CORPORATE GOVERNANCE AND PRODUCT MARKET COMPETITION

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Abstract

This paper studies the interrelations of governance mechanisms in US companies using Business Combination law changes in the 1980s and the NYSE/NASDAQ changes in rules requiring majority independent boards as exogenous governance shocks. We find evidence consistent with a substitute relation between takeover defences and a non-independent board in both shocks suggesting that firms are adapting their governance systems in response to exogenous governance shocks. The findings are also consistent with the interpretation that a competitive product market is of first order importance as a governance mechanism because only few governance adjustments happen among firms in competitive industries with no performance impact, on average. However, firms in concentrated industries adjust various governance mechanisms and display a significant change in performance – albeit of different signs for the two events. While competition seems to help firms adjust efficiently, in concentrated industries, we find adjustments made by firms with a blockholder to be significantly differently, and more value enhancing. This suggests a possible substitute relation between a blockholder and a competitive product market, but again not a perfect substitute.

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Shleifer and Vishny (1997) define corporate governance as the ways in which providers of capital to corporations assure themselves of getting a return on their capital. Investors have many different governance mechanisms at their disposal to reduce the conflicts of interests that are at the heart of the matter. To name a few: ownership structure, Board of Directors, Incentive structures, leverage but also the legal framework, media, the market for corporate control and product market competition. While each one of these governance mechanisms has been studied in some detail, we know relatively little about the relative importance of these various mechanisms and how the structure of governance for a particular firm comes about. The objective of this study is to contribute to a better understanding of whether there are tradeoffs or complementarities between various governance mechanisms from which firms choose when designing their governance system.

Demsetz and Lehn (1985) and Adams, Hermalin, and Weisbach (2010) in their review emphasize that the key problem to overcome is that a firm's choice of governance structure is endogenous. Agrawal and Knoeber (1996) estimate a system of equations with several governance mechanisms and firm value and find evidence of such interdependence between mechanisms. In order to overcome the endogeneity problem our analysis focuses on the reaction of firms hit by an exogenous shock to their governance. We investigate reactions to two shocks. The first shock is based on the introduction of the business combination (BC) laws. The BC laws, passed at the state level at various points in time, have made it more difficult for a hostile bidder to succeed in a takeover. Given the evidence in Giroud and Mueller (2010) and Bertrand and Mulleinathan (2001), we call this a bad governance shock since the average firm displays worse performance after the BC law introduction. The second shock is the introduction of the Sarbanes-Oxley (SOX) act of 2002 and the associated changes in the board independence requirement for firms listed on the NYSE and the NASDAQ. We call this a good governance shock based on findings by Chhaochharia and Grinstein (2007) who find mostly positive long-run abnormal returns during the deliberation of SOX for firms that are affected by SOX.

We investigate firms affected by these exogenous shocks and ask whether and how they adjust their governance system relative to firms that are not affected by the exogenous

governance changes. This allows us first to study the interactions between the various governance mechanisms of a firm. Second, by analyzing firms' governance adjustments depending on the level of product market competition, we test the hypothesis that product market competition is of first order importance as a governance mechanism. A long standing theoretical literature predicts that product market competition is acting as a significant governance mechanism in disciplining managers. Alchian (1950), Stigler (1958), Fama (1980), and Fama and Jensen (1983), and Hart (1983) argue that product market competition is a substitute for other governance mechanisms. Hart (1983) formalizes the discussion of Malchup (1967), and shows that competition acts as a disciplinary mechanism as more information is available to monitor firms in competitive industries. Similar arguments are made in Holmstrom (1982, 1999), and Nalebuff and Stiglitz (1983) in that monitoring is cheaper in more competitive industries. However, Scharfstein (1988) shows that Hart's (1983) conclusion is sensitive to the assumption about the feasible incentive contracts. Similarly, Hermalin (1992) and Schmidt (1997) find ambiguous effects. It is thus an empirical question to what extent a competitive product market is a substitute for other governance mechanisms. We contribute to this literature by investigating whether any governance mechanisms display a reaction to the exogenous shock conditional on the firms' level of product market competition.

Giroud and Mueller (2010) find that the exogenous change to a firm's governance through the introduction of BC laws resulted in lower performance only for firms in concentrated industries. The introduction of BC laws had no significant effect on the performance of firms in competitive industries. Similarly, Giroud and Mueller (2011) find that the Gindex of Gompers, Ishii, and Metrick (2003) is only negatively related to firm performance in concentrated industries. One interpretation of these findings is that a competitive product market is a sufficient governance mechanism such that firms in competitive industries do not exploit the additional slack and thus firm performance is unaffected. An alternative view is that firms in competitive markets adjust other governance

mechanisms in response to the BC laws resulting in no significant impact on performance. Thus, competition in the product market is of first order importance but not sufficient.[1]

For the BC law tests, we use information on the governance of firms collected by Yermack (1995, 1996) for the Fortune 500 firms between 1984 and 1991[2]. The set of governance variables that we have available are: Board independence, insider ownership, CEO ownership, block ownership, CEO compensation and composition, whether the firm has a classified board, and leverage. We use the same governance variables around the introduction of the NYSE/NASDAQ rules. Both exogenous events affect a subset of firms only. This leaves us with control firms and the ability to run a difference-in-difference analysis following Giroud and Mueller (2010) and Chhaochharia and Grinstein (2009).

The two events cause exogenous shocks to the market for corporate control and board independence, respectively. Thus, we first investigate the interrelation of these two governance mechanisms. Firms affected by the BC laws, which increased their takeover defences, display an increase in the fraction of outside board members. In the NYSE/NASDAQ listing rule change requiring an independent board, affected firms increase their takeover defences as measured by the Gindex of Gompers et al (2003). Firms also display an increase in leverage, on average. The observed increase in leverage is consistent with Zwiebel (1996) where higher leverage serves as a takeover defence. In sum, an increase in board independence triggers an increase in takeover defences, while an increase in takeover defences triggers an increase in board independence. These findings are consistent with the interpretation that one role a non-independent board plays is that of a takeover defence.

Our findings complement those by Gillan, Hartzell, and Starks (2003) who show that firms with stronger boards are associated with more management friendly charter provisions, i.e., more takeover defenses. Fracassi and Tate (2012) also find evidence of a substitute relation between board monitoring, measured by the external network links

[1] Finally, if product market competition was of second order importance, then we do not expect to see differences in governance adjustment and performance depending on the level of product market competition in response to exogenous governance shocks. This last hypothesis, however, is inconsistent with Giroud and Mueller (2010, 2011).

[2] We thank David Yermack for making his data available to us.

between CEO and directors, and takeover defenses. Our evidence adds to this literature evidence supporting a more causal interpretation of the interrelation between board independence and takeover defenses.

Firms affected by the two exogenous shocks also adjust other governance mechanisms. Firms affected by the BC law increase their CEO incentive pay which is consistent with a substitute relation between external monitoring by the market for corporate control and the internal governance mechanism of incentive compensation. For firms affected by the listing rule change we also find reduction in insider ownership as well as a reduction in parts of the incentive compensation. The reduction in insider ownership and incentive compensation are consistent with findings by Chhaochharia and Grinstein (2009).[3]

In a second step, we ask whether competition in the product market is a sufficient governance mechanism in the sense that no governance adjustments are observed in response to the exogenous shocks while at the same time no deterioration in performance is detected. To test this hypothesis, we run the difference-in-difference regressions with additional interaction variables between the event dummy and dummies for three different levels of product market competition. We compute the Herfindhal index based on sales using the sample of all Compustat firms to classify the level of product market competition at the three-digit SIC level.

We find that firms in both concentrated as well as competitive industries adjust some of their governance mechanisms significantly. In the BC law event, we find the firms in competitive industries increase incentive pay. In the NYSE/NASDAQ event, the firms in competitive industries increase takeover defences as measured by the g-index and reduce CEO stock ownership. For both events we find no significant change in performance for firms in competitive industries. This has been documented by Giroud and Mueller (2010) for the BC law event. We document the same effect using the NYSE/NASDAQ event for firms in competitive industries. Finding some governance adjustments among firms in competitive

[3] We exclude Apple Inc and Fossil from our sample since Guthrie, Sokolowsky, and Wan (2011) find that some of CG's results are driven by these two outliers.

industries leaves open the possibility that a competitive product market per se is not a sufficient governance mechanism.

Firms in the concentrated industry experience the most significant performance impact depending on the nature of the events and they also change their governance variables in various way. In the BC law event, firms increase the fraction of outside directors but reduce the compensation for directors (board fees) as well as directors' incentive compensation plan (in the form of options). Furthermore, the firms reduce the salary and bonus compensation of CEOs, CEO insider ownership, and block ownership. Despite (or because of) the many governance adjustments, we find a negative impact on performance. In the NYSE/NASDAQ event, firms in concentrated industries increase their takeover defences, measured as the g-index, as well as leverage. We also find evidence of a reduction in CEO incentive pay. These firms also display an increase in firm value using Tobin's Q.

The change in the firm value is a joint outcome of the direct effects of the law change and the firm's reaction to it by adjusting other governance mechanisms. Firms can either adjust the governance system to counteract the effects of the law or to exploit it. In the BC law event, counteracting would be to implement good governance changes to reduce the impact of a weakened market for corporate control. Exploiting the law effect would be to implement bad governance changes to facilitate further entrenchment. Similarl logic applies to the NYSE/NASDAQ rule change. The challenge both events is to distinguish between good and bad governance changes. We draw upon prior literature that shows that firms are better governed in the presence of large blockholders (Bebchuk and Hamdani (2009), Cremers and Nair (2005) and Zeckhauser and Pound (1990)). Under the assumption that managers are more likely to use the exogenous changes to entrench themselves if they do not have a blockholder, we expect to see different governance mechanisms being adjusted resulting in worse performance in both events among firms without blockholders. We find that different mechanisms are adjusted and firms with blockholders prior to the shock perform better in both events. One important inference that we can draw from this analysis is that firms in concentrated industries can use block ownership as a partial substitute for a competitive

product market since the governance adjustments observed are more likely attempts to substitute for the shock than to exploit the shock.

Our paper contributes to the literature investigating the interrelation between governance mechanisms. A recent review of this literature is provided by Adams, Hermalin, and Weisbach (2010) who emphasize the importance of the endogeneity in governance choices. Agrawal and Knoeber (1996) use a system of equations to estimate the impact of governance on value and find that once simultaneity is taken into account, only board independence affects firm value while the other mechanism are chosen simultaneously to maximize firm value. Endogeneity problems may be able to explain why Huson, Parrino, and Starks (2001), and Denis and Kruse (2000) conclude that internal monitoring and external control are substitutes, while Hadlock and Lumer (1997) and Mikkelson and Partch (1997) infer a complementary relation. Cremers and Nair (2005) also conclude that block ownership and takeover defenses are complementary since abnormal stock returns are highest for firms with high block ownership and few takeover defenses. Cremers, Nair, and Peyer (2008) find that firms in more competitive industries have more takeover defenses and argue that this is consistent with the substitute hypothesis, i.e., only firms that are monitored better by the product market can afford to have more defenses. We add to these studies by analyzing companies' reactions to exogenous shocks. Our study also has important policy implications. Regulators should consider the side effects of required changes in governance. Firms may undo some of the intended effects of a change in board independence (takeover defenses) by adjusting the other mechanism(s). Second, when studying firm's governance quality, the substitution effect should be taken into account. Third, the observed trade-off between internal and external governance mechanisms are consistent with the interpretation that governance systems are complex but adjustable thus raising questions about studying governance mechanisms in isolation.

We also contributes to the debate of the relative importance of the product market competition as a governance mechanism by showing that there are some governance changes even in competitive industries following exogenous law changes, suggesting that a

competitive product market is an important but yet insufficient governance mechanisms. This helps us to understand the heterogeneity in firm's governance systems even among competitive industries.

2 Hypotheses

In a first set of tests, we investigate interrelations between the exogenously changed governance mechanisms and all the remaining mechanisms. We have a shock to the market for corporate control, i.e., an increase in takeover defenses, and a shock to board independence. This allows us to test whether takeover defenses and a non-independent board are substitutes or complements using shocks to both mechanisms. Empirical tests by Gillan, Hartzell, and Starks (2003) find that firms with stronger boards are associated with more management friendly charter provisions, i.e., more takeover defenses. Fracassi and Tate (2012) also find evidence of a substitute relation between board monitoring, measured by the external network links between CEO and directors, and takeover defenses. Our analysis contributes to this literature by investigating the interrelations using an exogenous shock.

As second set of tests is based on the theoretical literature that predicts that product market competition is acting as a significant governance mechanism in disciplining managers. Alchian (1950), Stigler (1958), Fama (1980), and Fama and Jensen (1983), and Hart (1983) argue that product market competition is a substitute for other governance mechanisms. Hart (1983) formalizes the discussion of Malchup (1967), and shows that competition acts as a disciplinary mechanism as more information is available to monitor firms in competitive industries. Similar arguments are made in Holmstrom (1982, 1999), and Nalebuff and Stiglitz (1983) in that monitoring is cheaper in more competitive industries. However, Scharfstein (1988) shows that Hart's (1983) conclusion is sensitive to the assumption about the feasible incentive contracts. Similarly, Hermalin (1992) and Schmidt (1997) find ambiguous effects. It is thus an empirical question to what extent a competitive product market is a substitute for other governance mechanisms.

Our null hypothesis is based on the assumption that in a competitive product market costs due to deviations from profit maximization cannot be passed on to consumers in the form of higher prices since other companies compete for the same customers. Thus, any deviations based on agency problems lead to lower returns for investors and possibly the demise of the company in the long run. If product markets are not competitive, then prices in the product market can be higher to cover costs arising from agency problems. While customers might consume less of the product overall, firms can still generate sufficient profits to also cover the cost of capital and stay in business even in the long run.

H0: firms in competitive industries are not expected to adjust their other governance mechanisms in response to an exogenous shock to their governance system (BC law or NYSE/NASDAQ rule requiring board independence) and at the same time firm performance is not affected. In addition, firms in concentrated industries are expected to adjust at least some of their governance mechanisms in response to the shock and/or display a change in firm performance.

Thus, under the null hypothesis that a competitive product market is a sufficient governance mechanism we test three effects of the exogenous shocks:

1) No significant adjustments in other governance mechanisms for firms in competitive industries.
2) No significant value impact of the exogenous governance shocks for firms in competitive industries.
3) Firms in concentrated industries react differently either by adjusting governance and/or by displaying changes in firm performance.

The alternative hypothesis suggests that competition in the product market is not a sufficient governance mechanism such that other mechanisms play a significant role in a firm's governance system.

H1: if a competitive product market is not a sufficient mechanism, but still of first order importance, then firms in competitive industries are expected to adjust

governance mechanisms to substitute for the exogenous change experienced. This would then lead to no change in firm value to the extent that governance mechanisms are perfect substitutes. Value could also be negatively affected if governance mechanisms are not perfect substitutes in terms of the costs.

Thus, in contrast to the predictions of the null hypothesis, governance adjustments could be expected even among firms in competitive industries.

Given the evidence in Giroud and Mueller (2010) that firms in concentrated industries experience a significant drop in firm performance while no effect is observed for firms in competitive industries, we can already reject the hypothesis that the competitiveness of the product market does not play a role.

3 Events and Data

3.1. BC Law Events

3.1.1. Sample selection:

The sample of firms is from Yermack (1995, 1996) and includes all firms which qualified for at least one of the four *Forbes* magazine lists of the 500 largest public U.S. corporations in at least four of the eight years between 1984-1991. Yermack also requires a firm to have been publicly traded for four consecutive full fiscal years in the 1984-1991 period. We start with this sample of 792 firms and 5,955 firm-year observations. The data set contains a complete observation for each full fiscal year during which a firm was publicly traded in the 1984-1991 period, including years in which it did not appear on any *Forbes* 500 list. Our sample size is reduced due to missing observations on the SIC code. Following Cheng, Nagar, and Rajan (2004) we also check that none of our sample firms change their state of incorporation during the sample period since the BC laws apply to firms incorporated in a given state. We further collect data from Compustat on the state of location which specifies the location of the firm's headquarters. Depending on the regressand, we end up with between 4,808 and 4,980 observations. The sample size varies because observations are

dropped if there is only one firm in a particular state-industry-year combination with available governance data.

3.1.2. Definition of variables and summary statistics

Our main measures of corporate governance can be divided into seven categories: a) Board independence, b) Board compensation, c) insider ownership, d) block ownership, e) leverage, f) CEO compensation and g) classified board. All variables are defined in detail in the Appendix. Our first proxy for board independence is the *percentage of outside directors* defined as members of the board that are not currently employed nor have a substantial business or family relationship (grey directors). We also create a dummy variable, labeled *independent board*, equal to one if the board consists of a majority of outside directors. The first proxy for board compensation, *director retainer fee*, is the logarithm of one plus the director's annual retainer fee. A second proxy is a dummy, called *director incentive pay*, equal to one if the company has a shareholder approved stock option plan for directors We measure CEO ownership as the fraction of shares owned by the CEO. Block ownership is the fraction of the shares outstanding that the largest blockholder owns (*largest block*). This variable takes on a value of zero if there are no 5% blockholders. We also use a variable that counts how many 5% blockholders there are (*block at 5%*), excluding 5% blocks owned by insiders. The proxy for leverage is the *debt-to-value* ratio calculated using the book value of debt divided by the market value of the equity plus book value of debt. Our proxies for CEO compensation are the *CEO's salary plus bonus*, and the *CEOs long-term incentive pay* (measured as the value of the stock and option grants plus other long-term incentive plan components listed in the proxy statements). Both compensation variables are based on the logarithm of one plus the variables value. When a firm has a classified (staggered) board, we set the *classified board* dummy equal to one.

Our main measure of industry competition is the Herfindahl-Hirschman index (HHI). A higher HHI indicates a more concentrated industry. The HHI is defined as the sum of the squared market shares, where market share is based on sales information from Compustat. We compute HHI at the 3-digit SIC level. In our sample, the average industry concentration is 0.195 (Table 1). This is comparable to Giroud and Mueller (2010). We also use subsamples

of firms classified by HHI terciles where we define the tercile cut points by the distribution of HHI at the 3-digit SIC level across the Compustat universe.

As a measure of firm performance we use the return-on-assets (ROA) computed as operating income before depreciation and amortization divided by total book value of assets, following Giroud and Mueller (2010).

Table 1 provides summary statistics for the governance variables. We find a slight increase in the percentage of outside directors, a large increase in the fraction of firms that have director incentive pay (from 4% to 14% of the companies), and small increases in the fraction of shares held by the largest block owner (9.1% to 10.2%), leverage (15% to 19%), CEO salary and bonus (6.55 to 6.73 in logs) and CEO long-term incentive pay (7.72 to 8.12 in logs). While these changes are indicative of governance adjustments, they could easily be attributable to time trends. Thus, the following section focuses on our empirical methodology that allows us to control for general trends in industries, states, and time period.

Table 1, panel B shows that our sample consists of large firms and relatively older firms compared to the entire Compustat sample employed by Giroud and Mueller (2010). In our sample there is no size and age difference between firms in states that eventually versus never introduce BC laws. However, we find that firms in states that never introduce BC laws operate in more competitive industries. Thus, the question arises whether the 'never BC' group of firms is an appropriate control group. We believe this should not be a concern since we use observations in the before BC period in the control group and only after the BC law in the treatment group. In addition, we control for the competitiveness of the industry as well as size and age in our regressions.

Panel C of Table 1 shows the pairwise correlations between the governance mechanisms. Most all correlations are significant highlighting again the need for an exogenous event in order to further our understanding of how firms arrange, trade-off, and set their governance system.

3.1.3. Empirical method

Our methodology closely follows Giroud and Mueller (2010) using a difference-in-difference (DD) approach. We first estimate

$$y_{ijklt} = a_i + a_t + b_1(BC_{kt}) + g'X_{ijklt} + e_{ijklt} \quad (1)$$

where i indexes firms, j indexes three-digit SIC industries, k indexes states of incorporation, l indexes states of location, and t indexes time. The dependent variables of interest in a first set of regressions are the various governance mechanisms. a_i and a_t are firm and year fixed effects. BC_{kt} is a dummy that equals one if a BC law has been passed in state k by time t. $ß_1$ estimates the effect of the passage of BC laws on governance variables y. X_{ijklt} is a vector of controls.

Second, we test whether ß differs depending on the level of product market competition in the industry. Equation 1 is augmented in the following way resulting in a difference-in-difference-in-difference (DDD) regression:

$$y_{ijklt} = a_i + a_t + b_1(BC_{kt} \times HHI_{lowjt}) + b_2(BC_{kt} \times HHI_{mediumjt}) + b_3(BC_{kt} \times HHI_{highjt}) + g'X_{ijklt} + e_{ijklt} \quad (2)$$

, where HHI_{lowjt} is a dummy equal to one if the HHI associated with industry j at time t is in the lowest tercile of the HHI distribution of that year, and zero otherwise. Similarly for $HHI_{mediumjt}$ and HHI_{highjt}. X_{ijklt} is a vector of controls, including two of the three HHI tercile dummies, and ε_{ijklt} is the error term. $ß_1$- $ß_3$ estimate the effects of the passage of BC laws on governance variables depending on the HHI tercile.

We estimate these regressions using firm and year fixed-effects and cluster standard errors at the state of incorporation level (Petersen, 2009). Given our panel dataset, the clustering accounts for error correlations in the cross-section (firms in a given year and state of incorporation), time-series within a firm, and time-series across firms (different firms in a given state of incorporation over time). While we report results from equation-by-equation regressions, we perform a robustness test using seemingly unrelated regressions (SUR) to account for the potential cross-correlations in the errors between the regressions leading to the same inferences (not tabulated). Note that the equation-by-equation analysis amounts

to running reduced form regressions of a system that has all the endogenous governance variables also as right hand side variables (see e.g., Loderer and Waelchli, 2010).

Our identification strategy is the same as in Giroud and Mueller (2010)[4]. The fact that firms are in different industries, states of incorporation, and states of location, helps with the identification (see Table 2). Thus, our sample contains firms in states that have never adopted BC law as well as firms in states that adopt the law, but in different years. Hence, the control group in a given year consists of firms in states that never adopt BC law, as well as firms in states that have not yet adopted BC law.

The difference-in-difference approach first compares differences between governance variables from before and after the law changes separately for firms in the treatment and control group. The second difference is computed as the difference between the first two differences (control group difference and treatment group difference). Later on, the third difference investigates whether the differences are distinct depending on the industry concentration (equation 2).

However, creating a set of industry and state of location dummies each interacted with a year dummy results in too many variables which makes estimating the regression impossible. We follow Giroud and Mueller (2010) and Bertrand and Mullainathan (2003) in computing time-varying industry-year and state-year variables. Those are computed as the average of the dependent variable in a firm's industry (state of location), excluding the firm itself, for each year. These industry and state of location controls are important since they can help us to differentiate between contemporaneous changes unrelated to the passage of the law and the effect of the passage of the BC laws.

3.2. NYSE/NASDAQ Listing Rule change

3.2.1. Data and variables

Our data construction method follows Chhaochharia and Grinstein (2009), hereafter CG, closely. We include firms incorporated in the US between 1998 and 2005.[5] We exclude

[4] See their discussion on page 317 for further details.

[5] 1998 is the first year during which the board committee level information is available from IRRC. The compensation reporting changes significantly in 2006 and pre-2006 numbers are not directly comparable to post

Apple Inc and Fossil from our sample since Guthrie, Sokolowsky, and Wan (2011) find that some of CG's results are driven by these two outliers. Our sample is based on 1,423 firms and 10,536 firm-year observations.

Table 3 shows descriptive statistics for our sample firms under SOX event. Before SOX variables are based on years between 1998 and 2002, after SOX for years 2003-2005. In order to define whether a firm complied with the new listing requirements of an independent board even before the rule change, we assess a board's independence in 2002. We use IRRC's definition of an independent director but make reclassifications following Chhaochharia and Grinstein (2009). A director is independent if he or she is neither an affiliated (Director class="L") nor an employee of the company (Director class="E").[6] All other variable definitions are the same as in the BC law section using Execucomp as the source for CEO compensation and ownership, Thomson for block ownership data, and RiskMetrics for the takeover defenses. We use the g-index of Gompers et al (2003) and the anti-takeover index (ATI) of Cremers and Nair (2005).

3.2.2 Methodology

We follow Chhaochharia and Grinstein (2009) in running firm fixed effects regressions where the main variable of interest is a dummy equal to one for firms that did not comply with the listing requirements related to board independence before the rule change.

The regression specification mirrors the one we used for the BC law tests. However, here we only have one event. Specifically, we estimate:

$$y_{it} = \alpha_i + \alpha_t + \beta_1 * \text{Dummy (Noncompliant Board 02)} * \text{Dummy(afterlaw)} + \gamma' X_{it} + \varepsilon_{it}, \quad (3)$$

where i indexes firms and t indexes year. α_i and α_t represent firm- and year-fixed effects, respectively. The dummy (noncompliant board 02) is equal to one if the firm does not have a

2006 figures. However, unlike CG, we do not impose a balanced panel requirement to avoid potential survival bias in our sample.

[6] CG make a partial adjustment to the IRRC definition of independence in order for the definition to be more aligned with what is required under the stock exchange listing rules. In particular, NYSE and NASDAQ allow former employees to be independent directors if more than 3 years have passed since the termination of employment. However, GSW criticize that CG's approach ignores other disqualifications of independence imposed by IRRC (e.g., business relations) and the reclassification could result in inconsistent treatment of directors. Since the IRRC definition of independence is more stringent, we are more likely to classify a firm as one that has to adjust to the new rules while it does comply with the new listing rules already.

majority of independent directors in 2002 and Dummy (afterlaw) is equal to one for years from 2003 to 2005 (inclusive). X_{it} is a vector of control variables. ?$_?$ estimates the effect of the passage of the listing requirement changes on governance variable y.

To assess whether the response differs depending on the extent of product market competition, we further split the firms into three groups based on the industry Herfindahl-Hirschman index and estimate the following regression:

$$y_{it} = \alpha_i + \alpha_t + \beta_1 * \text{Dummy (Noncompliant Board 02)} * \text{Dummy(afterlaw)} * \text{HHI}_{low} + \beta_2 * \text{Dummy (Noncompliant Board 02)} * \text{Dummy(afterlaw)} * \text{HHI}_{med} + \beta_3 * \text{Dummy (Noncompliant Board 02)} * \text{Dummy(afterlaw)} * \text{HHI}_{high} + \gamma' X_{it} + \varepsilon_{it} \quad (4)$$

where HHI_{low}, HHI_{med} and HHI_{high} are dummies equal to one if the firms are in the lowest, medium and the highest tercile of the HHI distribution of that year respectively. $ß_1$, $ß_2$ and $ß_3$ capture the different effects of the changes in the listing requirements on governance variables depending on the extent of industry competition. Note that in both regressions 3 and 4 we use the same control variables X as in the BC law event. These control variables differ from Chhaochharia and Grinstein (2009). The main difference is that we use the industry-year average of the dependent variable, excluding the firm itself, as a control variable, rather than a full set of industry and year dummies.

4 Results

4.1 The effect of BC laws and NYSE/NASDAQ listing rule changes on governance

Table 4 shows the estimates of regression 1. The coefficients of interest are those on the BC law dummy variable. Across all the governance variables there are two significant governance mechanisms that are adjusted in response to the passage of BC laws. First, we find that firms affected by the BC laws display an increase in the fraction of outside directors on the board. The second mechanism that is adjusted is the CEO incentive pay. We find a significant increase by 20% of the CEO incentive pay (the dependent variable is log of incentive compensation) in response to the BC laws, compared to firms not affected by the BC laws. Cheng and Indjejikian (2009) also find an increase in CEO compensation around the BC law events for a subsample of the firms we analyze.

Table 5 shows the results of regression 3. The coefficient of interest is the interaction dummy between afterlaw and non-compliant. We find that non-compliant firms who had to change the board to become independent, on average, increase the g-index and increase leverage. To the extent that a higher leverage serves as a takeover defense (Zwiebel, 1996), both reactions to the NYSE/NASDAQ independent board requirement rule change suggest that affected firms increase their defenses against takeovers. We also find a reduction in CEO ownership and a marginally significant reduction in CEO equity incentive pay, although no significant change in overall incentive pay.

Taken together, the data is consistent with the interpretation of a substitute relation between takeover defenses and a non-independent board. Thus, firms which forced to get an independent board adopted takeover defenses and increased leverage in order to maintain a certain level of defenses against hostile bidders. Because these trade-offs between takeover defenses and board independence exist in both events, they have important implications. First, regulators should consider the side effects of required changes in governance. Firms may undo some of the intended effects of a change in board independence (takeover defenses) by adjusting the other mechanism(s). Second, when studying firm's governance quality, the substitution effect should be taken into account. Third, the observed trade-off between internal and external governance mechanisms are consistent with the interpretation that governance systems are complex but adjustable thus raising questions about studying governance mechanisms in isolation.

The fact that as a result of the exogenous shocks, CEO compensation and ownership is adjusted is consistent with the interpretation that monitoring and incentive contracts are in a substitute relationship.

Somewhat surprising is the finding that, on average, the treated firms in the BC law events are not substituting staggered boards for the state level takeover defense. One might have expected takeover defenses to be substitutes, but that is not the case in the BC law case, at least not on average. However, this finding is consistent with Gompers et al (2003) that find significant accumulations of takeover defenses in firms.

In this first part of the analysis we have not considered differences in the competitiveness of the product markets that firms operate in. However, theories would predict that a competitive product market, in the extreme case, could be a sufficient governance mechanism. Thus, in the next section we investigate whether firms adjust governance mechanisms differently depending on the competitiveness of their product markets.

4.2 BC law: Governance adjustments and product market competition

Table 6 shows the results of estimating regression 2. Firms classified as operating in the most competitive third of the industries, labeled as HHI(Low), only display one significant governance adjustment to the BC laws relative to firms not affected by BC laws that are in the same competitive industries. The adjusted mechanism is the CEO incentive pay. The coefficient estimate implies that treated firms in competitive industries have increased their CEO incentive compensation by 20% relative to comparable firms not affected by the BC law.

On the other hand, we find several significant governance adjustments among firms in the most concentrated third of the industries, labeled HHI(High). Such firms, on average, reduce classified boards, increase board independence, reduce director incentives, reduce block ownership and insider ownership, and reduce the CEO salary and bonus compensation part. The only mechanism where we find no significant adjustment is leverage. Furthermore, we find that profitability, measured as return-on-assets (ROA), only significantly declines for firms in concentrated industries while firms in other industries do not display a significant change around the BC laws. This finding is in line with Giroud and Mueller (2010).

The fact that the governance adjustments are different between firms in competitive and concentrated industries suggests that the optimal reaction to the exogenous shock is different or that certain firms are able to entrench themselves more easily.

Thus, taken together we find only one significant governance adjustment by firms in competitive industries, namely to the CEO incentive compensation. The change is consistent with the interpretation that firms are using internal incentives as a substitute for external monitoring by the market for corporate control. An alternative interpretation that CEOs now

get too much compensation and this being possible due to the BC law protection is rejected because it would have predicted a negative impact on firm performance. Furthermore, it is possible that compensation changes do not matter. Thus, the board might have thought it needed to adjust compensation in order to substitute for the pressure from the market for corporate control. However, if that was the case, one could have expected firms in concentrated industries to react in the same way – and they have not. In addition, firms in competitive industries might have reduced their classified boards if they were looking for a substitute. They have not, while firms in concentrated industries have, on average, reduced this anti-takeover provision.

Taken together these findings are *inconsistent* with the null hypothesis that a competitive product market is sufficient as a governance mechanism. However, product market competitiveness does play a first order effect since the governance adjustments are very different and do lead to significant differences in the performance. In the following we describe the many adjustments observed among firms in concentrated industries and ask whether those are adjustments made to substitute for the drop in the effectiveness of the market for corporate control or whether they are the result of further entrenchment made possible by the BC laws' protection.

We find a significant increase in the fraction of outside directors on the board. To the extent that a non-independent board could act as a takeover defense, the passage of a BC law has caused firms to increase board independence consistent with an interpretation that the two mechanisms are in a substitute relationship. The coefficient in the second regression suggests a 5.5 percentage point increase in the fraction of outside directors. In untabulated results, we find an increase in the number of outside directors as well as a reduction in the number of inside directors on the board. In the third regression we also find a significant increase in the firms that change from a non-independent to a majority independent board. The coefficient implies an increase by 19.5%, always relative to firms not treated by the event.

Investigating the incentives of the directors, however, we find that the director retainer fee decreases by 24% and that firms in concentrated industries affected by the BC law

display a lower propensity (by eight percent) of introducing a board stock option program (significance at the 10% level). Thus, while the board becomes relatively more independent, the rewards for the board are reduced and incentive plans for board members are rarer than in firms not hit by BC law.

Another governance mechanism that changes is the fraction of firms with classified boards. We find that firms affected by BC laws reduce the number of classified board provisions relative to firms not affected by BC laws by almost 17%. Thus, among firms in concentrated industries, a firm level takeover defense (such as the classified board) and a state level defense (BC law) are substitute defense mechanisms – although not perfect substitutes. Note that we do not have data on other takeover defenses. It is thus possible that other firms reduce takeover defenses that we do not observe.

Block ownership in concentrated industry firms hit by BC law is reduced relative to firms not affected by the BC laws. This finding seems to support the notion of a complementary relation between the market for corporate control and block ownership. Such an interpretation is consistent with block ownership models such as Shleifer and Vishny (1986) where a large blockholder adds value by facilitating takeovers and related improvements and empirical evidence in Cremers and Nair (2005) that firms with no blockholders and high takeover defenses perform worst relative and firms with blockholders and low takeover defenses best.

In addition to block ownership, also CEO ownership decreases significantly. Note that this finding is unlikely due to CEO turnovers since firms in competitive industries do not display a similar pattern. In addition, if we only retain observations where the CEO is the same from the year before to the year after the BC law we get the same results (not tabulated). Kim and Lu (2011) conclude that a high level of CEO ownership could lead to entrenchment if external governance mechanisms are weak. His would be consistent with the CEO ownership and a weakening market for corporate control being in a substitute relation – both possibly increasing entrenchment.

Firms in concentrated industries that are hit by BC laws also lower CEO salary and bonus but do not increase incentive pay. The finding of a lower salary suggests that

management has not mainly used the BC law to entrench themselves more. However, there is also no evidence of a substitution effect between a lower monitoring from the market for corporate control and an increase in the incentive compensation to overcome potential incentive alignment concerns given the exogenous shock. Thus, more significant takeover protection could be a substitute for fixed pay as the CEO's job has become less risky.

The one governance mechanism that does not show any significant adjustment is leverage. To the extent that a lower leverage is used by firms in concentrated industries to keep potential competitors out (e.g., Titman, 1984, Chevalier, 1995) one might not expect any difference. However, if leverage was used as a takeover defense (e.g., Zwiebel, 1996), firms affected by BC laws could have been expected to lower leverage.

There could be two explanations for the observed governance adjustments. First, firms could try to overcome the negative effects of the reduction in effectiveness of the market for corporate control. Thus, one would expect changes to governance to reflect a substitution effect. Second, firms could exploit the worsening of governance by entrenching management (even) more. While the second hypothesis suggests a negative performance impact, the first predicts a positive effect. However, if no perfect governance substitute exists, then performance could, on the net, suffer even if governance adjustments are positive. To get a sense for which explanation might better reflect the reasons for the governance adjustments, we rely on the findings by Zeckhauser and Pound (1990), Cremers and Nair (2005) and others that find firms with blockholders to be better governed.

The hypothesis is that firms in concentrated industries that have no blockowner hit by BC law are more prone to the entrenchment effects allowing these firms to possibly react less optimal to the exogenous shock.

In Table 7 we show coefficient estimates of two triple interaction terms between the BC law dummy, the HHI(High) dummy (most concentrated industries), and a dummy for blockholder (no blockholder). The dummy for blockholder is equal to one if the treated firm has at least one 5% blockholder in the year prior to the BC law passage, and zero otherwise.

We find that the ROA drop is significantly larger among the group of firms without a blockholder. The estimated coefficient suggests a drop in ROA of 7.4% versus a drop of 2.2%

for firms with a blockholder. More importantly, we find only a significant increase in board independence, a reduction in classified boards, and a reduction in annual board meeting fees among firm with at least one blockholder. Firms without a blockholder reduce the board's incentive compensation and reduce leverage. The coefficient estimate implies a 31% lower frequency of director incentive plan use. The finding that leverage is reduced by 13 percentage points is consistent with Zwiebel (1996) that leverage has served as a takeover defense, albeit at a cost to management due to the threat of bankruptcy. Finally, the non-blockholder firms also reduce the CEOs salary and bonus, although less than the firms with a blockholder.

The results of this further split by block ownership is consistent with the interpretation that some of the adjustments are made as a substitute for the pressure from the market for corporate control while others were made to entrench managers. In our sample, the increase in board independence, and the reduction in classified boards seem to be substitutes for the market for corporate control. While a lack of such adjustments plus a reduction in leverage and a reduction in director incentive pay seem to be more consistent with adjustments (or lack thereof) made by firms to entrench managers.

We conclude from the BC law event, that the results are consistent with the hypothesis that product market competition is of primary importance as a governance mechanism. However, in the absence of a competitive product market we find evidence that block ownership plays an important role in reducing agency problems. The data are consistent with the interpretation that block ownership and a competitive product market are in a substitute relationship.

4.3 NYSE/NASDAQ listing rule changes: Governance adjustments and product market competition

Table 8 shows results of regression 4 where the NYSE/NASDAQ event (Afterlaw*non-compliant) dummy is interacted with three industry concentration dummies.

We find that governance adjustments happen again in firms operating in concentrated as well as competitive industries.

Firms in competitive industries increase the g-index, but do not show any changes in the ATI nor leverage. Also, the economic and statistical significance is lower than for the changes in concentrated industries. The coefficient on g-index is 0.11 implying that firms in competitive industries which had to introduce an independent board have 0.11 more provisions in the g-index than comparable firms not forced to increase board independence. Treated firms in the concentrated industries have a coefficient almost three times as high of 0.31.

Firms in competitive industries also display a reduction in CEO ownership. In terms of performance, we find that neither ROA nor proxies for Tobin's Q are significantly changing in competitive industry firms around the law change. Taken together, these findings are again inconsistent with the null hypothesis that a competitive product market is a sufficient governance mechanism. However, the competitiveness of the product market is of first order importance evidenced by the few, and relatively small governance adjustments with no discernible impact on firm value.

Among firms in concentrated industries we find the following significant governance adjustments in reaction to the board independence requirement: First, firms have increased takeover defenses as measured by the g-index (Gompers et al, 2003) or the ATI (Cremers and Nair, 2005) relative to firms that did already comply with the board independence requirement. We also find an increase in leverage. To the extent that high(er) leverage can serve as a takeover defense (Zwiebel, 1996), this is again consistent with the substitution argument.

We also find some evidence of a reduction in CEO pay. While the salary and bonus part does not significantly decrease, the CEO incentive pay part is reduced. We also find a decrease in the amount of unvested stock ownership by the CEO. These findings would suggest a substitute relationship between the two mechanisms: a higher monitoring by the board could allow for lower incentive pay. An alternative interpretation is one of agency problems that led to an excessive CEO pay level while the board was not independent. A

pure substitution effect might not lead to a value impact while we find a significant increase in Tobin's Q, on average, for firms in concentrated industries. These findings are consistent with the conclusions in Chhaochharia and Grinstein (2009).[7]

The only governance mechanism that is not significantly affected is block ownership. One reason might be that this mechanism is not under the control of the firm directly.

The valuation effects of the BC law and SOX events are interesting to compare. In both cases only firms in concentrated industries display a significant performance change. However, the bad governance shock of the BC laws led to a drop in performance, while the NYSE/NASDAQ rule change led to an increase. One possible interpretation is that exogenous governance changes mandated by law have an impact on firm value since firms in concentrated industries do not, or cannot undo such changes. Thus, the lack of a competitive product market leaves room for other governance mechanisms to matter – positively, or negatively.

To test again whether block ownership serves as a partial substitute for a competitive product market, we report in Table 9 two triple interaction terms. The interaction variable is between the afterlaw*non-compliant dummy, the HHI(High) dummy, and the blockholder (no blockholder) dummy. The blockholder dummy is equal to one if the firm had at least one 5% blockholder reported in 2002, and zero otherwise. Surprisingly, we find that the positive performance effect among firms in concentrated industries is entirely coming from firms with blockholders. There is even some evidence of a drop in ROA for firms without a blockholder. When we look at the governance adjustments among firms with a blockholder, we only find a marginally significant increase in the g-index, although no change in ATI nor leverage. In addition, the increase in the g-index is lower than for firms without a blockholder. Firms without a blockholder also increase the ATI and leverage and reduce CEO incentive compensation and CEO ownership. Taken together, these findings suggest that

[7] Note, however, that our sample is smaller than theirs because we require data availability on other governance characteristics of the firms as well. Guthrie, Sokolowsky, and Wan (2011) in contrast, find an increase in compensation for firms which had to increase compensation committee independence. They argue that two observations in Chhaochharia and Grinstein (2009) explain the differences in findings (Apple and Fossil). We have excluded those firms from our sample already.

firms with blockholders benefit from the mandated increase in board independence at least in part because these firms did not make many governance adjustments.

In sum, our findings are consistent with the interpretation that block ownership and a competitive product market are governance mechanisms that are in a substitute relationship.

5. Conclusions

Our analyses of the BC law and NYSE/NASDAQ listing requirement changes can shed light on two important questions. First, to what extent are governance adjustments observed around the exogenous events reflecting an attempt to use substitute governance mechanisms. Second, how important is a competitive product market as a governance mechanism.

We find evidence consistent with the hypothesis that a competitive product market is of first order importance as a governance mechanism. In response to two different, exogenous shocks, the introduction of the BC laws and the NYSE/NASDAQ listing rule changes, we find that firms in competitive industries adjust governance mechanisms while leaving firm performance unaffected. In contrast, firms in concentrated industries adjust governance mechanisms significantly and they exhibit a change in performance. Taken together we can reject the hypothesis that a competitive product market is a sufficient governance mechanism. Our findings leave open the possibility that governance adjustments made by firms in competitive industries help to explain why BC laws (Giroud and Mueller, 2010) and differences in the g-index (Giroud and Mueller, 2011) did not affect performance – there are substitute mechanisms. However, competition is clearly of first order importance since the performance of firms in concentrated industries is affected despite (or due to) several adjustments to the governance system. In both events we find that firms in concentrated industries which have at least one 5% blockholder display a relatively better performance change around the shock suggesting that firms with blockholders adjust governance more in line with maximizing shareholder value. Firms without blockholders

might use the exogenous shock to entrench themselves more. Thus, to the extent that a competitive product market induces firms to adjust governance efficiently around the exogenous events, blockholders appear to be able to impose a similar discipline in making governance adjustments. Again, the substitution is not perfect since we still observe some performance changes around both events.

Our analysis also discovers interesting substitute and complement relations between governance mechanisms based on adjustment made by firms in competitive and concentrated industries. The observed adjustment are of particular interest as they are responses to exogenous shocks allowing a more causal interpretation addressing one of the major issues in governance research - endogeneity.

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Table 1 Summary Statistics

In Panel A Before (After) BC denotes the time period before, including observations from states that never introduce BC laws (after) the passage of BC law across states. Variables are defined in Appendix A. All monetary items are measured in 1991 dollars. All financial statement items are measured in millions. Panel B reports sample statistics between states that never pass BC law (denote Never BC) and those that pass the BC law (Eventually BC). Sample mean with standard deviation reported in parentheses. Panel C show the pairwise correlations among governance variables. *,**,*** denote significance at the 10%, 5% and 1% level respectively.

Panel A Summary Statistics

	Percentage of outside director	Director retainer fee	Director incentive pay	Classified board	Largest block	Block at 5 %	Debt/Value	CEO Salary and bonus	CEO stock ownership	CEO long term incentive pay
Before BC										
Mean	67.27	9.23	0.04	0.44	9.11	0.80	0.15	6.55	2.27	7.72
Median	70.00	9.80	0.00	0.00	5.80	0.00	0.13	6.57	0.14	7.58
Std	16.07	2.16	0.20	0.50	13.46	1.11	0.23	0.63	6.80	2.34
After BC										
Mean	69.28	9.57	0.14	0.58	10.22	0.97	0.19	6.73	2.62	8.12
Median	71.43	9.92	0.00	1.00	6.80	1.00	0.17	6.75	0.14	7.97
Std	14.63	1.74	0.34	0.49	14.89	1.24	0.23	0.73	8.74	2.34
Overall										
Mean	67.97	9.35	0.07	0.49	9.50	0.86	0.16	6.61	2.39	7.86
Median	70.59	9.85	0.00	0.00	6.10	0.00	0.14	6.63	0.14	7.73
Std	15.61	2.03	0.26	0.50	13.98	1.16	0.23	0.67	7.53	2.35

Panel B Eventually BC States Vs Never BC States

	Size	Age	HHI
Eventually BC	8.25	3.11	0.19
	1.26	0.79	0.19
Never BC	8.30	2.93	0.17
	1.15	0.64	0.26
All States	8.26	3.09	0.19
	1.25	0.78	0.19

Panel C Correlation among governance variables

	Percentage of outside director	Director retainer fee	Director incentive pay	Classified board	Largest block	Block at 5 %	Debt/Value	CEO Salary and bonus	CEO stock ownership
Director retainer fee	0.11***								
Director incentive pay	0.01	0.01							
Classified board	-0.06***	-0.01	0.02						
Largest block	-0.20***	-0.19***	0.04***	-0.01					
Block at 5 %	-0.01	0.00	0.08***	0.02	0.31***				
Debt/Value	0.13***	0.16***	0.02	-0.03***	-0.06***	0.00			
CEO Salary and bonus	-0.03	0.24***	0.07***	0.00***	-0.13***	-0.05***	0.04		
CEO stock ownership	-0.30***	-0.24***	0.02*	0.06***	0.50***	-0.01***	-0.12	-0.15***	
CEO long term incentive pay	-0.38***	-0.11***	0.11***	0.09***	0.26***	0.01	-0.22***	0.19***	0.53***

Table 2 Descriptive Statistics of States with and without BC Law Changes

Data are for Forbes 500 firms over 1984 to 1991. "BC year" indicates the year in which a business combination (BC) law was passed. The information of BC year is derived from Giroud and Mueller (2010a). "State of location" indicates the state in which a firm's headquarters are located. "State of location" and "State of incorporation" are from Compustat.

State	Description	BC year	State of incorporation	State of location	Number (percentage) of firms incorporated in		
			Number of firms	Number of firms	State of location	Delaware	Other states
DE	Delaware	1988	343	5	5 (100.0%)		
NY	New York	1985	46	78	28 (35.9%)	39 (50%)	11 (14.1%)
OH	Ohio	1990	30	42	27 (64.3%)	9 (21%)	6 (14.3%)
PA	Pennsylvania	1989	27	35	21 (60.0%)	10 (29%)	4 (11.4%)
NJ	New Jersey	1986	25	35	16 (45.7%)	12 (34%)	7 (20.0%)
MD	Maryland	1989	23	13	11 (84.6%)	2 (15%)	0 (0.0%)
VA	Virginia	1988	18	22	13 (59.1%)	8 (36%)	1 (4.5%)
MA	Massachusetts	1989	13	23	13 (56.5%)	9 (39%)	1 (4.3%)
FL	Florida	.	11	13	9 (69.2%)	2 (15%)	2 (15.4%)
MI	Michigan	1989	11	18	10 (55.6%)	8 (44%)	0 (0.0%)
MO	Missouri	1986	11	20	11 (55.0%)	5 (25%)	4 (20.0%)
IN	Indiana	1986	10	10	7 (70.0%)	3 (30%)	0 (0.0%)
TX	Texas	.	10	51	10 (19.6%)	36 (71%)	5 (9.8%)
CA	California	.	9	66	9 (13.6%)	51 (77%)	6 (9.1%)
WA	Washington	1987	9	13	9 (69.2%)	4 (31%)	0 (0.0%)
CT	Connecticut	1989	8	23	7 (30.4%)	11 (48%)	5 (21.7%)
GA	Georgia	1988	8	15	7 (46.7%)	8 (53%)	0 (0.0%)
IL	Illinois	1989	8	62	8 (12.9%)	44 (71%)	10 (16.1%)
MN	Minnesota	1987	7	21	6 (28.6%)	15 (71%)	0 (0.0%)
NC	North Carolina	.	7	15	6 (40.0%)	5 (33%)	4 (26.7%)
OR	Oregon	.	7	7	6 (85.7%)	1 (14%)	0 (0.0%)
WI	Wisconsin	1987	7	8	6 (75.0%)	2 (25%)	0 (0.0%)
KS	Kansas	1989	5	5	4 (80.0%)	1 (20%)	0 (0.0%)
AZ	Arizona	1987	4	7	4 (57.1%)	1 (14%)	2 (28.6%)
KY	Kentucky	1987	4	7	4 (57.1%)	3 (43%)	0 (0.0%)
LA	Louisiana	.	4	7	4 (57.1%)	2 (29%)	1 (14.3%)
SC	South Carolina	1988	4	5	4 (80.0%)	1 (20%)	0 (0.0%)
TN	Tennessee	1988	4	11	4 (36.4%)	6 (55%)	1 (9.1%)
CO	Colorado	.	3	10	3 (30.0%)	7 (70%)	0 (0.0%)
NM	New Mexico	.	3	2	2 (100.0%)	0 (0%)	0 (0.0%)
RI	Rhode Island	1990	3	4	2 (50.0%)	2 (50%)	0 (0.0%)
UT	Utah	.	3	5	2 (40.0%)	3 (60%)	0 (0.0%)
DC	District of Columbia	.	2	6	1 (16.7%)	5 (83%)	0 (0.0%)
HI	Hawaii	.	2	4	2 (50.0%)	2 (50%)	0 (0.0%)
IA	Iowa	.	2	3	2 (66.7%)	1 (33%)	0 (0.0%)
ID	Idaho	1988	2	4	2 (50.0%)	2 (50%)	0 (0.0%)
ME	Maine	1988	2	0	0 (0.0%)	0 (0%)	0 (0.0%)
NE	Nebraska	1988	2	5	2 (40.0%)	2 (40%)	1 (20.0%)
PR	Puerto Rico	.	2	2	2 (100.0%)	0 (0%)	0 (0.0%)
AL	Alabama	.	1	8	1 (12.5%)	6 (75%)	1 (12.5%)
NH	New Hampshire	.	1	2	1 (50.0%)	1 (50%)	0 (0.0%)
AR	Arkansas	.	0	6	0 (0.0%)	6 (100%)	0 (0.0%)
OK	Oklahoma	1991	0	3	0 (0.0%)	3 (100%)	0 (0.0%)
Total			701	701	291 (41.5%)	338 (48%)	72 (10.3%)

Table 3 Descriptive Statistics for NYSE/NASDAQ rule change sample

The sample period is from 1998 to 2005. The variables are defined in Appendix Table A1. All monetary items are measured in 2002 dollars. All financial statement items are measured in millions.

	CEO salary and bonus	CEO incentive pay	CEO stock ownership	Unvested stock ownership	Classified board	G index	ATI index	Debt/Value	Largest block	ROA	KZ Tobin's Q	FF Tobin's Q
Before SOX												
Mean	6.95	2.59	2.88	2.25	0.59	9.03	1.84	0.10	6.50	0.03	2.53	2.08
Median	6.94	0.00	0.33	0.00	1.00	9.00	2.00	0.08	6.64	0.04	1.47	1.06
Std	0.95	3.69	6.95	3.52	0.49	2.76	0.88	0.23	7.21	0.25	5.74	5.77
After SOX												
Mean	7.02	3.85	2.10	3.51	0.60	9.40	2.01	0.06	7.71	0.06	2.17	1.70
Median	6.97	0.00	0.30	0.00	1.00	9.00	2.00	0.04	8.06	0.05	1.69	1.24
Std	0.82	4.04	5.83	3.96	0.49	2.54	0.87	0.18	5.37	0.09	1.60	1.55
Overall												
Mean	6.98	3.12	2.51	2.84	0.59	9.19	1.92	0.08	7.03	0.04	2.37	1.91
Median	6.96	0.00	0.32	0.00	1.00	9.00	2.00	0.06	7.38	0.05	1.58	1.14
Std	0.89	3.89	6.47	3.79	0.49	2.67	0.88	0.21	6.49	0.20	4.40	4.42

Table 4 Governance Adjustments around BC Law Changes

Data are for Forbes 500 firms over 1984 to 1991. Accounting data and state of incorporation information are from Compustat. Stock price and industry classification are from CRSP. Industry-year and State-year are variables that are computed as the mean of the dependent variable in the firm's three-digit SIC industry and state of location, respectively, in a given year, excluding the firm itself. All the other variables are defined in Appendix Table A1. All monetary items are measured in 1991 dollars. All financial statement items are measured in millions. t-statistics are in parentheses. Standard errors are clustered at state of incorporate level. *,**,*** denote significance at the 10%, 5% and 1% level respectively.

VARIABLES	(1) Percentage of outside director	(2) Director retainer fee	(3) Director incentive pay	(4) Classified Board	(5) Largest block	(6) Block at 5%	(7) Debt/Value	(8) CEO Salary and bonus	(9) CEO Stock ownership	(10) CEO long term incentive pay
BC	0.6123	-0.0266	0.0038	-0.0154	0.3719	-0.0037	0.0032	0.0444	0.0553	0.2042
	(1.9236)*	(-0.4852)	(0.2917)	(-0.8081)	(1.2801)	(-0.0672)	(0.5144)	(1.5396)	(0.2818)	(2.0421)**
Industry-year	-0.0508	-0.0495	-0.0128	0.1215	-0.0024	0.1232	0.1572	0.0346	0.0393	0.0076
	(-2.5177)**	(-2.1069)**	(-0.3032)	(3.4815)***	(-0.0633)	(4.2119)***	(4.4553)***	(2.0249)**	(1.7641)*	(0.1923)
State-year	0.1867	0.0259	-0.1365	0.0497	-0.0022	-0.0224	0.0186	0.0640	-0.0549	0.0182
	(2.1526)**	(1.1915)	(-1.5352)	(0.5810)	(-0.0602)	(-0.4109)	(0.3737)	(1.2912)	(-2.0231)**	(0.3153)
Size	3.9757	2.0502	0.0845	-0.1999	4.7646	-0.4387	0.0346	0.3367	-0.6726	-0.1666
	(1.8876)*	(2.1367)**	(0.8951)	(-2.9255)***	(1.6170)	(-1.3676)	(0.6598)	(2.5151)**	(-0.3618)	(-0.7317)
Size squared	-0.2742	-0.0953	-0.0031	0.0097	-0.2872	0.0104	0.0026	-0.0144	0.0250	0.0364
	(-2.0874)**	(-1.7876)*	(-0.5061)	(2.3214)**	(-1.7378)*	(0.5922)	(0.8074)	(-1.7644)*	(0.2333)	(2.7730)***
Firm age	-2.1882	0.3002	-0.0278	0.0689	-2.5243	0.0301	-0.0062	0.1030	-0.7132	0.2122
	(-5.0069)***	(3.6081)***	(-1.2579)	(2.6155)**	(-3.8474)***	(1.0310)	(-1.2871)	(1.8430)*	(-2.1970)**	(2.1635)**
Lagged return	0.3751	0.1106	0.0299	-0.0130	0.4929	-0.0166	-0.0073	0.1768	0.2181	0.8332
	(1.1206)	(2.9717)***	(6.3998)***	(-1.2667)	(1.5493)	(-0.2227)	(-1.3562)	(15.8366)***	(0.9867)	(9.6164)***
HHI	5.9011	-0.1968	-0.1083	0.1133	-4.6124	0.4019	0.0174	-0.1559	-3.0845	-1.1788
	(4.1699)***	(-1.3705)	(-1.2554)	(0.9079)	(-4.7636)***	(1.6542)	(0.6123)	(-2.0725)**	(-3.0397)***	(-6.1140)***
Constant	49.3487	-1.7985	-0.3656	1.0304	-2.8014	3.3388	-0.3251	3.7164	8.4254	5.4534
	(4.6158)***	(-0.4375)	(-0.9586)	(3.2613)***	(-0.2364)	(2.3113)**	(-1.4362)	(4.0180)***	(1.1418)	(5.0393)***
Observations	4,978	4,945	4,966	4,980	4,968	4,962	4,868	4,974	4,972	4,932
R-squared	0.8869	0.8710	0.6264	0.8369	0.9003	0.6763	0.8385	0.7614	0.8833	0.7675
ar2	0.868	0.849	0.564	0.810	0.884	0.622	0.812	0.722	0.864	0.728
Firm fixed effect	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effect	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Cluster	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table 5 Governance Adjustments around NYSE/NASDAQ rule change

The table shows the result of panel regression. The sample period is from 1998 to 2005. The variables are defined in Appendix Table A1. All monetary items are measured in 2002 dollars. All financial statement items are measured in millions. Standard errors are clustered at firm-period level. t-statistics are in parentheses. *,**,*** denote significance at the 10%, 5% and 1% level respectively.

VARIABLES	(1) CEO salary and bonus	(2) CEO incentive pay	(3) CEO stock ownership	(4) Unvested stock ownership	(5) Classified board	(6) ROA	(7) KZ Tobin's Q	(8) FF Tobin's Q	(9) G index	(10) ATI	(11) Debt/Value	(12) Largest block
Afterlaw*Noncompliant	0.009	-0.095	-1.219	-0.256	0.006	0.039	0.022	0.009	0.105	0.031	0.011	0.180
	(0.254)	(-0.606)	(-3.609)***	(-1.751)*	(0.592)	(1.299)	(0.508)	(0.195)	(1.984)**	(1.341)	(1.842)*	(0.806)
HHI	0.051	0.076	0.012	0.421	0.173	-0.071	0.118	0.072	0.593	0.299	0.014	-2.140
	(0.309)	(0.086)	(0.009)	(0.472)	(2.562)**	(-0.451)	(0.507)	(0.303)	(1.793)*	(2.055)**	(0.447)	(-1.563)
Firm age	-0.075	-0.287	-0.515	-0.244	-0.022	0.017	-0.223	-0.212	0.381	-0.118	0.005	-0.425
	(-1.051)	(-1.346)	(-1.957)*	(-1.426)	(-1.325)	(0.398)	(-3.747)***	(-3.420)***	(2.806)***	(-2.763)***	(0.599)	(-1.178)
Size	0.413	0.207	-2.301	-0.034	0.133	-0.178	-0.483	-0.486	1.304	0.290	0.015	0.308
	(4.603)***	(0.482)	(-4.170)***	(-0.085)	(3.408)***	(-1.793)*	(-2.324)**	(-2.267)**	(6.226)***	(4.139)***	(0.704)	(0.479)
Size squared	-0.008	0.012	0.117	0.026	-0.008	0.004	0.011	0.012	-0.075	-0.016	0.002	-0.061
	(-1.220)	(0.408)	(3.583)***	(0.905)	(-2.946)***	(0.734)	(0.848)	(0.851)	(-5.444)***	(-3.473)***	(1.439)	(-1.489)
Lagged return	0.262	0.387	0.126	0.336	-0.001	0.200	0.701	0.699	-0.001	-0.002	-0.010	-0.373
	(11.087)***	(7.268)***	(1.373)	(6.806)***	(-0.312)	(10.041)***	(27.721)***	(26.394)***	(-0.066)	(-0.345)	(-2.801)***	(-3.820)***
Industry-year	0.097	-0.003	0.065	-0.003	0.014	0.290	0.247	0.275	0.026	0.003	0.266	0.154
	(3.880)***	(-0.120)	(2.602)***	(-0.114)	(0.586)	(12.169)***	(8.006)***	(8.138)***	(1.762)*	(0.116)	(9.121)***	(5.230)***
Constant	3.794	0.868	14.679	1.452	0.114	2.382	5.211	4.754	2.153	0.883	-0.169	3.623
	(9.502)***	(0.564)	(5.900)***	(1.005)	(0.784)	(5.725)***	(6.159)***	(5.533)***	(2.567)**	(3.089)***	(-2.060)**	(1.403)
Observations	9,994	10,055	9,642	10,055	8,975	8,837	8,498	8,232	8,975	8,975	8,571	10,057
Adjusted R-squared	0.628	0.620	0.779	0.614	0.937	0.555	0.749	0.722	0.929	0.908	0.841	0.545
Firm fixed effect	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effect	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Cluster	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table 6 Governance Adjustments around BC Law Changes Conditional of Level of Product Market Competition

Data are for Forbes 500 firms over 1984 to 1991. Accounting data and state of incorporation information are from Compustat. Stock price and industry classification are from CRSP. Industry-year and State-year are variables that are computed as the mean of the dependent variable in the firm's three-digit SIC industry and state of location, respectively, in a given year, excluding the firm itself. All the other variables are defined in Appendix Table A1. All monetary items are measured in 1991 dollars . All financial statement items are measured in millions. t-statistics are in parentheses. Standard errors are clustered at state of incorporate level. *,**,*** denote significance at the 10%, 5% and 1% level respectively.

VARIABLES	(1) ROA	(2) Percentage of outside director	(3) Independent Board	(4) Director retainer fee	(5) Director incentive pay	(6) Classified board	(7) Largest block	(8) Block at 5%	(9) Debt/Value	(10) CEO salary and bonus	(11) CEO stock ownership	(12) CEO incentive pay
BC*HHI(Low)	-0.0003	0.5109	-0.0027	-0.0019	-0.0010	-0.0086	0.2990	0.0268	0.0053	0.0402	-0.0383	0.2036
	(-0.1767)	(1.4694)	(-0.4328)	(-0.0341)	(-0.0794)	(-0.4240)	(0.9653)	(0.4513)	(0.8038)	(1.3718)	(-0.1879)	(1.7817)*
BC*HHI(Med)	0.0002	0.8920	0.0180	-0.1929	0.0452	-0.0569	1.0714	-0.1861	-0.0073	0.0907	0.8064	0.2484
	(0.0297)	(0.9234)	(0.7464)	(-3.1818)***	(1.9981)*	(-2.7731)***	(2.9478)***	(-2.4759)**	(-0.5457)	(2.6540)**	(1.1551)	(1.2685)
BC*HHI(High)	-0.0292	5.4671	0.1951	-0.2405	-0.0792	-0.1674	-2.5927	-0.6030	-0.0500	-0.2692	-1.0780	0.0455
	(-2.0742)**	(8.9341)***	(2.4899)**	(-1.8041)*	(-1.6858)*	(-8.4430)***	(-2.7316)***	(-2.0810)**	(-0.6963)	(-2.1216)**	(-3.3376)***	(0.2433)
Industry year	0.1817	-0.0529	-0.0383	-0.0538	-0.0179	0.1174	-0.0027	0.1124	0.1507	0.0308	0.0339	0.0021
	(3.1485)***	(-2.5251)**	(-0.8816)	(-2.3019)**	(-0.4377)	(3.3493)***	(-0.0759)	(4.1055)***	(4.2580)***	(1.6921)*	(1.4467)	(0.0487)
State year	-0.0233	0.1863	-0.0424	0.0215	-0.1310	0.0504	-0.0060	-0.0246	0.0159	0.0665	-0.0641	0.0188
	(-0.6391)	(2.1833)**	(-0.7151)	(0.9592)	(-1.4419)	(0.5902)	(-0.1691)	(-0.4492)	(0.3210)	(1.3168)	(-2.3573)**	(0.3371)
Lagged return	0.0294	0.3796	-0.0019	0.1102	0.0301	-0.0135	0.4900	-0.0195	-0.0069	0.1767	0.2103	0.8320
	(6.9772)***	(1.1137)	(-0.3874)	(2.9840)***	(6.3308)***	(-1.3021)	(1.5361)	(-0.2711)	(-1.2839)	(15.4708)***	(0.9479)	(9.5458)***
Size	-0.1191	3.8646	-0.0122	2.0749	0.0839	-0.1972	4.8747	-0.4349	0.0331	0.3445	-0.6165	-0.1548
	(-1.7700)*	(1.8305)*	(-0.1790)	(2.1512)**	(0.9036)	(-2.9238)***	(1.6811)	(-1.3522)	(0.6299)	(2.6341)**	(-0.3401)	(-0.7032)
Size squared	0.0043	-0.2675	0.0017	-0.0961	-0.0032	0.0096	-0.2965	0.0107	0.0027	-0.0151	0.0180	0.0353
	(1.1095)	(-2.0259)**	(0.4155)	(-1.7947)*	(-0.5360)	(2.3503)**	(-1.8494)*	(0.6070)	(0.8538)	(-1.8934)*	(0.1788)	(2.8783)***
Firm age	-0.0022	-2.1646	-0.0045	0.2946	-0.0238	0.0643	-2.4660	0.0075	-0.0049	0.1074	-0.7036	0.2042
	(-0.3508)	(-4.7303)***	(-0.3971)	(3.5281)***	(-1.0660)	(2.5045)**	(-3.7350)***	(0.2217)	(-1.0369)	(1.8841)*	(-2.0423)**	(2.1089)**
HHI(Med)	-0.0033	1.2982	0.0075	0.1244	-0.0387	0.0332	-1.0496	0.0598	0.0213	-0.0301	-1.4049	-0.4069
	(-0.4884)	(2.7998)***	(0.3748)	(2.3202)**	(-3.9492)***	(1.1835)	(-2.5996)**	(0.9385)	(1.3928)	(-1.5592)	(-1.6988)*	(-1.5721)
HHI(High)	0.0247	0.2071	0.0876	0.2053	-0.0421	0.0924	0.2842	0.3016	-0.0320	0.0644	0.3967	-0.1165
	(1.3207)	(0.3295)	(1.5830)	(2.6065)**	(-0.8746)	(3.0242)***	(0.3645)	(1.2417)	(-0.8953)	(2.3795)**	(0.6329)	(-0.6664)
Constant	0.7979	50.6491	0.9349	-1.9003	-0.3759	1.0378	-3.8060	3.4181	-0.3249	3.6698	8.1085	5.3559
	(2.6534)**	(4.6777)***	(2.9524)***	(-0.4589)	(-1.0053)	(3.3621)***	(-0.3216)	(2.3608)**	(-1.4372)	(4.0447)***	(1.0864)	(4.7429)***
Observations	4,808	4,978	4,980	4,945	4,966	4,980	4,968	4,962	4,868	4,974	4,972	4,932
Adjusted R-square	0.824	0.868	0.722	0.849	0.564	0.810	0.884	0.623	0.812	0.722	0.865	0.729
Firm fixed effect	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effect	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Cluster	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table 7 Split by pre-BC Block ownership

Data are for Forbes 500 firms over 1984 to 1991. Accounting data and state of incorporation information are from Compustat. Stock price and industry classification are from CRSP. Industry-year and State-year are variables that are computed as the mean of the dependent variable in the firm's three-digit SIC industry and state of location, respectively, in a given year, excluding the firm itself. All the other variables are defined in Appendix Table A1. All monetary items are measured in 1991 dollars . All financial statement items are measured in millions. t-statistics are in parentheses. Standard errors are clustered at state of incorporate level. *,**,*** denote significance at the 10%, 5% and 1% level respectively.

VARIABLES	(1) ROA	(2) Percentage of outside director	(3) Independent Board	(4) Director retainer fee	(5) Director incentive pay	(6) Classified board	(7) Largest block	(8) Block at 5%	(9) Debt/Value	(10) CEO salary and bonus	(11) CEO stock ownership	(12) CEO incentive pay
BC*HHI(Low)*Block	-0.0020	0.6898	0.0086	-0.0755	0.0234	-0.0394	-0.5061	-0.0610	0.0109	0.0148	-0.0854	0.0834
	(-0.8067)	(1.2571)	(0.8267)	(-1.1637)	(1.5199)	(-2.5963)**	(-1.2058)	(-0.7091)	(1.1586)	(0.4826)	(-0.2971)	(0.6595)
BC*HHI(Low)*NoBlock	0.0008	0.3903	-0.0103	0.0513	-0.0176	0.0131	0.8702	0.0906	0.0016	0.0583	-0.0022	0.2925
	(0.4294)	(0.9635)	(-1.9168)*	(0.9083)	(-1.1278)	(0.4275)	(3.1540)***	(1.3966)	(0.2141)	(1.9280)*	(-0.0117)	(2.5186)**
BC*HHI(Med)*Block	-0.0004	0.9829	0.0272	-0.2510	0.0179	-0.0592	1.1824	-0.4061	-0.0073	0.0816	0.5697	-0.0495
	(-0.0349)	(1.3356)	(1.2303)	(-3.6288)***	(0.6671)	(-2.1229)**	(3.5237)***	(-3.6260)***	(-0.4914)	(2.2180)**	(1.1395)	(-0.4844)
BC*HHI(Med)*NoBlock	0.0006	0.7914	0.0081	-0.1347	0.0725	-0.0554	0.9505	0.0345	-0.0072	0.0996	1.0463	0.5503
	(0.1372)	(0.5883)	(0.2215)	(-1.7611)*	(1.4932)	(-2.1408)**	(2.0305)**	(0.5643)	(-0.4279)	(2.4799)**	(1.1344)	(1.9460)*
BC*HHI(High)*Block	-0.0221	6.0437	0.2354	-0.2673	-0.0443	-0.1901	-2.7719	-0.7011	-0.0370	-0.2797	-1.0969	0.0245
	(-1.7922)*	(10.4362)***	(3.4187)***	(-2.0373)**	(-0.6927)	(-11.0279)***	(-2.2072)**	(-1.7997)*	(-0.5043)	(-1.7813)*	(-2.5817)**	(0.1122)
BC*HHI(High)*NoBlock	-0.0737	1.9438	-0.0484	-0.1382	-0.3166	-0.0410	-1.5719	-0.2053	-0.1312	-0.2163	-1.1776	-0.1092
	(-1.9075)*	(1.4638)	(-1.4039)	(-0.8779)	(-6.9417)***	(-1.3495)	(-1.1788)	(-1.2425)	(-3.6732)***	(-3.8327)***	(-1.5067)	(-0.7344)
Industry-year	0.1834	-0.0533	-0.0390	-0.0549	-0.0188	0.1112	-0.0013	0.1053	0.1497	0.0313	0.0333	0.0000
	(3.1428)***	(-2.5793)**	(-0.8753)	(-2.3286)**	(-0.4645)	(3.3307)***	(-0.0387)	(4.0557)***	(4.3374)***	(1.7505)*	(1.4029)	(0.0005)
State-year	-0.0236	0.1856	-0.0410	0.0252	-0.1336	0.0528	-0.0107	-0.0207	0.0176	0.0682	-0.0643	0.0214
	(-0.6428)	(2.1517)**	(-0.6799)	(1.1454)	(-1.5424)	(0.6288)	(-0.3049)	(-0.3601)	(0.3589)	(1.3623)	(-2.4127)**	(0.3941)
Lagged return	0.0294	0.3795	-0.0018	0.1093	0.0292	-0.0133	0.4969	-0.0249	-0.0070	0.1766	0.2048	0.8252
	(6.9782)***	(1.1264)	(-0.3682)	(2.9955)***	(6.1268)***	(-1.2152)	(1.5630)	(-0.3600)	(-1.3308)	(15.7886)***	(0.9158)	(9.4728)***
Size	-0.1173	3.8588	-0.0125	2.1073	0.0838	-0.1894	5.1410	-0.3808	0.0326	0.3542	-0.5599	-0.0616
	(-1.7677)*	(1.8196)*	(-0.1766)	(2.2269)**	(0.9756)	(-2.8459)***	(1.8811)*	(-1.1378)	(0.6454)	(2.8287)***	(-0.3231)	(-0.3284)
Size squared	0.0042	-0.2676	0.0017	-0.0980	-0.0033	0.0092	-0.3122	0.0073	0.0028	-0.0156	0.0145	0.0295
	(1.0962)	(-2.0129)*	(0.3988)	(-1.8688)*	(-0.5887)	(2.2558)**	(-2.0671)**	(0.3932)	(0.8958)	(-2.0508)**	(0.1509)	(2.5479)**
Firm age	-0.0024	-2.1577	-0.0038	0.2896	-0.0247	0.0637	-2.4818	-0.0084	-0.0048	0.1062	-0.7205	0.1804
	(-0.3767)	(-4.7914)***	(-0.3527)	(3.4990)***	(-1.0203)	(2.4816)**	(-3.8837)***	(-0.2252)	(-1.0104)	(1.8472)*	(-2.1814)**	(1.8626)*
HHI(Med)	-0.0033	1.3124	0.0084	0.1198	-0.0385	0.0319	-1.0744	0.0490	0.0216	-0.0313	-1.4146	-0.4225
	(-0.4890)	(2.9009)***	(0.4291)	(2.2888)**	(-3.8813)***	(1.1357)	(-2.6174)**	(0.7857)	(1.3979)	(-1.6035)	(-1.6900)*	(-1.6025)
HHI(High)	0.0251	0.2477	0.0907	0.1995	-0.0421	0.0909	0.2855	0.2814	-0.0312	0.0632	0.3792	-0.1396
	(1.3107)	(0.4063)	(1.6661)	(2.4560)**	(-0.8894)	(2.8902)***	(0.3532)	(1.1493)	(-0.8751)	(2.2597)**	(0.5825)	(-0.7682)
Constant	0.7915	50.7604	0.9357	-2.0382	-0.3681	1.0078	-4.8253	3.2563	-0.3229	3.6190	7.9444	5.0590
	(2.6578)**	(4.5711)***	(2.8293)***	(-0.5010)	(-1.0634)	(3.2152)***	(-0.4281)	(2.1880)**	(-1.4749)	(4.0535)***	(1.1021)	(5.1172)***
Observations	4,808	4,978	4,980	4,945	4,966	4,980	4,968	4,962	4,868	4,974	4,972	4,932
Adjusted R-square	0.824	0.868	0.722	0.850	0.566	0.810	0.884	0.624	0.812	0.722	0.865	0.729
Firm fixed effect	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effect	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Cluster	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table 8 Governance Adjustments around NYSE/NASDAQ rule change Conditional of Level of Product Market Competition

The table shows the result of panel regression. The sample period is from 1998 to 2005. The variables are defined in Appendix Table A1. All monetary items are measured in 2002 dollars. All financial statement items are measured in millions. Standard errors are clustered at firm-period level. t-statistics are in parentheses. *,**,*** denote significance at the 10%, 5% and 1% level respectively.

VARIABLES	(1) CEO salary and bonus	(2) CEO incentive pay	(3) CEO stock ownership	(4) Unvested stock ownership	(5) Classified board	(6) ROA	(7) KZ Tobin's Q	(8) FF Tobin's Q	(9) G index	(10) ATI	(11) Debt/Value	(12) Largest block
Afterlaw*Noncompliant*HHI(Low)	0.059	0.072	-1.654	-0.179	0.015	0.038	-0.008	-0.022	0.112	0.034	0.004	0.163
	(1.325)	(0.388)	(-4.018)***	(-1.051)	(1.165)	(1.091)	(-0.142)	(-0.408)	(1.876)*	(1.178)	(0.638)	(0.605)
Afterlaw*Noncompliant*HHI(Med)	-0.142	-0.297	-0.756	-0.372	-0.030	0.050	0.029	0.026	-0.043	-0.035	0.011	0.332
	(-3.041)***	(-0.826)	(-2.237)**	(-1.073)	(-1.572)	(0.793)	(0.407)	(0.355)	(-0.361)	(-0.931)	(0.999)	(0.880)
Afterlaw*Noncompliant*HHI(High)	-0.042	-0.768	0.515	-0.535	0.018	0.025	0.181	0.150	0.309	0.120	0.049	0.021
	(-0.820)	(-2.715)***	(0.394)	(-2.063)**	(0.901)	(0.266)	(2.684)***	(2.150)**	(2.754)***	(2.162)**	(2.782)***	(0.037)
HHI (Med)	-0.007	-0.042	0.018	0.061	0.030	-0.065	-0.063	-0.070	0.055	0.045	-0.005	-0.438
	(-0.244)	(-0.285)	(0.118)	(0.417)	(2.211)**	(-1.859)*	(-1.719)*	(-1.923)*	(0.919)	(1.868)*	(-0.819)	(-1.889)*
HHI (High)	0.048	0.154	-0.257	0.351	0.041	0.015	0.003	-0.006	0.056	0.105	-0.020	-0.799
	(0.967)	(0.553)	(-0.801)	(1.257)	(1.694)*	(0.268)	(0.049)	(-0.097)	(0.577)	(2.138)**	(-1.922)*	(-1.741)*
Firm age	-0.076	-0.294	-0.500	-0.252	-0.023	0.018	-0.219	-0.208	0.381	-0.120	0.006	-0.408
	(-1.057)	(-1.380)	(-1.930)*	(-1.471)	(-1.382)	(0.412)	(-3.697)***	(-3.368)***	(2.811)***	(-2.779)***	(0.659)	(-1.130)
Size	0.411	0.191	-2.267	-0.038	0.131	-0.178	-0.482	-0.484	1.298	0.288	0.015	0.325
	(4.587)***	(0.446)	(-4.175)***	(-0.095)	(3.341)***	(-1.792)*	(-2.316)**	(-2.262)**	(6.232)***	(4.131)***	(0.700)	(0.506)
Size squared	-0.008	0.013	0.115	0.026	-0.008	0.004	0.011	0.011	-0.075	-0.016	0.002	-0.062
	(-1.214)	(0.433)	(3.578)***	(0.908)	(-2.876)***	(0.708)	(0.829)	(0.832)	(-5.447)***	(-3.467)***	(1.452)	(-1.525)
Lagged return	0.262	0.386	0.132	0.336	-0.001	0.200	0.702	0.700	-0.000	-0.002	-0.010	-0.378
	(11.044)***	(7.249)***	(1.432)	(6.808)***	(-0.245)	(10.010)***	(27.750)***	(26.425)***	(-0.014)	(-0.272)	(-2.774)***	(-3.868)***
Industry-year	0.095	-0.004	0.061	-0.004	0.013	0.288	0.244	0.273	0.027	0.002	0.265	0.153
	(3.793)***	(-0.158)	(2.498)**	(-0.142)	(0.548)	(12.062)***	(7.859)***	(8.007)***	(1.825)*	(0.093)	(9.037)***	(5.173)***
Constant	3.827	0.972	14.522	1.522	0.142	2.392	5.237	4.774	2.238	0.919	-0.166	3.379
	(9.607)***	(0.638)	(6.012)***	(1.065)	(0.992)	(5.770)***	(6.201)***	(5.581)***	(2.698)***	(3.238)***	(-2.028)**	(1.320)
Observations	9,994	10,055	9,642	10,055	8,975	8,837	8,498	8,232	8,975	8,975	8,571	10,057
Adjusted R-squared	0.629	0.620	0.779	0.614	0.937	0.555	0.749	0.723	0.929	0.909	0.841	0.545
Firm fixed effect	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effect	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Cluster	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table 9 Split by pre-SOX Block ownership

The table shows the result of panel regression. The sample period is from 1998 to 2005. The variables are defined in Appendix Table A1. All monetary items are measured in 2002 dollars. All financial statement items are measured in millions. Standard errors are clustered at firm-period level. t-statistics are in parentheses. *,**,*** denote significance at the 10%, 5% and 1% level respectively.

VARIABLES	(1) CEO salary and bonus	(2) CEO incentive pay	(3) CEO stock ownership	(4) Unvested stock ownership	(5) Classified board	(6) ROA	(7) RZ Tobin's Q	(8) FF Tobin's Q	(9) G index	(10) ATI	(11) Debt/Value	(12) Largest block
Afterlaw*Noncompliant*HHI(Low)*Block	0.081	-0.041	-1.565	-0.389	0.012	0.008	0.022	-0.012	-0.009	0.001	0.001	-0.788
	(1.080)	(-0.158)	(-2.929)***	(-1.723)*	(0.965)	(0.160)	(0.295)	(-0.163)	(-0.127)	(0.029)	(0.104)	(-2.026)**
Afterlaw*Noncompliant*HHI(Low)*NoBlock	0.038	0.185	-1.738	0.033	0.020	0.070	-0.035	-0.031	0.250	0.072	0.008	1.122
	(0.835)	(0.739)	(-2.815)***	(0.138)	(0.818)	(1.587)	(-0.482)	(-0.415)	(2.659)***	(1.605)	(0.757)	(3.483)***
Afterlaw*Noncompliant*HHI(Med)*Block	-0.158	-0.921	-0.850	-0.639	-0.013	-0.065	0.051	0.082	0.119	0.041	0.036	-0.274
	(-2.817)***	(-2.094)**	(-1.251)	(-1.543)	(-1.735)*	(-0.641)	(0.652)	(0.954)	(1.270)	(0.743)	(1.897)*	(-0.536)
Afterlaw*Noncompliant*HHI(Med)*NoBlock	-0.130	0.152	-0.682	-0.182	-0.043	0.140	0.013	-0.016	-0.166	-0.093	-0.007	0.762
	(-1.950)*	(0.299)	(-2.350)**	(-0.361)	(-1.336)	(1.870)*	(0.123)	(-0.157)	(-0.883)	(-2.061)**	(-0.491)	(1.517)
Afterlaw*Noncompliant*HHI(High)*Block	-0.036	-0.412	2.255	-0.219	0.019	0.221	0.282	0.251	0.257	0.092	0.032	-0.393
	(-0.652)	(-1.099)	(1.172)	(-0.726)	(0.806)	(2.272)**	(3.190)***	(2.849)***	(1.785)*	(1.234)	(1.577)	(-0.555)
Afterlaw*Noncompliant*HHI(High)*NoBlock	-0.054	-1.330	-2.149	-1.029	0.017	-0.319	0.018	-0.010	0.391	0.164	0.077	0.657
	(-0.544)	(-3.590)***	(-1.766)*	(-2.437)**	(0.491)	(-2.034)**	(0.207)	(-0.101)	(2.287)**	(2.061)**	(2.498)**	(0.771)
HHI (Med)	-0.006	-0.031	0.030	0.066	0.029	-0.062	-0.062	-0.070	0.051	0.043	-0.006	-0.439
	(-0.229)	(-0.209)	(0.194)	(0.456)	(2.189)**	(-1.760)*	(-1.684)*	(-1.908)*	(0.843)	(1.799)*	(-0.914)	(-1.898)*
HHI (High)	0.049	0.152	-0.277	0.349	0.041	0.016	0.005	-0.005	0.054	0.105	-0.020	-0.813
	(0.971)	(0.548)	(-0.852)	(1.253)	(1.700)*	(0.279)	(0.077)	(-0.073)	(0.557)	(2.133)**	(-1.936)*	(-1.769)*
Firm age	-0.076	-0.294	-0.511	-0.253	-0.023	0.017	-0.220	-0.209	0.385	-0.119	0.006	-0.403
	(-1.056)	(-1.376)	(-2.000)**	(-1.472)	(-1.383)	(0.392)	(-3.712)***	(-3.385)***	(2.851)***	(-2.783)***	(0.651)	(-1.120)
Size	0.410	0.177	-2.347	-0.050	0.130	-0.192	-0.485	-0.488	1.295	0.288	0.016	0.356
	(4.569)***	(0.412)	(-4.307)***	(-0.123)	(3.319)***	(-1.939)*	(-2.328)**	(-2.279)**	(6.209)***	(4.126)***	(0.736)	(0.550)
Size squared	-0.008	0.014	0.121	0.027	-0.008	0.005	0.011	0.012	-0.074	-0.016	0.002	-0.064
	(-1.205)	(0.465)	(3.741)***	(0.937)	(-2.859)***	(0.865)	(0.844)	(0.854)	(-5.424)***	(-3.458)***	(1.413)	(-1.556)
Lagged return	0.262	0.388	0.136	0.338	-0.001	0.200	0.702	0.700	-0.000	-0.002	-0.010	-0.375
	(11.042)***	(7.280)***	(1.477)	(6.849)***	(-0.245)	(10.024)***	(27.747)***	(26.420)***	(-0.012)	(-0.281)	(-2.782)***	(-3.829)***
Industry-year	0.095	-0.006	0.063	-0.006	0.013	0.289	0.244	0.272	0.027	0.002	0.265	0.152
	(3.779)***	(-0.212)	(2.545)**	(-0.202)	(0.545)	(12.082)***	(7.852)***	(7.997)***	(1.831)*	(0.077)	(9.033)***	(5.145)***
Constant	3.830	1.022	14.824	1.562	0.143	2.442	5.249	4.790	2.236	0.917	-0.169	3.241
	(9.573)***	(0.670)	(6.131)***	(1.091)	(0.991)	(5.922)***	(6.205)***	(5.594)***	(2.694)***	(3.229)***	(-2.061)**	(1.253)
Observations	9,994	10,055	9,642	10,055	8,975	8,837	8,498	8,232	8,975	8,975	8,571	10,057
Adjusted R-squared	0.628	0.620	0.780	0.614	0.937	0.556	0.749	0.723	0.929	0.909	0.841	0.546
Firm fixed effect	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effect	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Cluster	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Appendix Table A1 Data Definition

Variable	Definition
Percentage of outside director	Percentage of outside director is the percentage of outside directors on the board. Outside director is defined as the directors who are not inside director
Independent board	Dummy is equal to one if the percentage of outside director is more than 50%.
Director retainer fee	Natural logarithm of one plus the director's annual retainer fee. If the retainer payment changes during the fiscal year, the old and new payments are averaged together according to the fraction of the year for which each was paid.
Director incentive pay	Director incentive pay is a dummy variable equal to one if the company has a shareholder approved stock option plan
Largest block	Shareholder block is the size of the largest block of common stock as a percent of common shares.
Block 5%	Block ownership at 5% is the number of blocks of at least five percent of the firm's common shares which are not directly owned by a member of the board of directors.
Debt/Value	Debt/value is the ratio of Debt over market value of assets. Debt is defined as book value of long term debt (item # 142) plus book value of short term debt (item #206) plus preferred stock at liquidating value (item #10) minus cash and marketable securities (item #1). Market value of assets is the same as defined in KZ Tobin's Q.
CEO salary and bonus	CEO salary and bonus is the natural logarithm of one plus the salary and bonus.
CEO long term incentive pay	CEO long term incentive pay is the natural logarithm of one plus the cash payout from long term compensation plan at the time all vesting restrictions are cleared, plus stock option value at date of grant and plus other long-term incentive plan components listed in the proxy statements.
CEO stock ownership	CEO stock ownership is the percentage of common stock owned by the CEO and his immediate family.
BC	Dummy variable that equals one starting from one year after the passage of BC law by the state in which the firm is incorporated and zero otherwise.
Size	Size is natural logarithm of total assets (item #6)
Firm age	Age is the logarithm of the number of years the firm has been in CRSP.
HHI	HHI is the Herfindahl-Hirschman index, which is computed as the sum of squared market shares of all firms (based on sales) in a given three-digit SIC industry and is computed using all firms in the Compustat universe on a year-by-year basis.
HHI Tercile	HHI (Low), HHI (Medium) and HHI (High) are dummy variables that equal one if the HHI lies in the bottom, medium and top tercile, respectively, of its empirical distribution using all firms in Compustat.
Noncompliant	Dummy is equal to one if the firm does not have majority of independent board by the end of 2002.
Afterlaw	Dummy is equal to one if year is greater than 2002
ROA	Natural logarithm of one plus net income (item # 172) before extraordinary items and discontinued operation (item #48) divided by the book value of the asset (item #6)
Unvested stock ownership	Natural logarithm of one plus the aggregate market value of restricted shares held by the executive as of fiscal year end.
G index	See Gomper, Ishii and Metrick (2003).
ATI index	See Cremers and Nair (2005).
KZ Tobin's Q	Following definition from Kaplan and Zingales (1997), Tobin's Q is the ratio between market value and book value of asset where the market value of assets is calculated as book value of assets (item #6) plus market value of common equity minus book value of common equity (item #60) and deferred tax balance (item #74).
FF Tobin's Q	Following definition from Fama and French (2002), Tobin's Q is the ratio between market value and book value of asset where market value of assets is calculated as book value of total liability (item # 181) plus the market value of equity minus the book value of equity (item #60) minus balance sheet deferred tax (item #74) and investment tax credit (item #208) plus book value of preferred stock (item #130). The book value of asset is item # 6.
Lagged Return	Last fiscal year stock holding return.