

Does Better Corporate Governance “Cause” Better Firm Performance?

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Abstract

One strand of the literature has found different good governance measures to be positively correlated with firm performance, while assuming governance measures to be exogenous. These studies then prescribe one or more governance structures (for example, more outsiders on the board, a higher CEO pay-performance sensitivity, etc.), which will “cause” firm performance to improve. This paper directly examines this causality argument by looking at changes in corporate governance and subsequent firm performance. We focus on firms that have the largest changes in governance in order to “stack the deck” in favor of the hypothesis that good governance changes “causes” better performance. We find no significant performance differences between firms with good governance changes and firms with bad governance changes, where good and bad changes are classified according to findings in the previous literature. Further, more than half of the firms with good governance changes subsequently have negative performance. Our results represent strong evidence against the null that better corporate governance leads to better firm performance. These findings are robust to: firm performance defined as industry-adjusted stock returns, industry-adjusted accounting profits, or asset pricing regression Alpha, a large sample of firms, and a broad set of governance measures. We also find that governance changes are related to changes in the firm’s observable characteristics and by movement towards mean industry governance levels. The observed changes in governance are therefore endogenous, and do not lead to performance changes, consistent with the notion that firms are in equilibrium with respect to their governance structures.

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I. Introduction

There has been considerable discussion in the academic literature of managerial agency problems that arise from the separation of ownership and control (see for example, Jensen and Meckling 1976). A number of corporate governance mechanisms have been proposed to ameliorate the principal-agent problem between managers and their shareholders. These governance mechanisms proposed in the prior literature include a smaller board size, more outsiders on the board, more board meetings, a higher CEO pay-performance sensitivity, higher managerial ownership, higher institutional ownership, and stronger shareholder rights. Many studies (e.g. Morck, Shleifer, and Vishny 1988, Jensen and Murphy 1990, Yermack 1996, Vafeas 1999, Gompers, Ishii, and Metrick 2003) assume governance mechanisms are *exogenous* and firms are *non-value-maximizing*. They suggest that changing these governance mechanisms would cause manager's to better align their interests with shareholder interests, resulting in a higher firm value. Other studies (e.g. Demsetz and Lehn 1985, Himmelberg, Hubbard, and Palia 1999, Palia 2001, Boone, et al. 2005, Core, Guay, and Rusticus 2005, Coles, Lemmon, and Meschke 2006), however, suggest that that these governance mechanisms are *endogenously* determined, are in *equilibrium*, and are *value-maximizing*.

Making a causal argument that better corporate governance leads to better firm performance is therefore “jumping the gun,” or at the very least, incomplete. Prendergast (1999, page 19) aptly argues that “... many of the factors relevant for choosing the level of compensation are unobserved; the optimal piece rate depends on risk aversion and the returns to effort, both of which are unknown to the econometrician. As a result it is difficult to determine whether compensation schemes are set optimally, or to claim that the relationship between pay and performance is too low or too high.” Gompers, Ishii, and Metrick (2003, page 145) also articulate this sentiment in their conclusions: “There is some evidence ... that weak governance caused poor performance in the 1990s. It is also possible that the results are driven by some unobservable firm characteristic. These multiple causal explanations have starkly different policy implications and stand as a challenge for future research.” Similarly, Hermalin and Weisbach (2003, page 8) state: “Two important issues complicate empirical work on boards of directors, as well as most other empirical work on governance. First, almost all the variables are endogenous. The usual problems of joint endogeneity, thus, plague these studies.” Core, Guay, and Rusticus (2005), focusing on the

relation between the level of Gompers, Ishii, and Metrick's (2003) governance index [G-Index] and the firm's level of operating performance, state (page 666) "To establish a *stronger causal link* [emphasis added] we would ideally conduct tests of the relation between changes in the G-Index and subsequent changes in operating performance."

In this paper, we directly address the causality question by examining the effects of *governance changes* on firm performance for sub-samples of firms where we *ex-ante* expect governance changes to lead to performance changes. Our null hypothesis is that good governance changes cause better performance. Under the null, we would expect firms that improve their governance to have better performance compared to firms that implement a bad change in governance.

We examine the performance effects of governance changes in a specially constructed sample of firms that have large governance changes. In formulating our empirical approach, we seek to improve on the existing methodologies available to deal with endogeneity. By focusing on firms with large changes we "stack the deck" in support of the null hypothesis -- if we do not find a causal relationship in our specially constructed sample, it would be unlikely to be present in the general population of firms thus improving the power of the statistical test. Further, our methodology directly tests causality without having to identify instrumental variables for each measure of governance (e.g. Palia 2001) that would be necessary to accurately identify a simultaneous system of equations. Identification of instrumental variables is extremely hard econometrically, because each potential candidate is likely to be related to another corporate governance mechanism and/or firm value, not satisfying the conditions for valid instrumental variable identification.¹ The fixed effects model has also been used to study endogeneity and has the advantage of not needing a structural model specification. In motivating the use of fixed-effects model, Murphy (1985), for example, argues that, "Absent a theory indicating the relevant variables, and data on these variables, these cross-sectional models are inherently subject to a serious omitted variables problem." However, the fixed-effects methodology assumes that the unobservable characteristics are not time varying and the "within" estimator also has low statistical power resulting in statistically insignificant parameter coefficients (e.g. Zhou 2001). By focusing on firms wherein we *ex-ante* expect better governance to cause better

¹ Studies that have tried to use this methodology are Hermalin and Weisbach (1991), Agrawal and Knoeber (1996), Cho (1998), Himmelberg, Hubbard, and Palia (1999), Palia (2001), Demsetz and Villalonga (2001), Bhagat and Black (2002), Bhagat and Bolton (2005), and Brick, Palia, and Wang (2005).

performance, without using fixed-effects nor identifying instrumental variables, our methodology does not suffer from the limitations of these two alternate approaches.

Our empirical methodology is as follows. We determine the governance changes in firms for thirteen different governance measures, three measures based on the board of directors, five measures of pay-performance sensitivity, two measures of shareholder rights, institutional ownership, and CEO turnover. We categorize each of the governance changes we observe into an ex-ante good governance change or an ex-ante bad governance change for each firm, using the arguments and results from the previous governance literature.² Using the ex-ante definitions of a good governance change and a bad governance change based on the prior governance literature and the observed governance changes, we construct two sub-samples of firms with large changes in governance, namely, those with large good governance changes and those with large bad governance changes. In constructing our sample, we control for abnormal prior performance to control for the problem of reverse causality. Our good governance change sample and bad governance change sample exclude firms that experience extremely good or extremely bad performance changes.

We analyze the performance of the firms in the two sub-samples. We then test for *differences* in performance between the good governance sample and the bad governance sample. If one restricts the analysis to only good governance changes or only bad governance changes, one might incorrectly conclude that governance changes leads to performance changes.

We find the following results. First, we find that both good governance changes and bad governance changes lead to statistically significant performance changes, showing strong evidence for the statistical power in our tests. Our strategy of using a biased sample of firms – i.e. those experiencing large governance changes -- therefore does improve the power of our tests over a standard fixed-effects methodology.

Second, we find that both good and bad governance changes lead to positive and negative performance changes. Indeed, more than 50% of firms with good governance changes have bad performance. There is also no significant difference in the percentage of firms with positive performance between the sample of firms with good governance changes and the sample of firms with bad governance changes.

² Classification of governance changes as good or bad uses the arguments from the prior literature, such as, smaller boards are better or that a higher CEO pay-performance sensitivity is better. See Section II and Table 1 of this paper for details about our classification.

Third, we do *not* find significant differences in firm performance between firms that have good governance changes and firms that have bad governance changes, except for isolated instances. Comparing the two sub-samples thus indicates that the governance changes do not consistently influence firm performance. The only exceptions seem to be cases where firms with a good governance change has better performance than firms with bad governance changes is for firms with large increases in the amount of cash bonus paid to the CEO and increases in the percentage of shares held by institutions. The cash bonus results, however, only hold when we include the concurrent year of bonus, which seems to suggest in the year of large bonus increases firms have higher performance in stock returns. With respect to institutional shareholdings, an increase in institutional shareholdings can result in better performance because institutions provide value increasing monitoring services, or alternatively, institutions may have superior information by virtue of being large shareholders and could be “timing” an increase (decrease) in their shareholdings when they know that share prices are likely to increase (decrease).

In summary, our results above present strong evidence against the null hypothesis that good governance changes “causes” better firm performance.

We next determine what causes firms to change their governance structure. We regress the governance changes we observe in our sample on firm characteristics, the deviation of the firm’s governance level from their industries average governance level, and the incidence of merger activity in the economy. We find that the changes in the firm’s governance structure seem to be related to the changing nature of the firm. Governance changes are related to changes in the firm’s characteristics but often in *complex* ways. We also find that firms change their governance levels in order to approach the mean governance level in their industry. This behavior offers a potential explanation for our results presented above – since the decision to move towards industry norms drives the observed changes in governance, it is not surprising that we find that these governance changes do not lead to performance changes. We interpret our results to imply that firms are endogenously optimizing their governance structure consistent with the strand of the literature that has found each governance mechanism to be related to firm characteristics (see, for example, Demstev and Lehn 1985, Smith and Watts 1992, Himmelberg, Hubbard and Palia 1999, Palia 2001, Demsetz and Villalonga 2001, Hermalin and Weisbach 2003, Baker and Hall 2004, and Coles, Lemmon, and Meschke 2006). Our study is over an 11-year period (1992-2002) that is significantly larger than most previous studies. Further, we

have concurrently examined a broad set of governance measures rather than focusing on just one or two governance measures.

One reasonable argument that is often made is that a firm's prior performance characteristic may influence the impact of governance changes. For examples, governance changes can be expected to have a significant positive impact on performance in the sample of firms that experience large performance declines. Or, some firms may use the opportunity to reduce the quality of their governance during good times while others might seek to reinforce good performance by improving governance. We expand our study to examine these arguments by constructing two additional samples of firms. Our *Abnormally Bad Performance* sample consists of firms that experienced large performance declines and our *Abnormally Good Performance* sample consists of firms that have experienced large improvements in their performance.³ In addition to examining the effect of changes in each of the thirteen governance measures, in these samples we also construct an *Aggregate Governance Change* for each firm. A positive *Aggregate Governance Change* measure is treated as an over all good governance change and a negative *Aggregate Governance Change* measure is treated as an over all bad governance change.

We find that our results hold in the in the *Abnormally Bad Performance* sample and the *Abnormally Good Performance* sample as well. Specifically, there are significant performance effects following governance changes, but there is no difference in performance between firms with good governance changes and those with bad governance changes. Additionally, we also we observe that governance changes often go in different directions. For example, firms in the *Abnormally Bad Performance* sample have their pay-performance sensitivity go down (a bad governance change), but have the number of outside directors on their board go up (a good governance change). These conflicting changes in governance are also prevalent in the *Abnormally Good Performance* sample. We also find that, consistent with our first result, our *Aggregate Governance Change* measure confirms that firms with good governance do not have better performance than firms with bad governance changes.

In conducting our tests we focus on industry-adjusted stock returns at the three-digit SIC level. However, to ensure that our results do not rely on the definition of firm performance, we also repeat our analysis with firm performance defined as industry-

³ Note that our original ample and the two abnormal performance samples do not represent the entire universe of firms since our original sample only examines firms with large changes in governance.

adjusted return-on-assets and with firm performance defined by the Fama-French-Carhart four-factor asset-pricing model. We also examine each governance changes measures individually and in an aggregate measure. This ensures that our results have not picked up some spurious correlation between governance measures.⁴ Our results hold in all our samples for these alternate specifications as well.

Our finding, that governance does not cause performance, is consistent with the recent literature that has examined the causal relationship between the Gompers, Ishii, and Metrick's (2003) G-Index measures and firm performance. Core, Guay, and Rusticus (2005), find that firms with poor shareholder rights have significantly negative operating performance but the market is not surprised by the negative performance of poorly governed firms. Lehn, Patro, and Zhao (2005) find that there is no relationship between the G-Index and valuation multiples in the 1990s after controlling for valuation multiples in the period from 1980-1985. Our work expands on these studies by considering a broad array of governance changes and the cumulative effect of all governance changes in a firm. Also, by directly testing whether governance changes cause performance changes for samples of firms biased to finding that governance changes have an impact on performance, our test is a stronger test of the null hypothesis that better governance leads to better performance.

The rest of the paper is organized as follows: Section II describes the previous literature on the relationship between the various governance mechanisms and firm value and Section III describes their governance variables. Section IV describes our empirical methodology. The data is described in Section V. Our empirical results are reported in Section VI and Section VII reports the results of robustness checks. Section VIII presents a summary and our conclusions.

II. Exogeneity and Endogeneity Considerations Between Governance and Performance – A Literature Survey

Much of the previous literature has shown a positive relationship between governance and firm performance assuming that governance is an independent regressor, i.e. it is exogenously determined, in a firm performance regression. This would suggest that firms are not in equilibrium, and improvements in governance would lead to improvements in firm performance. On the other hand, Demsetz and Lehn (1985), among others, have shown that governance is related to *observable* firm and CEO characteristics. In this

⁴ For example, Hartzell and Starks (1993) find that CEO pay-performance sensitivity and institutional ownership are positively related.

section, we review the literature on the different aspects of corporate governance and firm performance. For each governance mechanism, in order to best illustrate the problem of causality, we present studies that assume that corporate governance is exogenous and studies where they are endogenously determined.

For ease of exposition we classify corporate governance mechanisms into board characteristics, CEO pay-performance sensitivity, insider ownership, institutional ownership, CEO turnover, and shareholder rights.

Board characteristics: Studies have generally examined three characteristics of boards, namely, the size of the board, proportion of outsiders on the board, and the number of board meetings. Among studies that assume board characteristics are exogenously determined, Jensen (1993), Yermack (1996), Eisenberg, Sundgren, and Wells (1998), and Mak and Kusnadi (2002) find that small size boards are positively related to high firm value, Baysinger and Butler (1985), Mehran (1995), and Klein (1998) find that firm value is insignificantly related to a higher proportion of outsiders on the board, and Vafeas (1999) and Adams and Ferreira (2004) find that firm value is increased when boards meet more often. Accordingly, good governance changes are defined when the board got smaller, the proportion of outsiders in the board were increased, and when the number of board meetings increases. However, many theoretical and empirical studies have suggested board characteristics are endogenously determined and that board size and composition varies with firm characteristics (see, Kole and Lehn 1999, Mak and Rousch 2000, Prevost, Rao, and Hossain 2002, Hermalin and Weisbach 1998, 2003, Baker and Gompers 2003, Raheja 2003, Lehn, Patro, and Zhao 2003, Hartzell and Starks 2003, Boone, et al. 2005, and Adams 2005).

CEO pay-performance sensitivity: Studies have usually examined different measures of CEO pay-performance sensitivity. One set of measures is based on the sensitivity of bonus and options, and a second set also includes the sensitivity of share ownership. In studies that assume CEO pay-performance is exogenous, Jensen and Murphy (1990) find a total sensitivity of \$3.25 per \$1,000 increase in shareholder wealth, which they interpret as low. Accordingly, they suggest that this sensitivity should be increased and it would result in higher firm value. Careful of not making the causal argument from governance to firm performance, Hall and Leibman (1998) find the sensitivity to have increased in the 1990s due to an increased use of stock options. However, Prendergast (1999), Rosen (1992), Palia (2001), Baker and Hall (2004), and Brick, Palia and Wang

(2005) find that the CEO pay-performance sensitivity is endogenous as it varies with firm and CEO characteristics.

Insider ownership: The existing literature has examined the relationship between the proportion of shares owned in the firm by insiders and board members (or insider ownership) and firm value. In studies that assume that insider ownership is exogenous, Morck, Shleifer, and Vishny (1988), McConnell and Servaes (1990), Hermalin and Weisbach (1991), Kole (1995), Bohren and Odegaard (2003), and McConnell, Servaes and Lins (2003) find a non-monotonic relationship between insider ownership and firm value. However, Smith and Watts (1992), Gaver and Gaver (1993), Himmelberg, Hubbard, and Palia (1999), and Demsetz and Villalonga (2001) find that observable and unobservable firm and industry characteristics can explain insider ownership. Many of these studies use a fixed-effects approach to capture the effect of unobservable characteristics assuming that they are not time varying. But characteristics such as market power, intangibles, monitoring technologies (see Himmelberg, Hubbard, and Palia 1999) and managerial skill (see Bertrand and Schoar 2003) can clearly vary over time decreasing the appropriateness of the fixed-effects approach. In addition, Zhou (2001) shows that the fixed-effect approach has low power in examining the relationship between governance and performance. Controlling for prior performance, Fahlenbrach and Stulz (2007) find some evidence that increases in managerial ownership are associated with increases in Tobin's Q, but find no relationship between Tobin's Q and decreases in managerial ownership.

Institutional ownership: Shleifer and Vishny (1986), Admati, Pfleiderer and Zechner (1994), Huddart (1993), Maug (1998) and Noe (2002) suggest that large shareholders have incentives to monitor and influence control activities of managers, resulting in a higher firm value. Other shareholders can free ride on the large shareholder's activities, as they do not bear the costs of information gathering and other processes. Consistent with this argument, Bethel, Liebeskind and Opler (1998) find that company performance improves once a activist shareholder buys shares, Kang and Shivdasani (1995) and Kaplan and Minton (1994) find that management turnover increases in the presence of large shareholders, and Hartzell and Starks (2003) find that CEO pay-performance sensitivity increases and CEO pay levels decrease the higher the level institutional ownership. However, Demsetz and Lehn (1985) find that large shareholder ownership varies with firm and industry characteristics.

Shareholder rights: Gompers, Ishii, and Metrick (2003) create a Governance Index of anti-takeover provisions that assist managers in resisting takeovers and find that buying firms with the strongest shareholder rights and shorting firms with the highest decile earned long run excess returns of 8.5% per year. The firms with strong shareholder rights also had higher firm value and profits. Careful of suggesting causality from shareholder rights to firm performance Gompers, Ishii, and Metrick (2003) leave it upto future research to determine the direction of causality. Cremers and Nair (2005) find that the abnormal returns are stronger for firms that that have strong shareholder rights and high institutional ownership. Bebchuk, Cohen, and Ferrell (2005) find that increases in the level of an Entrenchment Index, consisting of four provisions that prevent a majority of shareholders from having their way and two measures that hinder takeovers, are monotonically associated with economically significant reductions in firm valuation.

On the other hand, Core, Guay and Rusticus (2005) find that firms with poor shareholder rights do not have higher forecast error or lower earnings announcement returns. Accordingly, they suggest that the market anticipates the poor performance of low shareholder rights firms correctly and therefore there is no causal direction from weak shareholder rights to stock return underperformance.

CEO turnover: Changes in management represent changes in future corporate decisions, such as reversals of past managerial errors, or the establishment of new policies that reflect the differing views and abilities of the new management (Weisbach 1995). CEOs try to minimize the probability that they will be fired (see Amihud and Lev 1981), and the prior literature finds that firms with the worst performance are likely to change their CEOs. Warner et al. (1988) finds that the likelihood of turnover significantly increases during the two-year period after firms show poor stock performance. When firms are ranked and placed in deciles by stock performance, the probability of turnover from firms in the bottom 10% was 1.5 times larger than for firms in the top 10%. Weisbach (1988) reports similar results. Therefore firms with the worst industry-adjusted firm earnings are more likely to have CEO turnovers than firms with better industry-adjusted earnings. Huson, Parino, and Starks (2004) document that the operating rate of return on total assets exhibit statistically significant declines between one and three years before the turnover. The finding that poor firm performance increases the likelihood of CEO turnover is also supported for firms in different countries (Kaplan, 1994a for U.S. and Japanese firms; Kaplan, 1994b for German firms).

Past research also studies firm performance subsequent to CEO turnovers, and suggests that CEO turnovers tend to enhance corporate performance. Denis and Denis (1995) find that the average and median industry-adjusted operating rates of return-on-assets increase over periods that start one year before, and end two or three years after, CEO turnovers. Denis and Denis (1995) suggest that performance improvements appear to be somewhat larger in cases of forced turnover than for normal retirements. However, Huson, et al. (2004) report that post-turnover performance changes when CEOs are forced out have no significant differences compared to those changes when CEOs leave voluntarily. Turnover may also be related to other governance characteristics and firms with higher institutional ownership have larger post-turnover performance improvement. The subsequent performance improvement is also greater when successor CEOs come from outside the firm than when they are insiders.

In this paper, we use the results of these prior studies to *ex-ante* classify changes we observe in firm governance for thirteen different governance measures. Our methodology, described in later sections, also incorporates the endogeneity of governance as has been noted in these studies.

III. Definitions of Governance Variables

In this section we define the various proxy variables we use guided by the previous literature to capture changes in corporate governance. Table 1 summarizes the various metrics used by the previous literature and the *ex-ante* changes in these metrics that they suggest constitute a good governance change.

**** Table 1 ****

Board characteristics: Studies have generally examined three characteristics of boards, namely, the size of the board, proportion of outsiders on the board, and the number of board meetings. Accordingly, we define a variable *Bsize*, which is the number of directors that are on the board, *Boutsiders*, which is the proportion of outsiders on the board, and *Bmeeting*, which is the number of meetings of the board of directors. Gray directors, those directors that have some prior or current business affiliation with the company, are treated as inside directors.

CEO pay-performance sensitivity: Our first measure of the CEO's pay-performance sensitivity is the dollar value of bonus (*Bonus*) granted in that year. Our second measure is pay-performance sensitivity of options, (*Options*), to incorporate the

impact of the change in the value of the common stock upon both the value of the options granted during the year and options outstanding but yet unexercised (granted in previous years). Our third measure of the CEO's pay-performance sensitivity of options and share ownership (*Ppswealth*), which is the sum of the value change in CEO's total options and the value change in the CEO's stockholding value for one-dollar change in market value of equity. To be comprehensive we also examine two more measures, *Newoptions* and *Shares*, which are the sensitivity of the CEO's new options granted in that year and the percentage of total shares owned by the CEO in the firm, respectively.

In order to capture the value of option sensitivity, we begin by calculating the partial derivative of individual stock option with respect to one-dollar change in share price (the Black and Scholes (1973) hedge ratio with dividends), times the proportion of shares represented by executive option award (see, Yermack, 1995). The risk-free rate is the interest rate on seven-year constant-maturity Treasury bond obtained from the website of the Federal Reserve Bank of St. Louis and the standard deviation of stock price over the prior sixty months (ExecuComp's *bs_volatility*).

Most prior studies (e.g. Yermack 1995, Mehran 1995, Berger, Ofek and Yermack 1997) only consider new option grants and ignore the incentive effects provided by previously granted options. However, since the correlation between the number of new grants and previous grants is small (Core and Guay 2002), the sensitivity of newly granted options may not be a good proxy for the incentive effects of the managerial total option holdings. The value of previous option grants is difficult to determine accurately because we do not know the exercise prices of these grants. This difficulty arises because the annual proxy statements do not report that which previously held options have been exercised and which previously granted options remain in the portfolio. In this paper we approximate the value of executive total option holdings by following Core and Guay's methodology (2002) to compute the average exercise prices for previously granted options. In particular, the average exercise price of the exercisable options is assumed to be the difference between the fiscal year end stock price and the ratio of the value of exercisable⁵ in-the-money options (ExecuComp's *inmonex*) to the number of unexercised exercisable options (ExecuComp's *uexnumex*). The term to maturity of the exercisable options is set to be three years less than that of the new option grant (or six years if no new grant was made in

⁵ An option is said to be exercisable if the option can be exercised within 60 days and is considered to be unexercisable if the manager must wait more than 60 days to exercise the option.

that particular year). The average exercise price of the unexercisable options is set to be the difference between the stock price and the ratio of the value of unexercisable in-the-money options (ExecuComp's *inmonun*) to the number of unexercisable options (ExecuComp's *uexnumex*). The term to maturity of the unexercisable options is set to be one year less than that of the new option grant (or nine years if no new grant was made in that particular year). Using the estimated exercise prices and expiration terms for previous options grants, the sensitivity of CEO's total option grants is calculated as the sum of the sensitivities of individual exercisable options outstanding, unexercisable options outstanding and the newly awarded option this year, each multiplied by the corresponding proportion of shares represented by option grants.

Shareholder rights: Our first measure of shareholder rights is the *G-Index* used by Gompers, Ishii, and Metrick (2003). As in Gompers et al., we use the incidence of 24 governance rules to construct the *G-Index*. Firms with low *G-Index* values have the strongest shareholder rights and firms with high values of the *G-Index* have the weakest shareholder rights. As Table 1 shows, we ex-ante treat an increase in the *G-Index* as a good governance change.

Our second measure of shareholder rights, the *E-Index*, uses a subset of the 24 governance provisions used to construct the *G-Index*. Bebchuk, et al. (2005) find that six of the governance provisions have the highest impact on firm value and use these provisions to construct an *E-Index* that measures the degree to which managers are protected from takeovers and are thus entrenched. A high level of the *E-Index* indicates that firms are multiple impediments to a takeover and managers are more entrenched. A low level of the *E-Index* indicates that a firm is easier to take over and managers are less entrenched. As Table 1 shows, we ex-ante treat a decrease in the *E-Index* as a good governance change.

Insider Ownership: Consistent with Himmelberg, Hubbard, and Palia (1999) we calculate the ratio of insiders' holdings of common shares over total shares outstanding. Morck, Shleifer, and Vishny (1988) find a non-monotonic relationship between insider ownership and firm value and show two inflection points at 5% and 25% respectively. They find that an increase in insider ownership serves to align managers with shareholders upto a level of 5% and leads to an increase in firm value. An increase in insider ownership between 5% and 25%, however, entrenches managers and reduces firm value. Increase in insider ownership beyond 25% does not have any effect on firm value. As Table 1 shows, we base our ex-ante definition of a good change and a bad change in insider ownership

based on this scale.⁶ Specifically, when there is an increase in insider ownership but it remains less than 5% or if the level of insider ownership decreases and is greater than 5% to begin with, we classify the change as a good governance change. On the other hand, when insider ownership decreases from an initial level of less than 5% or the level of insider ownership increases and ends at a final level greater than 5%, we classify the change as a bad governance change.

Other Governance Variables: Consistent with the existing literature, we use the percentage of shares owned by large institutional shareholders as a proxy for institutional ownership. We call this variable *Instshares*. In line with previous literature that has found that the presence of institutional shareholding plays a positive role, we ex-ante treat increases in institutional ownership as a good governance change.

We also measure the incidence of CEO turnover (*Turnover*). Firms with a change in their CEO are considered to be practicing good governance and we examine the consequences of a change in the CEO.

IV. Methodology and Data

In this study we examine whether changes in governance has a significant causal effect on performance. We bias our research design to find evidence in favor of the null hypotheses that good governance leads to better performance by focusing on firms with large changes in governance. We describe the construction of the samples and provide summary statistics of the data in this section.

IV.a Sample Construction

In constructing our sample, we need to determine changes in the governance measure mentioned in Table 1. We also need to determine firm performance for which we use industry adjusted stock returns as our measure. Figure 1 describes the time line we use to determine governance and performance changes.

**** Figure 1 ****

For each firm for which we have data available, we determine the changes in the governance measures from the previous year to the current year. We categorize the governance changes into ex-ante good governance changes and bad governance changes. In

⁶ We have also used an alternate definitions of ex-ante good and ex-ante bad governance changes based on a linear specification based simply on a decrease or an increase in insider ownership. Our results hold under the alternate linear specification as well.

order to bias our research design in favor of finding evidence in support of the null that governance changes causes performance changes, we look for instances where firms have *large* governance changes, where large governance changes are defined as firms having governance changes in the top 5% of governance changes.⁷

We next exclude all firms that have large performance changes in the prior years, based on their industry-adjusted stock returns, our proxy for performance. To be included in our sample, firms should not fall in the top quartile of industry-adjusted stock returns in the identification year and have industry-adjusted stock returns in the bottom quartile in each of the prior two years, nor should firms fall in the bottom quartile of industry-adjusted stock returns in the identification year and have industry-adjusted stock returns in the top quartile in each of the prior two years.

IV.b *Data Description*

We use data from CRSP and COMPUSTAT to construct fiscal-year industry-adjusted stock returns. We exclude ADRs and firms that have total assets less than \$100 million. We do not exclude financial firms (SIC code 6000 through 6999) and utilities (SIC 4900 through 4999) to be consistent with earlier research (e.g. Gompers et al. 2003). Further, managers at regulated firms have more discretion in the post de-regulation environment about investment choices, which requires governance characteristics to be modified in response to the changing regulatory environment (see Joskow, Rose, and Shepard 1993, Joskow, Rose and Wolfram 1996, Hubbard and Palia 1995). We do exclude, however, firms that undergo a merger, an acquisition, or a CEO change in the two years before and after the current fiscal year (except for the *Turnover* measure) as firms undergoing changes in control experience changes in their governance structure. Essentially, we seek to rule out cases where the governance change follows as a natural result of a merger or a turnover (see for example, Lehn and Zhao 2006 and Berger, Ofek, and Yermack 1995).⁸

Table 2 reports data on the characteristics for our sample of firms. Note that we have a different sample of firms for each of the governance measures, e.g. the sample of

⁷ Because every firm experiences changes in institutional ownership from year to year and the variance of the changes is high, we define large changes in the *Instshares* measure as firms with the highest one-percent change in institutional ownership.

⁸ As a crosscheck, we check all our results with those obtained without this exclusion of firms with a merger or CEO turnover and find no changes in the general results.

firms that experience a large positive change in *Bmeeting* is different from the sample of firms that experience a large positive change in *Ppswealth*. The performance measures in each the prior years and the current year are not significant, and the change in performance from prior years to the current year is statistically significant, but small. The median industry-adjust stock return has a minimum value of -4.49% and maximum value of 2.60% in prior years. In the current year, median industry-adjust stock return has a minimum value of -15.73% and maximum value of 0.55.

*** Table 2 ***

We use data from ExecuComp, IRRC, The Corporate Library, CD Compact Disclosure and CDA Spectrum to create our governance measures. Using a random sample of firms we verify that there are no any coding errors from the firm's Proxy Statements for each governance measure previously described in Table 1.

We use data from IRRC, The Corporate Library, and Proxy Statements to determine the size and composition of the board, specifically *Bsize* and *Boutsiders*. We obtain data on the number of board meetings, *Bmeeting*, from ExecuComp. We retrieve the elements of the CEOs compensation from ExecuComp for calculating the pay-performance sensitivity measures, namely, *Bonus*, *Options*, *Ppswealth*, *Newoptions*, and *Shares*. We exclude firms in which the CEOs options are repriced.

We estimate our proxies for shareholder rights, the *G-Index* and the *E-Index*, using data from IRRC. IRRC tabulates the incidence 24 governance provisions for a sample of firms and we estimate the *G-Index* and the *E-Index* using the procedure outline in Gompers et al. (2003) and Bebchuk et al. (2005).

As in Helwege, Pirinsky, and Stulz (2005), we use data on insider ownership from CD Compact Disclosure that provides information on all firms that file with the SEC and have assets in excess of \$5 million.⁹ The number of shares owned by insiders, defined as officers and directors of the firm for a given year is extracted from the October CD release for the subsequent year.¹⁰ We also note that Compact Disclosure reports the data as of the proxy date. Therefore, we use the total number of shares from CRSP for the same month as

⁹ Researchers have compared ownership data from Compact Disclosure to ownership data from other data sources as well as from proxies. McConnell, Servaes, and Lins (2005) compare insider ownership data from Compact Disclosure to data reported in proxies, for a sub-sample of firms from 1992 through 1997, and find that a correlation coefficient of 0.92. Anderson and Lee (1997) find that data from the Corporate Text and Compact Disclosure are better than that from CDA Spectrum or Value Line.

¹⁰ We thank Christo Pirinsky for the data on Insider ownership from 1992-2001. We augmented the data set for 2002 using data from the October 2003 CD from Compact Disclosure.

the date of the proxy. If more than one proxy date is reported, we use the latest date reported and if no proxy date is reported, we use shares outstanding at the calendar end of the year.

We use data from 13F filings reported by CDA Spectrum to calculate the percentage of shares held by institutional investors. We use ExecuComp to identify the incidence of CEO turnover. Specifically, a firm has turnover in the year if the CEO at the end of the previous fiscal year is different from the CEO at the end of the current year.

V. Empirical Results

Table 3 reports the mean and median for each of the governance measures for the sub-sample of firms with a large good governance change and for the sub-sample of firms with a large bad governance change among firms in our sample. The number of firms with CEO turnover is 12.53%, which is in line with a turnover rate of 11.19%, which is the base level of CEO turnover in ExecuComp firms (we estimate this as the ratio of the number of total CEO changes to the number of firm-years in ExecuComp). Note that the governance changes are significant and that the good governance sample differs significantly from the bad governance sample in all the governance measures. For example, the good (bad) median change in *Bsize* is -3 (2), the good (bad) median change in *Shares* is 1.6% (-2.7%), the good (bad) median change in *G-Index* is -2 (2), and the good (bad) median change in *Instshares* is 40.8% (-40.8%). Thus, the two samples indeed represent firms that have had large and opposite changes in corporate governance.

**** Table 3 ****

We next determine the performance characteristics over the subsequent two-year period (i.e. from Year₊₁ to Year₊₂) and examine whether firms with good governance changes differ from firms with bad governance changes. We also compare the performance of the sub-samples over a three-year period that includes the current year and the subsequent two-year period (i.e. from Year₀ to Year₊₂). The three-year performance measure explicitly control for the price impact of the governance change in Year₀; if a governance change occurs in the middle of the year and the firm's stock price moved at the time of the event, it would be reflected in the three-year performance measure.

Table 4 shows the subsequent industry-adjusted stock returns for the subsample of firms with good governance changes and bad governance changes for each governance change measure for our sample. We report results for each governance measure separately.

The data shows that firms with bad governance changes have significant negative mean and median performance in the subsequent two-year period for some of the governance measures we examine. However, firms with good governance changes also show similar negative performance in the subsequent two-year period, although this effect is not significant. Indeed, more than 50% of the firms with good governance changes have negative industry-adjusted stock returns. For example, the percentage of firms with positive industry-adjusted stock returns is the same for the good governance change sample and the bad governance change sample, except for *Bonus* and the *Instshares* measures for which firms with good governance changes have a significantly higher percentage of firms with positive industry-adjusted stock returns.

**** Table 4 ****

When we compare the performance of firms with good governance changes with that of bad governance changes,¹¹ we find that the performance of firms with good-governance changes is not significantly better than the performance of the bad governance sample for all governance measures. These results hold for both mean and median values. Further, the results are robust to performance measured over the three-year period rather than the two-year period, except for the mean and median *Bonus* measure and the median *Instshares*, where firms with a good governance change have significantly better performance for the three-year period $\text{Year}_0\text{-Year}_{+2}$ measure, compared to firms with a bad governance change. With respect to *Bmeeting*, *Ppswealth*, *Shares*, and *Instshares*, there is a significant difference in some of the cases (for the 2-year measure), but they are in the wrong direction in that firms with a bad change in the governance measure have better performance than firms with a good governance change. For the *Instshares* measure, there is a reversal in sign between the performance differences measured over the three-year window ($\text{Year}_0, \text{Year}_{+2}$), which is positive, and performance differences measured over the two-year window ($\text{Year}_{+1}, \text{Year}_{+2}$), which is negative. This implies that the performance measure in Year_0 is highly positive for firms with increase in *Instshares* (median increase of 40.77%) compared to firms with a decrease in *Instshares* (median decrease of -40.78%). There can be two potential explanations for the association between increased institutional shareholdings and performance. An increase in institutional shareholdings can result in better performance because institutions provide value increasing monitoring services. Alternatively, institutions may have superior information by virtue of being large

¹¹ For the *Turnover* measure, we compare firms with CEO turnover and those without CEO turnover.

shareholders and could be “timing” an increase (decrease) in their shareholdings when they know that share prices are likely to increase (decrease). For the *Bonus* measure, the performance differences measured over the three-year window ($Year_0$, $Year_{+2}$) is positive, and performance differences measured over the two-year window ($Year_{+1}$, $Year_{+2}$) is not significant. This implies that the performance measure in $Year_0$ is highly positive for firms with increase in *Board* (median increase of \$1177) compared to firms with a decrease in *Board* (median decrease of -\$917). An increase in bonus paid to executives can result in better performance because the prospect of bonus gives executives the incentives to expend effort and increase firm value. However, since we do not observe the ex-ante bonus commitment made by firms, it could also be possible that we only observe cases where firms have experienced better performance and therefore paid higher *Bonus* and do not observe cases where there was an ex-ante commitment to pay a higher bonus, but did not do so because the firm’s performance was poor. We also separately examined the $Year_0$ performance alone for each of the sub-samples and the results (available from the authors) are similar to the results using the 3-year performance measure.

Table 4 provides results for each of the thirteen governance measures separately and we do not aggregate the number of good governance changes and the number of bad governance changes for a specific firm. As we noted earlier, the sample of firms with large governance changes is different for each of the governance measures considered. It is therefore not possible to construct an aggregate governance change measure for each firm in this sample.

To summarize, our findings are as follows. First we do *not* find significantly different firm performance between firms that have good governance changes and firms that have bad governance changes, except for isolated instances. Second, we find that both good governance changes and bad governance changes leads to significant performance changes. Because both good and bad governance changes have performance effects, if one restricts the analysis to only good governance changes or only bad governance changes, one would incorrectly conclude that governance changes leads to performance changes. These results strongly reject the null hypothesis that good-governance changes causes better performance.

VI. Relationship Between Changes in Governance and Changes in Firm Characteristics

We have used a specially constructed sample of firms that experience governance changes to study the impact of governance changes on future performance. Our finding that performance changes are similar for firms that have a good governance change and a bad governance change, suggests that firms are in equilibrium with respect to the changes they institute in their governance structure. We posit an equilibrium interpretation of the governance changes that firms implement in order to respond to changing firm characteristics and the contracting environment as suggested by Demsetz and Lehn (1985) and Himmelberg, Hubbard, and Palia (1999). In this section we investigate the relationship between changes in firm characteristics and their governance characteristics.

We discuss below factors that could influence governance characteristics and the data we use to capture the changes in firm characteristics.

Deviation from Industry Mean: The average industry governance level might serve as a benchmark for a given firm. For each of the governance measures, we calculate the difference from the industry average (at the three-digit SIC level) in the prior fiscal year to determine the degree to which the firm deviates from the industry (*GovDev*).

Growth: Managers in high growth firms may require greater discretion to respond to evolving market conditions and also for attracting managerial talent. We would therefore expect higher growth to be associated with characteristics that enhance managerial discretion. We use the change in the logarithm of the firm's total assets ($\Delta Assets$) to proxy for the firm's growth.

Scope for Discretionary Spending: The nature of a firm's assets can make it inherently easier to monitor and less subject to managerial discretion. A firm's investment in property, plant, and equipment is a tangible asset that is easy to monitor whereas a firm's investment in intangible assets such as R&D is more difficult to monitor. We use the change in a firm's property, plant and equipment scaled by total assets (ΔPPE) to proxy for the change in the level of hard assets, and the change in the level of R&D expenses scaled by total assets (ΔRND) to proxy for the change in the level of intangible investments. For example, in firms with increases in property, plant and equipment, we would expect to see less monitoring and less pay-for-performance sensitivity seeking to align managerial and shareholder interests. On the other hand, in firms with increases in R&D we would expect

to see a higher pay-for-performance sensitivity in order to align manager-shareholder interests.

We also expect the level of monitoring of a firm to be influenced by the uncertainty of the firm's operating environment. Standard principal-agent models imply that equity compensation involves a tradeoff between managerial risk aversion and offering the manager incentives and is therefore affected by the level of uncertainty in the firm. We proxy for changes in the level of uncertainty using the changes in the standard deviation of the firm's stock returns (ΔSigma).

Profitability & Liquidity: Changes in a firm's governance may reflect changes in the firm's profitability and liquidity. On the one hand, when a firm performs poorly or has low liquidity, it is likely that the firm will face external pressures to improve its governance. On the other hand, it is also likely that a firm can bear the costs associated with improving governance measures when firm performance is good compared to when firm performance is bad. We use the change in EBITDA scaled by total assets (ΔROA) and the change in the free-cash-flow (ΔFCF) as measures of the firm's profitability. Following Lehn and Poulsen (1989) and Linck, Netter, Yang (2007), we define the change in free-cash flow as the change in earnings before interest taxes and depreciation, minus taxes, minus change in deferred taxes, minus interest expense, minus dividends on preferred and common stock, scaled by total assets. We use the change in the firm's cash scaled by total assets (ΔCash) as a measure of the firm's liquidity.

Mergers: The possibility of a merger can impact a firm's governance structure. We capture the merger market pressures on the manager by the level of merger activity they face. We use the number of mergers in the calendar year ($\# \text{Mergers}$) as a proxy for merger market pressure; as a period of high merger activity increases the likelihood that a given firm will be involved in a merger either as an acquirer or as a target.

We regress the changes in each of the governance variables against each of the control variables discussed above. In keeping with our methodology of studying large governance changes, we only include the sample of firms with the largest good governance changes and the largest bad governance changes for each of the governance measures we consider. Table 5 presents the empirical results. The adjusted R^2 are over 35% in most of the cases (except for the pay-performance sensitivity measures *Bonus*, *Options*, *Ppswealth*, *Shares*, and *Insiders*) and over 50% for the *G-Index*, *E-Index*, and *Instshares*. Further, the F-tests indicate that all the models are significant in explaining the variations in governance

changes in all cases except *Bonus*. The t-tests and significance levels for the coefficients are presented assuming homoskedasticity, as the White test does not indicate that the errors are heteroskedastic.

**** Table 5 ****

We find that the coefficient for *GovDec* is negative and highly significant in all cases suggesting that firms change their governance levels in order to approach the mean governance level in their industry. This behavior offers a potential explanation for our results – since the decision to move towards industry norms drives the observed changes in governance, it is not surprising that we find that these governance changes do not lead to performance changes.

As expected, firms that are growing show an increase in *Bonus*, *G-Index*, and *Institutions*, but a decrease in the pay-for-performance variables *Options*, *Ppswealth*, and *Shares*. The results indicate support for the hypothesis that the level of discretionary spending and uncertainty influences the firm's choice of governance measures. The level of option compensation decreases with firm risk in keeping with the notion that firms reduce risky compensation for a risk-averse manager when she is exposed to higher firm risk. Firms that increase their risk, tend to increase their anti shareholder rights mechanisms (*G-Index* and *E-Index*). Finally, in firms that are more profitable, managers receive higher insider share ownership, and are more likely to reduce shareholder oversight through a decrease in board meetings.

An important extension with respect to the determinants of a firm's governance choice is the level of merger activity in the economy. We find that firms that in periods of high merger activity, firms show an increase in the *G-Index* and *E-Index* (i.e., they reduce shareholder rights), have significant increases in the size of the board, have more board meetings, increase the pay-for-performance sensitivity measures (*Options*, *NewOptions*, *Shares*, and *Insiders*), and have large changes in *Institutional Ownership*. Our findings on the influence of merger pressures on corporate governance add to the extant literature on the determinants of governance structure in firms.

Our findings on the determinants of governance change in firms offers some rationale to our finding that governance changes do not lead to performance changes. Firms seem to change governance to match with their industry peers and the relationship between firm characteristics and governance changes is mixed and complex. These results support

the contracting and monitoring hypothesis suggested in the literature and suggest that firms are in equilibrium in changing their governance structure.

VII. Abnormal Performance Sub-Samples

One reasonable argument that is often made is that governance changes have a significant impact on performance in the sample of firms that experience large performance declines. If governance changes are important in determining firm performance, then any governance change in these extremely poorly performing firms should result in performance differences. We therefore expand our analysis into two more sub-samples of firms – firms that have experienced abnormal performance changes to investigate the null hypothesis that governance changes causes better future performance changes. In constructing these sub-samples too, we seek to bias our research design in favor of finding support for the hypothesis that firms with good governance changes should outperform firms with bad governance changes.

VII.a. Abnormally Bad Performance sample

The second sample consists of firms with abnormally large negative performance changes. We begin by including firms that are in the bottom quartile of industry-adjusted stock returns (at the three-digit SIC level and including all firms on CRSP) in the fiscal year of identification. Further, these firms should have industry-adjusted stock returns in the top quartile in each of the prior two fiscal years. That is, these firms have experience large declines in their industry-adjusted stock returns. We call this sample the *Abnormally Bad Performance* sample. The median industry-adjusted stock returns is highly positive (54.9%) in the prior years and is highly negative (-52.8%) in the current year for the *Abnormally Bad Performance* sample.

For each firm in the *Abnormally Bad Performance* sample, we determine the changes in the governance measures from the previous year to the current year. We again categorize the changes in the governance measures into ex-ante good governance changes and bad governance changes, follow the performance of the good governance and bad governance sub-sample of firms, and test for difference in the industry-adjusted stock returns between the two sub-samples. If good governance causes performance to improve, then we should find that the performance of the good governance sample is significantly higher than the performance of the bad governance sample.

Table 6 reports the mean and median of the governance characteristics for the *Abnormally Bad Performance* sample. The average (median) board size, *Bsize*, is 8.49 (8.0) and the change in *Bsize* from the prior fiscal year is 0.23 (0). The average (median) percentage of outsiders on the board, *Boutsiders*, is 70.25% (75%), which is 6.44% (1.69%) higher than the level in the previous fiscal year. The average (median) firm has 7.06 (6) board meetings, which is 0.72 (0) more than the number of board meetings in the previous fiscal year.

*** Table 6 ***

As Table 6 shows, there is variation in the change in the different governance measures. The percentage of firms with a decrease in *Bsize* (a good governance change) is 18.18% and the percentage of firms with an increase in *Bsize* (a bad governance change) is 32.95%. The average change in *Bsize* represents a bad change in governance. The percentage of firms that increase *Boutsiders* (a good governance change) is 51.14% and the number of firms that decrease *Boutsiders* is 17.05%. On average, the change in *Boutsiders* represents a good governance change.

All five measures of pay-performance sensitivity that we use, namely, *Bonus*, *Options*, *Ppswealth*, *Newoptions*, and *Shares* decrease, and the changes represent a bad change in governance. Between 32%-45% of firms have positive changes in these measures of pay-performance sensitivity, and between 50%-64% of the sample experience a decrease in these measures (examples of bad governance changes).

The average (median) *G-Index* is 9.09 (9) and changes by 0.10 (0) from the previous fiscal year. The average (median) increase in the *G-Index* is statistically significant (insignificant) and represents a bad (no) governance change. The percentage of firms with an increase in the *G-Index* is 9.6%. Only one firm experiences a decrease in the *G-Index* and for all subsequent analysis we include this firm along with the number of firms that see no change in the *G-Index* (total of 90.4%). The average (median) *E-index* is 2.04 (2) and increases by 0.06 (insignificantly) from the previous fiscal year. The percentage of firms that have an increase in the *E-Index* (a bad governance change) is 5.60%. None of the firms experiences a decrease in the *E-Index*. The percentage of firms that see no change in the *E-Index* is 94.4%. Note that the *G-Index* and the *E-Index* are relatively stable.

The average (median) percentage of institutional shareholdings is 51.75% (53.31%) and is significantly lower by 3.32% (1.40%) from the previous fiscal year. The percentage of firms with an increase in the number of institutional shares (a good governance change)

is 40%, and the percentage of firms with a decrease in the percentage of institutional shareholdings is 60%. The percentage of firms with CEO turnover is 7.31%, which is slightly less than the base level of 11.19%, the base level of CEO turnover in all ExecuComp firms, which we calculated.

Since firms choose to change several of the governance characteristics simultaneously, and often in opposite directions, we develop an *Aggregate Governance Change* measure, which is defined as the net effect of all the positive and negative governance changes implement by the firm.¹² The procedure we use is as follows. A good change in a governance measure is given a score of 1, no governance change is scored as 0, and a bad governance change is scored as -1. We have overall thirteen different governance measures in this study. We however note that with respect to the variables relating to pay-performance sensitivity, the information contained in each of the measures are not all independent of each other. For example, the number of new option grants (*Newoptions*) in a fiscal year is included the total number of options (*Options*) outstanding for the year and the *Ppswealth* measure used data on total options (*Options*) and number of shares held by the CEO (*Shares*). We therefore do not include *Newoptions*, *Options* and *Shares* measures in developing the *Aggregate Governance Change* index. Similarly, we do not include the *E-Index* in the aggregate governance change measure as the *E-index* is a subset of the larger *G-Index* and changes in the *E-Index* would be reflected in changes in the *G-Index*. As a robustness check, we also separately developed an alternate aggregate governance change measure using all the governance variables and the results are overall similar with this alternate *Aggregate Governance Change* index.

The percentage of firms with a positive *Aggregate Governance Change* is 34.34% and the percentage of firms with a negative *Aggregate Governance Change* is 46.69%.

As noted in Table 6, we see that firms in the *Abnormally Bad Governance* sample vary in the governance change that they institute. We next examine the performance characteristics over the subsequent two-year period and examine whether firms with good governance changes differ from firms with bad governance changes.¹³

¹² Our original sample of firms is different for each governance measure. Cumulating the governance changes for each firm to examine the impact of multiple governance changes per firm, therefore, does not arise. Accordingly we do not examine the impact of a cumulative governance change for firms with moderate performance.

¹³ We do not compare the performance of the sub-samples over a three period that includes the current year and the subsequent two-year period ($Year_0$ to $Year_{+2}$) in this sample because, by construction, $Year_0$ is a year of extreme performance decline and dominates the return measure over the three-year period.

Table 7 shows the industry-adjusted stock returns for the sub-sample of the *Abnormally Bad Performance* sample. Data are presented for the sub-sample of firms with good governance changes and bad governance changes. The data show that firms with good governance changes do not consistently experience significant changes in performance in the subsequent two-year period. Similarly, firms with bad governance changes do not consistently experience significant performance changes in the subsequent two-year period. When we compare the performance of firms with good governance changes with that of bad governance changes,¹⁴ we find that they are not significantly different from each other for most of the governance measures. The exception is the measure *Newoptions*, where firms with an average increase in *Newoptions* have higher industry-adjusted stock returns than firms with an average decrease in the number of *Newoptions*, but the difference is only marginally significant. In fact, in examining the difference in median values we find no significant differences between firms that increased *Newoptions*, and firms that decreased *Newoptions*. Overall, firms with a positive *Aggregate Governance Change* have an insignificant industry-adjusted stock return and so do firms with a negative *Aggregate Governance Change*. A *t*-test for differences in their means shows that the difference is not significant. In summary, the evidence from the *Abnormally Bad Performance* sample of firms does not support the null that better governance leads to better performance.

**** Table 7 ****

VII.b. *Abnormally Good Performance* sample

Our third sample of firms is constructed to examine whether firms adopt governance changes when it is least costly for them to do so. That is, some firms may use the opportunity to reduce the quality of their governance during good times while others might seek to reinforce good performance by improving governance. Accordingly, we examine firms that fall in the top quartile of industry-adjusted stock returns (at three-digit SIC level based on all firms on CRSP) in the identification year and have industry-adjusted stock returns in the bottom quartile in each of the prior two years. These firms have experienced large improvements in their industry-adjusted stock returns. We call this sample the *Abnormally Good Performance* sample. The median industry-adjusted stock returns is

¹⁴ For the *G-Index* and *E-Index* measure we compare firms with a decrease in the index with firms with no decrease in index as only 1 or 2 firms have a decrease in these measures. For the *Turnover* measure, we compare firms with turnover and those without turnover.

highly negative (-58.8%) in the prior years and is highly positive (54.2%) in the current year for the *Abnormally Good Performance* sample.

As before, for each firm in the *Abnormally Good Performance* sample, we determine the changes in the governance measures from the previous year to the current year and categorize them into ex-ante good governance changes and ex-ante bad governance changes. We follow the performance of the two sub-samples and test whether firms with good governance changes perform better than firms with bad governance changes.

Table 8 reports the data on the governance characteristics for the *Abnormally Good Performance* sample. The average (median) board size, *Bsize*, is 7.79 (7) and the change in *Bsize* from the prior fiscal year is 0.14 (0), which is not significant. Once again, we find that changes are in both directions, i.e. firms in our sample experience both good governance changes and bad governance changes, for various governance measures. The percentage of firms with a decrease in *Bsize* (a good governance change) is 14.47% and the percentage of firms with an increase in *Bsize* (a bad governance change) is 26.32%.

**** Table 8 ****

The average (median) percentage of outsiders on the board, *Boutsiders*, is 64.36% (66.67%), which is higher by 3.70% (insignificantly different) than the level in the previous fiscal year. On average, the change in *Boutsiders* represents a good governance change. The percentage of firms that decrease the *Boutsiders* (a good governance change) is 34.21% and the number of firms that increase *Boutsiders* is 27.63%.

The average (median) firm has 7.16 (6) board meetings, which is not significantly different from the number of board meetings in the previous fiscal year. The percentage of firms with higher *Bmeeting* (a good governance change) is 27.82% and the number of firms with lower *Bmeeting* is 47.37%.

Four of the five measures of pay-performance sensitivity that we use, namely *Options*, *Ppswealth*, *Newoptions*, and *Shares*, do not change significantly in examining mean values, whereas *Options* becomes statistically significant when we examine median values. Between 46%-67% of firms have positive changes in these measures of pay-performance sensitivity and between 17%-54% of the sample experience in increase in these measures (examples of good governance changes). The average (median) amount of *Bonus* increases significantly by \$183,000 (\$90,000). The percentage of firms that increase

Bonus (a good governance change) is 66.42% and the number of firms that decrease *Bonus* (a bad governance change) is 17.52%.

The average (median) *G-Index* is 8.56 (8) and changes by 0.13 (0) from the previous fiscal year. The average increase in the *G-Index* is statistically significant and represents a bad governance change, whereas the median firm experienced no changes. The percentage of firms with an increase in the *G-Index* is 11.72%. Only two firms experience a decrease in the *G-Index* and for all subsequent analysis we include these firms along with the number of firms that see no change in the *G-Index* (total of 88.28%). The average (median) *E-index* is 1.83 (2) and increases by 0.07 from the previous fiscal year. The percentage of firms that have an increase in the *E-Index* (a bad governance change) is 7.81%. Only two firms experience a decrease in the *E-Index* and for all subsequent analysis we include these firms along with the number of firms that see no change in the *E-Index* (total of 92.19%)

The average (median) percentage of institutional shareholdings is 42.21% (43.12%) and is significantly higher by 5.5% (4.3%) from the previous fiscal year. The number of firms with an increase in the number of institutional shares (a good governance change) is 70.27% and the number of firms with a decrease in the number of institutional shareholders is 29.73%. The number of firms with CEO turnover is 16.36%, which is higher than 7.31%, which is the percent of firms that experience a CEO turnover in the *Abnormally Poor Performance* sample, and is also higher than 11.19%, the base level of CEO turnover in ExecuComp firms. If CEO turnover has a disciplinary effect, then in good performing firms one would have expected a lower turnover percentage than in the poorly performing firms. Our results, therefore, do not support the hypothesis that firms with poor performance experience higher CEO turnover in the year of their poor performance. Finally, the percentage of firms with a positive *Aggregate Governance Change* is 49.31% and the percentage of firms with a positive *Aggregate Governance Change* is 24.93%.

We next examine the performance characteristics over the subsequent two-year period and examine whether firms with good governance changes differ from firms with bad governance changes.¹⁵ Table 9 shows the industry-adjusted stock returns for the subsample of the *Abnormally Good Performance* sample. Data are presented for the subsample of firms with good governance changes and bad governance changes. The data show that firms with bad governance changes have significant negative performance in the

¹⁵ We do not compare the performance of the sub-samples over a three period that includes the current year and the subsequent two-year period ($Year_0$ to $Year_{+2}$) in this sample because, by construction, $Year_0$ is a year of extreme performance decline and dominates the return measure over the three-year period.

subsequent two-year period for some of the governance measures we examine. Firms with good governance also show negative performance in the subsequent two-year period, though the effect is less significant. When we compare the performance of firms with good governance changes with that of bad governance changes,¹⁶ we find that they are not significantly different from each other for all governance measures except for mean industry-adjusted stock returns for the *Boutsiders* and *Shares* governance measures -- although the effect is only marginally significant at the 10% level and tests for differences in median levels shows no significant differences. Firms with a positive *Aggregate Governance Change* have insignificant industry-adjusted stock return and so do firms with a negative *Aggregate Governance Change*, and an F-test for a difference in their means shows that the difference is not significant. Similar results are found when we examine median differences. The evidence from the *Abnormally Good Performance* sample of firms, therefore, does not support the null that better governance leads to better performance.

**** Table 9 ****

VII.d. *Summary of Abnormal Performance Sample Results*

In summary, our results are as follows. As for our original sample of firms, we do *not* find significantly different firm performance between firms that have good governance changes and firms that have bad governance changes, except for isolated instances for the abnormal performance samples as well. We also find, as before, that both good governance changes and bad governance changes leads to significant performance changes for both the samples.

Since we use the same sample of firms for all governance measures, we can also examine the range of governance changes that firms implement. First, we observe that governance changes often go in different directions suggesting that firms change their governance in complex ways. Second, our *Aggregate Governance Change* measure confirms that firms with good governance do not have better performance than firms with bad governance changes.

Our results present strong evidence against the null hypothesis that good governance changes “causes” better firm performance. Note that our results do not imply that that governance is irrelevant but rather that that firms are endogenously optimizing their

¹⁶ For the *G-Index* and *E-Index* measure we compare firms with a decrease in the index with firms with no decrease in index as only 1 or 2 firms have a decrease in these measures. For the *Turnover* measure, we compare firms with a turnover and those without a turnover.

governance structure in response to observable and unobservable firm characteristics. These results are consistent with the strand of the literature that has shown each governance mechanism to be related to observable and unobservable firm characteristics.

VIII Robustness Checks

In the above research design, we have defined performance as industry-adjusted stock returns. In our robustness tests, we use two different definitions of performance and repeat our analysis. First, we use the industry-adjusted return-on-assets (at the three-digit SIC level including all firms on COMPUSTAT. Second, we use the intercept from Fama-French-Carhart regressions (Alpha). The Fama-French-Carhart regressions are run using monthly returns using factors obtained from the author's website. We find that our basic results hold in both cases as described below.

In implementing our robustness checks, we re-construct the three samples of firms that we used in the prior studies. We will refer to our original sample of firms in which we control for prior abnormal performance as the *Moderate Performance* sample. We will continue to refer to the abnormal performance samples as the *Abnormally Bad Performance* sample and the *Abnormally Good Performance* sample as before.

VIII.a Evidence from using industry-adjusted ROA

As the first robustness check of our results, we use the industry-adjusted Return-on-Assets (ROA) as the performance measure. Return-on-assets (ROA) is defined as the ratio of operating income before depreciation, interest, and taxes (item13) divided by total assets (item6). We calculate the industry-adjusted ROA for each firm by subtracting the mean ROA for the industry using all firms in COMPUSTAT with the same three-digit SIC code. We construct the *Abnormally Bad Performance* sample, the *Moderate Performance* sample, and the *Abnormally Good Performance* sample as follows. If a firm has industry-adjusted ROA in the top (bottom) quartile in Year₂ and Year₁ and has industry-adjusted ROA in the bottom (top) quartile in Year₀, the firm is included in the *Abnormally Bad (Good) Performance* sample. For firms in these samples, i.e. the *Abnormally Bad Performance* and *Abnormally Good Performance* samples, we check whether there has been a change in each of the governance measure and sort them into firms with a good governance change and firms with a bad governance change as indicated in Table 1. For firms that do not have abnormally good or abnormally bad performance, we determine the magnitude of the

governance change for each of the governance measure. If a firm has a large governance change, but does not have abnormally bad or abnormally good performance, then the firm is included in the *Moderate Performance* sample.

Table 10 reports data on the mean and median industry-adjusted ROA for each of our three samples of firms created using the industry-adjusted ROA as the performance measure. For the *Moderate Performance* sample we have a different sample of firm for each of the governance measures as in our original sample. By construction, the changes in industry-adjusted ROA for the moderate samples are not very significant, except for differences in the median industry-adjusted ROA for the *G-Index*, *Instshares*, and *Turnover*, however the industry-adjusted ROA in prior years and in the current year can be large.¹⁷ As the table also shows, for the *Abnormally Bad Performance* sample, the median industry-adjusted ROA is highly positive (4.11%) in the prior years and is highly negative (-6.38%) in the current year, and the difference in performance is significant at the 1% level, as expected. For the *Abnormally Bad Performance* sample, the industry-adjusted ROA is highly negative (-2.30%) in the prior years and is highly positive (6.55%) in the current year and the difference in performance is significant at the 1% level, as expected.

**** Tables 10 ****

We next determine the percentage change in industry-adjusted ROA over the years subsequent to the identification year. For the *Abnormally Bad Performance* sample and the *Abnormally Good Performance* sample we measure the future performance over the two-year period subsequent to the identification year ($\text{Year}_{+1} - \text{Year}_{+2}$). In keeping with our prior tests, we include the current year in the window over which we determine the ex-post performance of firms with a good governance change and firms with a bad governance change for the *Moderate Performance* sample (our results do not change if we use a two-year window that excludes the current year). Tables 11-13 present data for the mean and median industry-adjusted ROA. We observe that the mean and median are often statistically significant even when the sample size is small. This is because the percentage changes in industry-adjusted ROA for our sample of firms has low variance resulting in higher t -

¹⁷ As Table 9 shows the industry adjusted ROA for each of our sub-samples is positive. This arises because we adjusted for industry performance by subtracting the mean industry ROA from firm ROA, where the mean is calculated using all the firms on COMPUSTAT. However, we determine the governance changes using data available on ExecuComp, which reports data only for large companies. Since larger companies have larger ROA, the mean and median industry-adjusted ROA for firms that have governance data available is positive. We repeated the entire analysis by adjusted for industry performance by subtracting the median industry performance with similar results for Table 9 and for our overall empirical findings.

statistics. These tables also present tests for the significance of the difference in the mean and median industry-adjusted ROA between the good governance change and bad governance change samples.

**** Tables 11-13 ****

For the *Abnormally Bad Performance* sample we find six firms with a decrease in the *G-Index* and two firms with a decrease in *E-Index* (good governance changes) and only ten firms with increase in the *G-Index* and four firms with an increase in the *E-Index* (bad governance changes). Given the small sample of firms, we do not report and analyze the ex-post performance of firms with changes in these indices for the *Abnormally Bad Performance* sample. Similarly, for the *Abnormally Good Performance* sample, we find one firm with a decrease in the *G-Index* and one firm with a decrease in *E-Index* (good governance changes) and seven firms with an increase in the *G-Index* and one firm with an increase in the *E-Index* (bad governance changes). Thus, for the *Abnormally Good Performance* sample also, we do not report and analyze the ex-post performance of firms with changes in these indices.¹⁸

As the tables show, in most cases the performance of firms with good governance changes is not different from the performance of firms with bad governance changes. The exceptions are as follows. In the *Abnormally Bad Performance* sample, firms with large increases in *Options* have better performance than firms with decreases in these measures, whereas the significant difference in *Turnover* is in the wrong direction. In the *Abnormally Good Performance* sample, firms in which the CEO receives a higher *Bonus* and has more *Shares* have better performance.

VIII.b Evidence from using Fama-French-Carhart regression Alpha

As a second robustness check, we use the intercept (Alpha) from monthly Fama-French-Carhart regressions as the performance measure to create the *Abnormally Bad Performance* sample, the *Moderate Performance*, sample and the *Abnormally Good Performance* sample. Our procedure is as follows. We first calculate a prior-Alpha using monthly returns over the two-year period (Year.₂, Year.₁) and next calculate a current-Alpha

¹⁸ We have calculated the mean and median of the sample of firms with changes in the *G-Index* (*E-Index*) in various combinations with the sample of firms with no changes in the *G-Index* (*E-Index*). We do not find significant differences in performance between the various sub-samples we define, but our results are subject to the problem of having a very small sample size in at least one of the sub-samples involved in each of the comparisons.

using monthly returns over the three-year period (Year.₂, Year.₀).¹⁹ We calculate the change in Alpha as the difference between the current-Alpha and the prior-Alpha. A firm is included in the *Abnormally Bad Performance* sample when the change in Alpha is in the lowest decile, the three-year Alpha is significantly negative, and the two-year Alpha is either significantly positive or is not significant differently from zero. Similarly, a firm is included in the *Abnormally Good Performance* sample when the change in Alpha is in the top decile, the three-year Alpha is significantly positive, and the two-year Alpha is either significantly negative or is not significant differently from zero. For the *Abnormally Bad Performance* and *Abnormally Good Performance* samples, we check for each firm whether there has been a change in each of the governance measure and sort them into firms with a good governance change and firms with a bad governance change as indicated in Table 1. A firm is included in the *Moderate Performance* sample when the firm is neither in the *Abnormally Bad Performance* sample nor in the *Abnormally Good Performance* sample and if the firm experiences a large change in the governance measure.

Table 14 reports data on the characteristics for each of our three samples of firms when using the Fama-French-Carhart Alpha as our performance measure. As before, for the *Moderate Performance* sample we have different samples of firm for each of the governance measures. By construction, none of the changes in the Fama-French-Carhart Alpha is very significant, except for the *Instshares* and *Insiders* measure, for the moderate performance samples. Table 14 also shows the Fama-French-Carhart Alpha for the *Abnormally Bad Performance* sample and the *Abnormally Good Performance* sample. As expected, the change in Fama-French-Carhart Alpha is significantly negative (positive) for the *Abnormally Bad (Good) Performance* sample. Further, the median Fama-French-Carhart Alpha in the current fiscal year is significantly negative (-5.41) for the *Abnormally Bad Performance* sample and the median Fama-French-Carhart Alpha in the current fiscal year is significantly positive (6.95) for the *Abnormally Good Performance* sample. Note that the Fama-French-Carhart Alpha in the prior year is not significant for both the *Abnormally Bad Performance* and the *Abnormally Good Performance* samples, as expected.

**** Table 14 ****

¹⁹ We use monthly regressions rather than daily regressions in our study as monthly regressions are less noisy. To ensure a sufficiently large sample size, we use monthly returns over a two-year and three-year window. We have also used an alternate specification for the change in *Alpha*, specifically, by calculating *Prior_Alpha* over the two-year window (Year.₂, Year.₁) and the *Current_Alpha* over the two-year window (Year.₁, Year.₀) with similar results.

We next determine the Fama-French-Carhart Alpha using monthly returns over the three-year period ($\text{Year}_0\text{-Year}_{+2}$) that includes the current year, for each firm in our samples. In keeping with our prior tests, we use the mean and the median of the Fama-French-Carhart Alpha for the subsample of firms as the performance metric to study the performance of firms with a good governance change and firms with a bad governance change. Tables 15-17 present data for the mean and median Fama-French-Carhart Alpha for the good governance change and bad governance change samples, and the p -value of tests for the significance of the difference in the mean and median performance of firms with a good governance change versus firms with a bad governance change.

**** Tables 15-17 ****

For the *Abnormally Bad Performance* sample we find that there are no firms with a reduction in the *G-Index* and the *E-Index* (a good governance change) and only six firms with an increase in the *G-Index* and the *E-Index* (a bad governance change). Given the small sample of firms, we do not report and analyze the ex-post performance of firms with changes in these indices for the *Abnormally Bad Performance* sample. Similarly, for the *Abnormally Good Performance* sample we find two firms with a decrease in the *G-Index* and one firm with a decrease in *E-Index* (good governance changes) and only three firms with increase in the *G-Index* and four firms with an increase in the *E-Index* (bad governance changes). Thus, for the *Abnormally Good Performance* sample also, we do not report and analyze the ex-post performance of firms with changes in these indices.²⁰

The performance of firms with good governance changes, in general, is not better than firms with bad governance changes, as shown in Tables 15-17. The exception is that for firms with *Moderate Performance* sample, firms with higher *Bonus* and higher *Instshares* have better performance. We also find that there is no significant difference in performance of a portfolio of firms with good governance changes and the performance of a portfolio of firms with bad governance changes, i.e. investing in a portfolio of firms with good governance changes and shorting a portfolio of firms with bad governance changes does not lead to abnormal returns. More specifically, among the 36 portfolios constructed (12 governance measures times the three difference performance samples), we find 33

²⁰ We have calculated the mean and median of the sample of firms with changes in the *G-Index* (*E-Index*) in various combinations with the sample of firms with no changes in the *G-Index* (*E-Index*). We do not find significant differences in performance between the various sub-samples we define, but our results are subject to the problem of having a very small sample size in at least one of the sub-samples involved in each of the comparisons.

portfolios with no significant differences, two cases (*Bonus* in the *Abnormally Bad Performance* sample and *Turnover* in the *Abnormally Good Performance* sample) of the wrong direction wherein firms with bad governance changes have better performance, and one case (*Bonus* in the *Moderate Performance* sample) where firms with good governance changes have better performance. These results are not reported in the Tables and are available from the authors on request.

VIII.c *Summary of robustness checks*

In summary, the empirical evidence using industry-adjusted ROA and Fama-French-Carhart Alpha as different performance measures supports the findings that firms with good governance changes do not have better performance than firms with bad governance changes.

We have also repeated the study using a two-year window to measure governance changes for the case when we use the industry-adjusted stock-returns as the performance measure (results available from the authors). The results are similar to our reported results using one-year governance changes. We note however that changes over a two-year governance window requires us to overlap years over which we measure governance changes and performance changes or incur a substantial time lag between governance changes and performance changes.

Our robustness checks, thus, reinforce our finding that good governance changes do not lead to better performance.

IX. Conclusions

One strand of the literature has found different good governance measures to be positively correlated with firm performance, while assuming governance measures to be exogenous. Using the results of these papers, many have suggested that changing a firm's governance characteristics will "cause" firm performance to increase. This paper examines this causality argument by looking at changes in firm performance and subsequent changes in corporate governance.

Our approach is to examine the performance effects of governance changes in specially constructed samples. Our samples "stack the deck" in support for the hypothesis that better governance leads to better firm performance. If we do not find such a relationship in these specially constructed samples, it seems unlikely to be present in the general

population of firms. By focusing on sub-samples of firms wherein we ex-ante expect better governance to cause better performance, without using fixed-effects nor identifying instrumental variables, our methodology does not suffer from the limitations of these two alternate approaches.

In doing this, we analyze governance changes in thirteen different governance measures that have been studied in the literature. We identify firms with large good governance changes and large bad governance changes as per the prescriptions in the literature, and we have considered alternate definitions of good and bad governance changes when applicable. We find that both good governance changes and bad governance changes leads to significant performance changes. Our strategy of using a biased sample of firms wherein we examine firms that have not had any large ex-ante performance changes but have experienced large governance changes, therefore does improve the power of our tests over a standard fixed-effects methodology. If one restricts the analysis to only good governance changes or only bad governance changes, one would incorrectly conclude that governance changes leads to performance changes. We find no significant difference in the mean and median firm performance between firms with good and bad governance changes. We also find that both good and bad governance changes lead to positive and negative performance changes, and more than 50% of firms with good governance changes have bad performance. This is strong evidence against the null that better corporate governance “causes” better firm performance.

To understand why firms go through governance changes, we regress the observed governance changes on changes in firm characteristics. We find that firms change their governance levels in order to approach the mean governance level in their industry. This behavior offers a potential explanation for our results – since the decision to move towards industry norms drives the observed changes in governance, it is not surprising that we find that these governance changes does not lead to performance changes. We also find that governance changes are also related to changes in the firm’s observable characteristics. We interpret our results to imply that firms are endogenously optimizing their governance structure consistent with the strand of the literature that has found each governance mechanism to be related to firm characteristics (for example, Demstet and Lehn (1985) find that large shareholder ownership is correlated with firm and industry characteristics; Smith and Watts (1992), Demsetz and Villalonga (2001), Himmelberg, Hubbard and Palia (1999), and Coles, Lemmon, and Meschke (2006) find that insider ownership is correlated with firm

characteristics; Hermalin and Weisbach (2003), Lehn, Patro, and Zhao (2003), and Boone et al. (2005) find board characteristics to be correlated with firm characteristics).

It has been argued that governance changes can perhaps have the most impact when firms undergo large performance changes. We therefore expand our study and repeat our tests to two samples of firms based on their performance. The first sample consists of firms that have had large abnormally poor performance, and the second sample consists of firms that have had large abnormally good performance. All our previous results in these two samples go through as well. Specifically, we find that both good and bad governance changes lead to positive and negative performance changes, and that frequently that governance changes often go in different directions. Consistent with our main result, an aggregate measure of governance changes confirms that better governance does not lead to better performance.

Our results are also robust to: firm performance defined as industry-adjusted stock returns or industry-adjusted accounting profits, a large sample, and a broad set of governance measures.

Our findings imply that changes in a firm's governance structure alone do not lead to performance improvements. Our study is a *large sample* study based on a broad sample of firms across eleven years and speaks to the average impact of governance on firm performance. It is possible that for some firms, governance changes do lead to better performance. Our findings suggest that the interplay between governance, observable and unobservable firm characteristics, and firm performance, is complex and not amenable to a sort on any single governance measure or firm characteristic. Future research is required to ex-ante identify a sample of the firms, and their characteristics, in which good governance leads to better performance.

Our findings are also consistent with the arguments made by the Interim Committee on Capital Market Regulation (2006), Hermalin and Weisbach (2007), and Romano (2004) that have questioned the efficacy of externally imposing uniform governance regulations on *all* firms. These studies argue that such externally imposed regulations can be very costly, and have suggested that the regulatory authorities should instead take more of a firm-by-firm approach. Our results clearly support this view - a blanket policy prescription that mandates specific governance provisions in all firms is not optimal.

REFERENCES

- Adams, Rene B., 2005, What do boards do? Evidence from committee meeting and director compensation data, Working Paper, Federal Reserve Bank of New York.
- Adams, Rene B. and Ferreira, 2004, The moderating effect of group decision making, Working paper, Stockholm School of Economics.
- Admati, Anat R., P. Pfleiderer and J. Zechner, 1994, Large shareholder activism, risk sharing and financial market equilibrium, *Journal of Political Economy*, 102, 1097-1130
- Agrawal, Anup, and Charles R. Knoeber, 1996, Firm performance and mechanisms to control agency problems between managers and shareholders, *Journal of Financial and Quantitative Analysis*, 31, 377-397
- Amihud, Yakov and Baruch Lev, 1981, Risk reduction as a managerial motive for conglomerate mergers, *Bell Journal of Economics*, 12, 605-617.
- Anderson, R. C., and D. S. Lee, 1997, Ownership studies: The data source does matter, *Journal of Financial and Quantitative Analysis*, 32, 311-329.
- Baker, George P. and Brian J. Hall, 2004, CEO incentives and firm size, *Journal of Labor Economics*, 22, 767-798.
- Baker, Malcolm, and Paul A. Gompers, 2003, The determinants of board structure at the initial public offering, *Journal of Law and Economics*, 46, 569-598
- Baysinger, Barry. D., and Henry N. Butler, 1985, Corporate governance and the board of directors: performance effects of changes in board composition, *Journal of Law, Economics and Organization*, 1, 101-124.
- Bhagat, Sanjai and Brian Bolton, 2005, Corporate governance and firm performance, Working paper, University of Colorado.
- Bebchuk, Lucian A., Alma Cohen, and Allen Ferrell, (2005), What matters in Corporate Governance?, Working Paper, Harvard Law School.
- Berger, Philips, Eli Ofek, and David Yermack, 1997, Managerial entrenchment and capital structure decisions, *Journal of Finance*, 52, 1411-38.
- Bertrand, Marianne and Antoinette Schoar, 2003, Managing with Style: The Effect of Management on Firm Policies, *The Quarterly Journal of Economics* 118, 1169-1208
- Bethel, Jennifer E., J. Liebeskind and T. Opler, Block share purchases and corporate performance, *Journal of Finance*, 1998, 53(2), 605-634
- Bhagat, Sanjai, and Bernard Black, 2002, The non-correlation between board independence and long-term firm performance, *Journal of Corporation Law*, 27, 231-274.
- Black, Fisher, and Scholes, Myron, 1973, The pricing of options and corporate liabilities, *Journal of Political Economy*, 31, 637-54.
- Bohren, Oyvind and Bernt Arne Odegaard, 2003, Governance and performance revisited, Working Paper, Norwegian School of Management.
- Boone, Audra, Laura C. Field, Jonathan Karpoff, and Charu G. Raheja, 2005, The determinants of board size and composition: an empirical analysis, *Journal of Financial Economics*, forthcoming.
- Brick, Ivan E., Darius Palia, and Chia Jane Wang, 2005, Simultaneous estimation of CEO compensation, leverage and board characteristics and their impact on firm value, Working Paper, Rutgers University.
- Carhart, M., 1997, On persistence in mutual fund performance, *Journal of Finance*, 52, 57-82
- Cho, Myeong Hyeon, 1998, Ownership structure, investment and the corporate value: an empirical analysis, *Journal of Financial Economics*, 47, 103-121.

Coles, Jeffrey, Michael Lemmon, Felix Meschke, 2006, Structural Models and Endogeneity in Corporate Finance: The Link Between Managerial Ownership and Corporate Performance, Working paper. Arizona State University.

Core, John, E., and Wayne Guay, 2002, Estimating the value of employee stock option portfolios and their sensitivities to price and volatility, *Journal of Accounting Research*, 40, 61, 655-6687.

Core, John, E., and Wayne Guay and Tjomme Rusticus, 2006, Does weak governance cause weak stock returns? An examination of firm operating performance and investors' expectations, *Journal of Finance*, 61, 655-687

Cremers, Martijn, and Vinay Nair, 2005, Governance mechanisms and equity prices, *Journal of Finance*, 60, 2859-2894

Demsetz, Harold, and Belen Villalonga, 2001, Ownership structure and corporate performance, *Journal of Corporate Finance*, 7, 209-233

Demsetz, Harold, and Kenneth Lehn, 1985, The structure of corporate ownership: causes and consequences, *Journal of Political Economy*, 93, 1155-77

Denis, David, and Dianne Denis, 1995, Firm performance changes following top management dismissals, *Journal of Finance*, 50, 1029-1057.

Eisenberg, Theodore, Sundgren, Stefan, and Martin T. Wells, 1998, Larger board size and decreasing firm value in small Firms, *Journal of Financial Economics*, 48, 35-54.

Fahlenbrach, Rudiger, and Rene M. Stulz, 2007, Managerial ownership dynamics and firm value, Working paper, Ohio State University.

Gaver, Jennifer J., and Kenneth M. Gaver, 1993, Additional evidence on the association between the investment opportunity set and corporate financing, dividend, and compensation policies, *Journal of Accounting and Economics*, 16, 110-125.

Gompers, Paul, Joy Ishii, and Andrew Metrick, 2003, Corporate governance and equity prices, *Quarterly Journal of Economics* 118, 107-155.

Guay, Wayne, 1999, The sensitivity of CEO wealth to equity risk: an analysis of the magnitude and determinants, *Journal of Financial Economics*, 53, 43-71.

Hartzell, Jay and Laura Starks, 2003. Institutional investors and executive compensation, *Journal of Finance* 58, 2351-2374.

Huson, M., P. Malatesta, R. Parrino, 2004, Managerial succession and firm performance, *Journal of Financial Economics*, 74, 237-275.

Hall, Brian J., and Jeffrey B. Liebman, 1998, Are CEOs really paid like bureaucrats? *Quarterly Journal of Economics*, 113, 653-691.

Helwege, Jean, Pirinsky, Christo A. and Stulz, René M., 2005, Why Do Firms Become Widely Held? An Analysis of the Dynamics of Corporate Ownership, NBER Working Paper No. W11505.

Hermalin, Benjamin E., and Michael S. Weisbach, 1988, The determinants of boards composition, *Rand Journal of Economics*, 19, 589-606.

Hermalin, Benjamin E., and Michael S Weisbach, 1991, The effects of board composition and direct incentives on firm performance, *Financial Management*, 20, 101-112.

Hermalin, Benjamin E., and Michael S. Weisbach, 1998, Endogenously chosen boards of directors and their monitoring of the CEO, *American Economic Review*, 88, 96-118.

Hermalin, Benjamin E., and Michael S. Weisbach, 2003, Boards of directors as an endogenously determined institution: a survey of economic literature, *Economic Policy Review*, 9, 7-26.

Hermalin, Benjamin E., and Michael S. Weisbach, 2006, A framework for assessing governance reform, Working Paper, University of Illinois at Urbana-Champaign and NBER.

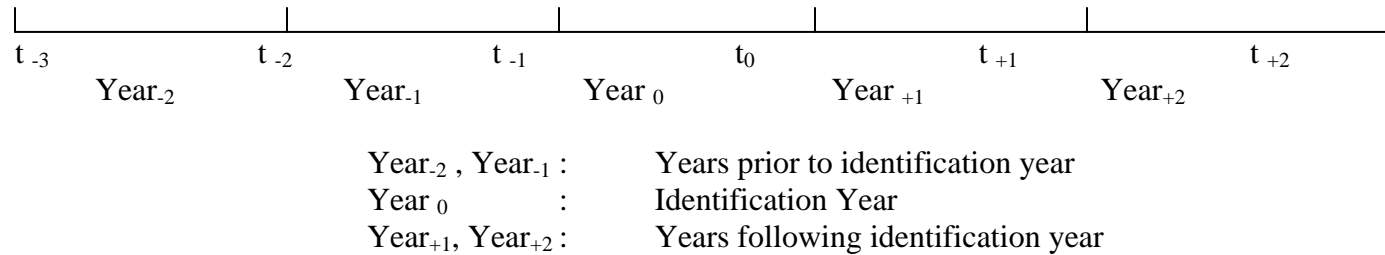
Himmelberg, Charles P., Hubbard, R Glenn and Darius Palia, 1999, Understanding the determinants of managerial ownership and the link between ownership and performance, *Journal of Financial Economics*, 53, 353-384.

- Hubbard, R Glenn and Darius Palia, 1995, Executive pay and performance Evidence from the U.S. banking industry, *Journal of Financial Economics*, 39, 105-130.
- Huddart, S., 1993, The effect of a large shareholder on corporate value, *Management Science*, 39, 1407-1421.
- Interim Report of the Committee on Capital Markets Regulation, 2006, <http://www.capmksreg.org>
- Jensen, Michael C., 1993, The modern industrial revolution, exit, and the failure of internal control systems, *Journal of Finance*, 48, 831-880.
- Jensen, Michael C., and Kevin J. Murphy, 1990, Performance pay and top-management incentives, *Journal of Political Economy*, 98, 225-264.
- Jensen, Michael C., and William H. Meckling, 1976, Theory of the firm: managerial behavior, agency costs, and ownership structure, *Journal of Financial Economics*, 3, 305-360.
- Joskow, Paul L., Rose, Nancy L., and Andrea Shepard, 1993, Regulatory constraints on CEO compensation, *Brookings Papers on Economic Activity: Microeconomics*, 1-72.
- Joskow, Paul L., Rose, Nancy L., and Catherine W. Wolfram, 1996, Political constraints on executive compensation: evidence from the electric utility industry, *Rand Journal of Economics*, 27, 165-182.
- Kang, J. K., Shivdasani, A., 1995, Firm performance, corporate governance, and top executive turnover in Japan, *Journal of Financial Economics*, 38, 29-58
- Kaplan, S. N., 1994a, Top executive rewards and firm performance: a comparison of Japan and the United States, *Journal of Political Economy*, 102, 510-546.
- Kaplan, S. N., 1994b, Top executives, turnover and firm performance in Germany, *Journal of Law, Economics and Organization*, 10, 142-159.
- Kaplan, S. N., B. A. Minton, 1994, Appointments of outsiders to Japanese Boards: Determinants and Implications for managers, *Journal of Financial Economics*, 36, 225-258
- Klein, April, 1998, Firm performance and board committee structure, *Journal of Law and Economics*, 41, 275-303
- Kole, Stacey R., and Kenneth M. Lehn, 1999, Deregulation and the adaptation of governance structure: the case of the U.S. airline industry, *Journal of Financial Economics*, 52, 79-117
- Kole, Stacey R., 1995, Measuring managerial equity ownership: a comparison of sources of ownership data, *Journal of Corporate Finance*, 1, 1995, 413-435
- Lehn, Kenneth and Mengxin Zhao, 2006, CEO turnover after acquisitions: Are bad bidders fired?, 1935-2000, *Journal of Finance*, 61, 1759-1811.
- Lehn, Kenneth, Sukesh Patro, and Mengxin Zhao, 2003, Determinants of the size and structure of corporate boards: 1935-2000, Working Paper, University of Pittsburgh.
- Lehn, Kenneth, Sukesh Patro, and Mengxin Zhao, 2005, Governance Indices and Valuation Multiples: Which Causes Which?, Working Paper, University of Pittsburgh.
- Linck, J.S., J. M. Netter, and T. Yang, 2007, The Determinants of Board Structure, *Journal of Financial Economics*, forthcoming.
- Mak, Yuen Teen, and Yuanto Kusnadi, 2002, Size really matters: further evidence on the negative relationship between board size and firm value, *Pacific-Basin Finance Journal*, 13, 301-318.
- Mak, Yuen Teen, and M. L. Rousch, 2000, Factors affecting the characteristics of board of directors: an empirical study of New Zealand initial public offering firms, *The Journal of Business Research*, 47, 147-159.
- Maug, Ernst, 1997, Boards of directors and capital structure: alternative forms of corporate restructuring, *Journal of Corporate Finance*, 3, 113-139
- Maug, Ernst, 1998, Large shareholders as monitors: is there a trade-off between liquidity and control? *Journal of Finance*, 53, 65-98

- McConnell, John J., and Henri Servaes, 1990, Additional evidence on equity ownership and corporate value, *Journal of Financial Economics*, 27, 595-612
- McConnell, John J., and Henri Servaes, 1995, Equity ownership and two faces of debt, *Journal of Financial Economics*, 39, 131-157
- McConnell, John J., Henri Servaes, and Karl V. Lins, 2003, Changes in equity ownership and changes in market value of the firm, working paper, London Business School.
- Mehran, Hamid, 1995, Executive compensation structure, ownership, and firm performance, *Journal of Financial Economics*, 38, 163-84.
- Morck, Randall, Andrei Shleifer, and Robert W. Vishny, 1988, Management ownership and market valuation, *Journal of Financial Economics*, 20, 293-315.
- Murphy, Kevin J., 1985, Corporate performance and managerial remuneration: An empirical analysis, *Journal of Accounting and Economics*, 7, 11-42.
- Noe, Thomas H., 2002, Investor activism and financial market structure, *Review of Financial Studies*, 15, 289-319
- Palia, Darius, 2001, The endogeneity of managerial compensation in firm value: a solution, *The Review of Financial Studies*, 14, 735-64.
- Prendergast, Canice, 1999, The Provision of Incentives in Firms, *Journal of Economics Literature* 37, 7-63.
- Prevost, Andrew K., Rao, Ramesh P., and Mahmud Hossain, 2002, Determinants of board composition in New Zealand: a simultaneous equations approach, *Journal of Empirical Finance*, 9, 373-397
- Raheja, Charu, 2005, The interaction of insiders and outsiders in monitoring: a theory of corporate boards, *Journal of Financial and Quantitative Analysis*, 40, 283-306.
- Romano, Roberta, 2004, The Sarbanes-Oxley Act and the making of quack corporate governance, Working paper, Yale Law School.
- Rosen, Sherwin, 1992, Contracts and the market for executives, in *Contract Economics*, ed Lars Werin and Hans Wijkander, 181-211, Cambridge, MA: Blackwell.
- Shleifer, Andrei, and Robert W. Vishny, 1986, Large shareholders and corporate control, *Journal of Political Economy*, 94, 461-478.
- Smith, Clifford W. and Ross L. Watts 1992, The investment opportunity set and corporate financing, dividend, and compensation policies, *Journal of Financial Economics*, 32, 263- 292.
- Vafeas, Nikos, 1999, Board meeting frequency and firm performance, *Journal of Financial Economics*, 53, 113-142.
- Warner, J.B., R.L. Watts, K.H. Wruck, 1988, Stock prices and top management changes, *Journal of Financial Economics*, 20, 461-492.
- Weisbach, Michael S., 1988, Outsider directors and CEO turnover, *Journal of Financial Economics*, 20, 413-460.
- Weisbach, Michael S., 1995, CEO turnover and the firm's investment decisions, *Journal of Financial Economics*, 37(2), 159-188.
- Yermack, David, 1995, Do corporations award CEO stock options effectively? *Journal of Financial Economics*, 39, 237-69.
- Yermack, David, 1996, Higher market valuation of companies with a small board of directors, *Journal of Financial Economics*, 40, 185-221.
- Zhou, X., 2001, Understanding the determinants of managerial ownership and the link between ownership and performance: comment, *Journal of Financial Economics*, 25, 2015-2040.

Figure 1: Time Line

This figure shows the time line over which we measure performance and governance in order to construct the sample of firms for our study. The sample consists of firms that have large good or large bad governance changes but do not show abnormal industry-adjusted performance changes, from prior years. We exclude firms that have experienced a dramatic decline in performance and have industry-adjusted performance in the bottom quartile in the current fiscal year but their industry-adjusted performance is in the top quartile in each of the two prior fiscal years. We also exclude firms that have experienced a dramatic increase in performance and have an industry-adjusted performance in the top quartile in the current fiscal year but their industry-adjusted performance is in the bottom quartile in each of the two prior fiscal years. The sample period is the 11 years from 1992-2002.



SAMPLE CONSTRUCTION: No abnormal industry-adjusted performance change from prior years
Large Governance changes in Year₀
Examine Performance in Year₊₁, Year₊₂

Table 1: Ex-Ante Direction For “Good” Governance Changes for Each Governance Measure

Governance Measure	Ex-ante Change For Good Governance
<i>Board Monitoring:</i>	
Bsize	Decrease
Boutsiders	Increase
Bmeeting	Increase
<i>Pay-Performance Sensitivity:</i>	
Bonus	Increase
Options	Increase
Ppswealth	Increase
Newoptions	Increase
Shares	Increase
<i>Shareholder Rights:</i>	
G-Index	Decrease
E-Index	Decrease
<i>Other Governance Measures:</i>	
Instshares	Increase
Insiders	Increase when Insiders < 5% Decrease when 5% < Insiders < 25% Unknown for Insiders > 25%
Turnover	High

Table 2: Performance Characteristics of Samples Based on Industry-Adjusted Stock Returns

This table shows the mean and median industry-adjusted stock returns of firms in the sample created using industry-adjusted stock returns as the performance measure. The table reports the mean and median of the average industry-adjusted stock return for the two prior fiscal years and the mean and median of the industry-adjusted stock return for the current fiscal year. The sample period is from 1992-2002. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

	Industry-adjusted stock returns (Year ₋₂ , Year ₋₁)			Industry-adjusted stock returns Year ₀			Test of Mean & Median Difference	
	# Obs.	Mean	Median	# Obs.	Mean	Median	Mean	Median
<i>Board Monitoring:</i>								
Bsize	292	2.16	0.76	302	-2.01	-2.31	0.189	0.167
Boutsiders	283	1.14	1.04	309	-5.00	-7.01	0.059*	0.012
Bmeeting	536	3.53	-1.16	657	4.58	-2.92	0.383	0.052
<i>Pay-Performance Sensitivity:</i>								
Bonus	538	5.18	0.83	570	-0.34	-2.39	0.066*	0.005***
Options	446	7.68	2.23	522	4.06	-1.14	0.064*	0.029**
Ppswealth	453	6.10	2.17	517	7.94	0.00	0.456	0.077*
Newoptions	425	4.43	-1.98	517	1.53	-5.83	0.206	0.010***
Shares	475	7.66	2.60	538	7.14	-2.03	0.130	0.005***
<i>Shareholder Rights:</i>								
G-Index	261	5.40	0.70	269	0.07	-1.69	0.043**	0.066*
E-Index	78	6.21	2.39	78	-2.27	0.55	0.074*	0.136
<i>Other Governance Measures:</i>								
Instshares	185	2.21	-4.20	259	4.69	-15.73	0.820	0.154
Insider	420	7.20	-4.49	571	2.00	-8.60	0.409	0.018**
Turnover	5043	1.30	-0.27	5048	1.11	-1.21	0.935	0.160

Table 3: Sample Governance Characteristics

This table shows the mean (median) level governance characteristics for our sample of firms. Firms are classified based on whether they have a good governance change or a bad governance change as defined in Table 1. The table reports the number of firms, the average level of the governance measure in the identification year (Year₀), and the change in governance from the previous year (Year₋₁ - Year₀), for firms with good governance changes and for firms with bad governance changes. The sample period is from 1992-2002. Median values are shown in parentheses. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

	Good Governance Change			Bad Governance Change		
	# Firms	Level Year ₀	Change Year ₋₁ - Year ₀	# Firms	Level Year ₀	Change Year ₋₁ - Year ₀
<i>Board Monitoring:</i>						
Bsize	133	9.73 (9.00)	-3.40 ^{***} (-3.00) ^{***}	229	10.48 (10.00)	2.36 ^{***} (2.00) ^{***}
Boutsiders	178	71.77% (75.00%)	26.08% ^{***} (20.00%) ^{***}	172	56.69% (58.33%)	-15.37% ^{***} (-12.50%) ^{***}
Bmeeting	510	11.15 (10.00)	4.87 ^{***} (4.00) ^{***}	263	6.68 (6.00)	-5.63 ^{***} (-5.00) ^{***}
<i>Pay-Performance Sensitivity:</i>						
Bonus	304	\$3600 (\$2000)	\$1949 ^{***} (\$1177) ^{***}	304	\$715 (\$98)	-\$1425 ^{***} (-\$917) ^{***}
Options	295	3.64% (2.85%)	1.61% ^{***} (1.16%) ^{***}	303	1.95% (1.41%)	-1.39% ^{***} (-0.98%) ^{***}
Ppswealth	290	14.74% (10.22%)	3.79% ^{***} (2.21%) ^{***}	299	13.53% (10.78%)	-5.22% ^{***} (-3.28%) ^{***}
Newoptions	294	1.37% (1.01%)	1.20% ^{***} (0.91%) ^{***}	293	0.20% (0)	-1.47% ^{***} (-1.06%) ^{***}
Shares	301	14.80% (11.23%)	3.05% ^{***} (1.56%) ^{***}	304	13.35% (9.90%)	-4.73% ^{***} (-2.76%) ^{***}
<i>Shareholder Rights:</i>						
G-Index	41	8.37 (8)	-2.93 ^{***} (-2.00) ^{***}	290	9.87 (10)	2.57 ^{***} (2.00) ^{***}
E-Index	17	0.94 (1)	-2.29 ^{***} (-2.00) ^{***}	92	3.16 (3.00)	2.34 ^{***} (2.00) ^{***}
<i>Other Governance Measures:</i>						
Instshares	139	74.62% (76.28%)	43.71% ^{***} (40.77%) ^{***}	136	28.88% (27.60%)	-42.68% ^{***} (-40.78%) ^{***}
Insiders	365	7.48% (6.91%)	-7.48% ^{***} (-10.42%) ^{***}	319	15.53% (18.21%)	6.77% ^{***} (8.01%) ^{***}
Turnover	755	-	-	4610	-	-

Table 4: Sample Performance Characteristics

This table shows the mean and median of the industry-adjusted stock returns (%) for the sample of firms classified by their Governance Change. For each governance measure, firms are classified as having adopted a good governance change and a bad governance change in the governance measure as defined in Table 1. Data reported are the average industry-adjusted stock return over the two year period, (Year₊₁ - Year₊₂), and the average industry-adjusted stock return over the three period (Year₀ - Year₊₂), following the identification year. The sample period is from 1992-2002. The table reports the *p-values* for tests of the difference between good Vs. bad governance changes: *t*-test of the difference in the means, the *Wilcoxon* rank-sum test for the difference in the medians, and the χ^2 -test for the difference in the percentage of firms with positive performance. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

Governance Measure	Period	Good Governance Change			Bad Governance Change			Test of Performance Diff: Good Vs. Bad Governance Change Samples		
		Mean	Median	%Neg	Mean	Median	%Pos	Mean	Median	%Pos
<i>Board Monitoring:</i>										
Bsize	Year (+1,+2)	-4.02	-1.45	55.6	-7.33***	-6.87***	37.2	0.34	0.15	0.21
	Year (0,+2)	-3.36*	-2.70*	56.6	-4.15**	-6.64***	38.8	0.76	0.27	0.49
Boutsiders	Year (+1,+2)	-0.80	-7.51	61.2	-2.84	-3.28	43.7	0.68	0.54	0.42
	Year (0,+2)	-3.00	-6.02	58.5	-2.26	-3.52	42.8	0.83	0.44	0.81
Bmeeting	Year (+1,+2)	0.29	-5.12***	57.2	3.10	-1.28	47.8	0.53	0.25	0.26
	Year (0,+2)	1.44	-3.00*	57.4	6.34**	1.47	53.5	0.17	0.04*	0.02
<i>Pay-Performance Sensitivity:</i>										
Bonus	Year (+1,+2)	-4.59**	-3.43**	54.3	-3.91*	-5.30***	40.9	0.82	0.46	0.30
	Year (0,+2)	3.27*	4.15*	42.1	-7.21***	-7.04***	35.0	0.00***	0.00***	0.00***
Options	Year (+1,+2)	-3.26	-4.64**	59.6	-1.49	-4.03	43.6	0.63	0.76	0.50
	Year (0,+2)	-0.08	-1.74	54.8	0.98	0.32	50.2	0.75	0.70	0.30
Ppswealth	Year (+1,+2)	-1.66	-3.27*	58.2	-3.02	-6.91***	41.4	0.70	0.25	0.94
	Year (0,+2)	-1.09	-1.73	55.3	5.18*	0.00	49.7	0.06*	0.26	0.29
Newoptions	Year (+1,+2)	0.79	-3.43	56.2	-2.30	-5.25	44.5	0.47	0.69	0.86
	Year (0,+2)	2.06	-0.96	52.7	-0.06	-2.28	45.3	0.54	0.48	0.69
Shares	Year (+1,+2)	-0.29	-2.46	56.2	-1.86	-6.91***	42.2	0.69	0.16	0.75
	Year (0,+2)	-0.97	-1.79	55.4	5.09*	-0.03	49.7	0.06*	0.29	0.27
<i>Shareholder Rights:</i>										
G-Index	Year (+1,+2)	0.21	-0.11	52.0	-0.43	0.00	49.3	0.87	0.94	0.90
	Year (0,+2)	0.09	-3.62	56.0	0.11	0.00	49.7	1.00	0.87	0.58
E-Index	Year (+1,+2)	-4.26	-0.99	54.5	-6.28	-5.35***	29.6	0.82	0.38	0.31
	Year (0,+2)	-5.91	-9.71	72.7	-3.72	-3.92**	35.1	0.73	0.51	0.61
<i>Other Governance Changes:</i>										
Instshares	Year (+1,+2)	-7.95**	-12.12***	66.3	28.80**	5.92	56.4	0.01**	0.01**	0.00
	Year (0,+2)	17.49***	7.24***	42.3	4.94	-5.08	42.6	0.20	0.01**	0.06*
Insiders	Year (+1,+2)	-3.23	-6.57***	57.6	3.23	-10.48*	42.2	0.364	0.448	0.98
	Year (0,+2)	0.23	-3.74	54.9	4.14	-3.91	46.5	0.470	0.675	0.77
Turnover	Year (+1,+2)	-0.86	-3.51**	56.4	-1.82**	-2.98***	43.8	0.602	0.936	0.86
	Year (0,+2)	-0.07	-0.23	56.1	-0.29	-1.51***	45.1	0.859	0.648	0.47

Table 5: Governance changes and firm characteristics

This table shows the results of OLS regressions of governance changes on the changes in firm characteristics. Each column shows the results for a specific governance measures. The dependent variable consists of the changes in the governance measure for the sample of firms with the largest changes in the governance measure. The independent variables representing changes in firm characteristics are, the deviation from industry average governance level, the change in the logarithm of Total Assets, changes in the level of PP&E, R&D, Debt, and Cash, all scaled by Total Assets, the change in the Return on Assets, the change in the standard deviation of returns, the change in free cash flow. These variables represent changes in firm characteristics from the beginning of the identification year (end of previous fiscal year) to the end of the identification year. The variables Acquirer and Target are dummy variables that respectively identify firms that are trying to acquire another firm and firms that are targets of an acquisition attempt. #Mergers is the number of completed mergers in the market for a calendar year. The superscripts ^{***}, ^{**}, and ^{*} denote statistical significance at the 1%, 5%, and 10% levels respectively. The last row presents the *p*-values for an *F*-Test of the regression model.

	Bsize	Boutsiders	Bmeeting	Bonus	Options	Ppswealth	Newoptions	Shares	G-Index	E-Index	Instshares	Insiders
Year -1 Gov_Dev	-0.5263 ^{***}	-82.938 ^{***}	-1.1710 ^{***}	0.0120	-32.213 ^{***}	-23.723 ^{***}	-138.380 ^{***}	-21.388 ^{***}	-0.408 ^{***}	-0.999 ^{***}	-111.485 ^{***}	-50.182 ^{***}
ΔAssets	0.4798	-2.889	0.9851	2877.09 ^{**}	-0.7858 ^{***}	-5.0366 ^{***}	-0.0591	-3.9076 ^{**}	1.144 [*]	2.291	17.578 ^{***}	-0.944
ΔPP&E	-3.0249	-29.842	-2.3733	351.55	1.5668	-12.6561	-0.8772	-15.7622	3.948	-0.077	-10.482	21.634
ΔRND	5.0924	-38.829	5.6322	12056.03	2.6911	4.8402	1.5391	-2.4020	3.101	9.758	27.785	10.896
ΔDebt	-1.7312	-71.464 ^{**}	-3.1797	-3923.57	1.1296	6.5811	0.3572	1.6529	-2.384	-3.115	-7.526	1.256
ΔROA	0.2599	-39.522	-9.6864 ^{**}	1640.33	0.3511	14.9681	0.2265	2.8585	0.756	-4.431	34.585	23.881 ^{***}
ΔFCF	-2.8381	87.845	7.5416 ^{**}	3164.79	2.0273	-11.9572	1.3956 [*]	-0.4776	-2.808	-0.626	26.465 [*]	-11.9406
ΔCash	0.9466	-58.014	5.7332	400.79	-0.2844	-2.7218	0.0451	-0.5887	-0.607	-1.270	8.464	5.5017
ΔSigma	-0.2662	3.190	0.2424	-831.41	-0.6442 ^{***}	-0.5427	-0.1150	-0.2279	-0.506 [*]	-1.023 ^{**}	-12.202 ^{***}	1.0271
# Mergers	0.0005 ^{***}	0.0024	0.0016 ^{***}	0.1985	0.0005 ^{***}	0.0017 ^{***}	0.0005 ^{***}	0.0014 ^{***}	0.0011 ^{***}	0.0006 ^{**}	0.0055 ^{***}	-0.0039 ^{***}
Adj R ²	0.3597	0.3571	0.4967	0.0050	0.1561	0.1362	0.6353	0.1125	0.5470	0.5914	0.6623	0.2164
# Obs	226	51	295	355	279	295	310	329	222	48	145	127
<i>F</i> -test	<0.0001	0.001	<0.0001	0.3036	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Table 6: Governance Characteristics of the *Abnormally Bad Performance* Sample (Stock Returns)

This table shows the mean (median) governance characteristics of the *Abnormally Bad Performance* sample of firms created using industry-adjusted stock returns as the performance measure. Column 1 reports the number of firm for which we data is available. Column 2 shows the mean of the governance measure for the identification year, Year₀. Column 3 shows the change in the governance measure in Year₀, and its statistical significance. The remaining columns report the number and proportion of firms in the sub-sample of firms with good governance changes and bad governance change based on the definitions in Table 1. The sample period is from 1992-2002. Median values are shown in parentheses. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

	# Firms	Level Year ₀	Governance Change (Year ₋₁ - Year ₀)	#, Proportion, and Governance Change of Firms with					
				Good Governance Change			Bad Governance Change		
<i>Board Monitoring:</i>									
Bsize	88	8.49 (8.00)	0.23* (0.00)	16	18.18%	-1.38*** (-1.00)***	29	32.95%	1.45*** (1.00)***
Boutsiders	88	70.25% (75.00%)	6.44%*** (1.69%)***	45	51.14%	15.26%*** (12.64%)***	15	17.05%	-8.01%*** (-6.67%)***
Bmeeting	187	7.06 (6.00)	0.72*** (0)	91	48.66%	2.45*** (2.00)***	46	24.60%	-1.93*** (-2.00)***
<i>Pay-Performance Sensitivity:</i>									
Bonus	176	\$505.55 (\$251.49)	-\$718 (-\$17)***	61	34.66%	\$254*** (\$132)***	95	53.98%	-\$1494 (-\$247)***
Options	176	1.35% (1.07%)	-0.07% (-0.01%)	79	44.89%	0.38%*** (0.17%)***	89	50.57%	-0.47%*** (-0.15%)***
Ppswealth	170	5.23% (2.38%)	-0.91%*** (-0.10%)***	62	36.47%	0.90%*** (0.22%)***	108	63.53%	-1.95%*** (-0.39%)***
Newoptions	176	0.20% (0.10%)	-0.15%*** (-0.01%)***	57	32.39%	0.26%*** (0.11%)***	91	51.70%	-0.44%*** (-0.12%)***
Shares	170	3.86% (0.59%)	-0.84%*** (-0.01%)***	67	39.41%	0.56%*** (0.07%)***	101	59.41%	-1.78%*** (-0.23%)***
<i>Shareholder Rights:</i>									
G-Index	125	9.09 (9.00)	0.10*** (0)	1	0.80%	-1.00 (-1.00)	12	9.60%	1.17*** (1.00)***
E-Index	125	2.04 (2.00)	0.06*** (0)	0	0.00%	- -	7	5.60%	1.14*** (1.00)**
<i>Other Governance Measures:</i>									
Instshares	255	51.75% (53.31%)	-3.32%*** (-1.40%)***	102	40.00%	6.64%*** (3.69%)***	153	60.00%	-9.96%*** (-7.12%)***
Insiders	214	16.78% (9.82%)	-1.08%*** (-0.02%)	75	35.05%	-1.07%*** (-0.30%)***	57	26.64%	0.69%*** (0.18%)***
Turnover	219	7.31%	-	-		-	-	-	-
Aggregate Governance Change	332	-0.139 (0.000)	-	116	34.94%	1.67*** (1.00)***	144	43.37%	-1.67*** (-1.00)***

Table 7: Performance Characteristics Following Governance Changes for the Abnormally Bad Performance Sample (Stock Returns)

This table shows the mean and median of the industry-adjusted stock returns (%) in the two years following a steep decline in performance, for the *Abnormally Bad Performance* sample of firms created using industry-adjusted stock returns as the performance measure. For each governance measure, firms are classified as having adopted a good governance change and a bad governance change in the governance measure based on the definitions in Table 1. The Aggregate Governance Change is the number of good governance changes minus the number of bad governance changes. Data reported are the average industry-adjusted stock return over the two year period, (Year₊₁ - Year₊₂), following the identification year. The sample period is from 1992-2002. The table reports the *p-values* for the t-test of the difference in the mean, between good Vs. bad governance changes, and for the Wilcoxon rank-sum test of the difference in the medians. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

Governance Measure	Good Governance Change		Bad Governance Change		Test of Mean & Median Diff: Good Vs. Bad Governance Change	
	Mean	Median	Mean	Median	Mean	Median
<i>Board Monitoring:</i>						
Bsize	3.86	-7.48	-12.06***	-13.52***	0.234	0.791
Boutsiders	-11.35**	-13.52***	6.07	-4.50	0.129	0.446
Bmeeting	-2.01	-5.05	-2.70	-9.89	0.944	0.853
<i>Pay-Performance Sensitivity:</i>						
Bonus	2.16	-7.34	-8.42*	-9.87**	0.216	0.851
Options	-3.93	-11.37**	-3.69	-6.68	0.976	0.574
Ppswealth	-2.69	-10.26	-6.26	-11.35**	0.670	0.837
Newoptions	4.29	-5.55	-11.85	-13.36	0.072*	0.195
Shares	0.42	-3.16	-8.11**	-13.02**	0.247	0.455
<i>Shareholder Rights:</i>						
G -Index ²¹	-4.81	-10.26***	-9.45	-29.21	0.793	0.433
E -Index	-5.95	-11.37***	10.32	-0.26	0.483	0.506
<i>Other Governance Measures:</i>						
Instshares	-4.36	-3.59	-5.56	-12.14*	0.853	0.256
Insiders	-4.22	-3.88	1.75	-10.83	0.565	0.829
Turnover	-1.33	-3.61	-5.06*	-8.85***	0.755	0.421
Aggregate Governance Change	0.49	-4.19	-7.70**	-13.36***	0.329	0.245

²¹ There is only one firm with a decline in *G -Index* and no firms with a decline in the *E -Index*. We, therefore, do not calculate performance effects of a decline in these metrics. Firms with a decline in the *G -Index* are added to the group of firms that show no increase in the *G -Index*.

Table 8: Governance Characteristics of the Abnormally Good Performance Sample (Stock Returns)

This table shows the mean and median governance characteristics of the *Performance Sample* of firms. Column 1 reports the number of firm for which we data is available. Column 2 shows the mean of the governance measure for the identification year, Year₀. Column 3 shows the change in the governance measure in Year₀, and its statistical significance. The remaining columns report the number and proportion of firms in the sub-sample of firms with good governance changes and bad governance changes based on the definitions in Table 1. The sample period is from 1992-2002. Median values are shown in parentheses. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

	# Firms	Level Year ₀	Governance Change (Year ₋₁ - Year ₀)	#, Proportion, and Governance Change of Firms with					
				Good Governance Change			Bad Governance Change		
<i>Board Monitoring:</i>									
Bsize	76	7.79 (7.00)	0.14 (0)	11	14.47%	-1.55 ^{***} (-1.00) ^{***}	20	26.32%	1.40 ^{***} (1.00) ^{***}
Boutsiders	76	64.36% (66.67)%	3.70% ^{**} (0)	26	34.21%	19.76% ^{***} (15.48%) ^{***}	21	27.63%	-11.08% ^{***} (-10.71%) ^{***}
Bmeeting	133	7.16 (6.00)	-0.44 (0)	37	27.82%	2.86 ^{***} (1.00) ^{***}	63	47.37%	-2.60 ^{***} (-2.00) ^{***}
<i>Pay-Performance Sensitivity:</i>									
Bonus	137	\$469 (\$310)	\$183 ^{***} (\$90) ^{***}	91	66.42%	\$397 ^{***} (\$247) ^{***}	24	17.52%	-\$463 ^{***} (-\$191) ^{***}
Options	137	1.23% (0.81)%	0.06% (0.05%) ^{***}	84	61.31%	0.38% ^{***} (0.20%) ^{***}	42	30.66%	-0.55% ^{***} (-0.19%) ^{***}
Ppswealth	133	6.02% (2.46)%	-0.07% (0.03%)	76	57.14%	1.18% ^{***} (0.30%) ^{***}	57	42.86%	-1.73% ^{***} (-0.36%) ^{***}
Newoptions	137	0.29% (0.07)%	0.06% (0%)	67	48.91%	0.35% ^{***} (0.16%) ^{***}	43	31.39%	-0.37% ^{***} (-0.18%) ^{***}
Shares	133	4.78% (0.77)%	-0.16% (0%)	62	46.62%	1.20% ^{**} (0.12%) ^{***}	71	53.38%	-1.35% ^{***} (-0.19%) ^{***}
<i>Shareholder Rights:</i>									
G-Index	128	8.56 (8.00)	0.13 ^{***} (0)	2	1.56%	-1.00 (-1.00)	15	11.72%	1.20 ^{***} (1.00) ^{***}
E-Index	128	1.83 (2.00)	0.07 ^{**} (0)	2	1.56%	-1.00 (-1.00)	10	7.81%	1.10 ^{***} (1.00) ^{***}
<i>Other Governance Measures:</i>									
Instshares	259	42.21% (43.12)%	5.55% ^{***} (4.29%) ^{***}	182	70.27%	10.05% ^{***} (7.59%) ^{***}	77	29.73%	-5.10% ^{***} (-3.19%) ^{***}
Insiders	230	21.54% (12.97)%	-1.98% ^{***} (0.00%)	71	30.87%	-1.10% ^{***} (-0.26%) ^{***}	55	23.91%	1.67% ^{***} (1.07%) ^{***}
Turnover	165	16.36%	-	-	-	-	-	-	-
Aggregate Governance Change	361	0.529 ^{***} (0.00)	-	172	47.65%	1.78 ^{***} (1.00) ^{***}	83	22.99%	-1.39 ^{***} (-1.00) ^{***}

**Table 9: Performance Characteristics for the
Abnormally Good Performance Sample (Stock Returns)**

This table shows the mean and median of the industry-adjusted stock returns (%) in the years following a steep increase in performance, for firms in the *Abnormally Good Performance* sample created using industry-adjusted stock returns as the performance measure. For each governance measure, firms are classified as having adopted a good governance change or a bad governance change in the governance measure based on the definitions in Table 1. The Aggregate Governance Change is the number of good governance changes minus the number of bad governance changes. Data reported are the average industry-adjusted stock returns over the two-year period following the identification year (Year₊₁ - Year₊₂). The sample period is from 1992-2002. The table reports the *p-values* for the t-test of the difference in the mean, between good Vs. bad governance changes, and for the Wilcoxon rank-sum test of the difference in the medians. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

Governance Measure	Good Governance Change		Bad Governance Change		Test of Mean & Median Diff: Good Vs. Bad Governance Change	
	Mean	Median	Mean	Median	Mean	Median
<i>Board Monitoring:</i>						
Bsize	-31.29**	-31.40**	5.54	-20.43	0.109	0.155
Boutsiders	12.67	-17.52	-21.27**	-23.92**	0.050**	0.268
Bmeeting	-5.26	-1.10	-7.21	-13.73**	0.847	0.341
<i>Pay-Performance Sensitivity:</i>						
Bonus	-3.71	-9.29	-7.14	-6.85	0.722	0.894
Options	-1.01	-8.65	-13.48**	-20.56***	0.158	0.408
Ppswealth	-7.59	-18.82**	-0.23	-3.85	0.352	0.181
Newoptions	-9.28*	-17.52**	-0.19	0.80	0.303	0.387
Shares	2.35	-1.28	-10.44**	-15.09**	0.100*	0.124
<i>Shareholder Rights:</i>						
G-Index ²²	-5.64	-9.48**	-5.77	-6.26	0.991	0.922
E-Index	-4.26	-9.26*	-23.13**	-29.67	0.185	0.166
<i>Other Governance Measures:</i>						
Instshares	-2.62	-5.56**	10.69	-3.23	0.071*	0.166
Insiders	-5.10	-8.78	6.63	-4.57	0.180	0.243
Turnover	-11.15	-20.56	4.69	-4.68	0.174	0.144
Aggregate Governance Change	-3.18	-9.29**	6.58	-4.47	0.122	0.159

²² There are only two firms with a decline in *G-Index* and only 2 firms with a decline in the *E-Index*. We, therefore, do not calculate performance effects of a decline in these metrics. Further, firms with a decline in the *G-Index* and the *E-Index* are added to the group of firms that show no increase in the *G-Index* and the *E-Index* respectively.

Table 10: Performance Characteristics of Samples Based on Industry-adjusted Return-on-Assets

This table shows the mean and median industry-adjusted Return-on-Assets (ROA%) of firms in the *Moderate Performance* sample, the *Abnormally Bad Performance* sample, and the *Abnormally Good Performance* sample created using industry-adjusted ROA as the performance measure. The table reports the mean and median of the average industry-adjusted ROA for the two prior fiscal years and the mean and median industry-adjusted ROA for the current fiscal year. The sample period is from 1992-2002. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

	Industry-adjusted ROA (Year ₋₂ , Year ₋₁)			Industry-adjusted ROA Year ₀			Test of Mean & Median Difference	
	# Obs.	Mean	Median	# Obs.	Mean	Median	Mean	Median
Panel A: Moderate Performance Sample								
<i>Board Monitoring:</i>								
Bsize	318	8.33	5.81	322	8.69	6.50	0.624	0.556
Boutsiders	320	9.11	6.13	331	8.55	6.02	0.528	0.109
Bmeeting	612	7.70	4.87	700	7.79	4.65	0.855	0.716
<i>Pay-Performance Sensitivity:</i>								
Bonus	551	8.72	4.02	581	8.50	4.15	0.870	0.510
Options	530	9.18	6.91	568	9.12	6.55	0.772	0.878
Ppswealth	520	8.49	6.52	559	8.45	5.93	0.950	0.564
Newoptions	514	10.19	7.23	568	9.42	6.61	0.392	0.424
Shares	545	8.73	6.42	583	8.12	5.93	0.187	0.482
<i>Shareholder Rights:</i>								
G-Index	265	6.23	3.31	270	6.68	3.43	0.357	0.009***
E-Index	83	4.89	1.85	82	5.52	1.75	0.395	0.317
<i>Other Governance Measures:</i>								
Instshares	214	7.71	4.31	258	5.32	3.26	0.105	0.049**
Insider	422	-2.39	2.63	569	-4.10	2.21	0.930	0.555
Turnover	5041	4.15	2.47	5052	3.74	2.23	0.000***	0.004***
Panel B: Abnormally Bad Performance Sample								
<i>All Governance Measures</i>	343	5.16	4.11	343	-8.51	-6.38	0.000***	0.000***
Panel C: Abnormally Good Performance Sample								
<i>All Governance Measures</i>	116	-5.15	-2.30	116	8.02	6.55	0.000***	0.000***

Table 11: Governance and Performance Characteristics for the Moderate Performance Sample (Accounting Profit)

This table shows the mean and median of the governance changes and of the percentage change in the industry-adjusted ROA in the years following a steep decline in performance for firms in the *Moderate Performance* sample created using industry-adjusted ROA as the performance measure. For each governance measure, firms are classified as having adopted a good governance change and a bad governance change in the governance measure as defined in Table 1. Data reported are the magnitude of the governance change from prior years to the current year ($\text{Year}_{-2,-1} - \text{Year}_0$) and the percentage change in average industry-adjusted ROA over the three-year period ($\text{Year}_0 - \text{Year}_{+2}$) following the identification year (Year_0). The sample period is from 1992-2002. The table reports the *p-values* for tests of the difference between good Vs. bad governance changes: *t*-test of the difference in the means, the *Wilcoxon* rank-sum test for the difference in the medians, and the χ^2 -test for the difference in the percentage of firms with positive performance. Median values and *p-values* for the test of differences in medians are shown in parentheses. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

Governance Measure	Good Governance Change				Bad Governance Change				Test of Performance Diff: Good vs. Bad Governance change samples		
	# Firms	Mean (Median) Gov. Change Year (-1,0)	Mean (Median) Performance Year(0,+2)	%Neg	# Firms	Mean (Median) Gov. Change Year (-1,0)	Mean (Median) Performance Year(0,+2)	%Pos	Mean	Median	%Pos
<i>Board Monitoring:</i>											
Bsize	137	-3.39 ^{***} (-3.00) ^{***}	-0.24 (-0.21)	20.8	233	2.35 ^{***} (2.00) ^{***}	0.20 (-0.23) ^{***}	69.9	0.71	(0.40)	0.11
Boutsiders	183	0.27 ^{***} (0.20) ^{***}	-0.56 (-0.25) ^{***}	26.8	176	-0.15 ^{***} (-0.13) ^{***}	-0.35 (-0.22)	79.1	0.83	(0.35)	0.25
Bmeeting	517	4.87 ^{***} (4.00) ^{***}	-0.59 (-0.30) ^{***}	29.7	270	-5.63 ^{***} (-5.00) ^{***}	0.14 (-0.12)	72.1	0.54	(0.18)	0.66
<i>Pay-Performance Sensitivity:</i>											
Bonus	316	\$1902 ^{***} (\$1149) ^{***}	-2.63 (-0.24) ^{***}	29.3	313	-\$1759 ^{***} (-\$922) ^{***}	11.61 (-0.27) ^{***}	75.4	0.25	(0.75)	0.24
Options	307	1.61% ^{***} (1.16%) ^{***}	11.63 (-0.22) [*]	26.3	303	-1.39% ^{***} (-0.97%) ^{***}	0.99 (-0.13)	79.4	0.36	(0.72)	0.15
Ppswealth	307	3.81% ^{***} (2.21%) ^{***}	11.78 (-0.20) ^{***}	26.1	303	-5.21% ^{***} (-3.28%) ^{***}	0.15 (-0.16) ^{**}	80.4	0.30	(0.37)	0.10
Newoptions	301	1.19% ^{***} (0.91%) ^{***}	11.99 (-0.11)	22.9	303	-1.46% ^{***} (-1.06%) ^{***}	0.54 (-0.19) [*]	71.2	0.35	(0.32)	0.18
Shares	309	3.08% ^{***} (1.55%) ^{***}	10.66 (-0.21) ^{***}	27.0	307	-4.72% ^{***} (-2.76%) ^{***}	-0.35 (-0.18) ^{***}	80.6	0.30	(0.42)	0.05
<i>Shareholder Rights:</i>											
G-Index	40	-2.95 ^{***} (-2.00) ^{***}	-2.04 (-0.06)	38.4	293	2.57 ^{***} (2.00) ^{***}	-0.29 (-0.23) ^{***}	73.6	0.39	(0.89)	0.19
E-Index	17	-2.29 ^{***} (-2.00) ^{***}	-3.86 (0.31)	25.0	95	2.32 ^{***} (2.00) ^{***}	-0.73 (-0.24) [*]	74.5	0.49	(0.17)	0.97
<i>Other Governance Changes:</i>											
Instshares	141	43.37% ^{***} (40.77%) ^{***}	-1.13 (-0.19)	30.5	133	-42.45% ^{***} (-40.76%) ^{***}	2.97 (-0.59) ^{***}	54.5	0.17	(0.15)	0.05 ^{**}
Insiders	367	-7.40% ^{***} (-10.42%) ^{***}	0.13 (-0.27) ^{**}	27.8	323	6.78% ^{***} (8.03%) ^{***}	-0.83 (-0.22)	72.1	0.54	(0.53)	1.00
Turnover	755	-	-2.24 (-0.31) ^{***}	29.6	4569	-	1.61 (-0.24) ^{***}	73.0	0.33	(0.11)	0.08

Table 12: Governance and Performance Characteristics for the Abnormally Bad Performance Sample (Accounting Profit)

This table shows the mean (median) of the governance changes and of the percentage change in the industry-adjusted ROA in the years following a steep decline in performance for firms in the *Abnormally Bad Performance* sample created using industry-adjusted ROA as the performance measure. For each governance measure, firms are classified as having adopted a good governance change and a bad governance change in the governance measure as defined in Table 1. Data reported are the magnitude of the governance change from prior years to the current year ($Year_{-2, -1} - Year_0$) and the percentage change in the average industry-adjusted ROA over the two-year period ($Year_{+1} - Year_{+2}$) following the identification year ($Year_0$). The sample period is from 1992-2002. The table reports the *p-values* for the t-test of the difference in the mean, between good Vs. bad governance changes, and for the Wilcoxon rank-sum test of the difference in the medians. Median values and *p-values* for the test of differences in medians are shown in parentheses. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

Governance Measure	Good Governance Change			Bad Governance Change			Test of Mean & Median Diff: Good Vs. Bad Governance Change
	# Firms	Mean (Median) Governance Change $Year_{-1} - Year_0$	Mean (Median) Performance $Year_{+1} - Year_{+2}$	# Firms	Mean (Median) Governance Change $Year_{-1} - Year_0$	Mean (Median) Performance $Year_{+1} - Year_{+2}$	
<i>Board Monitoring:</i>							
Bsize	20	-1.35 ^{***} (-1.00) ^{***}	-0.37 (-0.20)	16	1.69 ^{**} (1.00) ^{***}	-0.58 (-0.60)	0.63 (0.61)
Boutsiders	37	11.81% ^{***} (10.71%) ^{***}	-0.46 ^{**} (-0.47) ^{**}	13	-8.47% ^{***} (-7.14%) ^{***}	-0.41 (-0.63)	0.90 (0.97)
Bmeeting	67	3.03 ^{***} (3.00) ^{***}	-0.72 ^{***} (-0.74) ^{***}	39	-2.28 ^{***} (-2.00) ^{***}	-0.46 ^{***} (-0.32) ^{***}	0.16 (0.13)
<i>Pay-Performance Sensitivity:</i>							
Bonus	40	\$1329 (-\$127) ^{***}	-0.41 ^{***} (-0.28) ^{***}	81	-\$405 ^{***} (-\$182) ^{***}	-0.62 ^{***} (-0.61) ^{***}	0.26 (0.23)
Options	82	0.31% ^{***} (0.19%) ^{***}	-0.39 ^{***} (-0.47) ^{***}	57	-0.60% ^{***} (-0.25%) ^{***}	-0.80 ^{***} (-0.87) ^{***}	0.01 ^{***} (0.01) ^{***}
Ppswealth	75	0.57% ^{***} (0.22%) ^{***}	-0.43 ^{***} (-0.53) ^{***}	69	-2.00% ^{***} (-0.53%) ^{***}	-0.64 ^{***} (-0.73) ^{***}	0.20 (0.25)
Newoptions	68	0.29% ^{***} (0.14%) ^{***}	-0.64 ^{***} (-0.56) ^{***}	58	-0.39% ^{***} (-0.18%) ^{***}	-0.46 ^{***} (-0.57) ^{***}	0.30 (0.57)
Shares	57	0.50% ^{***} (0.52%) ^{***}	-0.45 ^{***} (-0.54) ^{***}	86	-1.34% ^{***} (-0.11%) ^{***}	-0.58 ^{***} (-0.58) ^{***}	0.45 (0.50)
<i>Shareholder Rights:</i>							
G-Index	6	-	-	10	-	-	-
E-Index	2	-	-	4	-	-	-
<i>Other Governance Changes:</i>							
Instshares	132	8.89% ^{***} (5.68%) ^{***}	-0.51 ^{***} (-0.54) ^{***}	117	-9.72% ^{***} (-5.92%) ^{***}	-0.44 ^{***} (-0.60) ^{***}	0.67 (0.84)
Insiders	80	-0.87% ^{***} (-0.07%) ^{***}	-0.34 ^{**} (-0.57) ^{***}	71	1.14% ^{***} (0.40%) ^{***}	-0.55 ^{***} (-0.61) ^{***}	0.36 (0.46)
Turnover	22	-	-0.96 ^{***} (-0.90) ^{***}	321	-	-0.47 ^{***} (-0.58) ^{***}	0.06* (0.12)
Aggregate Governance Change	133	1.86 ^{***} (1.00) ^{***}	-0.50 ^{***} (-0.53) ^{***}	116	-1.59 ^{***} (-1.00) ^{***}	-0.55 ^{***} (-0.71) ^{***}	0.89 (0.69)

Table 13: Governance and Performance Characteristics for the Abnormally Good Performance Sample (Accounting Profit)

This table shows the mean (median) of the governance changes and of the percentage change in the industry-adjusted ROA in the years following a steep increase in performance for firms in the *Abnormally Good Performance* sample created using industry-adjusted ROA as the performance measure. For each governance measure, firms are classified as having adopted a good governance change and a bad governance change in the governance measure as defined in Table 1. The table reports the sample mean and sample median of the governance change from prior years to the current year ($Year_{-1} - Year_0$) and the average industry-adjusted ROA over the two-year period ($Year_{+1} - Year_{+2}$), following the identification year. The sample period is from 1992-2002. The table reports the *p-values* for the t-test of the difference in the mean, between good Vs. bad governance changes, and for the Wilcoxon rank-sum test of the difference in the medians. Median values and *p-values* for the test of differences in medians are shown in parentheses. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

Governance Measure	Good Governance Change			Bad Governance Change			Test of Mean & Median Diff: Good Vs. Bad Governance Change
	# Firms	Mean (Median) Governance Change $Year_{-1} - Year_0$	Mean (Median) Performance $Year_{+1} - Year_{+2}$	# Firms	Mean (Median) Governance Change $Year_{-1} - Year_0$	Mean (Median) Performance $Year_{+1} - Year_{+2}$	
<i>Board Monitoring:</i>							
Bsize	7	-2.29 ^{***} (-2.00) ^{**}	-0.63 (-0.89)	4	1.25 ^{**} (1.00)	0.18 (0.34)	0.36 (0.30)
Boutsiders	9	14.39% ^{***} (12.22%) ^{***}	-0.07 (-0.32)	5	-9.05% ^{***} (-8.18%) [*]	-0.71 (-0.78)	0.34 (0.29)
Bmeeting	13	2.23 ^{***} (2.00) ^{***}	-0.73 (-0.82) [*]	13	-2.77 ^{***} (-3.00) ^{***}	-0.39 (-0.53)	0.56 (0.62)
<i>Pay-Performance Sensitivity:</i>							
Bonus	27	\$418 ^{***} (\$224) ^{***}	-0.25 (-0.12)	10	-\$333 ^{**} (-\$198) ^{***}	-1.32 ^{**} (-0.93) ^{**}	0.05 ^{**} (0.05) ^{**}
Options	26	0.46% ^{***} (0.18%) ^{***}	-0.37 (0.17)	13	-0.27% ^{***} (-0.15%) ^{***}	-0.50 (-0.49)	0.78 (0.68)
Ppswealth	22	0.97% ^{***} (0.24%) ^{***}	-0.09 (0.17)	19	-1.89% ^{**} (-0.60%) ^{***}	-0.68 ^{**} (-0.49) ^{**}	0.18 (0.20)
Newoptions	15	0.15% ^{***} (0.06%) ^{***}	-0.29 (0.17)	22	-0.23% ^{**} (-0.07%) ^{***}	-0.54 [*] (-0.56)	0.62 (0.66)
Shares	19	0.73% ^{***} (0.06%) ^{***}	0.06 (0.17)	21	-1.75% ^{**} (-0.36%) ^{***}	-0.73 ^{**} (-0.60) ^{**}	0.06 [*] (0.08) [*]
<i>Shareholder Rights:</i>							
G-Index	1	-	-	7	-	-	-
E-Index	1	-	-	1	-	-	-
<i>Other Governance Changes:</i>							
Instshares	47	9.60% ^{***} (7.63%) ^{***}	-0.44 ^{***} (-0.35) ^{***}	30	-7.09% ^{***} (-5.79%) ^{***}	-0.64 ^{**} (-0.22) ^{**}	0.49 (0.80)
Insiders	25	-1.81% ^{***} (-1.03%) ^{***}	-0.38 (-0.26) [*]	16	1.27% (0.42%)	-0.48 [*] (-0.47) [*]	0.79 (0.61)
Turnover	5	-	-0.18 (-0.53)	111	-	-0.59 ^{***} (-0.42) ^{***}	0.43 (0.62)
Aggregate Governance Change	58	1.57 ^{***} (1.00) ^{***}	-0.43 ^{***} (-0.27) ^{***}	30	-1.30 ^{***} (-1.00) ^{***}	-0.68 ^{***} (-0.42) ^{**}	0.48 (0.23)

Table 14: Performance Characteristics of Samples Based on Fama-French-Carhart Alpha

This table shows the mean and median intercept (Alpha) from Fama-French-Carhart regressions for firms in the *Moderate Performance* sample, the *Abnormally Bad Performance* sample, and the *Abnormally Good Performance* sample created using Alpha as the performance measure. The table reports the mean and median of Alpha estimated over the two-year period (Year₋₂, Year₋₁) and the mean and median Alpha estimated over the three-year period that includes the current fiscal year (Year₋₂, Year₀). The sample period is from 1992-2002. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

	Fama-French-Carhart Alpha (Year ₋₂ , Year ₋₁)			Fama-French-Carhart Alpha (Year ₋₂ , Year ₀)			Test of Mean & Median Difference	
	# Obs.	Mean	Median	# Obs.	Mean	Median	Mean	Median
Panel A: Moderate Performance Sample								
<i>Board Monitoring:</i>								
Bsize	273	0.45	0.30	273	0.40	0.32	0.698	0.535
Boutsiders	284	0.76	0.47	284	0.68	0.61	0.488	0.425
Bmeeting	540	0.49	0.00	540	0.36	0.12	0.294	0.159
<i>Pay-Performance Sensitivity:</i>								
Bonus	525	0.32	0.28	325	0.24	0.14	0.800	0.990
Options	441	0.53	0.42	441	0.65	0.50	0.205	0.465
Ppswealth	443	0.44	0.22	443	0.48	0.29	0.720	0.985
Newoptions	437	0.56	0.40	437	0.61	0.47	0.657	0.398
Shares	460	0.30	0.23	460	0.36	0.16	0.624	0.780
<i>Shareholder Rights:</i>								
G-Index	153	0.70	0.55	153	0.61	0.35	0.575	0.723
E-Index	55	0.77	0.40	55	0.53	0.41	0.350	0.620
<i>Other Governance Measures:</i>								
Instshares	221	1.00	0.87	221	0.70	0.82	0.221	0.095*
Insiders	274	0.49	0.21	274	0.34	0.22	0.099*	0.242
Turnover	4467	0.09	-0.08	4467	0.10	-0.07	0.779	0.990
Panel B: Abnormally Bad Performance Sample								
<i>All Governance Measures</i>	110	-1.17	-1.22	110	-5.81	-5.41	0.000***	0.000***
Panel C: Abnormally Good Performance Sample								
<i>All Governance Measures</i>	227	2.22	2.24	227	7.97	6.95	0.000***	0.000***

Table 15: Governance and Performance Characteristics for the Moderate Performance Sample (Fama-French-Carhart Alpha)

This table shows the mean (median) of the governance changes and of the intercept (Alpha) from Fama-French-Carhart regressions for firms in the *Moderate Performance* sample created using Alpha as the performance measure. For each governance measure, firms are classified as having adopted a good governance change and a bad governance change in the governance measure as defined in Table 1. The table reports the sample mean and sample median of the governance change from prior years to the current year ($Year_{t-2, -1} - Year_t$) and the average Alpha from monthly regressions over the three-year period ($Year_0 - Year_{t+2}$). The sample period is from 1992-2002. The table reports the *p-values* for tests of the difference between good Vs. bad governance changes: *t*-test of the difference in the means, the *Wilcoxon* rank-sum test for the difference in the medians, and the χ^2 -test for the difference in the percentage of firms with positive performance. Median values and *p-values* for the test of differences in medians are shown in parentheses. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

Governance Measure	Good Governance Change				Bad Governance Change				Test of Performance Diff: Good vs. Bad Governance change samples		
	# Firms	Mean (Median) Gov. Change Year (-1,0)	Mean (Median) Performance Year(0,+2)	%Neg	# Firms	Mean (Median) Gov. Change Year (-1,0)	Mean (Median) Performance Year(0,+2)	%Pos	Mean	Median	%Pos
<i>Board Monitoring:</i>											
Bsize	100	-3.09*** (-3.00)***	0.18 (0.13)	57.8	186	2.30*** (2.00)***	-0.24 (-0.22)	53.5	0.25	0.30	0.19
Boutsiders	155	26.05%*** (20.00%)***	0.64** (0.19)*	42.6	141	-15.50%*** (-12.50%)***	0.37 (0.47)	52.7	0.52	0.71	0.58
Bmeeting	365	4.77*** (4.00)***	0.08 (-0.13)	52.6	206	-5.71*** (-5.00)***	0.89*** (0.54)***	57.5	0.02**	0.00***	0.08
<i>Pay-Performance Sensitivity:</i>											
Bonus	269	\$1968*** (-\$1135)***	0.79*** (0.55)***	35.7	257	-\$1779*** (-\$900)***	-0.35** (-0.38)**	43.3	0.00***	0.00***	0.00***
Options	243	1.58%*** (1.17%)***	0.24 (0.01)	50.0	232	-1.32%*** (-0.09%)***	0.24 (0.12)	51.9	1.00	0.71	0.75
Ppswealth	234	3.77%*** (2.19%)***	0.04 (0.00)	50.7	239	-4.96%*** (-3.06%)***	0.33 (0.10)	53.1	0.38	0.98	0.51
Newoptions	243	1.12%*** (0.87%)***	0.30 (0.25)	49.2	231	-1.34%*** (-1.00%)***	0.36 (0.15)	51.2	0.85	0.89	0.94
Shares	251	2.94%*** (1.45%)***	0.31* (0.41)*	44.0	241	-4.58%*** (2.56%)***	0.30 (0.10)	53.1	0.97	0.48	0.62
<i>Shareholder Rights:</i>											
G-Index	34	-2.71*** (-2.00)**	-0.10 (-0.13)	56.5	261	2.56*** (2.00)**	0.10 (-0.24)	44.5	0.65	0.96	0.92
E-Index	14	-2.14*** (-2.00)**	-0.47 (-0.36)	66.6	84	2.33*** (2.00)**	-0.29 (-0.41)	36.3	0.80	0.73	0.87
<i>Other Governance Changes:</i>											
Instshares	112	43.69%*** (40.70%)***	1.76*** (1.29)***	33.3	112	-42.03%*** (-39.52%)***	0.05 (-0.39)	46.5	0.01***	0.03**	0.04**
Insiders	139	-6.10%*** (-9.62%)***	0.51* (0.05)	50.0	135	6.45%*** (7.90%)***	0.17 (-0.07)	51.2	0.43	0.34	0.88
Turnover	649	-	0.21*** (0.04)	50.7	3964	-	0.14*** (-0.02)**	50.9	0.47	0.58	0.42

Table 16: Governance and Performance Characteristics for the Abnormally Bad Performance Sample (Fama-French-Carhart Alpha)

This table shows the mean (median) of the governance changes and of the intercept (Alpha) from Fama-French-Carhart regressions in the years following a steep decline in performance for firms in the *Abnormally Bad Performance* sample created using Alpha as the performance measure. For each governance measure, firms are classified as having adopted a good governance change and a bad governance change in the governance measure as defined in Table 1. The table reports the sample mean and sample median of the governance change from prior years to the current year (Year_{-2, -1} – Year₀) and the average Alpha from monthly regressions over the two-year period (Year₊₁ - Year₊₂). The sample period is from 1992-2002. The table reports the *p-values* for the t-test of the difference in the mean, between good Vs. bad governance changes, and for the Wilcoxon rank-sum test of the difference in the medians. Median values and *p-values* for the test of differences in medians are shown in parentheses. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

Governance Measure	Good Governance Change			Bad Governance Change			Test of Mean & Median Diff: Good Vs. Bad Governance Change
	# Firms	Mean (Median) Governance Change Year ₋₁ - Year ₀	Mean (Median) Performance Year ₊₁ - Year ₊₂	# Firms	Mean (Median) Governance Change Year ₋₁ - Year ₀	Mean (Median) Performance Year ₊₁ - Year ₊₂	
<i>Board Monitoring:</i>							
Bsize	9	-1.89 ^{***} (-1.00) ^{***}	-2.70 2.83	5	1.20 ^{***} (1.00) [*]	-3.78 (-1.38)	0.826 (0.549)
Boutsiders	12	16.38% ^{***} (9.86%) ^{***}	-5.03 -1.11	4	-7.54% ^{**} (-7.12%) [*]	-3.59 (-1.95)	0.839 (0.904)
Bmeeting	20	4.10 ^{***} (3.00) ^{***}	1.85 2.53	5	-2.00 ^{**} (-2.00) [*]	0.25 (3.59)	0.676 (0.892)
<i>Pay-Performance Sensitivity:</i>							
Bonus	3	\$202.31 (\$60.00)	-2.95 -2.25	25	-\$563.14 ^{***} (-400.00) ^{***}	2.07 (2.54) ^{***}	0.256 (0.353)
Options	14	0.33% ^{***} (0.19%) ^{***}	-0.42 3.73	16	-1.23% [*] (-0.40%) ^{***}	0.19 (1.17)	0.850 (0.589)
Ppswealth	14	0.37% ^{**} (0.11%) ^{***}	0.98 3.73	18	-1.58% ^{**} (-0.61%) ^{***}	-0.51 (0.63)	0.624 (0.362)
Newoptions	11	0.25% ^{**} (0.16%) ^{***}	0.63 2.54	16	-0.34% ^{***} (-0.21%) ^{***}	0.66 (1.91)	0.992 (0.554)
Shares	16	0.13% ^{**} (0.06%) ^{***}	-0.31 1.91	15	-0.68% [*] (-0.09%) ^{***}	0.59 (1.94)	0.766 (0.792)
<i>Shareholder Rights:</i>							
G-Index	0	-	-	6	-	-	-
E-Index	0	-	-	6	-	-	-
<i>Other Governance Changes:</i>							
Instshares	11	8.80% ^{***} (6.37%) ^{***}	-1.26 (1.06)	61	-13.80% ^{***} (-11.13%) ^{***}	0.99 (2.32)	0.643 (0.450)
Insiders	29	-1.15% [*] (0.04%)	-0.25 (0.28)	21	0.77% ^{***} (0.60%) ^{***}	2.97 (3.63)	0.214 (0.161)
Turnover	5	-	-1.46 (0.26)	124	-	3.17 (1.04)	0.881 (0.932)
Aggregate Governance Change	30	1.47 ^{***} (1.00) ^{***}	-0.41 (0.86)	51	(-1.61) ^{***} (-1.00) ^{***}	2.11 (2.11) [*]	0.284 (0.348)

Table 17: Governance and Performance Characteristics for the Abnormally Good Performance Sample (Fama-French-Carhart Alpha)

This table shows the mean (median) of the governance changes and of the intercept (Alpha) from Fama-French-Carhart regressions in the years following a steep increase in performance for firms in the *Abnormally Good Performance* sample created using Alpha as the performance measure. For each governance measure, firms are classified as having adopted a good governance change and a bad governance change in the governance measure as defined in Table 1. The table reports the sample mean and sample median of the governance change from prior years to the current year (Year_{-2, -1} – Year₀) and the average Alpha from monthly regressions over the two-year period (Year₊₁ - Year₊₂). The sample period is from 1992-2002. The table reports the *p-values* for the t-test of the difference in the mean, between good Vs. bad governance changes, and for the Wilcoxon rank-sum test of the difference in the medians. Median values and *p-values* for the test of differences in medians are shown in parentheses. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

Governance Measure	Good Governance Change			Bad Governance Change			Test of Mean & Median Diff: Good Vs. Bad Governance Change
	# Firms	Mean (Median) Governance Change Year ₋₁ - Year ₀	Mean (Median) Performance Year ₊₁ - Year ₊₂	# Firms	Mean (Median) Governance Change Year ₋₁ - Year ₀	Mean (Median) Performance Year ₊₁ - Year ₊₂	
<i>Board Monitoring:</i>							
Bsize	3	-1.67 (-1.00)	0.19 (-0.75)	11	1.27 ^{***} (1.00) ^{***}	1.16 (0.70)	0.670 (0.312)
Boutsiders	14	8.01% ^{***} (5.56%) ^{***}	1.16 [*] (0.89) [*]	7	-13.83% ^{***} (-14.29%) ^{**}	0.62 (0.40)	0.710 (0.941)
Bmeeting	27	2.67 ^{***} (2.00) ^{***}	1.26 (0.87)	25	-1.96 ^{***} (-2.00) ^{***}	1.30 [*] (1.68) [*]	0.971 (0.964)
<i>Pay-Performance Sensitivity:</i>							
Bonus	41	\$355 ^{***} (\$154) ^{***}	1.21 ^{**} (0.87) ^{**}	9	-\$391 (-\$90.80) ^{***}	0.36 (0.52)	0.500 (0.570)
Options	30	0.49% ^{***} (0.33%) ^{***}	1.45 ^{**} (0.84) ^{**}	26	-0.61% ^{***} (-0.28%) ^{***}	0.44 (0.98)	0.277 (0.349)
Ppswealth	22	0.44% ^{***} (0.45%) ^{***}	1.19 (0.84)	36	-1.99% ^{***} (-0.63%) ^{***}	0.66 (0.51)	0.580 (0.501)
Newoptions	28	0.51% ^{***} (0.26%) ^{***}	0.48 (0.37)	22	-0.58% ^{**} (-0.16%) ^{***}	2.04 ^{***} (2.00) ^{***}	0.112 (0.063) [*]
Shares	13	0.16% ^{***} (0.14%) ^{***}	0.96 (0.95) [*]	45	-1.41% ^{***} (-0.33%) ^{***}	0.83 (0.52)	0.907 (0.830)
<i>Shareholder Rights:</i>							
G-Index	2	-	-	3	-	-	-
E-Index	1	-	-	4	-	-	-
<i>Other Governance Changes:</i>							
Instshares	87	14.27% ^{***} (10.70%) ^{***}	0.58 (0.51)	35	-8.62% ^{***} (-6.07%) ^{***}	1.36 (1.52)	0.369 (0.288)
Insiders	58	-2.85% ^{***} (-2.13%) ^{***}	0.18 (0.13)	25	1.11% ^{**} (0.35%) ^{**}	0.77 (0.91)	0.568 (0.564)
Turnover	4	-	0.50 (1.13)	223	-	0.37 (0.11)	0.957 (0.824)
Aggregate Governance Change	99	1.48 ^{***} (1.00) ^{***}	0.05 (-0.28)	33	-1.24 ^{***} (-1.00) ^{***}	0.24 (0.57)	0.815 (0.590)