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Governance in the Executive Suite and Board Independence

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Abstract

The overall independence of a firm's governance system depends not only on the independence of its board of directors but also on CEO influence over the other top executives. We find that board independence and independence from CEO influence in the executive suite are inversely related. Difference-in-difference estimates using a regulatory shock reveal that strengthening board independence weakens executive suite independence, which is proxied by (the inverse of) the fraction of top executives appointed by a current CEO. We also find that the greater the increase in the fraction of the current CEO's appointees in the executive suite, the lesser the improvement in monitoring CEO compensation and the lower the shareholder value enhancement in the aftermath of the regulation. These findings imply that one cannot infer overall independence based on board independence alone and that strengthening a specific governance mechanism by regulation can have undesirable spillover effects to a seemingly unrelated governing body.

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1. Introduction

The two main governing bodies of corporations are the board of directors and the top management team, or executive suite, consisting of the CEO and her top lieutenants. Much research has been devoted to studying board independence, highlighting the importance of director independence in protecting shareholder interest against CEOs' self-serving behavior.[1] But a highly independent board does not necessarily ensure an overall independent governance process if governance in the executive suite lacks independence from CEO influence.

Fama (1980) points out the importance of independent non-CEO executives in reducing agency problems when he states, "Less well appreciated, however, is the monitoring that takes place from bottom to top" (p. 293). In a more recent contribution, Landier, Sraer, and Thesmar (2009) show that the presence of more top executives with different preferences and dissenting views—independent executives—strengthens governance and steers CEOs toward more shareholder friendly decisions. Acharya, Myers, and Rajan (2011) also highlight the importance of independence in the executive suite when they analyze how governance is shaped by internal monitoring of CEOs by the other top executives.

As the two main internal governing bodies of a corporation, the board and the executive suite may display levels of independence that are closely interrelated. How exactly is board independence related to executive suite independence? The answer is not obvious. On one hand, a highly independent board may enhance independence in the executive suite through close oversight of the top executive appointment process. The board has the authority to appoint or dismiss CEOs; hence by extension, it also may be able to influence personnel decisions of the other executives to improve the composition of the top executive team.

[1] An incomplete list of studies examining the relation between director independence and the strength of board oversight and/or firm performance includes Brickley and James (1987); Weisbach (1988); Rosenstein and Wyatt (1990); Byrd and Hickman (1992); Brickley, Coles, and Terry (1994); Cotter and Zenner (1994); Borokhovich, Parrino, and Trapani (1996); Mayers, Shivdasani, and Smith (1997); Dahya, McConnell, and Travlos (2002); Dahya and McConnell (2007); Chhaochharia and Grinstein (2009); Nguyen and Nielsen (2010); Wintoki, Linck, and Netter (2012); Coles, Daniel, and Naveen (2013); and Knyazeva, Knyazeva, and Masulis (2013).

The CEO, on the other hand, may need a close-knit and cooperative team of top executives for efficient coordination of corporate activities. The need for cohesion in the executive suite may be greater when the board is more independent. A more independent board with fewer inside and affiliated directors may be less effective in advising, thus shifting more of the advisory function to the executive suite, which may necessitate a less independent executive suite. The intent may not be so benign, however. When the board is highly independent, the CEO is less influential in the boardroom. To make up for the lack of influence, the CEO may seek more executive power by filling the executive suite with more of his own appointees over whom he can exert greater influence.

Whatever the case, the CEO will want to form a top executive team of his liking and may succeed at it. Although the board is on top of the organizational chart, it meets only a few times a year, and independent directors' work is part-time. Independent directors have limited access to pertinent information, relying heavily on management as their primary source of information (Dominguez-Martinez, Swank, and Visser, 2008; Adams, Hermalin, and Weisbach, 2010). In contrast, the CEO works full-time and has employees at his disposal to perform the necessary footwork to make a case to the board. Controlling the information channel may give the CEO an effective control over top executive appointment decisions, which require private information about why some are appointed while others are being replaced.

This paper investigates the interrelationship between board independence and executive suite independence. We proxy (the inverse of) independence from CEO influence in the executive suite by the fraction of top four non-CEO executives appointed (FTA) during the current CEO's tenure. Most CEOs are heavily engaged in appointment decisions of their top lieutenants; therefore, the appointees are more likely to share similar preferences with, and may be beholden to, the CEO who appointed them than executives appointed by a previous CEO. When a CEO has more of his own appointees, his internal influence in the executive suite increases through what social psychologists refer to as "social influence," which relies on norms of reciprocity, liking, and social consensus to shape management's decision making

(Cialdini, 1984). This way of measuring CEO influence is not new.[2] Landier et al. (2013) measure CEO influence in the executive suite by the fraction of top four non-CEO executives hired by a current CEO. Our measure is more inclusive, however, as we include executives promoted from within the firm.[3]

We begin our empirical investigation by relating FTA to the percentage of independent directors and other factors that may be related to FTA with firm fixed effects. The sample period is 1996 – 2006. We find FTA is positively related to the percentage of independent directors on the board, implying that executive suite independence is negatively related to board independence. It appears one cannot assess a firm's overall independence of governance structure based on board independence alone.

Because board independence is endogenous (Hermalin and Weisbach, 1998), our investigation of a causal relation utilizes an exogenous shock on board independence—the mandate for NYSE- and NASDAQ listed firms to have a majority of independent directors by 2004. The variation for difference-in-differences estimation comes from the pre-regulation board composition; the treatment group is firms without a majority of independent directors prior to the regulation. Since firms affected and unaffected by the regulation may not be comparable, we use propensity-scores to construct the control group. Reported estimates are based on both propensity-score matched and unmatched samples.

Regardless of which sample is used, we find that the independent board requirement has significantly reduced independence in the executive suite. The point estimates imply that, following the regulation, treated firms replace, on average, about 18% more top executives appointed by previous CEOs than the control group. The regulatory effect on executive suite independence is robust to possible confounding effects associated with the Sarbanes-Oxley Act of 2002 and other events in 2000 and 2001,[4]

[2] Morse, Nanda and Seru (2011) and Coles et al. (2013) rely on a similar notion of reciprocity between directors and the CEO when they measure how "co-opted" a board is by the fraction of directors appointed during the current CEO's tenure.
[3] Khanna, Kim, and Lu (2013) demonstrate the usefulness of FTA as a measure of CEO connectedness within executive suite when they provide evidence that higher FTA facilitates management wrongdoing, helps evade its detection, and reduces the likelihood of CEO dismissal upon detection.
[4] Although the board regulation was promulgated around the same time as the enactment of the SOX, it is distinct from the SOX and under purview of different organizations.

executive turnovers, and major structural changes within the firm. The results are also robust to alternative measures of FTA and sample construction.

How does the post-regulation increase in FTA affect the newly independent board's monitoring of the CEO and protection of shareholder value, which the regulation is intended to strengthen? The answer depends on what led to the higher FTA. It could be a result of the newly independent board demanding new blood in the executive suite to improve firm performance, leading to greater than normal executive turnovers. Or it could be a substitution effect: The newly independent board strengthens monitoring but is less helpful in advising, necessitating a change in the executive suite, which might be an efficient response to the reduced inside and affiliated director presence on the board. Neither scenario predicts the higher FTA will weaken regulatory impacts on board oversight or protection of shareholder value.

However, the higher FTA could be a result of the CEO's attempt to recoup the loss of influence in the boardroom by filling the executive suite with more of his appointees, which may help build a more united front against the board. Then, the higher FTA may impede improvement in board monitoring. Moreover, if the higher FTA is achieved by giving a higher priority to building a more closely aligned top executive team rather than finding the best combination of experience and talent, firm performance is likely to suffer. Such a management team might be more susceptible to collusion, which Fama (1980) warns against: "top management may decide that collusion and expropriation of security holder wealth are better than competition among themselves" (p. 293).

We test the alternative predictions by relating changes in FTA to regulatory impacts on board monitoring and shareholder value. Proxies for the strength of board monitoring are CEO compensation and pay-for-performance sensitivity (PPS). A number of studies show that in the absence of adequate monitoring, CEOs pay themselves what they can (e.g., Bertrand and Mullainathan, 2000, 2001; Bebchuk and Fried, 2004; and Morse et al., 2011). Shareholder value is proxied by Tobin's Q. We first relate changes in these proxies to post-regulation changes in FTA. To calculate the changes, we collapse the

panel data to cross-sectional data for each CEO who was the CEO in the pre-regulation base-year 2001. We find that given the regulatory impact, CEO compensation decreases less and PPS increases less, the greater the increase in FTA post-regulation. In other words, the higher FTA reduces the improvement in newly independent boards' monitoring of CEO compensation. Changes in FTA also seem negatively related to the regulatory impact on Tobin's Q, but the relation is insignificant.

Post-regulation changes in FTA may be affected by time-varying omitted variables related to CEO compensation, PPS, or Q. Our second test addresses this problem by using cross-sectional differences in pre-regulation FTA. FTA is bounded between zero and one; thus, FTA in 2001, the pre-regulation base-year, measures a firm's capacity to increase FTA in response to the regulation. If it is equal to one (zero), the firm has no (ample) room to increase FTA. Although this test is indirect, FTA in 2001 is unaffected by time-varying omitted variables. The results on CEO compensation and PPS are robust. Moreover, the capacity to increase FTA is negatively and significantly related to the regulatory impact on Tobin's Q.

This paper documents that independence from CEO influence in the executive suite is inversely related to board independence. The interplay between the two main internal governing bodies has important impacts on the overall efficacy of monitoring CEOs and on shareholder value in ways that challenge the presumption that mandated independent boards are good for all firms. This does not contradict the widely-held view that independent directors help strengthen board oversight. Rather, our evidence illustrates that when one aspect of governance is regulated, some firms shift other aspects of governance. When regulators contemplate improving a specific governance mechanism, therefore, they should carefully consider spillovers to other governing mechanisms.

This study also fills a void in the literature on CEO influence and involvement in the selection of top echelon players governing the firm. Previous studies examine CEO influence on selecting board members and the outcomes (e.g., Shivdasani and Yermack, 1999; Hwang and Kim, 2009; Fracassi and Tate,

2012; Coles et al., 2013). We add to this literature by studying the appointment and composition of the other main governing body—the executive suite.

The next section describes our empirical design and data. Section 3 estimates the relation between board independence and executive suite independence, and conducts a battery of robustness tests. Section 4 examines how post-regulation changes in FTA affect regulatory impacts on board monitoring and shareholder value. Section 5 concludes.

2. Empirical Design and Data

2.1. Proxy for Independence in the Executive Suite

Our main proxy for (the inverse of) independence from CEO influence in the executive suite is the fraction of top four non-CEO executives appointed during a CEO's tenure (FTA). Executives who are hired or promoted to the top positions by a CEO may feel more loyal and obligated to the CEO than those appointed by a previous CEO. FTA_{it} is the number of executives hired or promoted to the top four non-CEO positions during the tenure of firm *i*'s CEO as of year *t,* divided by four. Hence, it ranges from zero to one in increments of 0.25. Top four non-CEO executives are identified from ExecuComp, which ranks executives by the sum of salaries and bonuses. To prevent changes in the reported number of executives from affecting within-firm variation in FTA, we drop firm-year observations when ExecuComp reports less than four non-CEO executives.[5] We assume the year a non-CEO executive first appears on the list of top four non-CEO executives is the year she obtained the position. We compare this year with the year a current CEO took office to determine whether the executive is appointed during the CEO's tenure.

2.2. Empirical Methodology

We first relate FTA to the percentage of independent directors and other factors that may be related to FTA with firm fixed effects. Then we identify a causal relation by estimating difference-in-

[5]Kim and Lu (2011) illustrate the importance of keeping the number of executives constant when constructing executive variables for panel regressions with firm fixed effects. Cross-checking against proxy statements shows that missing executives in ExecuComp are due to omission rather than to dismissal; hence, the restriction does not seem to introduce a selection bias.

differences using a regulatory shock on board independence. The deadline for compliance with the independent board requirement was October 31, 2004; however, many firms that lacked a majority of independent directors began to change their board structure when the recommendations were promulgated by the exchanges in 2002. The largest changes occurred in 2002 and 2003. Thus, we use 2001 as the base-year to define which firms are affected by the regulation and 2003 as the first year of the post-regulation period. We treat 2002 as the transition period and exclude observations during that year.

2.2.1. Baseline Specification

Our baseline regression for difference-in-difference estimation is:

$$Y_{it} = a_i + a_t + \beta_1 Dep\_Board2001_i * Post_t + \beta_2 X_{it} + \varepsilon_{it} \quad (1)$$

Y_{it} is a measure of firm *i*'s level of independence in the executive suite as of year *t*. $Dep\_Board2001_i$ is the affected firm indicator, equal to one if firm *i* does not have a majority of independent directors in 2001, and zero otherwise. This indicator is interacted with $Post_t$, the post-regulation indicator, equal to one if year *t* is 2003 or later. The regression includes firm- and year fixed effects, a_i and a_t. Because of these fixed effects, the specification does not contain a separate term for $Dep\_Board2001_i$ or $Post_t$. *X* is a vector of time-varying control variables. When estimation is based on an unmatched sample, standard errors are clustered at the firm level. Appendix 1 contains definitions of all variables.

2.2.2. Propensity-score Matching

In a difference-in-differences estimation, the outcome variable of the control group is used to calculate the expected counterfactual to control for time trend effects. It assumes that the treatment and control groups have the same time trend if there are no regulatory changes—the conditional independence assumption (CIA). Since CIA may not be valid, our control group is constructed by propensity scores following Rosenbaum and Rubin (1983). We match firms based on information in 2001, the base-year used to determine whether a firm is affected or unaffected by the regulation. Ideally, the independent variables used to estimate the Probit model must include all factors affecting both the

likelihood of being affected by the regulation (board independence) and regulation outcome (FTA). Linck, Netter, and Yang (2008) show that board independence is affected by firm complexity, costs of monitoring, ownership incentive, and CEO characteristics.

Our matching criteria incorporate all the four factors identified by Linck et al. (2008): Firm complexity is captured by firm size, firm age,[6] and the number of business segments within a firm. To capture costs of monitoring, we use EBITDA/TA, Tobin's Q, and board size. Ownership incentive is measured by the percentage share ownership held by a CEO. CEO characteristics include log of CEO age, an indicator for a CEO chairing the board, and CEO gender. These factors are also likely to affect FTA. We also include variables that are specifically related to FTA: CEO tenure,[7] an indicator for CEOs hired from outside, the average tenure of top four non-CEO executives in the top four positions (*EXECSEN*), and the fraction of top four executives appointed during a CEO's first year in office (*FTA_1Y*). We also add the fraction of executives whose first year as a top four non-CEO executive can be identified from ExecuComp (*KNOWN*). This controls noise in *FTA* and *EXECSEN* arising from the ambiguity about the precise year of some of the top four executive appointments.[8] Likewise, we add the fraction of top executives whom we cannot determine whether they are appointed during a CEO's first year in office (*FTA_1Y _Unknown*). This variable helps control noise in *FTA_1Y.*

One affected firm is matched to the three nearest unaffected firms using the Mahalanobis distance metric. We exclude all observations that do not satisfy the common support condition. Log likelihood, Prob > Chi^2, and Pseudo R^2 for estimating the propensity scores are -293.14, 0.00, and 0.13. We bootstrap 200 times to correct standard errors for all OLS regressions estimated with matched samples.

[6] Boone, Field, Karpoff, and Raheja (2007) suggest that complexity increases with firm age.

[7] If a CEO leaves the position and returns later, ExecuComp reports only the latest appointment date. Thus simply comparing the CEO appointment date reported by ExecuComp with the current year may generate negative CEO tenure. We correct for this problem by backtracking the previous appointment year using the CEO and company names.

[8] If an executive is already one of the top four non-CEO executives at the firm's first appearance in ExecuComp, we cannot determine the year of her appointment. For such an executive, we use the year the executive joined the company as the year she was appointed as a top-four executive. This understates *FTA* and overstates *EXECSEN,* which is why *w*e include *KNOWN* as a control variable.

2.3. Sample Construction

Our sample is constructed with NYSE- and NASDAQ-listed firms for which we have information on board composition in 2001. Data sources include ExecuComp for executive data; RiskMetrics for board structure and independent director data; BoardEx for information on directors' and CEOs' education background, past employment, and membership in social organizations; Compustat for accounting data; and CRSP for stock return data. To avoid ambiguity about who constitutes the current CEO, we drop firm-year observations when a new CEO's first year overlaps with the last year of the previous CEO.

The sample period covers 1996 – 2006, excluding 2002. We begin with 1996 to include sufficient pre-regulation observations. We end in 2006 because late 2007 was the beginning of the financial crisis, a rare event that led to unusual changes in the executive suite unrelated to the regulation. In addition, RiskMetrics modified the definition of independent directors in 2007, making it difficult to compare board composition before and after 2007.

Table 1 lists, by year, the number of firms in the full sample, which contains 8,975 firm-year observations associated with 1,035 unique firms. Panel A reports the number of firms in the treatment and control group for the unmatched full sample. It shows 85.57% of firms had a majority of independent directors in 2001, the base-year, indicating 14.43% were affected by the new rule. It also shows the biggest change in the percentage of firms with a majority of independent directors took place between 2001 and 2003.[9]

The number of unaffected firms in the matched sample (Panel B) is substantially fewer than three times the number of affected firms. This is due to multiple matches of treated firms to same unaffected firms. Both unmatched and matched samples are not balanced. The results are robust when we re-estimate regressions using a balanced sample.

[9] Despite the October 31, 2004, deadline, Column (2) does not show full compliance with the regulation in 2005 or 2006, a pattern also reported by Chhaochharia and Grinstein (2009) and Duchin, Matsusaka, and Ozbas (2010) for 2004 and 2005. Chhaochharia and Grinstein correctly attribute the lack of full compliance to the stricter definitions of director independence by the data source than by the exchanges. In 2007, RiskMetrics modified the definition and the data collection process to conform to the exchanges' definition. With these changes, the compliance rate in 2007 jumps to 99.47%.

2.4. Summary Statistics

Table 2, Panel A provides summary statistics for the unmatched full sample. The mean and median *FTA* is 0.44 and 0.50, implying about half of the top-four non-CEO executives are appointed during a current CEO's tenure. *Post* has a mean of 0.44, indicating fairly evenly distributed observations between pre- and post-regulation periods. The average board has 9.8 directors. The average CEO tenure is 6.9 years, female CEOs represent 1%, the average CEO share ownership is 2%, and 66% of CEOs chair the board. The average firm is 27 years old and has 15 business segments.

Panel B compares affected and unaffected firms in the matched sample at the time of matching, the base-year 2001. Most firm and CEO characteristic variables show insignificant differences between the treatment and control group, with a few exceptions. The exceptions exist because the propensity score matching is based on the overall similarity.

As expected, affected firms show a much lower percentage of independent directors. Affected firms also show significantly lower FTA, indicating greater independence in the executive suite. The significantly lower FTA is robust to alternative ways of measuring it: AFTA is an abnormal measure of FTA, the residual of a regression relating FTA to variables mechanically related to it, such as CEO tenure, with year fixed effects; WFTA is FTA weighted by non-CEO executives' salaries and bonuses; and WAFTA is an abnormal measure of WFTA. Since these statistics are based on 2001 data, a pre-regulation year, the significant differences suggest that, absent regulation, firms with a dependent board tend to have more independent executive suites.

3. Relation between Board Independence and Independence in the Executive Suite

3.1. The Fraction of Independent Directors and FTA

To estimate the general relationship between the two types of independence, we begin with a panel regression relating FTA to the percentage of independent directors. The regression controls for firm- and year fixed effects. We also control for time-varying firm- and CEO characteristics that may influence

FTA and board independence. Controls for firm characteristics include *Ln(TotalAssets)*, log of the book value of total assets; *FirmAge*, one plus the number of years from the firm's IPO or the number of years since its first appearance in CRSP; and *Segment*, the number of business segments as reported by Compustat Segments. Controls for CEO characteristics include *Ln(CEOAge)*, log of a CEO's age; *CEO_OWN*, the percentage of outstanding shares a CEO owns; *CEO_Chair*, an indicator for a CEO chairing the board; and *Female,* an indicator for a CEO's gender. Firm size, the number of segments, and CEO share ownership are lagged by one year. We also control for the variables mechanically correlated to FTA: *CEOTEN*, CEO tenure; *OUTSIDE*, an indicator for CEOs hired from outside; *EXECSEN*, the average tenure of top four non-CEO executives; and *FTA_1Y*, the fraction of top four executives appointed during a CEO's first year in office. *KNOWN* and *FTA_1Y_Unknown* are also added to control noise in *FTA, EXECSEN,* and *FTA_1Y.*

Table 3 presents the estimation results. The first column reports OLS results. The coefficient on the percentage of independent directors*, Pct_Ind_Dir,* is positive and significant. Because FTA is the inverse of executive suite independence, the positive coefficient implies that independence in the executive suite is inversely related to board independence. The second column estimates the relation using the Ordered Logistic regression because FTA takes ordered discrete values. The results are robust.

As expected, FTA is greater, the longer the CEO tenure and the shorter the average tenure of non-CEO top executives. Other control variables indicate that the older a CEO and the fewer shares a CEO owns, the greater is FTA.

3.2. Difference-in-difference Estimates

The above estimation results do not allow us to infer a causal relation because the percentage of independent directors is endogenous. In this section we use the independent board requirement as an external shock and estimate its impact on FTA with the baseline difference-in-differences specification. Control variables are the same as before.

Table 4 reports difference-in-differences estimates. Odd-numbered columns report OLS estimates for the unmatched and the propensity-score matched sample. The coefficient on *Dep_Board2001*Post,* the estimated regulatory effect, is positive and significant at the one percent level, irrespective of whether the sample is unmatched or matched. Ologit estimates, reported in even-numbered columns, are consistent with the OLS results. All estimates imply the external shock increasing board independence weakens independence in the executive suite.

The coefficient on *Dep_Board2001*Post* in Column (1) implies that the regulation leads to 0.41 (0.102/0.25) more top executive appointed by the current CEO (one new appointment increases FTA by 0.25). This impact is economically meaningful. The mean FTA in 2001 was 0.437, which means the average number of top executives appointed by previous CEOs is 2.25 ((1 - 0.437)/0.25)) in the base-year. Thus, the point estimate implies about 18% (0.41/2.25) more replacement of previous CEOs' appointees.

Coefficients on the control variables are largely consistent across the four regressions. As expected, FTA is positively related to the length of the CEO tenure, negatively related to the average tenure of non-CEO executives, and positively related to the fraction of top executives appointed during a CEO's first year in office. Interestingly, older CEOs appoint more executives during their tenure, whereas CEOs with greater share ownership and female CEOs are less likely to do so. Larger and older firms with fewer business segments tend to have a higher FTA.

The affected firm indicator, $Dep\_Board2001_i$, may be too crude. Consider two affected firms, one with 40% and another with 10% of independent directors in 2001. Clearly, the latter is more affected by the regulation and may react more strongly. We re-estimate all regressions with the interaction of the percentage of non-independent directors in 2001, $Pct\_Dep\_Board2001_i$, and the post-regulation indicator. The results are reported in Table 5. The estimates indicate that the more a firm is affected by the regulation, the greater the increase in FTA, irrespective of whether the sample is unmatched or matched.

3.3. Robustness Tests

In this section we check the robustness of our results to confounding effects, alternative explanations, alternative FTA measures, and an alternative sample construction.

3.3.1. Sarbanes-Oxley Act of 2002

While the independent board requirement proposal was under consideration by the SEC, the Sarbanes–Oxley Act was enacted in 2002. Titles 1 through 4 of the SOX are designed to enhance financial transparency, disclosure practices, and internal controls.[10] These are of concern because firms with dependent boards may differ in those aspects from firms with independent boards and, hence, may be affected differently by the SOX.

To check whether the treatment group was different from the control group in those dimensions before the regulation, we examine whether the firms in the treatment group engaged in more earnings management than the control group during the base year 2001. A commonly used proxy for earnings management is discretionary accruals (DAC), those parts of total accruals over which management have discretion. Total accruals are computed as the difference between earnings and operating cash flows.[11] To identify the discretionary components of total accruals, we follow Dechow, Sloan, and Sweeney (1995) by regressing total accruals on the inverse of total assets in the previous fiscal year; the change in sales less the change in accounts receivable; and property, plant, and equipment. Discretionary accruals (DAC) are the regression residuals.

For each firm in our sample, we calculate this measure of DAC in 2001 and compute its correlation with the affected firm indicator. The idea is to see whether before the regulation, the treated firms engaged in more earnings management than the control group. If they did, SOX would have more impact on treated firms, raising the possibility that our results are contaminated by the SOX. We find no such

[10] The SOX contains 11 Titles. Titles 5 through 7 focus on financial analysts, securities professionals, credit agencies, and investment banks. Titles 8 through 11 include provisions for prevention and detection of corporate frauds.

[11] Specifically, they are the change between non-cash current assets minus the change in current liabilities, excluding those due to the maturation of the firm's long-term debt, minus depreciation and amortization, scaled by total assets in the previous fiscal year.

evidence: The correlation between the affected firm indicator and DAC in 2001 is 0.023 with *P*-value equal to 0.512, indicating no differential SOX effects between the treated firms and the control group. It seems safe to conclude that our results are not driven by the SOX.

3.3.2. Other Confounding Events

Our results may be confounded by other events affecting the market for top executives around the time when the regulation was promulgated. For example, the dotcom bubble burst in 2000 and the 9/11 attack in 2001 may have led to fewer top executive hires and promotions during 2000-2002, lowering FTA during those years and leading to the appearance of higher FTA in later years. But for this confounding story to explain our difference-in-differences results, the impacts of the bubble and 9/11 events must be greater on treated firms than the control group. We have difficulty finding a plausible scenario that can explain the differential impact.

Nevertheless, we follow the approach used in Bertrand and Mullainathan (2003) to examine whether our results are contaminated by confounding effects. Specifically, we replace the post-regulation indicator with dummies for 2000, 2001, 2003, 2004, and 2005-2006. The estimation results are reported in Table 6. If our results are confounded by the events in 2000 and 2001, the interaction of *Dep_Board2001* and year dummy should be negative for 2000 or 2001; however, they are all insignificant with mostly positive signs. By contrast, the interaction terms are positive and significant for all post-regulation years.

Interestingly, coefficients on the interaction of the dependent board indicator and post-regulation year dummies show an increasing trend over time. Because it takes time to replace top executives through new hires and promotions, the time trend is also consistent with our conclusion that the shock on board independence has triggered an increase in FTA.

3.3.3. Alternative Explanations

Are results driven by executive turnovers?

The increase in FTA may simply reflect greater executive turnover. Newly independent boards may demand new blood in the executive suite to improve performance, leading to more executive and CEO turnovers than usual. To examine this possibility, we add the percentage of top executives changed and an indicator for CEO turnover as controls in Table 7, Panel A. The executive turnover ratio is measured by the percent of top four non-CEO executives in year *t* not on the list of top four non-CEO executives in year *t-1*. The CEO turnover indicator is equal to one if a CEO in year *t* is not the same as the CEO in year *t-2*. We compare with year *t-2* for CEOs because the sample does not include CEOs' first year in the office to avoid the overlap of the new and the old CEO. As expected, FTA is positively related to executive turnovers and negatively related to CEO turnovers. Nonetheless, the regulatory effect on FTA, the coefficient on the interaction term, remains positive and significant at the one percent level irrespective of whether the sample is unmatched or matched.

Are results driven by structure-changing events?

Organizational structure-changing events such as mergers and acquisitions, divestitures, and spinoffs are often accompanied by changes in the executive suite, which is one reason we control for the number of segments in all regressions. In Panel B of Table 7, we control for the number of mergers and acquisitions, MA_{it-1}, and divestitures and spinoffs, DS_{it-1}, completed in the prior year. The data for *MA* and *DS* are obtained from SDC. The results are robust.

3.3.4. Alternative Definitions of FTA

Our measure of FTA treats all top four non-CEO executives equally. However, executives with higher salaries and bonuses tend to be more influential, and CEO influence over them may matter more. So we calculate a compensation weighted FTA,

$$WFTA_{it} = \sum_{k=1}^{k=n} Exe\_Com_{kit} / \sum_{j=1}^{j=4} Exe\_Com_{jit}. \qquad (2)$$

Exe_Com_{kit} is the sum of salary and bonus of executive *k* appointed during the tenure of firm *i*'s CEO as of year *t*, and *n* is the number of top executives appointed during the CEO's tenure. In addition, we

follow Landier et al. (2003) and estimate residuals of a regression relating *FTA* to *CEOTEN, OUTSIDE, EXECSEN, KNOWN, FTA_1Y, FTA_1Y_Unknown* with year fixed effects. The residuals are used as a measure of the abnormal fraction of top executives appointed, *AFTA*, during a CEO's tenure. We also calculate AFTA weighted by the executives' salaries and bonuses, *WAFTA*, by estimating the same regression with *WFTA* as the dependent variable. When these abnormal measures of FTA are used as dependent variables, the regressions do not include independent variables used to estimate the residuals. Re-estimation results based on these three alternative measures are reported in Table 8. The results are robust regardless of which alternative measure is used.

3.3.5. Alternative Sample Constructions

Finally, we check the robustness to possible biases arising from an unbalanced sample by re-estimating regressions with a balanced sample of 830 firms that exist during the period 1999-2006. We exclude observations in 2002 and 2003 so that the pre- and post-regulation periods have the sample number of years. In this sample, 2004 is the first year fully affected by the regulation. The rest is the same. The re-estimation results (unreported) are robust.

4. Efficacy of Monitoring CEOs and Shareholder Value

There are three possible explanations for the robust evidence of higher FTA following the regulation. As mentioned in the Introduction, the first is the newly independent board's demand for new blood in the executive suite. The second is a substitution effect; it may be an efficient response to the reduced presence of inside and affiliated directors on the board, shifting more of the advisory function to the executive suite. Neither of these scenarios predicts that the higher FTA will adversely affect the regulatory impact on board monitoring or shareholder value.

However, the higher FTA could be a result of the CEO's successful attempt to increase executive power to recoup the loss of influence in the boardroom. By filling the executive suite with more of his own appointees over whom he can exert greater influence than those appointed by previous CEOs, the CEO

can form a more united front against the newly independent board's oversight. Under this scenario, the higher FTA is likely to hinder improvement in board monitoring and may lower shareholder value enhancement.

To test the competing predictions, we relate changes in FTA to the improvement in monitoring and shareholder value. Monitoring effectiveness is proxied by CEO compensation and pay-for-performance sensitivity (PPS). CEO compensation, *CEO_Comp,* is item tdc1 in ExecuComp, which includes salary, bonus, the total value of restricted stocks and stock options granted, long-term incentive payments, and other miscellaneous compensation. CEO PPS is measured by *CEO_Delta,* which is the Edmans, Gabaix, and Landier (2009) measure of scaled wealth-performance sensitivity.[12] Shareholder value is proxied by Tobin's Q, as measured by the sum of the market value of common stocks plus the book value of total liabilities divided by the book value of total assets.

Our identification strategy employs two approaches: First, we relate post-regulation changes in FTA to changes in CEO compensation, CEO PPS, and Tobin's Q. However, post-regulation changes in FTA may be affected by time-varying omitted variables related to CEO compensation, CEO PPS, or Tobin's Q. To address this problem, we estimate firm fixed effects regressions using cross-sectional differences in FTA in the base-year 2001, which measures the capacity to increase FTA in response to the regulation. Although this is an indirect test, FTA in 2001 is unaffected by time-varying omitted variables.

4.1. Changes in FTA and the Impact of the Independent Board Requirement

ΔFTA, *ΔLn(CEO_Comp), ΔCEO_Delta,* and *ΔQ* are changes in *FTA, Ln(CEO_Comp), CEO_Delta,* and *Q* from pre-regulation to post-regulation periods. The changes are the differences in the averages of each variable for up to four years over 1998-2001 and 2003-2006 that overlap with the tenure of each CEO who was the CEO in 2001. Only observations in which a CEO was the CEO in 2001 are included to avoid

[12] Previous studies suggest two other ways to measure the pay-for-performance sensitivity: dollar change in wealth for a dollar change in firm value (Jensen and Murphy, 1990) or dollar change in wealth for a percentage change in firm value (Hall and Liebman, 1998). We use Edmans et al.'s (2009) compensation scaled wealth-performance sensitivity measure because, as they point out, it is independent of firm size, and thus comparable across firms and over time. It is downloaded from Edman's website (http://faculty.london.edu/aedmans/data.html).

calculating changes in CEO compensation, CEO PPS, and Tobin's Q over different CEOs of a same firm. To construct the changes, the panel data is collapsed to cross-sectional data such that each observation is associated with one firm.

We estimate the following regression:

$$\Delta Y_i = \lambda_1 Dep\_Board2001_i + \lambda_2 Dep\_Board2001_i * \Delta FTA_i + \lambda_3 \Delta FTA_i + \lambda_5 \Delta X_i + \varepsilon_i. \quad (3)$$

ΔY_i is *ΔLn(CEO_Comp), ΔCEO_Delta,* or *ΔQ*. $Dep\_Board2001_i * \Delta FTA_i$ is the key independent variable. The regression estimates how changes in FTA from the pre- to post-regulation periods affect the regulatory impact on CEO compensation, PPS, or Q. ΔX_i is a vector of control variables, which are also differences between the up to four-year pre- and post-regulation periods overlapping with the tenure of each CEO who was the CEO in 2001. All estimations are based on the unmatched sample. The propensity-score-matched sample becomes really small when we collapse the panel data into cross-sectional data. Robust standard errors are clustered at the industry level as defined by the three-digit SIC code.

Control variables include firm size, *Ln(TotalAssets);* the number of business segments, *Segment*; and EBIDA divided by total assets, *EBITDA/TA.* These variables may be related to CEO compensation, firm performance, and FTA. Because the incentive contract portion of CEO compensation is likely to reflect risk, we add two proxies for firm risk: *Risk,* the standard error of the residuals from the market model estimated using daily data for the period covered by the annual sample; and *R&D/PPE,* the ratio of research and development expenditures to property, plant, and equipment. These are commonly used proxies for firm risk (e.g., Himmelberg, Hubbard, and Palia, 1999; Kim and Lu, 2011; Coles et al., 2013). To avoid reducing the sample size due to missing observations, we follow Himmelberg et al. (1999) and set *R&D/PPE* and *Risk* equal to zero if they are missing, and use dummy variables, *RDUM* and *RiskD,* which are set to one if *R&D/PPE* and *Risk* are available and zero otherwise.

We also control for changes in the total number of pre-existing network ties a CEO has with independent directors, *ΔDir_Tie*. Hermalin and Weisbach (1998) argue that if regulation forces a board to

appoint more independent directors than endogenously determined, affected firms may attempt to circumvent the regulation by recruiting independent directors with more "disutility for monitoring." Directors socially pre-connected to the CEO could be those with disutility for monitoring (Fracassi and Tate, 2012). In Appendix 2 we examine how the board regulation has affected CEOs' network connections with independent directors by estimating difference-in-differences. The results suggest that the regulation has led to an increase in CEOs' pre-existing network ties with independent directors.

Appendix 2 also describes how we measure CEOs' pre-existing network ties. Network ties are missing when BoardEx does not cover the relevant individual. Even when they are not missing, BoardEx sometimes provides insufficient information to determine whether the connections occurred during overlapping years. To avoid reducing the sample size, we assign zero connection when information on network ties is missing or incomplete. This leads to underestimation of network ties. To counter the underestimation problem, we include *Dir_Tie_Unknown*, the percent of independent directors whose pre-existing network ties to their CEOs are either missing or incomplete.

Table 9 reports the estimation results. For CEO compensation, *ΔFTA*Dep_Board2001* shows a positive coefficient significant at 5%, while the coefficient of *Dep_Board2001* is negative and marginally significant (*P*-value = 0.105). Together, they suggest the greater the increase in FTA post-regulation, the smaller the decrease in CEO compensation following the regulation. For CEO delta, *ΔFTA*Dep_Board2001* shows a negative coefficient significant at 10%, while the coefficient of *Dep_Board2001* is positive and marginally significant (*P*-value = 0.112). It appears the greater the post-regulation increase in FTA, the less the improvement in the board's monitoring CEO compensation. For Q, the coefficient on *ΔFTA*Dep_Board2001* is negative but insignificant.

4.2. The Capacity to Increase FTA and the Impact of the Independent Board Requirement

How much a firm can increase FTA in response to the regulation depends on its pre-regulation FTA. FTA is bounded at zero and one; hence, *FTA_2001,* the FTA in the base-year 2001, measures (the inverse

of) the capacity to increase FTA in response to the shock. If *FTA_2001* = 1, the firm has no room to increase FTA, making the regulation binding; if *FTA_2001* = 0, the firm has the full capacity to increase FTA. Thus, we use *FTA_2001* to infer the likelihood to increase FTA in response to the regulation. With this ex-ante measure of possible changes in FTA, we are able to make the full use of panel data with firm fixed effects regression. Specifically, we relate the cross-sectional difference in *FTA_2001* to regulatory impacts on the efficacy of monitoring CEO compensation and on shareholder value with the regression:

$$Y_{it} = a_i + a_t + \vartheta_1 Dep\_Board2001_i * Post_t + \vartheta_2 Dep\_Board2001_i * Post_t * FTA\_2001_i + \vartheta_3 Post_t * FTA\_2001_i + \vartheta_5 X_{it} + \varepsilon_{it} . \quad (4)$$

Y_{it} is $Ln(CEO\_Comp)_{it}$, CEO_Delta_{it}, or Q_{it}. Again, we include only observations in which a CEO was the CEO in 2001 to focus on regulatory impacts on CEOs whose compensation, PPS, and Q are observed both pre- and post-regulation. The specification does not contain a separate term for $Dep\_Board2001_i * FTA\_2001_i$, because both $Dep\_Board2001_i$ and FTA_2001_i are time invariant and subsumed by firm fixed effects. Control variables include all controls in Table 9, plus CEO tenure, CEO age, and firm age.[13]

Table 10 reports estimation results. Odd-numbered columns provide difference-in-differences estimates without accounting for differences in *FTA_2001*. No estimation results show significant regulatory effect except for the positive coefficient at 10% for CEO delta in Column (3). However, when we allow for differences in the capacity to increase FTA by interacting FTA_2001_i with $Dep\_Board2001_i * Post_t$ in even-numbered columns, the triple-interaction term shows significant coefficients for all three dependent variables.

For CEO compensation, the coefficient of the triple-interaction term is negative and significant, implying that given the regulatory impact, the smaller the capacity to increase FTA (higher FTA_2001), the lower is the CEO compensation. The estimation results for CEO delta show a positive and significant coefficient on the triple interaction term, implying given the regulatory impact, the smaller the capacity to

[13] In Table 9, we do not control for CEO tenure, CEO age, and firm age because we keep the CEO fixed and changes in those variables simply reflect the time change between pre- and post-regulation.

increase FTA (higher FTA_2001), the greater the increase in CEO pay-for-performance sensitivity. Estimation results for Q suggest that these effects on board monitoring carry over to shareholder value. The coefficient on the triple interaction term is positive and significant, suggesting that given the regulatory impact, Q is higher, the smaller the capacity to increase FTA.

In sum, whether post-regulation changes in executive suite independence are measured based on ex-post changes in FTA or the capacity to increase it, a decrease in executive suite independence seems to reduce the regulatory impact of strengthening boards' monitoring of CEOs. This negative effect carries over to shareholder value, reducing the regulatory impact on shareholder value enhancement. The higher post-regulation FTA seems attributable to CEOs' successful attempts to counter newly independent boards' oversight with stronger influence within the executive suite.

5. Conclusion

Our empirical investigation reveals that board independence is negatively related to independence in the executive suite. Thus, inferring the overall independence of a firm's governing process by board independence alone could be misleading. When board independence is strong (weak), the overall independence is likely to be weaker (stronger) than board independence alone indicates.

Both simple panel regression estimates and difference-in-differences estimates using an external shock suggest that strengthening board independence leads to weaker independence from CEO influence in the executive suite. This, in turn, seems to diminish the intended benefits of the board regulation. We find that the greater the post-regulation increase in FTA or capacity to increase FTA, the smaller the improvement in the newly independent board's monitoring of CEO compensation and the lower the enhancement of shareholder value.

These results imply that a shock in board independence triggers a reaction in the executive suite, moderating the effect the shock has on the overall strength of the firm's governance. Thus, the main message our findings deliver to policy makers is that regulating a specific governance mechanism can

spillover to seemingly unrelated governing bodies with undesirable consequences. Therefore, when policy makers target a specific governance mechanism, they should carefully evaluate how their new regulatory actions affect other governing bodies and weigh the potential benefits against the costs associated with possible undesirable consequences.

Appendix 1: Variable Description.

Board Composition Variables	
Dep_Board2001	Dependent board indicator equal to one if a firm does not have a majority of independent directors in 2001; zero, otherwise.
Pct_Dep_Board2001	The percentage of non-independent directors on the board in 2001.
Pct_Ind_Dir	The percentage of independent directors on the board.
Executive Suite Composition Variables	
FTA	Fraction of top four non-CEO executives appointed during a current CEO's tenure.
AFTA	Abnormal fraction of top four non-CEO executives appointed during a current CEO's tenure.
WFTA	Fraction of top four non-CEO executives appointed during a current CEO's tenure, weighted by the sum of executives' salaries and bonuses.
WAFTA	Abnormal fraction of top four non-CEO executives appointed during a current CEO's tenure, weighted by the sum of executives' salaries and bonuses.
Monitoring Outcome and Shareholder Value Variables	
Ln(CEO_Comp)	Logged value of a CEO's total compensation (item tdc1 in ExecuComp), which includes salary, bonus, total value of restricted stocks and stock options granted, long-term incentive payouts, and other miscellaneous compensation.
CEO_Delta	Dollar change in CEO wealth for a 100 percentage point change in firm value, divided by annual flow compensation, a delta measure proposed by Edmans, Gabaix, and Landier (2009). Downloaded from Edmans' website (http://faculty.london.edu/aedmans/data.html).
Tobin's Q	The market value of common equity plus the book value of total liabilities divided by the book value of total assets.
Other Variables	
Post	Post-regulation indicator, equal to one if year *t* is 2003 or thereafter; zero, otherwise.
Num_Ind_Dir	The number of independent directors on the board.
BoardSize	The total number of directors on the board.
CEOTEN	The number of years a CEO has been in office.
OUTSIDE	Outsider indicator equal to one, if a CEO comes from outside the firm; zero, otherwise.
FTA_1Y	The fraction of top executives appointed within the year of a new CEO appointment.
FTA_1Y_Unknown	The fraction of top four non-CEO executives whose information on whether they are appointed within the year of a new CEO appointment is unknown.
KNOWN	The fraction of executives whose first year on the list of the top four non-CEO executives can be identified with data in ExecuComp.
EXECSEN	The average number of years top four non-CEO executives have been on the list of the top four non-CEO executives.
Female	Indicator equal to one for female CEO; zero, otherwise.
Ln(CEOAge)	The logged value of CEO age.
CEO_OWN	The percentage of outstanding common shares held by a CEO.
CEO_Chair	Indicator equal to one for CEO also chairing the board; zero, otherwise.
Ln(TotalAssets)	The logged book value of total assets in 2000 US million dollars.
FirmAge	One plus the number of years from the firm's IPO or the number of years since its first appearance in CRSP.
Segment	The number of business segments a firm has in a given year as reported by Compustat/Segment.
EBITDA/TA	Earnings before interest, tax, depreciation, and amortization divided by the book value of total assets.

Variable Description (continued).

R&D/PPE	The ratio of research and development expenditures to property, plant, and equipment. It is set to zero, if the data is missing.
RDUM	Dummy variable equal to one if R&D data is available; zero, otherwise.
Risk	Variance of residuals from the market model estimated using daily data for the period covered by the annual sample. It is equal to zero, if the data to construct Risk are unavailable.
RiskD	Dummy variable equal to one if the data required to estimate Risk are available; zero, otherwise.
Pct_Exe_Turnover	The percentage of new top four non-CEO executives who were not on the list of top four non-CEO executive positions in the previous year.
CEO_Turnover	CEO turnover indicator equal to one, if the CEO in year *t-2* is different from the CEO in year *t*; zero, otherwise.
MA	The number of completed mergers and acquisitions in a given year.
DS	The number of completed divestitures and spinoffs in a given year.
Dir_Tie	The total number of pre-existing network ties a CEO has with independent directors through past employment (either working as an employee or serving on the board), educational institutions, and *past* membership to social and professional organizations. Only network ties established during overlapping years are included.
Dir_Tie_Unknow	The percent of the independent directors whose pre-existing network ties to their CEOs are either missing or incomplete.

Appendix 2: Pre-existing Network Ties between Independent Directors and the CEO.

Pre-existing social connections between the CEO and independent directors are measured by network ties formed prior to their appointments. BoardEx provides information about directors' and CEOs' past employment, education background, and membership in social organizations (e.g., philanthropic and religious organizations, social clubs, and professional organizations). We count the number of network ties for each category (past employment, education, or membership in social organizations) to capture the depth of past connections. To be included, network ties must be established during overlapping years. For example, in the case of education, the years a CEO and an independent director attended a same school must overlap. Then we sum the three types of ties to arrive at the total number of ties. Similar measures of social connections have been used in previous papers (e.g., Cohen, Frazzini, and Malloy, 2008; Engelberg, Gao, and Parsons, 2013; Fracassi and Tate, 2012; Duchin and Sosyura, 2012).

Table A provides difference-in-difference estimates for the log of one plus the total number of pre-existing network ties a CEO has with independent directors. The key independent variable and control variables are the same as the baseline difference-in-differences specification, except we add the number of independent directors, *Num_Ind_Dir*, as a control because the number of pre-existing network ties is likely to increase with more independent directors and *Dir_Tie_Unknow* to account for missing or incomplete information on network ties. We also exclude variables specifically related to FTA: *FTA_1Y, EXECSEN, KNOWN,* and *FTA_1Y_Unknown*. These variables are also excluded in constructing the propensity-score matched sample for the analysis of network ties.

We start the sample period from 2000 because BoardEx provides limited coverage prior to 2000 and the dependent variable is the total number of network ties. However, when network ties are used as a control variable in Tables 9 and 10, we use network ties from 1996 to maintain the sample period of 1996-2006.

The estimation results in Table A show a positive and significant coefficient on *Dep_Board2001*Post* at the five percent level for the unmatched sample. For the propensity-score matched sample, the coefficient is positive but the *P*-value is 0.174. Given the shorter sample period and the relatively high frequency of missing or incomplete information on network ties, we interpret these results as being supportive of the conjecture by Hermalin and Weisbach (1998) that if regulation forces a board to appoint more independent directors than endogenously determined, the firm will attempt to circumvent the regulation by recruiting independent directors with more "disutility for monitoring."

Table A: Difference-in-Differences Estimation of Pre-existing Network Ties between Independent Directors and the CEO.

This table estimates the effect of the independent board requirement on pre-established social connections between the CEO and independent directors. The dependent variable is the log of one plus the total number of all pre-existing network ties between independent directors and the CEO. Definitions of all variables are provided in Appendix 1. The sample period is 2000 – 2006, excluding 2002. All regressions control for year- and firm fixed effects. The regression does not include *Dep_Board2001* and *Post* as separate controls because of firm- and year fixed effects. Robust standard errors reported in parentheses are clustered at the firm level in Column (1) and are corrected by bootstrapping 200 times in Column (2). Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

VARIABLES	**Ln(1+Dir_Tie)**	
	Unmatched	**PS-matched**
	(1)	**(2)**
Dep_Board2001*Post	0.074**	0.045
	(0.032)	(0.028)
Dir_Tie_Unknow	-0.186*	-0.148
	(0.108)	(0.171)
CEOTEN	0.004	-0.001
	(0.004)	(0.005)
OUTSIDE	-0.042	0.033
	(0.067)	(0.094)
Female	0.070	0.126
	(0.160)	(0.193)
Ln(CEOAge)	0.689***	0.638**
	(0.187)	(0.261)
CEO_OWN_{t-1}	0.081	0.233
	(0.200)	(0.347)
CEO_Chair	0.001	-0.017
	(0.052)	(0.066)
$Ln(TotalAsset)_{t-1}$	0.008	0.014
	(0.026)	(0.036)
FirmAge	0.004	-0.000
	(0.004)	(0.002)
$Segment_{t-1}$	-0.002	0.004
	(0.002)	(0.003)
Num_Ind_Dir	0.051***	0.063***
	(0.007)	(0.009)
Constant	-2.739***	-2.668**
	(0.767)	(1.045)
Firm FE & Year FE	Y	Y
Observations	3,992	1,793
Adjusted-R^2	0.848	0.830

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Table 1: Sample Description.

This table shows the number of observations for unmatched and matched samples, by year, in Panels A and B, respectively. Columns (1) and (5) report the number of firms for which we have information on both board composition in 2001 and the fraction of top-executives appointed (FTA) during a CEO's tenure. Column (2) reports the percent of sample firms satisfying the majority requirement of independent directors in the unmatched sample. Columns (3) and (6) report the number of firms without a majority of independent directors in 2001 and, hence, affected by the regulation. Columns (4) and (7) show the number of firms unaffected by the regulation for unmatched and matched sample.

	Panel A: Unmatched Sample				Panel B: PS-matched Sample		
Year	**Full**	**% of Firms with a Majority of Independent Directors**	**Affected**	**Unaffected**	**Full**	**Affected**	**Unaffected**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
1996	691	76.95	106	585	296	104	192
1997	755	75.92	113	642	318	110	208
1998	825	79.96	128	697	355	125	230
1999	913	83.30	147	766	390	145	245
2000	946	84.48	156	790	402	153	249
2001	944	85.57	157	787	410	157	253
2003	958	92.43	164	794	403	152	251
2004	969	94.07	171	798	405	154	251
2005	978	94.94	171	807	400	152	248
2006	996	95.25	182	814	400	154	246
Total Obs.	8,975	87.44	1,495	7,480	3,779	1,406	2,373
Total Firms	1035		185	850	410	157	253

Table 2: Summary Statistics.

Panel A reports summary statistics for the unmatched full sample. Panel B compares firms affected and unaffected by the regulation in the propensity-score (PS) matched sample. The comparison is based on the mean value of variables at the time of matching, the base-year 2001. Definitions of the variables are provided in Appendix 1.

	Panel A: Unmatched Sample					Panel B: PS-matched Sample			
						Mean			
	Mean	Median	Std. Dev.	Min	Max	Affected	Unaffected	Diff	P-Value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(6)-(7)	
Board Composition Variables									
Dep_Board2001	0.167	0.000	0.373	0.000	1.000	1.000	0.000		
Pct_Dep_Board2001	0.351	0.333	0.176	0.063	1.000	0.646	0.305		
Executive Suite Composition Variables									
FTA	0.437	0.500	0.334	0.000	1.000	0.381	0.450	-0.069	0.034
AFTA	0.034	0.043	0.284	-1.039	0.752	-0.047	0.022	-0.069	0.013
WFTA	0.415	0.412	0.335	0.000	1.000	0.353	0.430	-0.078	0.017
WAFTA	0.033	0.025	0.284	-1.016	0.774	-0.054	0.021	-0.075	0.007
Monitoring Outcome and Shareholder Value Variables									
Ln(CEO_Comp)	7.959	7.940	1.166	-6.908	13.393	7.649	7.884	-0.235	0.058
CEO_Delta	125.425	8.262	2207.004	0.000	113868.500	164.988	45.414	119.574	0.001
TobinQ	2.195	1.564	2.899	0.475	105.090	2.127	1.870	0.257	0.070
Other Variables									
Post	0.435	0.000	0.496	0.000	1.000				
Num_Ind_Dir	6.748	7.000	2.502	1.000	22.000	3.429	6.536	-3.107	0.000
BoardSize	9.795	9.000	2.842	4.000	30.000	9.599	9.364	0.235	0.399
CEOTEN	6.920	5.000	7.334	0.000	55.000	9.847	6.901	2.946	0.001
OUTSIDE	0.142	0.000	0.349	0.000	1.000	0.191	0.134	0.057	0.125
FTA_1Y	0.538	0.500	0.399	0.000	1.000	0.572	0.519	0.053	0.202
KNOWN	0.973	1.000	0.093	0.000	1.000	0.971	0.983	-0.012	0.136
EXECSEN	4.350	4.000	1.872	0.000	14.750	4.909	4.530	0.378	0.033
FTA_1Y_Unknown	0.001	0.000	0.021	0.000	0.500	0.002	0.000	0.002	0.205
Female	0.013	0.000	0.113	0.000	1.000	0.006	0.012	-0.005	0.584
Ln(CEOAge)	4.015	4.025	0.135	3.466	4.511	4.034	3.999	0.034	0.019
CEO_OWN	0.023	0.003	0.060	0.000	0.638	0.052	0.023	0.029	0.000
CEO_Chair	0.657	1.000	0.475	0.000	1.000	0.605	0.652	-0.047	0.337
Ln(TotalAssets)	7.765	7.599	1.657	2.227	14.291	7.400	7.431	-0.031	0.837
FirmAge	26.830	23.000	19.571	1.000	82.000	19.541	23.601	-4.059	0.010
Segment	15.036	14.000	9.695	1.000	87.000	14.929	16.119	-1.190	0.129
R&D/PPE	0.244	0.000	0.785	0.000	24.610	0.178	0.200	-0.022	0.704
RDUM	0.538	1.000	0.499	0.000	1.000	0.490	0.545	-0.055	0.279
Risk	0.022	0.019	0.013	0.000	0.196	0.032	0.031	0.000	0.750
RiskD	0.936	1.000	0.245	0.000	1.000	0.936	0.988	-0.052	0.004
EBITDA/TA	0.137	0.133	0.113	-2.989	1.001	0.133	0.134	0.000	0.961
Dir_Tie	1.251	0.000	2.516	0.000	27.000	0.403	1.150	-0.747	0.965

Table: 3: Relation between Fraction of Top-executives Appointed (FTA) during a CEO's Tenure and Board Independence.

This table estimates the relation between the fraction of top four non-CEO executives appointed (FTA) during a CEO's tenure and the percent of independent directors on the board. The sample period is 1996 – 2006, excluding 2002. Columns (1) and (2) are OLS and ordered logistic regression estimates, respectively, controlling for year- and firm fixed effects and year- and firm dummies.. Definitions of all variables are provided in Appendix 1. Robust standard errors reported in parentheses are clustered at the firm level. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

VARIABLES	**FTA**	
	OLS	**Ologit**
	(1)	**(2)**
Pct_Ind_Dir	0.097**	1.412**
	(0.043)	(0.559)
CEOTEN	0.019***	0.317***
	(0.003)	(0.055)
OUTSIDE	-0.004	-0.283
	(0.039)	(0.569)
FTA_1Y	0.054	0.693
	(0.039)	(0.609)
KNOWN	-0.366***	-5.607***
	(0.064)	(0.956)
EXECSEN	-0.086***	-1.320***
	(0.003)	(0.067)
FTA_1Y_Unknown	0.870	7.676
	(0.593)	(17.120)
Female	-0.052	-0.843
	(0.151)	(2.370)
Ln(CEOAge)	0.265**	3.989***
	(0.107)	(1.541)
CEO_OWN_{t-1}	-0.518**	-8.046**
	(0.226)	(3.519)
CEO_Chair	0.013	-0.014
	(0.030)	(0.433)
$Ln(TotalAsset)_{t-1}$	0.035	0.684**
	(0.024)	(0.275)
FirmAge	0.002	0.020
	(0.001)	(0.014)
$Segment_{t-1}$	-0.001	-0.022
	(0.001)	(0.013)
Constant	-0.697	
	(0.483)	
Firm FE & Year FE (Dummies)	Y	Y
Observations	5,687	5,687
Adjusted-R^2 (Pseudo-R^2)	0.710	(0.492)

Table 4: Impact of Independent Board Requirement on Fraction of Top-executives Appointed (FTA) during a CEO's Tenure.

This table reports estimates of the impact of the independent board requirement on the fraction of top four non-CEO executives appointed (FTA) during a CEO's tenure. Columns (1)-(2) and (3)-(4) report estimation results with the unmatched and propensity-score (PS) matched sample, respectively. The sample period is 1996 – 2006, excluding 2002. Columns (1) and (3) are OLS estimates; Columns (2) and (4), estimates by ordered logistic regressions. Definitions of all variables are provided in Appendix 1. Regressions in Columns (1) and (3) control for year- and firm fixed effects and regressions in Columns (2) and (4) control for year- and firm dummies. The regression does not include *Dep_Board2001* and *Post* as separate controls because of firm- and year fixed effects. Robust standard errors reported in parentheses are clustered at the firm level in Columns (1)-(2) and are corrected by bootstrapping 200 times in Columns (3)-(4). Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

VARIABLES	**FTA**			
	Unmatched		**PS-matched**	
	OLS	**Ologit**	**OLS**	**Ologit**
	(1)	**(2)**	**(3)**	**(4)**
Dep_Board2001*Post	0.102***	1.272***	0.070***	0.998***
	(0.020)	(0.284)	(0.013)	(0.205)
CEOTEN	0.019***	0.305***	0.015***	0.286***
	(0.003)	(0.047)	(0.002)	(0.036)
OUTSIDE	0.004	-0.134	-0.067**	-1.384***
	(0.033)	(0.466)	(0.032)	(0.484)
FTA_1Y	0.091***	1.151**	0.138***	2.343***
	(0.035)	(0.534)	(0.029)	(0.455)
KNOWN	-0.308***	-4.262***	-0.453***	-7.174***
	(0.055)	(0.772)	(0.042)	(0.770)
EXECSEN	-0.087***	-1.265***	-0.091***	-1.482***
	(0.003)	(0.056)	(0.002)	(0.063)
FTA_1Y_Unknown	0.985**	9.882	-0.078	-3.078
	(0.449)	(10.145)	(0.231)	(3.169)
Female	-0.106	-1.572	-0.207***	-3.237***
	(0.097)	(1.268)	(0.075)	(0.844)
Ln(CEOAge)	0.216**	2.880**	0.139**	1.032
	(0.088)	(1.213)	(0.064)	(1.040)
CEO_OWN_{t-1}	-0.453***	-6.087**	-0.416***	-5.965***
	(0.163)	(2.382)	(0.136)	(2.026)
CEO_Chair	0.013	-0.009	0.023	-0.095
	(0.026)	(0.368)	(0.024)	(0.391)
$Ln(TotalAsset)_{t-1}$	0.048***	0.760***	0.058***	0.857***
	(0.017)	(0.193)	(0.011)	(0.166)
FirmAge	0.003***	0.032***	0.001	0.017
	(0.001)	(0.012)	(0.001)	(0.012)
$Segment_{t-1}$	-0.001*	-0.022**	-0.001	-0.020*
	(0.001)	(0.011)	(0.001)	(0.011)
Constant	-0.608		0.356	
	(0.390)		(0.254)	
Firm FE & Year FE (Dummies)	Y	Y	Y	Y
Observations	6,581	6,581	2,998	2,998
Adjusted-R^2 (Pseudo-R^2)	0.703	(0.5377)	0.745	(0.5115）

Table 5: Heterogeneity in the Degree of the Shock by the Board Regulation.

This table examines how changes in the fraction of top-executives appointed (FTA) during a CEO's tenure are related to the degree to which a firm is affected by the independent board requirement. The dependent variable is FTA. The key independent variable is *Pct_Dep_Board2001*Post*, the percentage of non-independent directors in 2001 interacted with the post-regulation indicator. The regression does not include *Pct_Dep_Board2001* and *Post* as separate controls because of firm- and year fixed effects. Panel A and Panel B report estimation results with the unmatched sample and the propensity-score (PS) matched sample, respectively. The sample period is 1996 – 2006, excluding 2002. Definitions of all variables are provided in Appendix 1. All regressions control for year- and firm fixed effects. Robust standard errors reported in parentheses are clustered at the firm level in Column (1) and are corrected by bootstrapping 200 times in Column (2). Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

VARIABLES	**FTA**	
	Unmatched	**PS-matched**
	(1)	**(2)**
Pct_Dep_Board2001*Post	0.279***	0.199***
	(0.048)	(0.036)
CEOTEN	0.018***	0.015***
	(0.003)	(0.002)
OUTSIDE	0.005	-0.068**
	(0.033)	(0.031)
FTA_1Y	0.087**	0.140***
	(0.034)	(0.030)
KNOWN	-0.321***	-0.459***
	(0.054)	(0.049)
EXECSEN	-0.088***	-0.091***
	(0.003)	(0.003)
FTA_1Y_Unknown	1.016**	-0.065
	(0.456)	(0.218)
Female	-0.118	-0.224***
	(0.098)	(0.065)
Ln(CEOAge)	0.211**	0.139**
	(0.089)	(0.065)
CEO_OWN_{t-1}	-0.411**	-0.366***
	(0.159)	(0.140)
CEO_Chair	0.014	0.025
	(0.026)	(0.024)
$Ln(TotalAsset)_{t-1}$	0.048***	0.061***
	(0.017)	(0.013)
FirmAge	0.003***	0.001
	(0.001)	(0.001)
$Segment_{t-1}$	-0.002*	-0.001*
	(0.001)	(0.001)
Constant	-0.571	0.277
	(0.394)	(0.294)
Firm FE & Year FE	Y	Y
Observations	6,581	2,998
Adjusted-R^2	0.705	0.746

Table 6: Confounding Effects.

Dummy variables *2000, 2001, 2003, 2004, and 2005 and after* are equal to one if the observation is in 2000, 2001, 2003, 2004, and 2005-2006, respectively. Panels A and Panel B report results estimated with the unmatched and the propensity-score (PS) sample. The sample period is 1996 – 2006, excluding 2002. Definitions of variables are provided in Appendix 1. All regressions control for year- and firm fixed effects. The regression does not include *Dep_Board2001* and year indicator variables as separate controls because of firm- and year fixed effects. Robust standard errors reported in parentheses are clustered at the firm level in Column (1) and are corrected by bootstrapping 200 times in Column (2). Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

VARIABLES	**FTA**	
	Unmatched	**PS-matched**
	(1)	**(2)**
Dep_Board2001*2000	0.012	-0.000
	(0.020)	(0.019)
Dep_Board2001*2001	0.032	0.019
	(0.024)	(0.019)
Dep_Board2001*2003	0.080***	0.055***
	(0.024)	(0.020)
Dep_Board2001*2004	0.102***	0.069***
	(0.027)	(0.022)
Dep_Board2001*2005 and after	0.133***	0.087***
	(0.028)	(0.021)
CEOTEN	0.019***	0.015***
	(0.003)	(0.002)
OUTSIDE	0.004	-0.067**
	(0.033)	(0.031)
FTA_1Y	0.091***	0.137***
	(0.035)	(0.030)
KNOWN	-0.308***	-0.454***
	(0.055)	(0.055)
EXECSEN	-0.087***	-0.091***
	(0.003)	(0.002)
FTA_1Y_Unknown	0.974**	-0.084
	(0.450)	(0.238)
Female	-0.107	-0.209***
	(0.097)	(0.068)
Ln(CEOAge)	0.215**	0.139**
	(0.088)	(0.068)
CEO_OWN_{t-1}	-0.447***	-0.410***
	(0.163)	(0.126)
CEO_Chair	0.013	0.023
	(0.026)	(0.022)
$Ln(TotalAsset)_{t-1}$	0.048***	0.058***
	(0.017)	(0.011)
FirmAge	0.003***	0.001
	(0.001)	(0.001)
$Segment_{t-1}$	-0.001*	-0.001
	(0.001)	(0.001)
Constant	-0.600	0.351
	(0.389)	(0.275)
Firm FE & Year FE	Y	Y
Observations	6,581	2,998
Adjusted-R^2	0.703	0.745

Table 7: Alternative Explanations.

This table re-estimates the OLS regressions in Table 4 to test whether the results can be explained by executive turnovers or major structural changing events. The dependent variables are FTA. Panel A controls for executive turnovers and CEO turnovers. *Pct_Exe_Turnover* is the fraction of new top four non-CEO executives who were not on the list of the top four non-CEO executives in the previous year; *CEO_Turnover*, a dummy variable equal to one if the CEOs in year *t* and in year *t-2* are not the same. Panel B controls for the number of completed mergers, acquisitions, divestitures, and spinoffs. *MA* is the number of completed mergers and acquisitions in a given year. *DS* is the number of completed divestitures and spinoffs in a given year. Columns (1) and (3) and Columns (2) and (4) report results estimated with the unmatched and the propensity-score (PS) matched sample, respectively. The sample period is 1996 – 2006, excluding 2002. Definitions of all variables are provided in Appendix 1. All regressions include all control variables in Table 4. The regression does not include *Dep_Board2001* and *Post* as separate controls because of firm- and year fixed effects. Robust standard errors reported in parentheses are clustered at the firm level in Columns (1) and (3) and are corrected by bootstrapping 200 times in Columns (2) and (4). Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

VARIABLES	**FTA**			
	Panel A: Are Results Driven by Executive Turnover?		**Panel B: Are Results Driven by Structural Changing Events?**	
	Unmatched	**PS-matched**	**Unmatched**	**PS-matched**
	(1)	**(2)**	**(3)**	**(4)**
Pct_Dep_Board2001*Post	0.089***	0.060***	0.101***	0.069***
	(0.018)	(0.013)	(0.020)	(0.014)
Pct_Exe_Turnover	0.111***	0.099***		
	(0.017)	(0.021)		
CEO_Turnover	-0.173***	-0.161***		
	(0.008)	(0.010)		
MA_{t-1}			-0.002	-0.002
			(0.002)	(0.002)
DS_{t-1}			-0.005	-0.006
			(0.004)	(0.005)
CEOTEN	0.014***	0.011***	0.018***	0.015***
	(0.002)	(0.002)	(0.003)	(0.002)
OUTSIDE	0.009	-0.053*	0.004	-0.067**
	(0.030)	(0.028)	(0.033)	(0.033)
FTA_1Y	0.092***	0.135***	0.091***	0.138***
	(0.032)	(0.024)	(0.035)	(0.033)
KNOWN	-0.386***	-0.518***	-0.308***	-0.454***
	(0.049)	(0.044)	(0.055)	(0.052)
EXECSEN	-0.084***	-0.089***	-0.087***	-0.091***
	(0.003)	(0.003)	(0.003)	(0.002)
FTA_1Y_Unknown	0.750**	0.043	0.968**	-0.079
	(0.299)	(0.223)	(0.454)	(0.217)
Female	-0.099	-0.222***	-0.107	-0.207***
	(0.093)	(0.068)	(0.097)	(0.073)
Ln(CEOAge)	0.181**	0.109*	0.214**	0.135**
	(0.082)	(0.059)	(0.089)	(0.060)
CEO_OWN_{t-1}	-0.382**	-0.302**	-0.451***	-0.415***
	(0.150)	(0.130)	(0.164)	(0.139)
CEO_Chair	0.004	0.015	0.013	0.023
	(0.024)	(0.021)	(0.026)	(0.022)
$Ln(TotalAsset)_{t-1}$	0.042***	0.055***	0.050***	0.060***
	(0.016)	(0.011)	(0.017)	(0.012)
FirmAge	0.002**	0.001	0.003***	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
$Segment_{t-1}$	-0.002**	-0.002**	-0.001*	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Constant	-0.287	0.601**	-0.610	0.357
	(0.361)	(0.244)	(0.390)	(0.254)
Firm FE & Year FE	Y	Y	Y	Y
Observations	6,581	2,998	6,581	2,998
Adjusted-R^2	0.740	0.777	0.703	0.745

Table 8: Alternative Definitions of FTA.

This table re-estimates the OLS regressions in Table 4 with three alternative measures of FTA. *WFTA* is FTA weighted by the sum of executives' salaries and bonuses; *AFTA,* an abnormal measure of FTA; and *WAFTA*, an abnormal measure of *WFTA*. Definitions of all variables are provided in Appendix 1. Panels A and B report results estimated with the unmatched sample and the propensity-score (PS) matched sample, respectively. The sample period is 1996 – 2006, excluding 2002. All regressions control for firm- and year fixed effects. The regression does not include *Dep_Board2001* and *Post* as separate controls because of firm- and year fixed effects. Robust standard errors reported in parentheses are clustered at the firm level in Panel A and are corrected by bootstrapping 200 times in Panel B. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

	Panel A: Unmatched			Panel B: PS-matched		
VARIABLES	**WFTA**	**AFTA**	**WAFTA**	**WFTA**	**AFTA**	**WAFTA**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Pct_Dep_Board2001*Post	0.095***	0.088***	0.083***	0.057***	0.074***	0.067***
	(0.021)	(0.019)	(0.020)	(0.015)	(0.013)	(0.014)
CEOTEN	0.019***			0.016***		
	(0.003)			(0.002)		
OUTSIDE	-0.001			-0.083**		
	(0.034)			(0.037)		
FTA_1Y	0.078**			0.117***		
	(0.034)			(0.031)		
FTA_1Y_Unknown	1.027**			-0.108		
	(0.491)			(0.336)		
KNOWN	-0.289***			-0.456***		
	(0.057)			(0.055)		
EXECSEN	-0.086***			-0.090***		
	(0.003)			(0.002)		
Female	-0.145	-0.081	-0.120	-0.259***	-0.157*	-0.201*
	(0.099)	(0.108)	(0.109)	(0.089)	(0.088)	(0.106)
Ln(CEOAge)	0.203**	0.364***	0.360***	0.141**	0.251***	0.268***
	(0.091)	(0.069)	(0.070)	(0.067)	(0.051)	(0.048)
CEO_OWN_{t-1}	-0.433***	-0.307*	-0.287*	-0.426***	-0.238*	-0.246*
	(0.161)	(0.166)	(0.161)	(0.125)	(0.137)	(0.142)
CEO_Chair	0.010	0.013	0.011	0.013	0.020	0.009
	(0.026)	(0.024)	(0.025)	(0.023)	(0.023)	(0.021)
$Ln(TotalAsset)_{t-1}$	0.049***	0.057***	0.058***	0.058***	0.081***	0.083***
	(0.018)	(0.016)	(0.017)	(0.013)	(0.011)	(0.013)
FirmAge	0.003**	0.005***	0.005***	0.001	0.005***	0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
$Segment_{t-1}$	-0.001	0.001	0.001	-0.001	0.002**	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Constant	-0.598	-1.986***	-1.976***	0.353	-1.710***	-1.788***
	(0.400)	(0.293)	(0.300)	(0.292)	(0.195)	(0.177)
Firm FE	Y	Y	Y	Y	Y	Y
Year FE	Y	N	N	Y	N	N
Observations	6,581	6,581	6,581	2,998	2,998	2,998
Adjusted-R^2	0.703	0.517	0.523	0.743	0.551	0.553

Table 9: Interactive Effects of Changes in FTA and the Board Regulation on CEO Compensation and Firm Value.

This table estimates how changes in FTA after the board regulation, *ΔFTA*, affect the impact of the independent board requirement on CEO compensation and firm value. The dependent variables are changes in total CEO compensation in Column (1); changes in CEO Delta in Column (2); and changes in Tobin's Q in Column (3). The sample is cross-sectional and each observation is the difference in the averages of up to four years over 1998-2001 and 2003-2006 that overlap with the tenure of each CEO who was the CEO in 2001. Definitions of all variables are provided in Appendix 1. Robust standard errors reported in parentheses are clustered at the industry level, as defined by 3-digit SIC. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

VARIABLES	**ΔLn(CEO_Comp)**	**ΔCEO_Delta**	**ΔTobin's Q**
	(1)	**(2)**	**(3)**
ΔFTA*Dep_Board2001	0.654**	-434.887*	-1.405
	(0.269)	(243.558)	(1.066)
Dep_Board2001	-0.191	209.629	0.275
	(0.117)	(131.439)	(0.285)
ΔFTA	-0.239*	401.187	-1.303*
	(0.134)	(273.468)	(0.742)
ΔDir_Tie	0.023	-9.000	-0.100
	(0.021)	(30.517)	(0.114)
ΔDir_Tie_UnKnown	0.007	-251.682*	-0.960
	(0.111)	(150.405)	(0.854)
ΔLn(TotalAssets)	0.288***	-155.027	-1.629***
	(0.069)	(98.965)	(0.452)
ΔSegment	-0.000	-5.507	0.010
	(0.007)	(14.000)	(0.016)
ΔEBITDA/TA	2.978***	-720.489	
	(0.387)	(883.499)	
ΔR&D/PPE	0.078	-190.449	0.059
	(0.188)	(128.191)	(0.731)
ΔRDUM	0.108	85.431	0.325
	(0.128)	(99.434)	(0.450)
ΔRisk	5.681*	7,089.039	-17.324
	(3.065)	(5,855.998)	(33.163)
ΔRiskD	-0.342**	-214.414	-1.044
	(0.173)	(269.327)	(1.043)
Constant	0.298***	-142.349	0.273*
	(0.062)	(88.528)	(0.144)
Observations	705	705	644
Adjusted-R^2	0.133	-0.005	0.102

Table 10: Interactive Effects of the Capacity to Increase FTA and the Board Regulation on CEO Compensation and Firm Value.

This table estimates how the effect of the independent board requirement on CEO compensation and firm value varies across pre-regulation FTA, as measured by FTA in 2001. The dependent variables are total CEO compensation in Columns (1)-(2); CEO Delta in Columns (3)-(4); and Tobin's Q in Columns (5)-(6). The sample period is 1996-2006, excluding 2002. The sample excludes observations in which CEOs are not the CEOs in 2001. Definitions of all variables are provided in Appendix 1. All regressions control for firm- and year fixed effects. Robust standard errors reported in parentheses are clustered at the firm level. Coefficients marked with *, **, and *** are significant at 10%, 5%, and 1%, respectively.

VARIABLES	Ln(CEO_Comp)		CEO_Delta		Tobin's Q	
	(1)	(2)	(3)	(4)	(5)	(6)
Dep_Board2001*Post	-0.051	0.144	119.494*	-25.444	-0.008	-0.251
	(0.077)	(0.101)	(64.066)	(42.623)	(0.104)	(0.164)
Dep_Board2001*Post*FTA_2001		-0.476**		384.314**		0.644**
		(0.200)		(178.655)		(0.306)
Post*FTA_2001		-0.095		-332.419*		-0.385***
		(0.067)		(187.359)		(0.106)
Dir_Tie	0.027	0.027*	-25.225	-25.210	-0.005	-0.006
	(0.017)	(0.015)	(26.777)	(26.535)	(0.016)	(0.016)
Dir_Tie_UnKnown	-0.475***	-0.485***	-29.833	28.603	-0.784***	-0.704***
	(0.165)	(0.164)	(412.497)	(423.467)	(0.274)	(0.272)
CEOTEN	0.016	0.024	2.332	21.329	0.016	0.037*
	(0.016)	(0.015)	(27.142)	(24.531)	(0.018)	(0.019)
Ln(CEOAge)	2.999***	2.998***	-1,975.147	-1,597.387	-0.752	-0.255
	(0.991)	(0.827)	(1,579.363)	(1,462.282)	(1.014)	(1.035)
$Ln(TotalAssets)_{t-1}$	0.147***	0.147***	-130.319	-140.850	-0.912***	-0.924***
	(0.043)	(0.040)	(217.886)	(216.901)	(0.166)	(0.166)
FirmAge	-0.000	-0.001	2.631	3.175	0.000	0.001
	(0.003)	(0.005)	(3.473)	(3.586)	(0.003)	(0.003)
$Segment_{t-1}$	0.000	0.000	16.242	15.398	0.008*	0.007
	(0.003)	(0.002)	(16.652)	(16.356)	(0.005)	(0.005)
$EBITDA/TA_{t-1}$	2.141***	2.134***	-441.762	-572.189		
	(0.304)	(0.228)	(608.234)	(621.250)		
$R\&D/PPE_{t-1}$	0.055	0.046	52.792	38.505	0.331	0.320
	(0.071)	(0.046)	(163.255)	(160.113)	(0.312)	(0.311)
$RDUM_{t-1}$	0.010	0.010	57.006	42.441	0.009	-0.010
	(0.092)	(0.105)	(54.407)	(52.783)	(0.155)	(0.156)
$Risk_{t-1}$	2.844	2.509	2,827.328	1,385.989	-11.242	-12.792
	(1.872)	(1.747)	(5,093.844)	(4,652.129)	(7.901)	(7.929)
$RiskD_{t-1}$	-0.087	-0.075	-83.417	-43.374	-0.122	-0.076
	(0.073)	(0.081)	(129.960)	(114.521)	(0.188)	(0.183)
Constant	-5.612	-5.636*	8,799.366	7,288.745	12.139***	10.120**
	(3.825)	(3.158)	(6,628.813)	(6,232.016)	(4.431)	(4.466)
Firm FE & Year FE	Y	Y	Y	Y	Y	Y
Observations	4,845	4,845	4,845	4,845	4,444	4,444
Adjusted-R^2	0.651	0.651	0.185	0.186	0.642	0.643