)	-0.02*** (-5.93)	-0.01* (-1.67)	-0.01* (-1.71)	-0.00 (-0.17)
<i>CEO Non-Compete x Ind_Adj Stock Return</i>				-0.02*** (-3.08)	-0.02** (-2.44)
<i>CEO Non-Compete</i> _{t-1}				0.00* (1.88)	0.00 (0.80)
<i>CEO Ownership</i> _{t-1}					-0.00* (-1.82)
<i>CEO Total Comp</i> _{t-1}					0.00 (0.87)
<i>Institutional Ownership</i> _{t-1}					-0.04*** (-3.37)
<i>CEO Salary</i> _{t-1}					0.00** (2.25)
<i>CEO Tenure</i> _{t-1}					-0.00*** (-2.68)
<i>Industry Homogeneity</i> _{t-1}					-0.00 (-0.02)
<i>Ind Directors</i> _{t-1}					0.02* (1.92)
<i>Book Leverage</i> _{t-1}					-0.01 (-1.47)
<i>Tobin's Q</i> _{t-1}					-0.00 (-0.37)
<i>Ln(Total Assets)</i> _{t-1}					-0.00** (-2.06)
<i>CEO above 62</i> _{t-1}					0.00 (0.01)
Constant	0.00 (1.23)	0.01 (1.30)	-0.00 (-0.71)	0.00 (0.16)	0.04** (2.51)
Ind. Fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.011	0.017	0.017	0.013	0.022
# of Observations	17,158	9,224	5,915	15,139	8,543

Table 7
Impact of CEO non-compete agreements on the CEO stock price performance-turnover sensitivity – Subsample tests

In this table, we estimate linear probability models to assess the effect of CEO non-compete contracts (*CEO Non-Compete*) on the CEO stock price performance-turnover relation for subsamples based on whether the state enforces non-compete agreements in any manner at the headquarters level (*HQ Enforce*) or the legal jurisdiction in the contract (*Legal Enforce*), whether or not headquarter state courts enforce non-compete agreements if the employee is fired (*HQ Fired Enforce*), whether or not legal state courts enforce non-competes if the employee is fired (*Legal Fired Enforce*), and whether or not the headquarter state has wrongful discharge laws (*Wrongful Discharge Laws*). We only consider forced CEO turnovers (*CEO Forced Turnover*) in these tests. In all the estimated regressions, we use industry-adjusted stock price performance (*Ind_Adj Stock Return*) as the measure of firm performance. We define all the independent variables in detail in Appendix A. All regressions include industry and year fixed effects. Industry fixed effects are at the two-digit SIC classification level. Continuous variables are winsorized at their 1st and 99th percentile levels. We adjust standard errors for clustering at the firm level, and report t-statistics in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Dependent variable	<i>CEO Forced Turnover</i>																			
	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(10)	
	<i>HQ Enforce</i>		<i>Legal Enforce</i>		<i>HQ Fired Enforce</i>		<i>Legal Fired Enforce</i>		<i>Wrongful Discharge</i>											
Sample Split	High	Low	High	Low	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No		
<i>Ind_Adj Stock Return</i>	0.00	-0.00	-0.00	-0.00	0.00	0.01	0.01	0.01	0.01	-0.01*	0.01									
	(0.05)	(-0.27)	(-0.04)	(-0.04)	(0.15)	(0.68)	(0.79)	(0.89)	(-1.67)	(0.69)										
<i>CEO Non-Compete x Ind_Adj Stock Return</i>	-0.02**	-0.01	-0.02**	-0.02	-0.02**	-0.02	-0.03**	-0.02	-0.00	-0.03***										
	(-2.14)	(-1.13)	(-2.10)	(-1.36)	(-2.18)	(-1.63)	(-2.30)	(-1.41)	(-0.17)	(-2.59)										
<i>CEO Non-Compete_{t-1}</i>	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01	-0.00	0.00										
	(0.42)	(0.29)	(0.32)	(1.07)	(1.10)	(0.35)	(1.32)	(0.69)	(-0.24)	(0.95)										
<i>CEO Ownership_{t-1}</i>	-0.00	-0.00	-0.00	-0.00	-0.00**	-0.00	-0.00	-0.00	-0.00	-0.00**										
	(-1.46)	(-1.01)	(-1.40)	(-1.18)	(-2.33)	(-1.13)	(-1.21)	(-0.94)	(-0.81)	(-2.00)										
<i>CEO Total Comp_{t-1}</i>	0.00	-0.00	0.00	0.00	0.00	-0.00	0.00	0.00	0.00	0.00										
	(1.08)	(-0.25)	(1.02)	(0.03)	(0.70)	(-0.26)	(0.70)	(0.23)	(0.03)	(1.21)										
<i>Institutional Ownership_{t-1}</i>	-0.04***	-0.03	-0.04***	-0.01	-0.03**	-0.03	-0.04**	-0.03	-0.06***	-0.02*										
	(-3.16)	(-0.98)	(-3.25)	(-0.57)	(-2.28)	(-1.23)	(-2.31)	(-1.20)	(-2.69)	(-1.85)										
<i>CEO Salary_{t-1}</i>	0.00*	0.00	0.00*	0.00	0.00*	0.00	0.00	0.00	0.00**	0.00										
	(1.75)	(0.93)	(1.83)	(0.94)	(1.73)	(0.42)	(1.19)	(0.47)	(2.04)	(0.96)										
<i>CEO Tenure_{t-1}</i>	-0.00***	0.00	-0.00***	0.00	-0.00*	-0.00	-0.00**	0.00	-0.00*	-0.00*										
	(-2.94)	(0.17)	(-2.94)	(0.37)	(-1.76)	(-0.04)	(-2.00)	(1.06)	(-1.74)	(-1.70)										
<i>Industry Homogeneity_{t-1}</i>	0.00	-0.03	0.00	-0.04	0.00	-0.02	0.01	-0.01	-0.03	0.01										
	(0.33)	(-1.11)	(0.44)	(-1.31)	(0.31)	(-0.83)	(0.89)	(-0.42)	(-1.38)	(0.63)										
<i>Ind Directors_{t-1}</i>	0.02*	-0.00	0.02**	-0.01	0.02	-0.00	0.03**	-0.02	0.02	0.02										
	(1.92)	(-0.16)	(2.10)	(-0.59)	(1.38)	(-0.01)	(2.14)	(-0.62)	(1.12)	(1.62)										
<i>Book Leverage_{t-1}</i>	-0.01	-0.03**	-0.01	-0.01	-0.00	-0.04**	-0.00	0.00	-0.03*	-0.01										
	(-0.84)	(-2.12)	(-1.29)	(-0.46)	(-0.55)	(-2.25)	(-0.48)	(0.15)	(-1.85)	(-0.76)										
<i>Tobin's Q_{t-1}</i>	-0.00	-0.00	0.00	-0.00	-0.00	-0.00	0.00	-0.00	-0.00	-0.00										
	(-0.04)	(-1.08)	(0.09)	(-1.64)	(-0.07)	(-1.17)	(0.60)	(-1.38)	(-0.08)	(-0.51)										

Continued...

Table 7 (Continued)

<i>Ln(Total Assets)_{t-1}</i>	-0.00*	-0.00	-0.00**	-0.00	-0.00	-0.00	-0.00	-0.00	-0.01	-0.00
	(-1.87)	(-0.92)	(-1.96)	(-0.98)	(-1.49)	(-0.55)	(-1.05)	(-0.75)	(-1.42)	(-1.60)
<i>CEO above 62_{t-1}</i>	0.00	0.00	0.00	0.00	-0.00	0.00	0.00	0.00	0.02**	-0.01
	(0.16)	(0.23)	(0.15)	(0.22)	(-0.80)	(0.40)	(0.32)	(0.06)	(2.04)	(-1.50)
Constant	0.04**	0.05	0.04**	0.06	0.03	0.06	0.02	0.07	0.08**	0.03
	(2.16)	(1.58)	(2.12)	(1.64)	(1.54)	(1.47)	(0.97)	(1.59)	(2.07)	(1.39)
Ind. Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.025	0.038	0.025	0.049	0.023	0.035	0.026	0.067	0.049	0.020
# of Observations	7,214	1,329	7,299	1,244	5,785	1,386	4,702	1,046	2,622	5,921

Table 8**Impact of non-compete agreements on the performance-turnover sensitivity: Natural experiment using staggered changes in state-level non-compete enforcement in a difference-in-differences regression setting**

In this table, we estimate linear probability models to assess the effect of CEO non-compete contracts on the CEO performance-turnover relation for forced CEO turnovers in a difference-in-differences setting to exploit staggered headquarter state-level changes in the non-compete enforceability index. We use *Ind_Adj Stock Return* as the measure of firm performance. We define all the independent variables in detail in Appendix A. All regressions include firm fixed effects and industry \times year fixed effects. Industry fixed effects are at the two-digit SIC classification level. We winsorize all continuous variables at their 1st and 99th percentile levels. We adjust standard errors for clustering at the firm level in Models 1 and at the state level in Models 2-3. We report t-statistics in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Dependent variable	CEO Forced Turnover		
	(1)	(2)	(3)
<i>Ind_Adj Stock Return</i>	-0.01 (-1.51)	-0.01 (-1.04)	-0.01 (-1.46)
<i>CEO Non-Compete x Ind_Adj Stock Return x HQ Enforce</i>	-0.01** (-2.58)	-0.01** (-2.16)	-0.01** (-2.38)
<i>CEO Non-Compete</i> _{<i>t</i>-1}	0.00 (0.39)	0.00 (0.37)	0.00 (0.36)
<i>CEO Non-Compete x Ind_Adj Stock Return</i>	0.01 (1.02)	0.01 (0.68)	0.01 (1.00)
<i>Ind_Adj Stock Return x HQ Enforce</i>	0.00 (1.25)	0.00 (1.04)	0.00 (1.15)
<i>CEO Non-Compete x HQ Enforce</i>	-0.00 (-0.82)	-0.00 (-0.72)	-0.00 (-0.67)
<i>HQ Enforce</i>	0.00 (0.83)	0.00 (0.78)	0.00 (0.81)
<i>CEO Ownership</i> _{<i>t</i>-1}	-0.00 (-0.65)	-0.00 (-1.09)	-0.00 (-0.67)
<i>CEO Total Comp</i> _{<i>t</i>-1}	0.00 (0.59)	0.00 (0.62)	0.00 (0.60)
<i>Institutional Ownership</i> _{<i>t</i>-1}	-0.03 (-1.32)	-0.03 (-0.93)	-0.03 (-1.29)
<i>CEO Salary</i> _{<i>t</i>-1}	0.00*** (2.88)	0.00** (2.38)	0.00*** (2.69)
<i>CEO Tenure</i> _{<i>t</i>-1}	0.00 (0.70)	0.00 (0.54)	0.00 (0.66)
<i>Industry Homogeneity</i> _{<i>t</i>-1}	0.05*** (3.05)	0.05*** (2.81)	0.05*** (2.96)
<i>Ind Directors</i> _{<i>t</i>-1}	0.03* (1.88)	0.03* (1.92)	0.03* (1.81)
<i>Book Leverage</i> _{<i>t</i>-1}	0.01 (0.90)	0.01 (0.67)	0.01 (0.88)
<i>Tobin's Q</i> _{<i>t</i>-1}	0.00 (0.82)	0.00 (0.62)	0.00 (0.79)
<i>Ln(Total Assets)</i> _{<i>t</i>-1}	-0.00 (-0.48)	-0.00 (-0.45)	-0.00 (-0.50)
<i>CEO above 62</i> _{<i>t</i>-1}	-0.00 (-0.26)	-0.00 (-0.27)	-0.00 (-0.26)

Continued...

Table 8 (Continued)

Firm fixed effects	Yes	Yes	Yes
Ind.*Year fixed effects	Yes	Yes	Yes
Clustering level	Firm	State	Ind*Year
Adjusted R-squared	0.247	0.247	0.247
# of Observations	8,383	8,383	8,383

Table 9: Non-compete contracts and CEO total compensation

This table examines the effect of non-compete enforcement on CEO total compensation. $\ln(\text{CEO Total Comp})$ is the natural logarithm of CEO total compensation. CEO Delta is the change in the dollar value of the CEOs wealth for a one percentage point change in stock price. CEO Vega is the change in the dollar value of the CEOs wealth for a one percentage change in the annualized standard deviation of stock returns. $\%Equity\ Comp$ is the percentage of CEO's total compensation that is attributable to restricted stock awards and stock option compensation. $HQ\ Enforce$ is the headquarter-state-level non-compete enforcement. CEO Non-Compete is an indicator variable that equals one if the CEO has a non-compete contract. $\text{In-State Competition}$ is the fraction of total two-digit SIC industry sales (excluding those of the firm itself) generated by in-state competitors. Appendix C provides definitions of all the variables. All regressions include firm fixed effects and industry-by-year fixed effects. Continuous variables are winsorized at their 1st and 99th percentiles. We express all dollar-denominated variables in 2014 dollars. We adjust standard errors for clustering at the state level and report t-statistics in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Dependent variable	$\ln(\text{CEO Total Comp})_{t+1}$			CEO Delta_{t+1}			CEO Vega_{t+1}			$\%Equity\ Comp_{t+1}$		
	Full sample	<i>In-State Competition</i>		Full sample	<i>In-State Competition</i>		Full sample	<i>In-State Competition</i>		Full sample	<i>In-State Competition</i>	
		High	Low		High	Low		High	Low		High	Low
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>HQ Enforce</i>	-0.008 (-0.771)	-0.019 (-1.286)	0.008 (0.503)	-12.067 (-0.868)	-25.658* (-1.692)	-13.499 (-0.719)	-0.303 (-0.083)	-2.012 (-0.425)	1.998 (0.315)	0.002 (0.502)	-0.006 (-1.338)	0.010 (1.499)
<i>CEO Non-Compete</i>	-0.036 (-0.843)	-0.077 (-1.381)	-0.020 (-0.299)	-155.660*** (-4.421)	-150.226*** (-3.120)	-146.443 (-1.526)	-27.451** (-2.110)	-22.839 (-1.172)	-16.939 (-1.058)	-0.011 (-0.514)	-0.022** (-2.029)	-0.002 (-0.037)
<i>CEO Non-Compete x HQ Enforce</i>	0.029*** (3.090)	0.065*** (4.338)	0.002 (0.145)	21.834** (2.038)	30.232* (1.709)	19.354 (1.196)	6.037*** (2.665)	7.827* (1.812)	3.080 (1.039)	0.003 (0.822)	0.016*** (6.005)	-0.006 (-0.791)
<i>Ln(Total Assets)</i>	0.418*** (18.863)	0.431*** (16.872)	0.420*** (13.857)	247.281*** (5.297)	268.804*** (4.874)	210.217*** (4.454)	48.298*** (5.889)	48.268*** (4.225)	41.005*** (6.261)	0.087*** (11.149)	0.084*** (8.900)	0.094*** (9.318)
<i>Book Leverage</i>	-0.386*** (-4.543)	-0.452*** (-3.898)	-0.303*** (-3.123)	-212.822*** (-2.823)	-316.478** (-2.319)	-111.139 (-1.041)	-52.435*** (-3.217)	-65.277*** (-3.074)	-38.127 (-1.667)	-0.093*** (-3.114)	-0.069** (-2.306)	-0.091** (-2.211)
<i>Tobin's Q</i>	0.034** (2.240)	0.025*** (2.785)	0.104*** (4.221)	33.730 (1.177)	22.036 (0.932)	109.392*** (4.370)	1.020 (0.345)	0.570 (0.194)	3.017 (0.937)	0.007 (1.465)	0.004 (1.407)	0.030*** (2.902)
<i>Stock Return</i>	0.069*** (4.222)	0.053*** (2.841)	0.065*** (4.245)	127.698*** (12.438)	143.247*** (10.036)	81.043*** (5.348)	3.169 (1.166)	4.858 (1.258)	2.516 (1.053)	0.007 (0.899)	0.002 (0.189)	0.007 (0.985)
<i>CEO Tenure</i>	-0.003 (-1.417)	-0.006 (-1.659)	-0.001 (-0.328)	25.856*** (6.312)	26.470*** (3.961)	27.931*** (5.503)	2.887*** (4.723)	3.248*** (4.095)	3.256*** (4.243)	-0.004*** (-7.843)	-0.005*** (-7.321)	-0.003*** (-3.215)
<i>ROA</i>	0.029 (0.291)	-0.073 (-0.637)	0.235** (2.183)	78.913* (1.812)	23.975 (0.547)	26.375 (0.344)	31.046*** (3.172)	25.496*** (2.855)	37.442** (2.311)	0.051** (2.322)	0.030 (1.154)	0.090** (2.363)
<i>Sales Growth</i>	-0.000 (-1.330)	-0.000 (-0.691)	-0.000 (-0.490)	0.033** (2.583)	0.021** (2.407)	0.001 (0.069)	0.003 (1.312)	0.007 (1.045)	-0.000 (-0.185)	-0.000 (-0.198)	-0.000 (-0.180)	-0.000 (-0.331)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ind.*Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# of Obs.	14,599	7,090	7,499	14,599	7,090	7,499	14,599	7,090	7,499	14,599	7,090	7,499
Adjusted R-squared	0.696	0.691	0.719	0.620	0.596	0.709	0.672	0.682	0.691	0.422	0.396	0.464