Unintended Consequences of the Independent Board Requirement on CEO Power

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Abstract

NYSE and NASDAQ listed firms are required to have a majority of independent directors starting 2004. Since the regulation can weaken CEO influence over the board, affected CEOs may counter it by building a closely aligned team of top executives to strengthen their structural power. Using a differences-in-differences approach, we find that affected CEOs fill their executive suites with significantly higher abnormal fractions of top executives hired or promoted during their tenure, and with executives with previous employment ties. This finding is not due to greater executive turnovers, confounding effects, corporate frauds, or appointing new CEOs. The accumulation of CEO power at affected firms is associated with less profitable acquisition bids and lower firm valuation. And the power increases at affected firms are observed only when they are subject to weak external governance. These findings raise the question of whether the benefits of the regulation justify its unintended consequences.

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I. Introduction

Over the past decade corporate governance has been closely scrutinized by policy makers and regulators. Corporate scandals in 2001 and 2002 led to an independent board requirement and the Sarbanes-Oxley Act (SOX); and the recent financial crisis led to various reforms concerning executive compensation and director nomination, among others. Although it is too early to provide evidence on the effects of these post-financial-crisis reform measures, a number of studies point out potentially harmful consequences of SOX--a reminder to policy makers that they must carefully consider unintended consequences of regulations and weigh their side effects against intended benefits.[1] Such evaluation requires identification of potential channels affected economic players may use to circumvent or exploit a new regulation, circumstances under which the attempts are more likely to succeed, and the extent to which unintended consequences offset the intended benefits.

In this paper, we provide evidence of surprising unintended consequences of the independent board requirement--affected CEOs strengthening their structural power by building a closely aligned team of top executives with more social ties through previous employment. We observe the power increases at affected firms only when they are subject to weak external governance. And accumulation of such power seems to have harmful effects on shareholder value.

Responding to major corporate scandals in 2001 – 2002, in 2002 the NYSE and NASDAQ submitted to the SEC a proposal requiring a majority of independent directors. The proposal, approved in 2003, requires listed firms to comply no later than October 31, 2004. The new regulation intends to make the board more effective in monitoring and guiding management toward more shareholder friendly policies.

[1] Ribstein (2002), Romano (2005), Holmstrom and Kaplan (2003), and Bargeron, Lehn, and Zutter (2007) argue that SOX may reduce management risk-taking incentives, distort corporate disclosure, impede the flow of internal information, and reduce firms' abilities to attract qualified managers and directors, respectively. In addition, Gao, Wu, and Zimmerman (2009) document that the Section 404 exemption for small firms discourages them from growing, and Linck, Netter, and Yang (2009) find that SOX has increased overall director costs by increasing their workload and risk. Evidence also suggests that SOX may have negative impacts on shareholders (Zhang, 2007), bondholders (DeFond et al., 2008), and small firms (Iliev, 2010). The first study on unintended consequences of regulation is the path breaking work by Merton (1936), which led to many important contributions to the study of regulation. See, for example, Averch and Johnson (1962), Stigler (1971), Ayling and Grabosky (2006), Ahmed and Braithwaite (2007), and Compton, Sandler, and Tedds (2010).

For firms without a majority of independent directors, the requirement reduces the fraction of directors linked to the firm through employment or present and past business ties. Because CEO influence over employee- and linked directors is greater than over independent directors, compliance to the regulation leads to reduced CEO influence over the board (e.g., Chhaochharia and Grinstein, 2009). We hypothesize that some affected CEOs, in turn, engage in activities to recoup the loss of influence.

Specifically, we hypothesize that affected CEOs build a more closely aligned and personally loyal team of top executives, entrenching in executive suites. By presenting a more united front against their newly independent boards, CEOs may retain their influence on decision making. To this end, affected CEOs may fill their executive suites with abnormally high fractions of top executives hired or promoted during their tenure. Simply put, if a CEO cannot have his buddies in the board room, he may fill the executive suite with his buddies. This would help counter a more independent board's monitoring and oversight.

Because CEOs are heavily involved in recruiting and nominating top executives and are the most influential on their promotions, the newly hired and promoted executives are more likely to share similar beliefs, preferences, and vision, and be more loyal to the CEO. They also are likely to be less likely to dissent (Landier, Sraer, and Thesmar, 2008), whereas executives accustomed to working with a previous CEO are more likely to challenge orders received from a new CEO.

Thus, the greater the fraction of top executives hired or promoted with a CEO's recommendation, the more capable is the CEO to exert his will over them, strengthening what Finkelstein (1992) defines as CEO structural power arising from formal and informal hierarchical authority and organizational structure (see also Adams, Almeida, and Ferreira, 2005). Since this structural power helps counter the newly independent board's oversight, we predict that the 2003 regulation will trigger an increase in the abnormal fraction of top executives hired or promoted, but only among firms affected by the regulation—firms without a majority of independent directors prior to the regulation.

Data is consistent with this prediction. We employ a differences-in-differences approach comparing firms affected and unaffected by the new regulation and their abnormal fractions of top four non-CEO executives hired or promoted during a CEO's tenure. The affected firms show significantly greater increases in the abnormal fraction of newly hired or promoted executives following the regulation. The average increase is 22.9% of the sample standard deviation. By contrast, unaffected firms show no change in the abnormal fraction of top executives hired or promoted. Furthermore, a similar differences-in-differences test reveals greater ties through previous employment between CEOs of affected firms and their newly hired or promoted executives following the regulation.

The abnormal increases in top executives hired or promoted are not due to greater executive turnovers at the affected firms. If executive turnovers are driving our results, affected firms will have more CEO and top executive turnovers than unaffected firms. This is not what we find. Comparing affected and unaffected firms before and after the regulation, we find no difference in top five executive turnover or CEO turnovers. In addition, voluntary switches from a dependent to independent board (as defined by a majority of independent directors) during the pre-regulation period are not accompanied by an abnormal increase in the fraction of top executives hired or promoted.

Other robustness tests include whether our results are driven by confounding effects, frauds during 2001 and 2002, or new CEO effects during the post-regulation period. They are not. The results are also robust to alternative definitions of CEO power and sample constructions.

These results lead to our next question: Are regulation-induced increases in the abnormal fraction of new hires and promotions harmful to shareholder value? The answer is not obvious. On the one hand, the entrenchment in executive suites may hurt firm performance because it requires a higher priority to build a new team of top executives loyal to CEOs than one with the best combination of experience and talent. On the other hand, the concomitant increase in CEO structural power may not be harmful, as it may expedite the decision making process and lead to more timely and efficient responses to changing market

conditions. The closer social ties might not be bad either. Although close personal connections may impair objective judgments leading to favoritism, they also may encourage advice seeking and cooperation.

To determine the net effect of CEO power increases on shareholder value, we relate the cumulative abnormal fraction (CAF) of top executives hired or promoted during a CEO's tenure since 2001 (the base year) to two outcome measures closely related to shareholder value: investor reaction to acquisition bids and Tobin's Q. For firms affected by the regulation, we find the CAF is significant and negatively related to both the profitability of acquisition bids and Tobin's Q. A standard deviation increase in the CAF is associated with a 0.22% lower market reaction to an acquisition bid announcement. (The average reaction is 0.5%.) The same increase in CAF is also associated with 0.102 lower Tobin's Q. For unaffected firms, we find no relation. The difference between affected and unaffected firms is significant, implying that regulation-induced increases in the CAF are harmful to shareholder value.

Thus, from the shareholder perspective, entrenchment in executive suites is a failure of internal governance. When internal governance fails, the next layer of checks against managerial misbehavior is external governance (EG). We expect strong EG to curtail increases in CEO structural power at affected firms, and predict that the increases are concentrated among firms subject to weak EG. The strength of EG is measured by product market competition, institutional ownership concentration, or the presence of a blockholder-director. Consistent with our prediction, increases in CEO structural power are confined to those subject to weak EG. There is no evidence that affected firms under strong EG experience an abnormal increase in the fraction of top executives hired or promoted following the regulation.

These findings have important policy implications. They imply that the independent board requirement triggered reactions by CEOs at affected firms, leading to top management teams more closely-aligned with CEOs. The concomitant increase in CEO structural power seems to be harmful to shareholders. This evidence is consistent with Landier et al. (2008), who document a negative relation between the abnormal fraction of top executives hired during CEO tenure and Tobin's Q; Bebchuk,

Cremers, and Peyer (2008), who show that CEO centrality hurts firm performance; and Morse, Nanda, and Seru, (2010), who document that powerful CEOs rig incentive contracts.[2] Furthermore, a recent study by Khanna, Kim, and Lu (2010) documents that the abnormal fraction of top executives hired or promoted during CEO tenure is positively related to the likelihood of corporate fraud involving management and is negatively related to the likelihood of detection. These harmful effects of CEO structural power suggest that the unintended consequences of the independent board requirement undermine the intended benefits. Therefore, whether the regulation is beneficial to shareholders remains an open question.

The next section develops our main hypothesis and lays out the baseline empirical design. Data, sample construction, and summary statistics are described in Section III. Section IV presents evidence on the impact of the independent board requirement on CEO structural power, followed by a battery of robustness tests and complementary evidence. Section V relates changes in CEO power accumulated since 2001 to the profitability of acquisition bids and Tobin's Q. Section VI investigates the interactive effects of external governance and the board independent rule on CEO power. Section VII concludes.

II. Hypothesis Development and Empirical Design

A. The Hypothesis

When board composition is unregulated, board independence is endogenous. Hermalin and Weisbach (1998) argue that board independence is determined by a bargaining process between CEOs

[2] These authors' definitions of CEO power differ from ours. Their proxies include CEO centrality as measured by the pay gap between CEO and other top executives (Bebchuk et al., 2008), CEO being the only member of the board (Adams et al., 2005; Bebchuk et al., 2008), and CEO also chairing the board (Adams et al., 2005; Morse et al., 2010). We do not use the CEO centrality measure because it also reflects the gap in perceived managerial talent between CEO and other top executives, which is unlikely to be affected by the regulation or harmful to shareholder value. The CEO being the only inside director of the board has a duality: The CEO may have more structural power over other executives, but she may have less influence over the board because the rest of board members are outside directors. The CEO/chair combination may enhance CEO structural power, but our differences-in-differences analysis does not reveal any difference in the CEO/chair combination between affected and unaffected firms and between pre- and post regulation periods (unreported). Finally, we do not use CEO tenure as a proxy for power, because it may also reflect managerial ability to hold on to the job.

and boards.[3] Their model implies that CEOs with greater perceived managerial talent have more bargaining power and, hence, have less independent boards. Thus, the independent board requirement disturbs the bargaining outcome for firms without independent boards. To offset the impact of the regulation, affected CEOs may attempt to increase their structural power in executive suites.

Consider a firm where the majority of directors are not independent because the CEO has strong bargaining power. When the firm is hit with the regulatory shock and has to restructure the board to meet the independence requirement, the strong bargaining power may enable him to more effectively counter the effect of the regulation. A possible course of action is for the CEO to replace—more precisely, obtain approval to replace—more-than-usual top executives hired or promoted during his predecessor's tenure with executives newly hired and/or promoted.[4] This will strengthen the CEO's power over the top executives, enabling him to counter newly independent board oversight with a more united and loyal top management team.

Most CEOs take an active role in identifying, recruiting, and nominating their top executives, whereas the role of boards is limited to that of oversight. In contrast to CEOs who have numerous full-time support staff, board membership is a part-time job with limited access to information on the pool of available qualified candidates and on qualifications of candidates nominated by a CEO. Thus, CEOs have effective control in deciding who gets hired or promoted to top executive positions. The chosen top executives, in turn, may share similar beliefs, preferences, and vision as those of the CEO who was closely involved in identifying and recruiting them. These executives will be more closely aligned to the CEO who hires or promotes them. They also will be more loyal and are less likely to dissent to the CEO (Landier et al., 2008). By contrast, executives accustomed to working with a previous CEO are more likely to challenge

[3] See Raheja (2005), Harris and Raviv (2006), and Adams and Ferreira (2007) for other theories on board structure and composition.

[4] Another possible course of action, as suggested by Hermalin and Weisbach (1998), is to convince the board to select new board members with greater distaste for monitoring. Although plausible, we do not pursue this possibility because of the "distaste" is a personal attribute that is difficult to measure. Furthermore, once selected, there is no assurance that a board member will continue to have the same distaste because reputational considerations, fiduciary responsibilities, and external pressures may induce the independent director to become a more active monitor.

orders received from a new CEO. Thus, when a CEO has more top executives hired or promoted during his tenure, it may be easier to exert his personal will over them; that is, his structural power in the executive suite will be stronger, which helps him more effectively counter newly independent boards' oversight.

Therefore, to counter the regulatory effect, CEOs whose power relationship with the board is perturbed by the regulatory shock may wish build their own teams of executives through greater than usual new hires and promotions. In contrast, firms already in compliance with the independent board requirement are not affected by the regulation, their bargaining outcome is intact, and there is no reason to expect abnormal increases in new hires and promotions.

We focus on *abnormal* increases in new hires and promotions to control for other factors associated with the number of top executives hired or promoted during a CEO's tenure—e. g., a CEO with longer tenure will have hired or promoted more top executives. We predict:

Following the independent director requirement, firms affected by the regulation will increase the abnormal fraction of top executives hired or promoted during the current CEO tenure, whereas unaffected firms will not.

B. Proxy for CEO Structural Power

Landier et al. (2008) are the first to use the abnormal fraction of top executives hired during a CEO's tenure to measure CEO power. We include top executives promoted because they are also likely to be more closely aligned with the CEO who identified and recommended their promotion than those promoted by a previous CEO. To calculate the fraction of top executives hired or promoted during a CEO's tenure of firm *i* in year *t*, $FRAC_{it}$, we rely on ExecuComp and rank non-CEO top executives by the sum of their salaries and bonuses. We keep the top four non-CEO executives, dropping firm-year observations with less than four top executives reported by ExecuComp. This sample restriction is necessary to prevent firm-years with less than four top non-CEO executives from adding noise to within-firm variation in

$FRAC_{it}$.[5] Then, we compare the first year an executive appears on the list of top four non-CEO executives with the year the current CEO took office. If the first appearance year of an executive occurs after the CEO is appointed, the executive is considered hired or promoted during the CEO tenure. We divide the number of executives hired or promoted by four to obtain $FRAC_{it}$.

Landier et al. document that the fraction hired during a CEO's tenure is related to the length of CEO tenure and of other top executives' tenure, whether the CEO is recruited from outside, and the fraction of executives hired during the first year of CEO tenure. Thus, CEO structural power, as measured by the abnormal fraction, is residuals of the following regression:

$$FRAC_{it} = \alpha_0 + a_1 CEOTEN_{it} + a_2 EXECSEN_{it} + a_3 OUTSIDE_{it} + a_4 KNOWN_{it} + a_5 FRAC\_1Y_{it} + YEAR_t + INDUSTRY_j + STATE_l + \varepsilon_{it} \quad (1)$$

$CEOTEN_{it}$ is the number of years firm *i*'s CEO has been in office by year t.[6] $EXECSEN_{it}$ is the average number of years firm i's top four non-CEO executives have been in office by year t. $OUTSIDE_{it}$, is an indicator variable equal to one if the CEO comes from outside the firm. $KNOWN_{it}$ is the fraction of executives for which tenure is reported in the data; this is included as a control variable because $EXECSEN_{it}$ is based on the executives whose tenure is known. $FRAC\_1Y_{it}$ is the fraction of executives who are hired or promoted within a year of the CEO's nomination.

The regression also controls for year-, industry-, and state fixed effects to account for macro-economic, industry-specific, and state-specific factors that may affect top executive mobility such as hiring, promotion, and retention decisions. We use the three-digit SIC code to define industries. The

[5] See Kim and Lu (2010) for an illustration of how changes overtime in the number of top executives in the insider share ownership add noise in the within-firm variation and bias the result toward the null. Although the sample restriction solves the bias, it may introduce a selection bias. For that reason, we cross-check proxy statements, which reveal that missing executives are due to omission by ExecuComp rather than to dismissal, alleviating our concern for a selection bias.

[6] Previous studies relying on ExecuComp to obtain CEO tenure report significant numbers of negative CEO tenure. We trace the negative tenure to ExecuComp's practice of reporting a CEO starting year only for the latest appointment. Thus, if a CEO leaves the position and returns later, relying on ExecuComp's start date will yield a negative tenure. We correct for this problem by backtracking the previous appointment year using the CEO name.

residuals from the regression, ε_{it}, are our measure of abnormal fractions of executives hired or promoted during a CEO's tenure. This is our proxy for CEO structural power over other executives, $Power_{it}$.

Table II, Column (1) reports the estimate of Regression (1). Unsurprisingly, the fraction of executives hired and promoted during a CEO's tenure is positively related to the length of the CEO tenure and negatively related to the average non-CEO executive tenure. The results also show that a substantial portion of new hiring and promotions are completed during a CEO's first year of tenure and CEOs hired from outside tend to build a team of top executives with more new hires and promotions than CEOs from inside the firm. The adjusted R^2 of the regression is 0.78, suggesting strong explanatory power of the regression model, which indicates the residuals are meaningful estimates of the abnormal fraction, our estimate of $Power_{it}$.

C. Empirical Design

The proposal requiring a majority of independent directors was submitted to the SEC in 2002. It was approved in 2003 with the deadline for compliance as October 31, 2004. Many firms began to change their board structure once the recommendations were promulgated by the exchanges, with the biggest changes occurring in 2002 and 2003. (See Table III.) 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. To test our prediction, we begin with the following differences-in-differences specification:

$$Power_{it} = a_i + \gamma Dep\_Board2001_i * Post_t + \lambda Post_t + \delta X_{it} + \varepsilon_{it} \qquad (2)$$

$Power_{it}$ is the abnormal fraction of top executives hired or promoted during the tenure of firm *i*'s CEO as of year *t.* $Dep\_Board2001_i$ is an indicator variable equal to one if firm *i* did not have a majority of independent directors in 2001 and zero otherwise. This indicator variable is interacted with $Post_t$, an indicator equal to one if year *t* is 2003 or thereafter, and zero otherwise. This specification is similar to the one used in Chhaochharia and Grinstein (2009). Regression (2) estimates differences in CEO power

between affected and unaffected firms and between pre- and post-regulation periods. The coefficient of main interest is γ, which is predicted to be positive.

The reliance on the dummy variable, $Dep\_Board2001_i$, to identify affected firms hides important information. Consider two affected firms: one with 40% independent directors in 2001 and another with only 10%. Clearly, the latter is more affected by the regulation, and our hypothesis predicts a stronger reaction by its CEO. Thus, we also interact the dummy variable with a continuous variable $Pct\_Dep\_Board2001_i$, the percentage of non-independent directors in 2001, and report the estimation results throughout the paper. As a further robustness check, we also estimate all regressions with $Pct\_Dep\_Board2001_i * Post_t$ alone without interacting it with the dummy variable. The results (unreported) are robust.

X is a vector of control variables. It includes $Ln(TotalAssets)_{it-1}$, the logarithm of the book value of total assets, because both CEO power and board composition may be related to firm size. We also control for the following CEO characteristics: $Female_{it}$, an indicator variable for a CEO's gender; $CEOAge_{it}$, a CEO's age; CEO_OWN_{it-1}, the percentage of outstanding shares a CEO owns in year *t-1*; CEO_Chair_{it}, an indicator variable for a CEO also chairing the board. These variables are end-of-the-year variables. Thus, CEO share ownership is lagged by a year to make it the beginning of the year share ownership. Other CEO characteristics are not lagged because they indicate those of CEOs who held the position for more than six months during the year. Table I describes all variables used in this paper.

Regression (2) also includes firm fixed effects, a_i, to control for unobservable firm characteristics that may affect CEO power. Year fixed effects are not included because $Power_{it}$ is estimated while controlling for year fixed effects. Following Chhaochharia and Grinstein (2009), standard errors are clustered at the firm-period level.

III. Data and Sample Construction

We employ panel data from 1994 to 2008. Executive data in ExecuComp is merged with board structure and director data provided by RiskMetrics, accounting data in Compustat, stock return data in CRSP, and education, employment, and social activity data in BoardEx. The ExecuComp database covers information on executive compensation, position, and the year of entry to- and exit from the company. These data allow us to construct the abnormal fraction of top executives hired or promoted during a CEO's tenure.[7] The RiskMetrics database classifies a director into three types: E-employee, I-independent, and L-linked. An independent director is a person neither affiliated nor currently an employee of the company.[8] From these data sources, we identify 10,161 firm-year observations associated with 775 unique firms that have sufficient data to construct the CEO power variable and necessary information on board composition in 2001. Table III, Column (1) shows the number of firms with the necessary data by year. The sample is not balanced. We do not require that firms exist throughout the sample period 1994-2008 because the survivorship requirement would greatly reduce the sample size. As a robustness check, we re-estimate using a balanced sample. The results are robust.

Column (2) of the table reports by year the percentage of firms that have a majority of independent directors. By 2001, 84.75% of firms had a majority of independent directors, indicating only 15.25% were affected by the new rule. It also shows that many firms began to change their board structure once the

[7] The ExecuComp database provides appointment dates of CEOs and CFOs, but not for other top executives. For these executives, we use the first appearance year in ExecuComp as the year an executive obtained the position. If a CEO joined the firm after 1992, the year the database begins, we use the first appearance year to determine whether a non-CEO-CFO is hired or promoted during the CEO's tenure. If a current CEO was in the position in 1992, we cannot tell whether a non-CEO-CFO top executive whose name also appears in 1992 was nominated to the position by the CEO. Starting our sample period from 1994 somewhat alleviates this ambiguity, because it provides two more years to compare the CEO's appointment year with the year an executive joined the company or the year in which his name first appears as executive, whichever is earlier. Starting the sample from 1994 also helps mitigate non-coverage bias because fewer firms were covered by ExecuComp during its initial stages of data compilation in 1992 and 1993.

[8] An affiliated director is a former employee of the company or of a majority-owned subsidiary; a provider of professional services, such as legal, consulting, or financial services, to the company; a customer of, or supplier to the company; a designee, such as a significant shareholder, under a documented agreement between the company and a group; a director who controls more than 50% of the company's voting power (and thus would not be considered to represent the broader interests of minority shareholders); a family member of an employee; or an employee of an organization or institution that receives charitable gifts from the company.

recommendations were put forth by the exchanges in 2002, with the biggest changes occurring in 2002 and 2003.[9] Surprisingly, despite the deadline of October 31, 2004, full compliance with the independence rule is not observed until 2007. Chhaochharia and Grinstein (2009) also report similar non-compliance for 2004 and 2005 and attribute the appearance of non-compliance to the stricter definitions of director independence by the Investor Responsibility Research Center (IRRC) than those of exchanges. In 2007 the data collection process and methodology was changed to follow the Institutional Shareholder Services' (ISS) specifications, making the compliance rate before and after 2007 incomparable. The change seems to have made the data more accurate, as it shows that over 99% firms were in compliance in 2007.

Columns (3)-(5) tabulate the percentage of dependent directors (employee and linked) for the full sample and separately for affected and unaffected firms. Although the full sample shows a steady decline over time in the percentage of dependent directors, there is a marked difference between the unaffected and affected firms. The unaffected firms show a gradual but steady decline over the entire period with relatively small yearly changes. By contrast, affected firms exhibit no decline until 2001, and then show big drops during 2002 – 2005, demonstrating the substantial impact the regulation had on their board composition. This pattern is the reason for choosing 2001 as the base year and 2003 as the start of the post-regulation period.

The last three columns of Table III show the average number of directors on the board, which is remarkably stable throughout the sample period. The average board size is about ten for both affected and unaffected firms for virtually all years. Thus, Columns (4) and (5) indicate that of these ten directors, the average affected firm had 6.4 dependent directors in 2001 dropping to 2.7 in 2008, whereas the average unaffected firms had 2.8 dependent directors in 2001 dropping to 1.7 in 2008. These statistics indicate that boards became more independent by replacing dependent directors with independent directors rather than by simply adding independent directors or dismissing dependent directors.

[9] This pattern is consistent with Linck, Netter, and Yang (2009) who show that while the proportion of independent directors was growing over time, the increases accelerated after 2002.

Information on social ties between a CEO and her top four executives is obtained by hand merging the names of executives covered by ExecuComp and the names of directors and executives covered by BoardEx. This matching provides information on CEOs' and top executives' education, past employment, and membership to organizations such as philanthropic and religious organizations, social clubs, and professional organizations. The information allows identification of ties through education, previous employment, and membership in non-profit organizations. *School_Tie* is the number of overlaps in educational institutions attended by a CEO and top four executives hired or promoted during her tenure as CEO.[10] As such, it is zero if there is no executive hired or promoted during the CEO tenure for a particular firm in a particular year. When the overlap is multiple between two individuals, we count it multiple times to reflect the depth of alumni network. *Employment_Tie*, is the number of overlaps in firms a CEO and the executives either worked as an employee or served as a member of the board. It is counted in the same way as *School_Tie.* Similarly, *Organization_Tie* is the number of overlaps in membership to social and professional organizations. We sum these three types of social ties to define the overall measure of social connections, $Social\_Tie_{it}$. Similar measures of social ties have been used by previous authors (e.g., Fracassi and Tate, 2009; Engelberg, Gao and Parsons, 2010; Duchin and Sosyura, 2010.) Because of the limited coverage of BoardEx prior to 2000, as in earlier studies, the sample period for social connections covers only 2000 through 2008.

Table IV provides summary statistics for key variables. The median of the power variable is close to zero, indicating no serious skewness. In 2001, the average percentage of dependent directors on boards is

[10] The BoardEx database sometimes assigns different identification numbers to the same institutions. For example, University of Michigan Business School can also be identified as University of Michigan Graduate School of Business, Michigan Business School, or Ross School of Business, and be given different identification numbers. We hand check all educational institutions on BoardEx to ensure that an educational institution with multiple names is assigned a unique identification number. We also make similar corrections for non-profit social and professional organizations. But for connections through past employment, we do not adjust for firm name changes because the name changes often reflect substantial changes in the nature and scope of business due to mergers, acquisitions, and bankruptcy proceedings. In addition, by not adjusting for name changes, we let the data identify more contemporaneous ties through employment and board experience.

33.4%.[11] The first raw in Panel D shows the sample observations are more or less evenly distributed between before and after the regulation; 46% and 42.5% of affected and unaffected firms' observations belong to the post-regulation period. Only 1.5% of CEOs are females; the average CEO is 57 years old and owns 1.9% of outstanding shares; and 69% of CEOs also chair the board.

The last two columns in Table IV reveal that affected and unaffected firms are similar in most characteristics as measured by the mean. They are similar in the fraction of top executives hired or promoted during the current CEO's tenure, CEO power as measured by the abnormal fraction, social ties through education and membership to non-profit organizations, CEO age, the market reaction to the announcement of acquisition bids (CAR (0,1)), and Tobin's Q.

The most notable exceptions are (1) the average percentage of dependent directors in 2001, which is already shown in Table III, and (2) the average social ties between a CEO and executives hired or promoted during the CEO tenure. The average social ties and connections through employment at affected firms are significantly greater, both at the 5% level, at affected firms than at unaffected firms. However, there is little difference in social ties through schools or organization; a large portion of the higher social connections at affected firms stem from overlaps in firms in which CEOs and the executives were previously employed or served as members of the boards.

CEOs of unaffected firms also own a smaller percentage of shares outstanding but more of them chair the board than CEOs affected firms. CEOs seem more likely to chair the board when firms have more independent boards, perhaps to counter more independent oversight by the board, and CEOs own less shares outstanding at unaffected firms, perhaps because CEO share ownership and the strength of governance via board oversight are substitutes (Kim and Yao, 2010).

IV. the Independent board requirement and CEO Power

[11] The slight differences in the average percentages of dependent directors between Tables III and IV are due to unbalanced firm-year observations in Table IV.

A. Main Results

Table V presents the baseline regression estimates of the impact of the independent board requirement on CEO power. The first column controls only for *Post*, the indicator for the post-regulation period, and firm fixed effects. The interaction term, *Dep_Board2001*Post,* is significant and positive, indicating that affected firms' CEO power significantly increases following the regulation.

Column (2) controls for CEO characteristics and firm size. We also drop observations of a new CEO's first year in office, which overlaps with the last year of the previous CEO. Dropping the transition year and data unavailability of control variables reduces the total number of observations to 7,502. The coefficient on the interaction term hardly changes. It implies that following the regulation, CEO power of the affected firms increases by 22.9% of the sample standard deviation. Column (3) interacts the percentage of non-independent directors in 2001 with the interaction term. The triple interaction term remains highly significant and positive. In addition, both Columns (2) and (3) show insignificant coefficients on the post-regulation dummy, indicating no changes in CEO power at unaffected firms.

Columns (4)-(5) estimate time trends in the impact of the regulation by multiplying year variables (e.g., 2003, 2004…, and 2008) to *Dep_Board2001*Post* and *Pct_Dep_Board2001*Dep_Board2001*Post* These interaction terms are significant and positive regardless of whether we add the percentage of dependent directors in 2001 to the interaction term. The time trend indicates that the positive effect on CEO power at affected firms increases over time, which makes sense because it takes time to build power through top executive hiring and promotion decisions.

Coefficients of the control variables show that of all control variables, only the CEO/Chair indicator is significant, suggesting that CEOs who also chair the board tend to surround themselves with more top executives hired or promoted during their tenure. Maybe their chair position helps them convince the board of the need to build a new team of handpicked top executives.

B. Robustness

These results support our hypothesis that CEOs of firms affected by the regulation deliberately increase the abnormal fraction of executives hired or promoted during their tenure in order to increase their structural power so as to counter newly independent boards' oversight. However, other possible explanations remain that may account for the appearance of greater CEO power following the regulation. They include greater top management turnover accompanying the establishment of newly independent boards, confounding effects, detection of corporate frauds, and the entry of a new CEO. We test these alternative explanations. We also check the robustness to alternative sample constructions and definitions of CEO power. In this section, we briefly summarize the test results. Detailed description of each test procedure and results are contained in the Appendix.

B.1. Top Management Turnover

The appearance of increased CEO power may result from actions initiated by newly independent boards. For example, a newly independent board's demand for improved performance may lead to management restructuring and an infusion of new faces to executive suites. These turnovers may increase the abnormal fraction of top executives hired or promoted. We compare top executive and CEO turnover frequency between affected and unaffected firms before and after the regulation using a similar differences-in-differences specification as in Regression (2). The results show no difference in either top executive turnover or CEO turnover between affected and unaffected firms following the regulation. The higher abnormal fraction hired or promoted for affected firms is achieved by greater replacement of executives hired or promoted by previous CEOs.

B.2. Confounding effects

Our results may have been driven by other events affecting the market for top executives around 2002. For example, the internet bubble burst in 2000 and the 9/11 attack in 2001 may have led to fewer new hires and promotions during 2000-2002, the period immediately preceding the regulation. If so, our estimate of CEO power would be low during 2000-2002, artificially boosting our estimate of CEO power

after the regulation. To check this possibility, we follow Bertrand and Mullainathan (2003) and replace the post regulation indicator in Regression (2) with dummies for 2000, 2001, 2002, 2003, 2004, and 2005-2008. The re-estimation results show no effects for any years before 2003 and significant affects after 2005 (The coefficients for 2003 and 2004 are positive but insignificant). The delayed response reflects the October 31, 2004 compliance deadline and the fact that hiring and promoting decisions of top executives take time. There is no evidence the results are not driven by confounding effects.

B.3. Corporate Fraud and New CEOs

We also consider corporate fraud and new CEOs as alternative explanations: Detection of management involvement in corporate fraud is likely to lead to their dismissal, requiring new or surviving CEOs to hire or promote more managers to fill the vacated positions, which in turn may give the appearance of greater CEO structural power. To investigate this possibility, we control for top executive turnovers due to frauds committed in 2001 or 2002. Contrary to our concern that firms with frauds in 2001 or 2002 may show greater abnormal fractions of top executives hired or promoted, frauds in 2001-2002 are negatively related to the abnormal fraction, indicating frauds weaken CEO structural power.

To investigate whether the increased CEO power in affected firms is driven by new CEOs, we estimate Regression (2) separately for firm years with no CEO turnover since 2001 and for firm years with a new CEO after 2001. The results show significant increases in the abnormal fraction for affected firms whether CEOs are same or different.

B.4. Alternative Sample Constructions and Definitions of CEO Power

We re-estimate Regression (2) with two alternative sample constructions: A balanced sample of 559 firms that survived the sample period 1998-2008 over 5 years before and after 2003, excluding observations in 2003; and a sample excluding financial and utility firms. We also use two alternative CEO power variables. First, we use the raw value of fraction hired or promoted, *FRAC*, as the proxy for CEO power while adding the explanatory variables in Regression (1) to Regression (2) as control variables.

Second, since there may be differences in relative importance among top executives, we weight *Frac* by the sum of executives' salaries and bonuses in estimating Regression (1). The results are robust to the alternative sample constructions and the alternative definitions of CEO power.

C. Complementary Evidence

Having demonstrated the robustness of our main results with a battery of tests, we now turn to other evidence that further buttresses our interpretation that the increases in the abnormal fraction of executives hired or promoted are deliberate attempts by affected CEOs to increase their structural power to counter oversight by newly independent boards. We begin with an inquiry into whether or not top executives hired or promoted by affected firms subsequent to the regulation are more likely to have closer personal relationship with their CEOs prior to their appointment than those by unaffected firms.

C.1. Social Ties between a CEO and Top Executives Hired or Promoted during the CEO's Tenure

We proxy the closeness of personal relationship between a CEO and the executives by social ties established prior to the hiring and promotion decisions. Individuals sharing social ties through education or experiences tend to have more frequent contacts, a greater level of trust, and better mutual understanding (Cross, 2004). Thus, everything else being equal, a CEO attempting to strengthen structural power in executive suites may prefer to hire or promote executives with whom he already has established social connections.

To examine how the connections differ between affected and unaffected firms and between pre- and post-regulation, we estimate the following differences-in-differences specification:

$$Social\_Tie_{it} = a_i + \gamma Dep\_Board2001_i * Post_t + \lambda Post_t + \vartheta Frac_{it} + \eta Known\_BoardEx_{it} + \delta X_{it} + \varepsilon_{it} \quad (4)$$

$Social\_Tie_{it}$ is the overall measure of social ties between a CEO and the top four executives hired or promoted during the CEO tenure, which is the sum of *Education_Tie, Employment_Tie, and Organization_Tie*. $Dep\_Board2001_i * Post_t$ and $Post_t$ are the same as Regression (2). Since these social-tie

measures are conditional upon the presence of new hires and promotions, we control for the fraction of executives hired and promoted during the incumbent CEO's tenure, *Frac*.

We include all control variables used in Regressions (1) and (2), including year- and firm fixed effects because the factors related to our measure of CEO power may also be related to the measures of social ties. Standard errors are also clustered at the firm-period level.

BoardEx does not cover all CEOs and top four executives in our sample. To avoid reducing the sample size, when an executive's social connection to her CEO is not known, we assign zero connection. This clearly leads to underestimation of social ties and biases in favor of the null. To lessen the underestimation, we add a variable, *Known_BoardEX,* the percent of top four executives covered by BoardEx in that firm-year observation. This variable controls for missing information on social ties. For example, it is zero when none of the top four executives hired or promoted is covered by BoardEX. It is also zero when a CEO is not covered by BoardEx, providing no information on social ties between the CEO and her executives. It is set to one when a firm-year observation shows no executives hired or promoted, because there is no information that can omitted regardless of how many executives BoardEx covers in that observation.

Of 6,545 firm-year observations used to estimate Regression (4), BoardEx does not cover CEOs in 290 observations, and in 346 observations it provides no information on at least one non-CEO top executives hired or promoted during the current CEO's tenure. These missing observations constitute 9.72% of the sample. As an alternative test, we simply drop these observations and re-estimate the regression without *Known_BoardEX.* The results (unreported) are robust.

Our intial estimation excludes firms in financial industries defined by the first-two digit SIC code (60 to 69). Because of the high concentration of finance jobs in major financial centers such as New York, executives may establish close connections through informal social and professional channels, making our measure of ties through past employment matter less. School ties may also matter less because of

the relatively homogeneous educational backgrounds of executives in the financial industry—e.g., higher representation of Ivy schools and elite MBA program graduates in the investment banking industry.

Table VI, Panel A, Columns (1) and (2) reports the estimation results for the overall measure, *Social_Tie*. Both *Dep_Board2001*Post* and *Pct_Dep_Board2001*Dep_Board2001*Post* are significantly positively related to the social-tie measure, indicating that executives hired or promoted during a CEO's tenure at the affected firms are more socially connected to the CEO than those at unaffected firms.

The overall measure of social ties may mask important heterogeneity across types of social ties, which is evident from summary statistics in Table IV, showing a significant difference between affected and unaffected firms in *Employment_Tie* but no difference in either *School_Tie* or *Organization_Tie.* When we estimate the regression separately for each social tie, the results are not significant for *School_Tie* and *Organization_Tie.* The significant results for the overall tie measure are driven by *Employment_Tie,* which are reported in Columns (3) and (4).

These results imply that CEOs seeking to hire or promote executives with established personal relationships tend to focus on their working relationship established through past employment rather than connections through alumni networks or membership to social and professional organizations. Previous working experience for the same firm or serving the same board would more clearly illuminate similarities in briefs on how a firm should be managed and closeness of on-the-job relationship. In addition, education tends to precede employment, making employment ties more recent and important than school ties. As for connections through social and professional non-profit organizations, the overlap in memberships may have occurred after the hiring and promotion decisions, making them less reliable measures of exogenous social ties.

As a robustness check, Panel B of the same table reports the estimation results for the full sample. As expected, the results are weaker, perhaps because of the noise introduced by the inclusion of financial

firms. Both *Dep_Board2001*Post* and *Pct_Dep_Board2001*Dep_Board2001*Post* are positively related to the overall social-tie measure, *Social_Tie,* but the relation is only marginally significant with p-values of 14.8% and 14.1%. However, when we focus on *Employment_Tie* as the measure of personal relationship, the relation becomes significant.

In sum, we find that top executives hired or promoted during a CEO's tenure at affected firms are more closely connected to the CEO through past employment or board experience than unaffected firms. The previously established working relationship and connections may help affected CEOs more effectively build their structural power in executive suites.

C.2. Voluntary Switches to an Independent Board

Another complementary test can be conducted by examining voluntary switches to a majority of independent directors during the pre-regulation period. If voluntary switches also show increases in the abnormal fraction of top executives hired or promoted or in social ties between the executives and CEOs, our findings cannot be attributed to the regulation. The securities laws did not address board composition or director qualifications prior to the regulation. [12] We relate CEO power to voluntary switches to independent boards by estimating Regression (5) with pre-regulation data:

$$Power_{it} = a_i + \gamma\,(1 - Dep\_Board_{it}) + \delta X_{it} + \varepsilon_{it} \qquad (5)$$

Dep_Board_{it} is an indicator variable equal to one if firm *i* in year *t* has a dependent board, as defined by the majority of independent directors. Thus, $(1 - Dep\_Board_{it})$ is an indicator for a voluntary switch from a dependent board to an independent board. We use the same control variables as in Regression (2).

The estimation results are reported in Table VII, Columns (1) and (2). The coefficient on the voluntary switch indicator is insignificant. The same is true when the indicator variable is replaced by a continuous variable $(1 - Pct\_Dep\_Board_{it})$, the percentage of independent directors. Interestingly, the control variables show the same pattern as in the regression estimates for switches mandated by the

[12] Courts were also reluctant to mandate board structure because doing so is difficult (Karmel, 1984; Linck, Netter, and Yang, 2008).

regulation. Of all control variables, only CEOs who also chair the board show significant positive relation to our measure of CEO power.

Columns (3) through (6) of Table VII conduct a similar test on social ties for voluntary switches to independent boards during the pre-regulation period. The regression specification is:

$$Social\_Tie_{it} = a_i + \gamma\,(1 - Dep\_Board_{it}) + \vartheta Frac_{it} + \eta Known\_BoardEx_{it} + \delta X_{it} + \varepsilon_{it} \qquad (6)$$

The control variables are the same as in Regression (4). The results are reported for both the overall social tie and connections through past employment. None of the social tie measures shows any relation to voluntary switches.

In sum, voluntary switches from a dependent to an independent board are unrelated to CEO power, regardless of whether we focus on the abnormal fraction of top executives hired or promoted during a CEO's tenure or on the social ties between CEOs and the executives. These results provide further support for our hypothesis. They also are consistent with the Hermalin and Weisbach model (1998), which implies that a voluntary switch is a bargaining outcome. The endogenous outcome should not trigger an identifiable change in CEO power.

V. Accumulation of CEO Power and Shareholder Value

Our underlying hypothesis is that increases in CEO power following the independent board requirement are the results of affected CEOs giving a higher priority to building a team of their own executives rather than to finding the best combination of experience and talent. A top management team assembled with such a priority is likely to underperform, harming shareholder value.

Nevertheless, the motive may not be solely power seeking. For example, a newly independent board may feel more confident in its ability to monitor the management and allow its CEO to build her own team of executives. Or, worried about possible intervention by a newly independent board demanding drastic changes, a CEO may want to ensure continuity in corporate policies by building a top management team

with shared beliefs and vision. These alternative explanations do not necessarily imply that abnormal increases in top executive hires or promotions or that their closer connections to CEOs through previous employment are harmful to shareholders.

In addition, CEO structural power itself may not be bad. Powerful CEOs may expedite the decision making process, resulting in better anticipation of- and timelier and efficient reaction to the internal problems and external challenges of changing market conditions. Although Hwang and Kim (2009) find that boards with fewer socially independent directors award their CEOs with higher compensation, suggesting social ties lead to favoritism, Westphal (1999) and Schmidt (2009) argue that social connections may encourage advice seeking and collaborative behavior. That is, CEO power could be a double edged sword posing greater benefits and risks to shareholders. This is evident in Adams et al. (2005) who find powerful CEOs are associated with both firms' best performance and worst performance.

In this section we investigate whether post-regulation increases in CEO power have adverse or benign effects on shareholder value. Specifically, we relate post-regulation increases in CEO power to two outcome variables: profitability of acquisition bids and Tobin's Q. Since acquisition bids represent one of the most visible and important corporate investment decisions, their profitability indicates the shareholder friendliness of a firm's policy. Furthermore, Masulis, Wang, and Xie (2007) find that corporate governance affects profitability of acquisitions. To relate CEO power to overall firm performance, we use Tobin's Q.

A. Acquisition Bids

Acquisition bids are obtained from Thompson Reuters' SDC M&A database. We include all acquisition bids made by our sample firms over 2003-2008 for domestic and foreign targets, yielding 4,381 acquisition bids made by 545 firms. We measure the profitability of each bid by cumulative abnormal returns (CARs) over (0, +1) event days surrounding the announcement day. CARs are estimated using the

market model over (-255, -6) event days with the value weighted index. The mean and median CAR is 0.5% and 0.3%, respectively.[13] The results are robust to CARs measured over (-1, +1) event days.

We relate the CARs to cumulative changes in CEO power since the base year 2001, *Ch_Power_2001.* The relation is estimated separately for affected and unaffected firms by the regulation. We also test for the statistical difference between the two group of firms by interacting *Ch_Power_2001* and the indicator for having a dependent board in 2001.

Control variables include indicator variables for publicly listed targets, *Public_Target*;[14] bids made completely with the bidder's stocks, *StockPay*;[15] bids defined as friendly by SDC, *Friend*;[16] bids involving tender offers, *Tender*; bids for targets with the same two-digit SIC code as the bidder, *Horizontal*;[17] and bids resulting in completed deals, *Complete*. We also include industry- and year fixed effects to control for merger waves at the industry level and for economy-wide effects, respectively. Because the power variable is an estimated variable, we correct standard errors by bootstrapping.

Table VIII, Column (1) reports the estimation result for affected firms. Acquisition bid announcement returns are significant and negatively related to the CEO power accumulated since 2001. The estimated coefficient implies that one standard deviation increase in CEO power is associated with 0.22% lower market reaction to acquisition announcement. Column (2) shows no relation for unaffected firms. This is so even though the sample size for unaffected firms is much greater than that of affected firms. Column (3) shows that the difference between the two groups of firms is significant. The accumulation of CEO power is associated with inferior acquisition bid performance for affected firms, but is benign for unaffected firms.

[13] The mean is comparable to Moeller, Schlingemann, and Stulz (2004) who report a mean abnormal return of 1.1% over (-1, +1) event day window surrounding the acquisition announcement for over 12,000 acquisitions during 1980-2001.
[14] Chang (1998) and Fuller, Netter, and Stegemoller (2002) find that equity offers for private targets are associated with higher abnormal returns for the acquirer, and Zingales (1995) presents a model in which the acquirer of a private firm or a subsidiary faces a different bargaining situation than the acquirer of a public firm.
[15] Earlier studies show that returns to acquirers are lower when offers are made with bidders' stocks (e.g., Travlos, 1987).
[16] Schwert (2000) documents that hostile offers have lower abnormal returns to bidders.
[17] See Moeller et al. (2004).

B. Tobin's Q

Our second inquiry is how the accumulation of CEO power at the affected firms is related to the overall firm performance as proxied by Tobin's Q, which is the sum of the market value of common stocks plus the book value of total liabilities divided by the book value of total assets. The empirical design is the same as the profitability of acquisition bids.[18] The differences are (1) the dependent variable is Tobin's Q and (2) different control variables.

We take control variables used by Bebchuk et al. (2008) and Himmelberg, Hubbard, and Palia (1999) in their studies of Q. From Bebchuk et al., we take the entrenchment index, *Eindex;* firm age, *FirmAge;* and *Leverage. Eindex* consists of 6 shareholder rights provisions in a firm's charter (Bebchuk, Cohen, and Ferrell, 2004). It ranges between 0 and 6, where higher values indicate more entrenched management. [19] Firm age is one plus the number of years since a firm's IPO as reported in CRSP or since the firm's first appearance in CRSP. *Leverage* is the ratio of long-term debt to total assets. Control variables taken from Himmelberg et al. include firm size as measured by the logged value of sales, *Ln(Sales);* the ratio of R&D expenditures to property, plant, and equipment (PPE), *R&D/K*; investment opportunities as measured by capital expenditures divided by PPE, *I/K*; firm idiosyncratic risk, *SIGMA.* Because these variables are sometimes missing, we use dummy variables *EindexDUM, RDUM and SIGDUM,* which are equal to one when relevant data are available for Eindex, R&D/K and SIGMA, respectively. When the data are missing, to maintain sample size R&D/K and SIGMA are set to zero and Eindex is set to 6.

In addition, we control for the logged value of total CEO compensation, $Ln(CEO\_Comp)_{it}$. It includes salaries, bonuses, total value of restricted stocks and stock options granted, long-term incentive payouts, and others (item TDC1 in ExecuComp). CEO compensation is included because it may be correlated to both

[18] One may be tempted to use the differences-in-differences approach specified in Regression (2), using Tobin's Q as the dependent variable. Such an approach is not informative because the regulation may affect firm value through many channels. For example, Chhaochharia and Grinstein (2009) find that CEO compensation decreases more in firms more affected by the regulation. The decrease in compensation, if it is the result of improved oversight by the board, may have the opposite effect on firm valuation than that of CEO power.

[19] Because Eindex is available only through 2006, we use the 2006 index for 2007 and 2008.

CEO power (Bebchuk et al., 2008) and firm performance. In addition, Chhaochharia and Grinstein (2009) find that CEO compensation decreases more at firms more affected by the independent board requirement.

We continue to estimate the regressions with industry fixed effects, not firm fixed effects, because the short post-regulation period yields insufficient within-firm variation. Because the sample contains 98 firms belonging to 37 industries, controlling for industry fixed effects is a reasonable tradeoff between the need for power of the test and the need to control for unobserved firm characteristics.

Table IX reports the results. Consistent with the results on acquisition bid profitability, Tobin's Q is significant and negatively related to cumulative changes in CEO power only for firms affected by the regulation. The last column again shows a significant difference between affected and unaffected firms. The estimated coefficient in Column (1) implies that for affected firms, one standard deviation increase in the accumulation of CEO power since 2001 is associated with 0.102 lower Tobin's Q. These findings imply that accumulation of CEO power is associated with lower firm valuation for the treatment group, and no relation for the control group. Accumulation of CEO power appears harmful to shareholder value, but only when it is made in reaction to the independent board regulation.

Coefficients on control variables are mostly consistent with previous studies on Q: It is negatively related to size, the number of anti-takeover devices, and idiosyncratic risk. Q is positively related to CEO compensation because CEO compensation tends to increase with better firm performance.

In sum, increases in CEO structural power at firms affected by the independent board requirement are harmful to shareholders, offsetting one of the key intended benefits of the regulation: shareholder value protection. Apparently, some newly independent boards fail to intervene in personnel decisions harmful to shareholders. Boards tend to rely on management as the primary source of information (Adams, Hermalin, and Weisbach, 2010; Dominguez-Martinez, Swank, and Visser, 2008). This would be especially true on human resource matters, as board members lack the expertise or the time to evaluate

and compare qualifications of nominated executives against the pool of other available candidates including the ones being replaced.

VI. Interactive Effects of External Governance and the Independent Board Requirement

Whatever the reason, a board's failure to prevent harmful CEO power-building personnel decisions represents a failure of internal governance. When internal governance fails, external governance (EG) may restrain managerial misconduct. In a study of CEO share ownership, Kim and Lu (2010) demonstrate that strong EG helps prevent undesirable outcomes stemming from insufficient/inefficient internal governance mechanisms. Thus, harmful power-building activities are less likely under strong EG. Consider a firm facing fierce product market competition, one of our measures of the strength of EG. For such a firm, the need to survive may force the CEO to give a higher priority to filling the executive suites with the best combination of experience and talent than to assembling a new team of loyal executives.

In this section we estimate the interactive effects of EG and the independent board requirement on the abnormal fraction of top executives hired or promoted during an incumbent CEO's tenure. We employ three measures for the strength of EG: product market competition, institutional investor concentration (IOC), and the presence of a block-holder on the board.

Recent evidence shows that product market competition improves governance (Guadalupe and Wulf, 2007) and serves as an effective EG mechanism (Giroud and Mueller, 2010).[20] Product market competition is proxied by the Economic Census Herfindahl-Hirschman Index (HHI). We choose this instead of HHI based on firms in Compustat because the Census HHI includes private firms, avoiding classification bias due to Compustat's omission of private firms. The Census defines industry by the first four-digit NAICS code. LHHI and HHHI are indicator variables equal to one if a firm is in an industry with HHI in the bottom and top third of all manufacturing industries in our sample, respectively. (The Census HHI covers only

[20] Giroud and Mueller (2010) document that state law changes weakening governance hurt firm performance in noncompetitive industries but not in competitive industries. This difference arises, they argue, because firms in competitive industries are pressured to have good governance regardless of the regulatory environment.

manufacturing industries.) Because low HHI indicates strong competition, LHHI and HHHI indicate strong and weak EG.

Shleifer and Vishny (1986), Bertrand and Mullainathan (2000, 2001), Hartzell and Starks (2003), Cremers and Nair (2005), and Edmans (2009) document important roles institutional investors and blockholders play in shaping corporate governance. To measure the intensity of monitoring by external shareholders, we follow Hartzell and Starks (2003) and use IOC_HHI, the sum of the squares of the institutional ownership, which gives greater weight to larger ownership. Institutional ownership data is obtained from the CDA Spectrum database. HIOC and LIOC are indicator variables equal to one if IOC_HHI is in the top and bottom third, respectively, and indicate strong and weak EG. We also use an indicator variable for the presence of at least one blockholder on the board, BLKH, where blockholder is defined as a nonemployee director who holds 5% or more of outstanding shares. NBLKH is equal to one if there is no blockholder on the board. Blockholder data is available in Wharton Research Data Services.

These indicators for the strength of EG are interacted with the interaction term in Regression (2):

$$Power_{it} = a_i + \eta SEG_i * Dep\_Board2001_i * Post_t + \lambda WEG_i * Dep\_Board2001_i * Post_t + \lambda\ Post_t + \delta X_{it} + \varepsilon_{it} \quad (5)$$

SEG_i *and* WEG_i are indicator variables equal to one if firm *i* is under strong and weak EG, respectively. SEG_i is one when firm *i*'s industry competition or its IOC is in the top third, or it has a blockholder on the board; LHHI, HIOC, or BLKH. WEG_i is one if the competition or IOC is in the bottom third, or the firm has no blockholder on the board; HHHI, HIOC, or NBLKH. The strength of EG is defined as that of the base year 2001. For industry competition, we use the 2002 Census HHI because it is not available for 2001.

Table X reports the estimation results of the interactive effects of EG and the regulation. Regardless of which measure of EG is used, the coefficient on the interaction term is positive and significant only when EG is weak. When EG is strong, the interaction term is insignificant for any of the three measures of EG. These results buttress our hypothesis that CEO structural power increases in firms affected by the

regulation are harmful to shareholders. If the power is benign, power increases would not be curtailed by strong EG.

VII. Conclusion

This paper investigates unintended consequences of the independent board requirement, focusing on CEOs whose influence on firm policies is weakened by the regulation. We identify substantial increases in the abnormal fraction of top executives hired or promoted during the incumbent CEO's tenure at firms affected by the regulation. And these executives are more socially connected to CEOs at the affected firms after the regulation than before the regulation. The increases in hiring and promoting socially connected executives occur even though there are no greater increases in executive turnovers at affected firms than at unaffected firms following the regulation. We also find no increase in the abnormal fraction when firms voluntarily switch to an independent board during the pre-regulation period. Based on these findings, we conclude that CEOs affected by the regulation surround themselves with more handpicked top executives to increase their structural power in executive suites, which in turn helps counter newly-independent boards' oversight on corporate decisions.

Such entrenchment in executive suites is observed only when external governance is weak. There is no evidence of entrenchment when affected firms are subject to strong external governance, raising the possibility that the entrenchment is harmful to shareholder value. If the entrenchment is benign, strong external governance may not curtail it.

Consistent with this conjecture, the accumulation of CEO structural power at firms affected by the regulation is associated with less-profitable acquisition bids and lower firm valuation. But the same accumulation of power at unaffected firms is benign in terms of the profitability of acquisition bids and Tobin's Q. In addition, a recent study by Khanna et al. (2010) documents that the same measure of CEO power is positively related to the likelihood of corporate frauds involving management and is negatively

related to the likelihood of detection. These harmful effects suggest that the independent board requirement has had unintended consequences that may seriously undermine the intended benefits of the regulation. Whether the net effect of the regulation is beneficial to shareholders is still an open question that requires further research.

Appendix: Robustness Tests of the Main Results

This appendix contains detailed descriptions of robustness tests summarized in Section IV.B.

1. Top Management Turnover

To examine whether affected firms experience more top management turnovers following the regulation than unaffected firms, we use the same differences-in-differences specification as in Regression (2), except for the dependent variable and additional control variables. Two dependent variables are used; top executive turnover ratio as measured by the percent of top five executives (including CEO) in year t not appearing on the list in year t+1, and CEO turnovers as measured by a dummy variable indicating whether a CEO in year t is not CEO in year t+1. These turnovers are measured using the full sample. To estimate the regression, as in Table V, we exclude a new CEO's first year in office and observations without necessary data for control variables. In addition, we add the control variables used in Regression (1) because they also may be related to CEO turnovers, affecting both dependent variables. We also control for firm- and year-fixed effects.

The results reported in Table A-1 show no difference in either top executive turnover (Columns (1) and (2)) or CEO turnover (Columns (3) and (4)) between affected and unaffected firms following the regulation. This is true whether or not we interact the percentage of dependent directors in 2001 with the indicator variable for non-independent board in 2001. Clearly, it is not more executive turnovers that leads to a higher abnormal fraction of top executives hired or promoted at affected firms. Rather, the higher abnormal fraction is achieved by replacing executives hired or promoted by previous CEOs while keeping executive turnovers within a normal range.

2. Confounding effects

To check the possibility of confounding effects driving our results, we follow Bertrand and Mullainathan (2003) and replace the post regulation indicator in Regression (2) with dummies for 2000, 2001, 2002, 2003, 2004, and 2005-2008. The re-estimation results with these year dummies are reported

in Table A-2. They show no effects for any years before 2003, positive but insignificant effects for affected firms in 2003 and 2004, and significant effects after 2005. The delayed response can be explained by the October 31, 2004 compliance deadline and the fact that hiring and promoting decisions on top executives take time. Clearly, the results are not driven by confounding effects.

3. Corporate Frauds and New CEOs

Detection of management involvement in corporate fraud is likely to lead to their dismissal, requiring new or surviving CEOs to hire or promote more managers to fill the vacated positions. To identify fraud with management involvement, we follow Dyck, Morse, and Zingales (2010) and define frauds as federal class action securities fraud litigations. Data is obtained from a federal class action securities fraud litigation database compiled by the Stanford Securities Class Action Clearinghouse (SSCAC), available at http://securities.stanford.edu/index.html. To avoid frivolous suits and cases involving unverifiable or minor fraud, we exclude the following types: (1) dismissed cases, (2) settled cases where the settlement amounts are either less than $3 million or settlements appear to have been made to avoid negative publicity, (3) litigations involving firms with assets less than $750 million, and (4) security frauds classified as non classic in the SSCAC database.

These screens yield 38 firms committing frauds in 2001 and/or 2002. These firms are assigned an indicator variable, $Fraud2001\text{-}2002_i$. We add to Regression (2) an interaction term between this fraud indicator and the post regulation indicator, *Fraud2001-2002*POST.* Table A-3, Panel A shows that *Fraud2001-2002*Post* is negatively related to the abnormal fraction, indicating frauds weaken CEO structural power. More important, both interaction terms, *Dep_Board2001*Post* and *Pct_Dep_DepBoard2001* Dep_Board2001*Post,* remain positive and significant.

Although we control for the first-year-CEO effect in computing the abnormal fraction of executives hired or promoted, new CEOs may continue to nominate more new hires and promotions for top executive positions after their first year in office. To examine whether our results are contaminated by

such new CEO phenomenon, we re-estimate Regression (2) by interacting the interaction terms with an indicator variable, *Same_CEO*, for firm years with no CEO turnover since 2001 and another indicator variable, *Not Same_CEO*, for firm years with a different CEO than that in 2001. If new CEOs are responsible for higher abnormal fractions of top executives hired or promoted, then the increase in CEO power should be confined to firm years with a different CEO. Table A-3, Panel B reports the results. Contrary to our concern, the interaction terms are significant and positive whether CEOs are same or different.[21]

4. Alternative Sample Constructions and Definitions of CEO Power

All regressions so far have been estimated on unbalanced samples to preserve the sample size. To check whether our results are affected by an omitted variable affecting both the CEO power and firm entry and exit from the sample, we re-estimate Regression (2) with a balanced sample of 559 firms that survived the sample period 1998-2008, which also provides the same number of years before and after the regulation, e.g., 5 years before and 5 years after 2003. Following Chhaochharia and Grinstein (2009), we exclude observations in 2003. The results reported in Table A-4, Panel A continue to show significant and positive effects on CEO power for the effected firms. [22]

Panel B of the same table excludes the firms in financial and utility industries, as defined by the first two-digitSIC code (60 to 69 and 49, respectively.) The results are robust.

Finally, we experiment with two alternative CEO power variables. First, we use the raw value of fraction hired or promoted, *FRAC*, as the proxy for CEO power instead of the residuals from Regression (1). Then, we add the explanatory variables in Regression (1), including year fixed effects, to Regression (2) as control variables.[23] The re-estimation results, reported in Table A-5, Panel A, demonstrate the robustness of our results.

[21] Observations are more or less evenly distributed between same and different CEOs. The post-regulation period covers 769 firms with 4,374 firm year observations, of which 2,082 firm years show a different CEO from the one in 2001.
[22] The number of observations is smaller than 5,590 because of missing data for control variables.
[23] We do not include state- and industry fixed effects because of the inclusion of firm fixed effects.

Second, our measure of CEO power treats all top four non-CEO executives as if equal in importance in building structural power for CEOs. Since there may be differences in relative importance among top executives, we weight *Frac* by the sum of their salaries and bonuses:

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

Exe_Com_{kit} is the compensation of executive k hired or promoted during firm *i*'s incumbent CEO's tenure in year *t* and *n* is the number of top executives hired or promoted during the CEO tenure as of year t. $WEIGHT\_FRAC_{it}$ is used in place of $FRAC_{it}$ in estimating Regression (1). The estimation result is reported in Table II, Column (2). Residuals of the regression with $WEIGHT\_FRAC_{it}$ as the dependent variable are our measure of weighted CEO structural power, $WPower_{it}$. Panel B of Table A-5 reports re-estimation results of Regression (2) using the weighted power measure. The results are again robust.

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Table I: Variable Descriptions

Panel A: CEO Power Variables	
Power	Abnormal fraction of executives promoted or hired during incumbent CEO's tenure. The internal rank of executives is based on the sum of salaries and bonuses.
WPower	Abnormal fraction of executives promoted or hired during incumbent CEO's tenure, weighted by the executives' salaries and bonuses. The internal rank of executives is based on the sum of salaries and bonuses.
FRAC	The fraction of top executives promoted or hired during incumbent CEO's tenure.
Weight_FRAC	Percentage of executives promoted or hired during incumbent CEO's tenure, weighted by the executives' salaries and bonuses.
Panel B: Board Composition Variables	
Dep_Board2001	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 board directors in 2001.
Dep_Board_t	Indicator equal to one if a firm does not have a majority of independent directors in year t; zero otherwise.
$Pct\_Dep\_Board_t$	The percentage of non-independent board directors in year t.
Panel C: Outcome Variables	
CAR(0,1)	Cumulative abnormal returns to acquisition bids during the event days (0, 1) surrounding the announcement day. They are estimated using the market model over [-255, -6] event days with the value weighted market index.
Tobin's Q	The market value of common equity plus the book value of total liabilities divided by the book value of total assets.
Panel D: Other Variables	
Post	Indicator for years 2003 and thereafter; and zero otherwise.
Year	Time trend variable. It is equal to 1994, 1995… 2007, or 2008.
Female	Indicator equal to one, if the CEO is female; and zero otherwise.
Ln(CEOAge)	The logged value of CEO age.
CEO_Chair	Indicator equal to one, if a CEO also chairs the board; and zero otherwise.
CEO_OWN	The percentage of outstanding common shares held by a CEO.
Ln(TotalAssets)	The logged value of total assets in 2000 US million dollars.
Executive_Turnover	The percentage of top five executives (including the CEO) who are not in the top 5 position in year t+1.
CEO_Turnover	Indicator equal to one, if CEO in year t is different from the CEO in year t+1; and zero otherwise.
Social_Tie	An overall measure of social ties between a CEO and the top four executives hired or promoted during the CEO tenure, which is zero, if there is no executive hired or promoted during the CEO tenure for a particular firm in a particular year. It is the sum of social ties established through previous employment, educational institutions, and membership to social, professional, and non-profit organizations, which are defined below.
Employment_Tie	The number of overlaps in firms a CEO and top executives hired or promoted during her tenure as CEO either worked as an employee or served as a member of the board.
School_Tie	The number of overlaps in educational institutions attended by a CEO and top four executives hired or promoted during her tenure as CEO.
Organization_Tie	The number of overlaps in membership to social and professional organizations a CEO and top executives hired or promoted during her tenure as CEO.

Table I: Variable Descriptions (Continued)

Known_BoardEx	The fraction of the executives hired or promoted during the current CEO tenure covered by BoardEX. If a CEO is not covered by BoardEx, it is set to be zero because no information is available on social ties between the CEO and any executives. It is set to be one if a firm-year observation shows no executives are hired or promoted because there is no information that can omitted regardless of how many executives BoardEx covers in that observation
Same_CEO	Indicator equal to one, if a CEO is not replaced after 2001; and zero otherwise.
Not Same_CEO	Indicator equal to one, if the CEO is replaced after 2001; and zero otherwise.
Fraud2001-2002	Indicator equal to one, if a firm committed fraud in either 2001 or 2002; and zero otherwise.
CEOTEN	The number of years a CEO has been in office.
OUTSIDE	Indicator equal to one, if a CEO comes from outside the firm; and zero otherwise.
FRAC_1Y	The fraction of top executives promoted or hired within the year of a CEO's nomination.
KNOWN	The fraction of executives whose tenure is reported.
EXECSEN	The average number of years four top non-CEO executives have been in office.
HHHI	Indicator equal to one, if a firm belongs to an industry in the top third of Herfindahl-Hirschman Index (HHI) according to the 2002 Economic Census. Industry is defined by the four digit NACIS code.
LHHI	Indicator equal to one, if the industry is in the bottom third of HHI defined above.
LIOC	Indicator equal to one, if institutional ownership concentration (IOC) is in the bottom third in 2001; and zero otherwise. IOC is the sum of squares of percentage share owned by the top five institutional investors.
HIOC	Indicator equal to one, if IOC, defined above, is in the top third in 2001
BLH	Indicator equal to one if at least one blockholder is on the board in 2001; and zero otherwise.
NBLH	Indicator equal to one if no blockholder is on the board in 2001; and zero otherwise.
Complete	Indicator equal to one, if an acquisition is completed; and zero otherwise.
Horizontal	Indicator equal to one, if the bidding and target firms have the same two-digit SIC codes; and zero otherwise.
Public_Target	Indicator equal to one, if the target firm is a publically listed firm; and zero otherwise.
Friend	Indicator equal to one, if a bid is defined as friendly by SDC; and zero otherwise.
Tender	Indicator equal to one, if a bid involves tender offers; and zero otherwise.
StockPay	Indicator equal to one, if a bid is made completely with stocks; and zero otherwise.
Ln(CEO_Comp)	The logged value of total CEO compensation.
Eindex	Entrenchment index in Bebchuk, et al (2004). It is assigned 6, if unavailable.
EindexDUM	Dummy variable equal to one if Eindex is unavailable; and zero otherwise.
Ln(Sales)	The natural log of sales in 2000 US million dollars.
I/K	The ratio of capital expenditures to property, plant, and equipment.
Leverage	Long term debt divided by total assets
R&D/K	The ratio of research and development expenditures to property, plant, and equipment. It is assigned 0, if unavailable.
RDUM	Dummy variable equal to one if R&D data are unavailable; and zero otherwise.
SIGMA	The standard error of the residuals based on the CAPM, using daily return data over one concurrent year. It is zero, if unavailable.
SIGDUM	Dummy variable equal to one if data is unavailable to estimate SIGMA; and zero otherwise.
FirmAge	One plus the listing age of a firm measured by the number of years from the firm's IPO as reported in CRSP or the number of years since its first appearance in CRSP.

Table II: Regressions to Construct CEO Power Variables

This table reports the regression results of constructing CEO power variables. In Column (1), the dependent variable is the percentage of top executives hired or promoted during an incumbent CEO's tenure. In Column (2), the dependent variable the percentage of top executives hired or promoted during an incumbent CEO's tenure, weighted by top executives' salaries and bonuses. Definitions of all variables are given in Table I. All regressions control for year, industry, and state fixed effects. Robust standard errors are in parentheses. Coefficients marked with *, **, and *** are significant at 10%, 5% and 1%, respectively.

	Dependent Variable: FRAC	**Dependent Variable: WEIGHT_FRAC**
	(1)	**(2)**
CEOTEN	0.011***	0.047***
	[0.000]	[0.001]
EXECSEN	-0.004***	-0.019***
	[0.000]	[0.001]
OUTSIDE	0.010**	0.041**
	[0.004]	[0.018]
KNOWN	-0.045***	-0.155***
	[0.005]	[0.022]
FRAC_1Y	0.835***	3.305***
	[0.005]	[0.021]
Constant	0.103*	0.417*
	[0.053]	[0.221]
Year, State, and Industry FE	Y	Y
Observations	17344	17344
Adj-R^2	0.78	0.77

Table III: Sample Description by Year

This table presents the sample description by year. Column (1) reports the number of firms with both CEO power measure and board composition information in 2001. Column (2) shows the percent of firms in the sample that have a majority of independent directors by year. Columns (3)-(5) show the average percent of dependent directors for the full sample, affected firms, and unaffected firms, respectively. Columns (6)-(8) show the average number of directors on the board for the full sample, affected firms, and unaffected firms, respectively.

	Number of Firms with CEO Power Measure and Board Composition Information in 2001	Percent of Firms with a Majority of Independent Directors	Percent of Dependent Directors			Board Size		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Full	Full	Full	Affected	Unaffected	Full	Affected	Unaffected
1994	518							
1995	546							
1996	576	76.64	39.48	59.47	35.10	10.47	10.18	10.84
1997	617	76.69	39.15	59.04	34.42	9.97	9.80	10.52
1998	658	79.65	36.98	61.85	33.58	10.29	9.88	10.42
1999	701	81.45	36.14	62.43	31.70	10.32	9.84	10.41
2000	724	82.82	35.14	61.46	29.93	10.17	9.81	10.24
2001	722	84.75	33.52	63.66	28.12	10.13	10.02	10.15
2002	725	87.29	31.94	57.44	27.49	9.98	9.99	10.08
2003	729	92.12	29.63	50.83	25.53	9.91	9.8	10.06
2004	732	93.18	29.50	44.74	24.61	9.39	9.84	9.97
2005	738	93.64	28.30	40.68	24.00	9.46	9.89	10.01
2006	743	94.54	28.06	39.69	23.56	9.52	9.91	10.07
2007	743	99.22	23.10	29.89	18.75	9.44	9.95	10.18
2008	689	99.30	21.92	27.16	17.46	9.57	10.11	10.14
Total	10161	88.25	31.47	51.49	27.54	9.90	9.94	10.26

Table IV: Summary Statistics

This table reports summary statistics for key variables used in this paper. Definitions of the variables are given in Table I. Columns (1)-(6) report the summary statistics of the full sample. Columns (7) and (8) report of the mean value of each variable for the affected and unaffected firms.

	Full						Affected	Unaffected
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variable	**Obs**	**Mean**	**Median**	**Std. Dev.**	**Min**	**Max**	**Mean**	**Mean**
Panel A: CEO Power Variables								
Power	10161	-0.001	0.038	0.170	-0.841	0.445	-0.005	0
FRAC	10161	0.575	0.500	0.371	0	1	0.581	0.574
Panel B: Board Composition Variables								
Dep_Board2001	10161	0.150	0	0.357	0	1	1	0
Pct_Dep_Board2001	10161	0.334	0.300	0.172	0.063	0.889	0.636	0.280
Panel C: Social Tie Variables								
Social_Tie	6545	0.752	0	1.663	0	17	0.861	0.731
Employment_Tie	6545	0.677	0	1.479	0	15	0.781	0.657
School_Tie	6545	0.025	0	0.192	0	3	0.028	0.024
Organization_Tie	6545	0.050	0	0.376	0	9	0.052	0.050
Panel D: Other Control Variables								
Post	10161	0.430	0	0.495	0	1	0.460	0.425
Female	10161	0.015	0	0.121	0	1	0.006	0.017
CEOAge	9633	56.593	57	7.030	31	93	57.433	56.442
CEO_OWN	7948	0.019	0.002	0.053	0	0.761	0.040	0.014
CEO_Chair	10161	0.689	1	0.463	0	1	0.591	0.706
Panel E: Outcome Variables								
CAR(0,1)	4381	0.005	0.003	0.036	-0.248	0.253	0.004	0.005
Tobin's Q	3698	1.638	1.381	0.871	0.386	13.735	1.674	1.632

Table V: The Independent Board Requirement and CEO Power

This table reports the baseline regression estimation results on the impact of the independent board requirement on CEO structure power in executive suites. The dependent variable, Power, is abnormal fraction of executives promoted or hired during an incumbent CEO's tenure. Columns (1)-(3) show the mean effects of the board independent rule on CEO structural power. Columns (4) and (5) show time trend effects of the independent board requirement on CEO structural power. Definitions of all variables are given in Table I. All regressions control for firm fixed effects. Robust standard errors, clustered at the firm-period level, are in parentheses. Coefficients marked with *, **, and *** are significant at 10%, 5% and 1%, respectively.

	Dependent Variable: Power				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
*Dep_Board2001*Post*	0.034***	0.039***			
	(0.013)	(0.013)			
*Pct_Dep_Board2001*Dep_Board2001*Post*			0.065***		
			(0.021)		
*Dep_Board2001*Post*Year*				0.010***	
				(0.003)	
*Pct_Dep_Board2001*Dep_Board2001*Post*Year*					0.017***
					(0.005)
Post	-0.009*	-0.007	-0.007		
	(0.005)	(0.005)	(0.005)		
*Post*Year*				-0.001	-0.001
				(0.001)	(0.001)
Female		0.044	0.043	0.043	0.042
		(0.040)	(0.040)	(0.041)	(0.040)
Ln(CEOAge)		-0.002	-0.001	-0.003	-0.002
		(0.036)	(0.036)	(0.036)	(0.036)
CEO_OWN_{t-1}		-0.116	-0.113	-0.114	-0.109
		(0.098)	(0.097)	(0.097)	(0.096)
CEO_Chair		0.037***	0.037***	0.038***	0.038***
		(0.013)	(0.013)	(0.013)	(0.013)
$Ln(TotalAssets)_{t-1}$		-0.003	-0.003	-0.005	-0.005
		(0.006)	(0.006)	(0.006)	(0.006)
Constant	0.001	0.021	0.017	0.034	0.030
	(0.003)	(0.147)	(0.147)	(0.149)	(0.149)
Firm FE	Y	Y	Y	Y	Y
Observations	10161	7502	7502	7502	7502
Adj-R^2	0.26	0.36	0.36	0.36	0.36

Table VI: The Independent Board Requirement and Social Ties between CEOs and Top Executives Hired or Promoted

This table reports the impact of the independent board requirement on social ties between top four non-CEO executives hired or promoted during a CEO's tenure and the CEO. In Columns (1), (2), (5) and (6), the dependent variable is Social_Tie as measured by the sum of the number of top four non-CEO executives hired or promoted by a CEO who belong to the same alumni network (earning degrees from the same educational institutions.), the number of times the executives worked with the CEO at another firm or served on the same board of directors, and the number of cases the executives and the CEO belong to the same non-profit organization. In Columns (3), (4), (7) and (8), the dependent variable Employment_Tie as measured by the number of times the executives worked with the CEO at another firm or served on the same board of directors. All regressions are estimated with the sample after 2000. In Panel A, the sample covers all industries and in Panel B, the sample excludes financial firms. Definitions of all variables are given in Table I. All regressions control for year- and firm fixed effects. Robust standard errors, clustered at the firm-period level, are in parentheses. Coefficients marked with *, **, and *** are significant at 10%, 5% and 1%, respectively.

	Panel A: Without Financial Firms				**Panel B: Full Sample**			
	Social_Tie		**Employment_Tie**		**Social_Tie**		**Employment_Tie**	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
*Dep_Board2001*Post*	0.263***		0.239***		0.126		0.141*	
	(0.089)		(0.085)		(0.087)		(0.078)	
*Pct_Dep_Board2001*Dep_Board2001*Post*		0.404***		0.358***		0.202		0.214*
		(0.142)		(0.136)		(0.137)		(0.125)
Pct_Know_BoardEx	0.961***	0.961***	0.925***	0.924***	1.046***	1.046***	0.989***	0.989***
	(0.107)	(0.107)	(0.104)	(0.104)	(0.110)	(0.110)	(0.104)	(0.104)
Post	-0.286***	-0.286***	-0.214***	-0.213***	-0.146**	-0.147**	-0.105*	-0.104*
	(0.077)	(0.077)	(0.063)	(0.063)	(0.070)	(0.070)	(0.062)	(0.062)
Frac	0.505***	0.504***	0.480***	0.480***	0.528***	0.528***	0.499***	0.499***
	(0.173)	(0.173)	(0.153)	(0.153)	(0.160)	(0.160)	(0.142)	(0.142)
CEOTEN	0.027**	0.027**	0.021**	0.021**	0.028**	0.028**	0.023**	0.023**
	(0.012)	(0.012)	(0.010)	(0.010)	(0.011)	(0.011)	(0.010)	(0.010)
OUTSIDE	0.444**	0.447**	0.440**	0.442**	0.400**	0.401**	0.370**	0.372**
	(0.196)	(0.197)	(0.184)	(0.184)	(0.195)	(0.195)	(0.182)	(0.182)
FRAC_1Y	0.207	0.209	0.115	0.117	0.282*	0.282*	0.194	0.195
	(0.182)	(0.182)	(0.163)	(0.163)	(0.167)	(0.167)	(0.152)	(0.152)
KNOW	2.695***	2.695***	2.574***	2.574***	2.738***	2.738***	2.564***	2.565***
	(0.204)	(0.204)	(0.180)	(0.180)	(0.195)	(0.195)	(0.169)	(0.169)
EXECSEN	-0.033***	-0.033***	-0.032***	-0.032***	-0.034***	-0.034***	-0.032***	-0.032***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Female	0.592	0.589	0.616**	0.613**	0.601	0.600	0.620**	0.618**
	(0.390)	(0.390)	(0.272)	(0.272)	(0.387)	(0.387)	(0.272)	(0.272)
Ln(CEOAge)	-0.034	-0.029	0.069	0.074	-0.052	-0.049	0.008	0.011
	(0.439)	(0.439)	(0.400)	(0.400)	(0.406)	(0.406)	(0.368)	(0.368)
CEO_OWN_{t-1}	0.252	0.258	0.515	0.518	0.435	0.444	0.758	0.763
	(0.559)	(0.559)	(0.495)	(0.496)	(0.632)	(0.631)	(0.565)	(0.565)
CEO_Chair	0.033	0.032	-0.028	-0.029	0.140	0.140	0.044	0.043
	(0.119)	(0.119)	(0.093)	(0.093)	(0.116)	(0.116)	(0.091)	(0.091)
$Ln(TotalAssets)_{t-1}$	0.009	0.010	0.020	0.020	0.063	0.063	0.063	0.064
	(0.081)	(0.081)	(0.063)	(0.063)	(0.080)	(0.080)	(0.065)	(0.065)
Constant	-1.223	-1.251	-1.606	-1.631	-1.876	-1.892	-1.962	-1.979
	(1.901)	(1.901)	(1.665)	(1.666)	(1.789)	(1.788)	(1.572)	(1.573)
Firm FE & Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	4640	4640	4640	4640	5150	5150	5150	5150
$Adj\text{-}R^2$	0.76	0.76	0.78	0.78	0.75	0.75	0.78	0.78

Table VII: Voluntary Switches to an Independent Board during the Pre-regulation Period

This table reports the estimated impacts of voluntary switches from a dependent to an independent board (as defined by the majority of independent directors) on CEO structural power and social ties between the executives hired/promoted during the CEO tenure and the CEO. In Columns (1) and (2), the dependent variable is Power measured as the abnormal fraction of executives promoted or hired during incumbent CEO's tenure; in Columns (3) and (4), the dependent variable is Social_Tie; in Columns (5) and (6), the dependent variable is Employment_Tie. In Columns (1), (3) and (5) board composition is measured by an indicator for boards with a majority of non-independent directors. In Columns (2), (4) and (6), board composition is measured as the percentage of non-independent directors on the board. Definitions of all variables are given in Table I. All regressions control for firm fixed effects. Robust standard errors, clustered at the firm level, are in parentheses. Coefficients marked with *, **, and *** are significant at 10%, 5% and 1%, respectively.

	Power		**Social_Tie**		**Employment_Tie**	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
(1 - Dep_Board)	0.008		0.117		0.080	
	(0.013)		(0.138)		(0.111)	
(1 - Pct_Dep_Board)		0.027		0.595		0.495
		(0.040)		(0.475)		(0.401)
Know_BoardEx			0.738***	0.735***	0.652***	0.650***
			(0.250)	(0.249)	(0.236)	(0.234)
Female	0.024	0.025	0.251	0.216	0.028	-0.001
	(0.107)	(0.107)	(0.475)	(0.482)	(0.413)	(0.420)
Ln(CEOAge)	0.088	0.089	2.306	2.363	2.331	2.359
	(0.072)	(0.072)	(1.811)	(1.779)	(1.723)	(1.698)
CEO_OWN_{t-1}	-0.035	-0.032	-0.139	-0.103	0.598	0.620
	(0.235)	(0.235)	(1.827)	(1.845)	(1.920)	(1.929)
CEO_Chair	0.061**	0.062**	0.190	0.191	0.169	0.166
	(0.028)	(0.028)	(0.710)	(0.721)	(0.654)	(0.662)
$Ln(TotalAssets)_{t-1}$	0.002	0.001	0.008	-0.001	0.045	0.037
	(0.012)	(0.012)	(0.194)	(0.194)	(0.167)	(0.167)
Frac			0.479	0.486	0.613	0.620
			(0.482)	(0.481)	(0.408)	(0.406)
CEOTEN			0.016	0.016	-0.009	-0.008
			(0.042)	(0.042)	(0.034)	(0.034)
OUTSIDE			1.919**	1.879**	1.852**	1.817**
			(0.838)	(0.831)	(0.744)	(0.736)
FRAC_1Y			-0.246	-0.267	-0.467	-0.485
			(0.573)	(0.575)	(0.468)	(0.468)
KNOW			1.606***	1.620***	1.451***	1.461***
			(0.392)	(0.390)	(0.348)	(0.347)
EXECSEN			-0.013	-0.013	-0.010	-0.010
			(0.009)	(0.009)	(0.008)	(0.008)
Constant	-0.412	-0.420	-10.238	-10.683	-10.329	-10.632
	(0.279)	(0.277)	(7.145)	(7.033)	(6.680)	(6.589)
Firm FE & Year FE	Y	Y	Y	Y	Y	Y
Observations	3583	3583	1428	1428	1428	1428
Adj-R^2	0.58	0.58	0.89	0.89	0.90	0.90

Table VIII: Profitability of Acquisition Bids and Cumulative Changes in CEO Power Since 2001

This table estimates the relation between cumulative changes in CEO power since 2001 and cumulative abnormal returns (CAR) surrounding the announcement of acquisition bids. The dependent variable is the CAR over (0, 1) window. Ch_Power_2001t is the difference in CEO power between 2001 and year t. Column (1) estimates the relation for acquisition bids announced over 2003-2008 for domestic and foreign target firms by firms affected by the independent board requirement (firms without a majority of independent directors in 2001). Column (2) does the same for firms unaffected by the rule (firms with a majority of independent directors in 2001). Column (3) estimates the relation for the full sample by interacting cumulative changes in CEO power with an indicator for affected firms. Definitions of all variables are given in Table I. All regressions control for industry- and year fixed effects. Industries are classified by 48 Fama-French industry groupings. The numbers in parentheses are bootstrapped standard errors. Coefficients marked with *, **, and *** are significant at 10%, 5% and 1%, respectively.

	Dependent Variable: CAR(0,1)		
	(1)	**(2)**	**(3)**
$Ch\_Power\_2001_t$	-0.031***	0.001	0.002
	(0.005)	(0.003)	(0.002)
*$Ch\_Power\_2001_t$*Dep_Board2001*			-0.014*
			(0.008)
Dep_Board2001			0.001
			(0.002)
Complete	-0.002	-0.003*	-0.003*
	(0.011)	(0.002)	(0.002)
Horizontal	-0.001	0.002	0.002
	(0.002)	(0.002)	(0.001)
Public_Target	-0.024**	-0.007***	-0.008***
	(0.011)	(0.003)	(0.002)
Friend	-0.026***	-0.013***	-0.014***
	(0.010)	(0.003)	(0.002)
Tender	0.026**	0.013***	0.014***
	(0.011)	(0.005)	(0.004)
StockPay	-0.015	-0.002	-0.006
	(0.032)	(0.008)	(0.008)
Ln(TotalAssets)	-0.003***	-0.002***	-0.002***
	(0.000)	(0.001)	(0.000)
CEO_Chair	-0.012**	0.002	0.001
	(0.005)	(0.002)	(0.001)
Constant	0.023	0.038***	0.039***
	(0.016)	(0.007)	(0.005)
Industry FE & Year FE	Y	Y	Y
Observations	653	3728	4381
Adj-R^2	0.05	0.03	0.03

Table IX: Tobin's Q and Cumulative Changes in CEO Power Since 2001

This table estimates the relation between cumulative changes in CEO power since 2001 and Tobin's Q. Ch_Power_2001t is the difference in CEO power between 2001 and year t. Column (1) estimates the relation for firms affected by the independent board requirement (firms without a majority of independent directors in 2001). Column (2) does the same for firms unaffected by the rule (firms with a majority of independent directors in 2001). Column (3) estimates the relation for the full sample by interacting changes in CEO power with an indicator for affected firms. Definitions of all variables are given in Table I. All regressions control for industry- and year fixed effects. Industries are classified by 48 Fama-French industry groupings. The numbers in parentheses are bootstrapped standard errors. Coefficients marked with *, **, and *** are significant at 10%, 5% and 1%, respectively.

	Dependent Variable: Tobin's Q		
	Affected Firms	**Unaffected Firms**	**Full Sample**
	(1)	**(2)**	**(3)**
Ch_Power_2001	-0.598***	-0.011	-0.006
	(0.198)	(0.078)	(0.075)
*Ch_Power_2001*Dep_Board2001*			-0.361**
			(0.170)
Dep_Board2001			0.071*
			(0.040)
Ln(CEO_Comp)	0.128**	0.175***	0.177***
	(0.052)	(0.016)	(0.016)
Eindex	-0.064*	-0.018*	-0.026***
	(0.039)	(0.010)	(0.007)
EindexDUM	0.188	-0.187***	-0.149***
	(0.191)	(0.050)	(0.053)
LNS	-0.165**	-0.086***	-0.096***
	(0.068)	(0.015)	(0.014)
I/K	0.668	1.824***	1.616***
	(0.453)	(0.291)	(0.226)
Leverage	-0.494	-0.620***	-0.724***
	(0.447)	(0.116)	(0.110)
R&D/K	0.654**	-0.011	0.046
	(0.255)	(0.059)	(0.148)
RDUM	-0.277***	-0.038	-0.072*
	(0.100)	(0.034)	(0.037)
SIGMA	-10.404**	-9.966***	-10.352***
	(4.148)	(1.354)	(1.689)
SIGDUM	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
FirmAge	-0.009	0.004	0.001
	(0.007)	(0.003)	(0.002)
$FirmAge^2$	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
CEO_Chair	-0.076	0.069**	0.062*
	(0.089)	(0.032)	(0.034)
Constant	2.036***	0.646***	0.875***
	(0.445)	(0.169)	(0.194)
Industry FE & Year FE	Y	Y	Y
Observations	516	3049	3565
$Adj\text{-}R^2$	0.42	0.33	0.32

Table X: Interactive Effects of External Governance and the Independent board requirement on CEO Power

This table reports the interactive effects of external governance (EG) and the independent board requirement on CEO structural power. The dependent variable, Power, is abnormal fraction of executives promoted or hired during incumbent CEO's tenure. In Panel A, EG is proxied by production market competition, as measured by the 2002 Economic Census Herfindahl-Hirschman Index (HHI) based on 4-digit NASIC code. HHHI (LHHI) is an indicator equal to one, if an industry's HHI is in the top (bottom) third, indicating weak (strong) competition and weak (strong) EG. In Panel B, EG is proxied by institutional ownership concentration (IOC), as measured by the sum of the squares of percentage share ownership of the top five institutional investors. LIOC (HIOC) is an indicator equal to one, if IOC is in the bottom (top) third, indicating weak (strong) monitoring from external investors and weak (strong) EG. In Panel C, EG is proxied by the presence of blockholders. NBLH (BLH) indicates no (one or more) blockholder on the board and weak (strong) EG. IOC and BLKH are 2001 measures. Definitions of all variables are given in Table I. All regressions control for firm fixed effects. Robust standard errors, clustered at the firm-period level, are in parentheses. Coefficients marked with *, **, and *** are significant at 10%, 5% and 1%, respectively.

	Dependent Variable: Power		
	Panel A: Product Market Competition	**Panel B: Institutional Ownership Concentration**	**Panel C: Presence of Block holders**
	(1)	**(2)**	**(3)**
*HHHI*Dep_Board2001*Post*	0.125**		
	(0.058)		
*LHHI*Dep_Board2001*Post*	0.016		
	(0.044)		
*LIOC*Dep_Board2001*Post*		0.073**	
		(0.029)	
*HIOC*Dep_Board2001*Post*		0.011	
		(0.028)	
*NBLH*Dep_Board2001*Post*			0.096**
			(0.039)
*BLH*Dep_Board2001*Post*			0.014
			(0.016)
Post	-0.003	-0.001	-0.006
	(0.008)	(0.005)	(0.006)
Female	0.135**	0.007	0.074**
	(0.060)	(0.045)	(0.031)
Ln(CEOAge)	-0.075	0.009	0.044
	(0.049)	(0.038)	(0.042)
CEO_OWN_{t-1}	-0.029	-0.174*	-0.139
	(0.163)	(0.104)	(0.114)
CEO_Chair	0.060***	0.039***	0.034**
	(0.021)	(0.013)	(0.015)
$Ln(TotalAssets)_{t-1}$	0.006	-0.002	0.008
	(0.009)	(0.006)	(0.007)
Constant	0.222	-0.036	-0.254
	(0.194)	(0.151)	(0.169)
Firm FE	Y	Y	Y
Observations	3215	6670	5527
Adj-R^2	0.32	0.36	0.37

Table A-1: Top Executive and CEO Turnover

This table reports the impact of the independent board requirement on top management and CEO turnovers. The dependent variable in Columns (1) and (2) is the fraction of new top five executives who were not on the list of top five executives (including CEO) in the previous year; and Columns (3) and (4), a dummy variable equal to one if a CEO is new. Definitions of all variables are given in Table I. All regressions control for both year and firm fixed effects. Robust standard errors, clustered at the firm-period level, are in parentheses. Coefficients marked with *, **, and *** are significant at 10%, 5% and 1%, respectively.

	Dependent Variable: Top_ Management_Tenover		**Dependent Variable: CEO_Turnover**	
	(1)	**(2)**	**(3)**	**(4)**
*Dep_Board2001*Post*	0.008		0.010	
	(0.010)		(0.019)	
*Pct_Dep_Board2001*Dep_Board2001*Post*		0.008		0.021
		(0.015)		(0.031)
Post	0.007	0.007	0.029	0.029
	(0.012)	(0.012)	(0.020)	(0.020)
Female	0.077**	0.077**	-0.009	-0.009
	(0.037)	(0.037)	(0.045)	(0.045)
Ln(CEOAge)	0.110***	0.110***	0.836***	0.836***
	(0.030)	(0.030)	(0.058)	(0.058)
CEO_OWN_{t-1}	-0.138*	-0.139**	-0.093	-0.090
	(0.071)	(0.071)	(0.169)	(0.169)
CEO_Chair_{t-1}	0.009	0.009	0.003	0.003
	(0.009)	(0.009)	(0.016)	(0.016)
$Ln(TotalAssets)_{t-1}$	0.015**	0.015**	-0.010	-0.010
	(0.006)	(0.006)	(0.009)	(0.009)
CEOTEN	0.001	0.001	0.005***	0.005***
	(0.001)	(0.001)	(0.001)	(0.001)
OUTSIDE	-0.012	-0.012	-0.025	-0.025
	(0.012)	(0.012)	(0.020)	(0.020)
FRAC_1Y	-0.035***	-0.035***	0.039**	0.039**
	(0.011)	(0.011)	(0.020)	(0.020)
KNOW	-0.030**	-0.030**	0.016	0.016
	(0.014)	(0.014)	(0.023)	(0.023)
EXECSEN	0.001***	0.001***	0.002**	0.002**
	(0.000)	(0.000)	(0.001)	(0.001)
Constant	-0.367***	-0.368***	-3.318***	-3.319***
	(0.130)	(0.130)	(0.237)	(0.237)
Firm FE & Year FE	Y	Y	Y	Y
Observations	7502	7502	7502	7502
Adj-R^2	0.08	0.08	0.44	0.44

Table A-2: Confounding Effects

This table examines confounding effects of events occurred around the 2000-2003 period. The dependent variable, Power, is abnormal fraction of executives promoted or hired by during incumbent CEO's tenure. Dummy variables 2000, 2001, 2002, 2003, 2004, and 2005andafter are equal to one if the observation is in 2000, 2001, 2002, 2003, 2004, and 2005-2008, respectively. All regressions Unreported control variables are the same in Table V. Definitions of all variables are given in Table I. All regressions control for firm fixed effects. Robust standard errors, clustered at the firm-period level, are in parentheses. Coefficients marked with *, **, and *** are significant at 10%, 5% and 1%, respectively.

	Dependent Variable: Power	
	(1)	**(2)**
*Dep_Board2001*2000*	-0.005	
	(0.018)	
*Dep_Board2001*2001*	0.006	
	(0.018)	
*Dep_Board2001*2002*	-0.011	
	(0.020)	
*Dep_Board2001*2003*	0.009	
	(0.018)	
*Dep_Board2001*2004*	0.027	
	(0.019)	
*Dep_Board2001*2005andafter*	0.049***	
	(0.018)	
*Pct_Dep_Board2001*Dep_Board2001*2000*		-0.005
		(0.028)
*Pct_Dep_Board2001*Dep_Board2001*2001*		0.011
		(0.029)
*Pct_Dep_Board2001*Dep_Board2001*2002*		-0.016
		(0.030)
*Pct_Dep_Board2001*Dep_Board2001*2003*		0.016
		(0.027)
*Pct_Dep_Board2001*Dep_Board2001*2004*		0.044
		(0.030)
*Pct_Dep_Board2001*Dep_Board2001*2005and after*		0.083***
		(0.030)
Post	-0.006	-0.006
	(0.005)	(0.005)
Control Variables	Y	Y
Firm FE	Y	Y
Observations	7502	7502
Adj-R^2	0.36	0.36

Table A-3: Corporate Frauds and New CEOs

This table tests two alternative explanations for the observed impacts of the independent board requirement on CEO structural power. Panel A tests whether the results are driven by corporate frauds; Panel B tests whether the results are driven by new CEOs. Fraud2001-2002 is an indicator equal to one if a firm commits fraud in either 2001 or 2002. Same_CEO is an indicator equal to one if a CEO is not replaced after 2001; Not Same_CEO, an indicator equal to one if a CEO is replaced after 2001. The dependent variable, Power, is abnormal fraction of executives promoted or hired during incumbent CEO's tenure. Definitions of all variables are given in Table I. All regressions control for firm fixed effects. Robust standard errors, clustered at the firm-period level, are in parentheses. Coefficients marked with *, **, and *** are significant at 10%, 5% and 1%, respectively.

	Dependent Variable: Power			
	Panel A: Are Results Driven by Corporate Frauds?		**Panel B: Are Results Driven by New CEOs?**	
	(1)	**(2)**	**(3)**	**(4)**
*Dep_Board2001*Post*	0.038***			
	(0.013)			
*Pct_Dep_Board2001*Dep_Board2001*Post*		0.063***		
		(0.021)		
*Same_CEO*Dep_Board2001*Post*			0.027**	
			(0.013)	
*Not Same_CEO*Dep_Board2001*Post*			0.068**	
			(0.032)	
*Same_CEO*Pct_Dep_Board2001*Dep_Board2001*Post*				0.041**
				(0.020)
*Not Same_CEO*Pct_Dep_Board2001*Dep_Board2001*Post*				0.120**
				(0.050)
*Fraud2001- 2002*Post*	-0.079***	-0.079***		
	(0.024)	(0.024)		
Post	-0.004	-0.005	-0.006	-0.007
	(0.005)	(0.005)	(0.005)	(0.005)
Female	0.043	0.042	0.042	0.040
	(0.040)	(0.040)	(0.040)	(0.040)
Ln(CEOAge)	-0.001	0.000	0.006	0.009
	(0.036)	(0.036)	(0.036)	(0.036)
CEO_OWN_{t-1}	-0.125	-0.122	-0.100	-0.091
	(0.098)	(0.097)	(0.097)	(0.096)
CEO_Chair	0.037***	0.037***	0.037***	0.037***
	(0.013)	(0.013)	(0.013)	(0.013)
$Ln(TotalAssets)_{t-1}$	-0.003	-0.003	-0.003	-0.003
	(0.006)	(0.006)	(0.006)	(0.006)
Constant	0.014	0.010	-0.013	-0.026
	(0.145)	(0.144)	(0.148)	(0.147)
Firm FE	Y	Y	Y	Y
Observations	7502	7502	7502	7502
Adj-R^2	0.36	0.36	0.36	0.36

Table A-4: Alternative Sample Constructions

The table reports re-estimation results of the baseline regression with alternative samples. In Panel A, the sample is a balanced sample of 559 firms that survived the sample period 1998-2008, 5 years before 2003 and 5 years after 2003. In Panel B, the sample excludes financial and utility firms. The dependent variable, Power, is abnormal fraction of executives promoted or hired during incumbent CEO's tenure. Definitions of all variables are given in Table I. All regressions control for firm fixed effects. Robust standard errors, clustered at the firm-period level, are in parentheses. Coefficients marked with *, **, and *** are significant at 10%, 5% and 1%, respectively.

	Dependent Variable: Power			
	Panel A: Balanced Sample		**Panel B: Exclude Financial and Utility Firms**	
	(1)	**(2)**	**(3)**	**(4)**
*Dep_Board2001*Post*	0.039**		0.056***	
	(0.017)		(0.015)	
Pct_Dep_Board2001 Dep_Board2001*Post*		0.067**		0.093***
		(0.027)		(0.023)
Post	-0.011*	-0.012*	-0.008	-0.009
	(0.006)	(0.006)	(0.006)	(0.006)
Female	0.050	0.049	0.044	0.043
	(0.047)	(0.047)	(0.044)	(0.044)
Ln(CEOAge)	0.029	0.030	-0.051	-0.050
	(0.043)	(0.043)	(0.041)	(0.040)
CEO_OWN_{t-1}	-0.190	-0.182	-0.115	-0.113
	(0.141)	(0.139)	(0.101)	(0.100)
CEO_Chair	0.016	0.016	0.035**	0.035**
	(0.015)	(0.015)	(0.015)	(0.015)
$Ln(TotalAssets)_{t-1}$	0.003	0.003	-0.000	0.000
	(0.009)	(0.009)	(0.007)	(0.007)
Constant	-0.137	-0.140	0.196	0.191
	(0.189)	(0.189)	(0.164)	(0.163)
Observations	4421	4421	6042	6042
Firm FE	Y	Y	Y	Y
$Adj\text{-}R^2$	0.36	0.36	0.35	0.35

Table A-5: Alternative Definitions of CEO Power

This table reports re-estimation results with two alternative measures of CEO power. In Panel A, CEO power is FRAC, the fraction of top four non-CEO executives hired or promoted during incumbent CEO's tenure. Explanatory variables include all independent variables used to estimate abnormal fraction of top executives hired or promoted and all control variables used in the baseline regression. In Panel B, the dependent variable is WPower, abnormal fraction of top executives promoted or hired during incumbent CEO's tenure, weighted by the sum of non-CEO executives' salaries and bonuses. Definitions of all variables are given in Table I. All regressions control for firm fixed effects. Robust standard errors, clustered at the firm-period level, are in parentheses. Coefficients marked with *, **, and *** are significant at 10%, 5% and 1%, respectively.

	Panel A: Dependent variable is FRAC		**Panel B: Dependent variable is Wpower**	
	(1)	**(2)**	**(3)**	**(4)**
*Dep_Board2001*Post*	0.037***		0.143**	
	(0.014)		(0.060)	
Pct_Dep_Board2001 Dep_Board2001*Post*		0.059***		0.236**
		(0.022)		(0.096)
Post	-0.001	-0.001	-0.032	-0.033
	(0.012)	(0.012)	(0.023)	(0.023)
Female	0.054	0.054	0.096	0.093
	(0.044)	(0.043)	(0.153)	(0.153)
Ln(CEOAge)	0.027	0.028	0.037	0.040
	(0.047)	(0.047)	(0.159)	(0.158)
CEO_OWN_{t-1}	-0.015	-0.013	-0.306	-0.296
	(0.108)	(0.108)	(0.431)	(0.428)
CEO_Chair	0.037***	0.037***	0.147***	0.147***
	(0.014)	(0.014)	(0.057)	(0.056)
$Ln(TotalAssets)_{t-1}$	0.001	0.001	-0.001	-0.001
	(0.008)	(0.008)	(0.028)	(0.028)
CEOTEN	0.011***	0.011***		
	(0.001)	(0.001)		
OUTSIDE	0.006	0.006		
	(0.017)	(0.017)		
FRAC_1Y	0.808***	0.808***		
	(0.014)	(0.014)		
KNOW	-0.049***	-0.049***		
	(0.018)	(0.018)		
EXECSEN	-0.003***	-0.003***		
	(0.001)	(0.001)		
Constant	-0.162	-0.167	-0.210	-0.224
	(0.194)	(0.193)	(0.647)	(0.645)
Firm FE	Y	Y	Y	Y
Year FE	Y	Y	N	N
Observations	7502	7502	7502	7502
Adj-R^2	0.84	0.84	0.35	0.35