

Sarbanes-Oxley, Governance and Performance

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Abstract

We study the relationship between corporate governance and company performance. We consider five measures of corporate governance during the period 1998-2007. Given the passage of Sarbanes-Oxley Act (SOX) during 2002, we separate the sample into pre-2002 and post-2002 periods to study how governance-performance relationships might have been impacted by this regulation.

We find a negative and significant relationship between board independence and operating performance during the pre-2002 period, but a *positive* and significant relationship during the post-2002 period. The stock ownership of directors is consistently positively and significantly related to performance through each of the subperiods. Other measures, such as the governance indices introduced by Gompers, Ishii and Metrick (2003) and Bebchuk, Cohen and Ferrell (2009) provide inconsistent results. We conclude that corporate governance studies should consider director stock ownership as the most reliable measure of governance.

We further investigate the relationship between SOX, governance and performance by examining how CEOs are disciplined following poor performance. We find that board independence and director stock ownership appear to be effective governance mechanisms for replacing the CEO following poor performance.

I. Introduction

The corporate scandals of the early 2000s, including Enron, Worldcom, Tyco and others, led to a wave of regulation aimed at prevention similar problems in the future. The goal of most of this regulation was to improve firms' corporate governance environments. A common feature of this was the implementation of guidelines concerning the independence of the members of the board of directors. The Sarbanes-Oxley Act of 2002 (SOX) mandates that all members of a listed firm's audit committee must be independent. Soon thereafter, both the New York Stock Exchange and the NASDAQ Stock Market required all listed companies to have a majority of independent directors.

The regulatory and institutional focus on board independence is surprising given that most of the academic research found no statistical relationship, and, in many cases, found a negative relationship between board independence and firm performance. The majority of this research, however, has focused on time periods prior to this recent wave of regulation aimed at increasing board independence on boards and audit committees. Even those studies that do include post-2002 data also include pre-2002 data so it is difficult to separate the findings into pre-regulation results and post-regulation results.

This paper fills the above gap in the literature: We study the relationships between various measures of corporate governance – especially board independence – and firm performance during the entire period from 1998-2007. We explicitly separate the sample period into pre-2002 and post-2002 subperiods to focus on the effects of the regulation. While we confirm the negative relationship between board independence and firm performance that most prior research has identified for the pre-2002 period, this result is reversed for the post-2002 period. *During the years 2003-2007, greater board independence has a positive effect on*

operating performance. This result is important. Following the wave of regulations – and possibly because of it – having a more independent board is now seen as a better way of providing suppliers of capital with a (higher) return on their investment. In other tests, we find that this result is driven by firms that increase their number of independent directors.

While SOX specifically affects board independence, perhaps the increased scrutiny of all firms' corporate governance environments has forced firms to implement better corporate governance practices, regardless of how those governance practices are measured. As such, board independence is not the only measure of governance that we consider. We find that the dollar value of director stock ownership is positively related to operating performance both pre-2002 and post-2002. We also find that whether or not a firm's CEO is also the board chair is negatively related to operating performance throughout the sample period. These findings are consistent with prior literature. We also consider two popular corporate governance indices: the G-Index of Gompers, Ishii and Metrick (GIM, 2003) and the E-Index of Bebchuk, Cohen and Ferrell (BCF, 2009). During 1998-2001, both the G-Index and the E-Index suggest a positive and significant relation between governance and performance; these findings are consistent with the extant literature. However, during 2003-2007, the G-Index suggests a *negative* and significant relation between governance and performance. Also, during 2003-2007, the E-Index suggests an inconsistent relation between governance and performance

As many prior studies have noted, the relationship between corporate governance and company performance is subject to endogeneity, or reverse causality. Specifically, it is unclear whether performance causes governance or whether governance causes performance. To account for this, we utilize a four-equation system to allow for governance, performance, ownership, and capital structure to be potentially endogenous. We utilize an instrumental

variables approach, checking for the validity and strength of our instruments. We estimate this system of equations using both Ordinary Least Squares (OLS) and Two-Stage Least Squares (2SLS) estimation.

Although most prior research has not found a positive relationship between board independence and firm performance prior to 2002, some research has found support for board independence being important in specific situations. Hermalin and Weisbach (2005) create a model predicting that board independence provides greater oversight of managerial actions. Bhagat and Bolton (2008) find that firms with greater board independence are more likely to replace the CEO following periods of bad performance. We extend this test to our sample period and find this result persists in both the pre-2002 and the post-2002 time periods. In sum, these findings suggest that the wave of corporate governance regulation that occurred during 2002 may have had some desired effect. Specifically, post-2002, companies whose boards are more independent do perform better.

In addition to studying the changing nature of corporate governance across the pre-2002 and post-2002 periods, we make four additional contributions to the literature. First, we consider five measures of governance, in contrast to the singular measure that most prior studies have studied. Second, we show that none of the governance measures are correlated with current or future stock market performance, in contrast to the claims in papers such as GIM and BCF. Third, we find that given poor firm performance, the probability of disciplinary management turnover is positively correlated with stock ownership of board members and board independence. However, given poor firm performance, the probability of disciplinary management turnover is *negatively* correlated with better governance measures as proposed by GIM and BCF. In other words, so called “better governed firms” as measured by the GIM and

BCF indices are *less* likely to experience disciplinary management turnover in spite of their poor performance. Fourth, we contribute to the growing literature on the relation between corporate governance, and accounting and finance variables.

The remainder of this paper is organized as follows. Section II discusses the relevant literature and motivates our key hypotheses. Section III introduces our model specification and sample. Section IV presents the results on the relationship between corporate governance and company performance. Section V considers the relationship between corporate governance, company performance, and CEO turnover. Section VI summarizes our key findings and notes our conclusions.

II. Relevant Literature & Hypothesis Development

Shleifer and Vishny (1997) define corporate governance as “the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment.” Given this, much of the governance literature has focused on studying the different ways suppliers of capital can monitor their investments. While there are numerous plausible proxies for corporate governance, in most corporations, the board of directors’ explicit purpose is to serve as the liaison between shareholders and managers. As such, the relationship between board independence and firm performance is one of the most studied relationships in the corporate governance literature.

Yermack (1996) finds that smaller boards lead to higher market values. Hermalin and Weisbach (1991) find no relationship between board composition and performance (using Tobin’s Q as the performance measure). Agrawal and Knoeber (1996) study the interrelationships between seven different corporate governance mechanisms in a simultaneous

equations context and find a negative relationship between independence and firm performance (as measured by Tobin's Q). Bhagat and Black (2002) document that firms with more independent boards do not perform better, using a variety of performance measures. They also find that poorly performing firms are more likely to increase the number of independent directors, but that this does not improve performance. More recently, Bhagat and Bolton (2008) find a negative relationship between board independence and operating performance. The overwhelming majority of work finds that having a more independent board of directors does not lead to better performance and may actually lead to worse performance.

One common feature of these studies is that they study boards and relationships prior to 2002. It is rare to see an exogenous shock to the corporate governance landscape, but the increased regulation of 2002 may be just the kind of event to provide a demarcation of corporate governance regimes. This regulation required firms to increase their number of independent directors. While SOX did not explicitly address overall board independence, it did require that the audit committee of each publicly traded firm must be comprised entirely of outside directors. Further, it stipulated that if a firm does not have a stand-alone audit committee, then the entire board functions as the audit committee and it, therefore, must be comprised entirely of outside directors. Subsequent to the passage of SOX, the New York Stock Exchange and the NASDAQ Stock Market simultaneously instituted standards requiring listed companies to have a majority of independent directors. Further, SOX and the listing standards impose new responsibilities on firms' directors, such as regular meetings of the independent directors, approval of director nominations by independent directors, and approval of CEO compensation by independent directors. As a consequence of these policies boards began including more independent

directors, and, the independent directors became more engaged in the firm's governance processes.

Adams and Ferreira (2007) introduce a model that suggests CEOs may be reluctant to share information with more independent boards, thereby decreasing shareholder value. This suggests that SOX and Exchanges requirements are potentially detrimental to firm value. Laux (2008) presents a model considering CEO turnover and board independence, and shows that greater board independence might be detrimental to the firm because independent boards might be too active in replacing the CEO and in formulating CEO compensation. Raheja (2005) looks at the board's monitoring role with respect to investment projects. In her model, inside directors have more knowledge of the firm's investments, so the optimal board structure will depend on the project verification costs to outsiders and private benefits from projects to insiders. This suggests greater board independence can be beneficial in some firms while being detrimental in other firms. Similarly, Coles, Daniel and Naveen's (2008) work suggest that smaller and more independent boards may not be superior in all cases. Using data from 1997-2000, Gillan, Hartzell and Starks (2007) show that firms with more powerful boards (or more independent boards) also have higher *G-Index* scores, suggesting that managers may become more entrenched to protect themselves from the oversight of an independent board. Finally, Chhaochharia and Grinstein (2007) find that firms that were less compliant with the rules imposed by SOX and the Exchanges earned positive abnormal returns on the announcement of the rules, relative to firms that were more compliant.

While the explicit objective of the Sox and exchange regulations is increasing and improving board independence, it is possible that the firm's entire corporate governance environment changes, regardless of how corporate governance is measured. There are many

plausible proxies for corporate governance, but there is no agreed upon “best” measure. As such, it is possible these other measure have also been impacted by the new regulations. GIM create a Governance Index (*G-Index*) using 24 anti-takeover provisions. They show that firms with strong shareholder rights outperform firms with weak shareholder rights by 8.50 percent per year during the 1990s. They further show that firms with strong shareholder rights have higher firm value, higher profits and higher sales growth. Core, Guay and Rusticus (2007) extend this work and show that firms with weaker governance as measured by *G-Index* have lower operating performance (but that this is expected by the market). BCF modify the *G-Index* using only six of the 24 provisions to create an Entrenchment Index (*E-Index*), and find that firms with higher *E-Index* scores (associated with weaker governance) have lower firm valuation.

Beyond looking at indices comprised of various corporate governance components, a substantial body of work has considered individual firm characteristics as measures of corporate governance. These studies focus on the relationship between one single firm governance characteristic and firm performance. The literature on board independence and firm performance has been discussed above. Brickley, Coles and Jarrell (1997) study the benefits and costs of having the CEO also serve as the board chair. Bhagat, Carey and Elson (1999) consider the stock ownership of directors.

Can a single board characteristic be as effective a measure of corporate governance as indices that include 24 corporate charter provisions (as in GIM) dozens of corporate charter and board characteristics?¹ While, ultimately, this is an empirical question, on both economic and econometric grounds it is possible. Bhagat, Bolton, and Romano (2008) argue that since boards have the power to make (or at least ratify) all important company decisions, it is plausible that

¹ For example, Brown and Caylor’s (2004) *Gov-Score* index includes 51 factors, while commercial providers such as RiskMetrics Group (formerly Institutional Shareholder Services), The Corporate Library, and Glass Lewis & Company offer proprietary governance indices using, sometimes, several hundred governance characteristics.

board members with appropriate stock ownership will have the *incentive* to provide effective monitoring and oversight of these important corporate decisions. Hence, simple measures such as board independence and director ownership can be a good proxy for overall good governance on econometric grounds: The measurement error associated with a simple variable such as board independence can be much less than the total measurement error in measuring a multitude of board processes, compensation structures, and charter provisions. Further, construction of a governance index requires proper weighting of these board characteristics, anti-takeover provisions, and compensation variables; if the weights in the index are not the same as the (unobservable) weights used by informed market participants in assessing the governance and performance relationship then incorrect inferences would be made.

There is also an extensive literature that considers the relationships between corporate governance, finance and accounting variables. Ashbaugh-Skaife, Collins and Lafond (2007) investigate the relation between corporate governance and credit ratings. They consider the *G-Index* and various board characteristics, including board independence, and compensation, as separate governance measures. Cremers and Nair (2005) focus on the interaction between several governance measures and firm performance. They consider the *G-Index* a measure of external governance and pension fund block ownership a measure of internal governance; they also investigate other similar governance measures. Defond, Hann and Hu (2005) consider the cross-sectional relation between the market's response to the appointment of an accounting expert to the board and the firm's governance; they construct a governance index that gives *equal* weight to six variables, including board independence, the *G-Index*, and audit committee structure. Bowen, Rajgopal and Venkatachalam (2005) analyze the relation between corporate

governance, accounting discretion and firm performance. They consider several board characteristics and the *G-Index* as *separate* measures of governance.

In addition to studying board independence, this study proposes a governance measure – namely, dollar ownership of board directors – that is simple, intuitive, less prone to measurement error, and not subject to the problem of weighting a multitude of governance provisions and firm characteristics to construct a governance index. Consideration of this governance measure in future research would enhance the comparability of research findings.

III. Data Description & Model Specification

A. Data sources

Our primary source of corporate governance data is the RiskMetrics Directors and Governance databases (formerly the Investor Responsibility Research Center, IRRC). In addition, we use the Compustat Industrial Annual database for financial statement information, the Center for Research in Security Prices (CRSP) database for stock market data, and the Compustat Executive Compensation (Execucomp) database for CEO ownership and turnover information.

The RiskMetrics databases track Governance and Director information for approximately 1,500 large U.S. companies from 1990 to 2007. The governance database provides corporate anti-takeover provisions on these companies, plus the *G-Index* score used in Gompers, Ishii and Metrick (2003). This database provides updates for 1990, 1993, 1995, 1998, 2000, 2002, 2004 and 2007. The directors database provides detailed director information annually from 1996 to 2007. However, the director ownership data is not tracked consistently until 1998, so our primary sample is for 1998 to 2007. The Execucomp database provides compensation and

ownership data on approximately 1,500 large U.S. firms annually from 1992-2007. There is considerable overlap across these sources which: the final merged sample has 1,000 to 1,400 firms per year. The final sample is an unbalanced panel with 10 years of data from 1998 to 2007 and a total of over 13,000 firm-year observations with governance information.

B. Governance variables

This study considers the following five primary measures of corporate governance:

Independence – Board independence is measured as the percentage of directors who are unaffiliated with the sample firm. This includes directors who are neither employees of the firm nor affiliated with the firm.

DirectorOwn – Director ownership is measured as the natural log of the dollar value of common stock owned by the median director. We focus on the dollar value rather than percentage of ownership because it serves as a more direct measure of incentives to the director. Consistent with the political economy literature, we focus on the median director because they have the ability to cast the deciding vote on board issues.

CEO-Duality – CEO-Chair duality is an indicator variable taking the value of 1 if the CEO of the sample firm is also the board chair, and 0 otherwise.

G-Index – From Gompers et al. (2003), the Governance Index is the compilation of anti-takeover provisions in the firm's bylaws. The Index is comprised of 24 corporate charter provisions, with a possible Index value ranging from 0 to 24. Consistent with Gompers et al. (2003), higher Index values represent weaker corporate governance (management rights) while lower Index values represent stronger corporate governance (shareholder rights).

E-Index – From Bebchuk, Cohen and Ferrell (2009), the Entrenchment Index is a subset of the *G-Index*. It includes only 6 of the 24 corporate charter provisions believed consistent with

entrenching management, thus taking a value of 0 to 6.² Again, higher Index values represent weaker corporate governance.

In supplementary tests, we consider three other measures of corporate governance. *BusyBoards* is the percentage of directors who serve on more than 3 corporate boards, consistent with Fich and Shivdasani (2006). *D-Index* is the subset of the *G-Index* provisions that pertains exclusively to directors. This Index has a value of 0 to 4, based on the following 4 provisions: directors' duties, directors' duties laws, director indemnification, and limits on director liability. *IndepInsider* is the number of sample firm's executives on the board who hold at least one additional outside directorship; this is motivated by the role of non-CEO inside directors as in Harris and Raviv (2008) and Masulis and Mobbs (2008).

C. Performance variables

Consistent with Barber and Lyon (1996) and Core, Guay and Rusticus (2005), we consider Return on Assets (*ROA*) as our primary measure of firm operating performance. In supplementary tests, we also use stock return (*Return*) and Tobin's Q (*TobinsQ*) as alternative measures of firm performance. Industry-adjusted performance is obtained by subtracting the average performance of the sample firm's 4-digit SIC code from the sample firm's performance measure.

D. Other endogenous and control variables

CEOOwn% is the percentage of stock owned by the CEO. *Leverage* is the capital structure measure, calculated as the long term debt-to-assets ratio. Both of these variables are presumed to be endogenously determined.

² The six provisions are staggered boards, limits to shareholder bylaw amendments, supermajority requirements for mergers, supermajority requirements for charter amendments, poison pills, and golden parachutes.

FirmSize is the natural log of assets for the firm. *R&DAdvExp* is the ratio of research and development plus advertising expenses to assets; if the data are missing they are presumed to be zero. *BoardSize* is the number of directors on the board. *Risk* is the standard deviation of monthly stock returns, calculated using the previous 36-60 months of returns, depending on availability.

We utilize an instrumental variables approach to dealing with the potential endogeneity among governance, performance, ownership and capital structure. We identify the following primary instrumental variables used in the first-stage fitted regressions. We utilize three different instruments for our governance variables. *Dir%Own* is the average percentage of common stock owned by all directors. *Dir%CEOs* is the percentage of directors who are CEOs. And, *Dir15t%* is the percentage of directors who have been on the board for more than 15 years.³ *TreasStock* is the ratio of treasury stock to assets, which we use as the primary instrument for performance (as in Palia (2001)). *CEOTenAge* is the ratio of CEO tenure to CEO age; this variable is used as the instrument for ownership. *ZScore* is the modified Altman's Z-Score (1968); this variable is used as the instrument for leverage.⁴ For robustness, in all cases we consider lagged values of the endogenous variables as possible instruments. The results using the lagged values are qualitatively similar to the results using the primary instruments.

E. Model specification

We have noted above the potential endogeneity between governance and performance. Bhagat and Jefferis (2002) highlight the reasons for focusing on the interrelationships between

³ Because we are using several different governance measures, we need different instruments in order for the first-stage regression to be properly identified. Some instruments are more appropriate than others in identifying different governance variables of interest.

⁴ We have considered alternative instruments for leverage such as Graham's (1996) marginal tax rate; *ZScore* is the most effective based on our diagnostic tests.

performance, governance, ownership and capital structure. Therefore, we specify the following four-equation system of equations allowing for these interdependencies:

$$(1a) \quad Performance_{i,t} = Governance_{i,t} + Ownership_{i,t} + Leverage_{i,t} + IndustryPerformance_{i,t} + FirmSize_{i,t} + R\&DAdvExp_{i,t} + BoardSize_{i,t} + Risk_{i,t} + TreasStock_{i,t} + \varepsilon a_{i,t}$$

$$(1b) \quad Governance_{i,t} = Performance_{i,t} + Ownership_{i,t} + Leverage_{i,t} + FirmSize_{i,t} + R\&DAdvExp_{i,t} + BoardSize_{i,t} + Risk_{i,t} + Dir\%Own_{i,t} + Dir\%CEOs_{i,t} + \varepsilon b_{i,t}$$

$$(1c) \quad Ownership_{i,t} = Performance_{i,t} + Governance_{i,t} + Leverage_{i,t} + FirmSize_{i,t} + R\&DAdvExp_{i,t} + BoardSize_{i,t} + Risk_{i,t} + CEOTenAge_{i,t} + \varepsilon c_{i,t}$$

$$(1d) \quad Leverage_{i,t} = Performance_{i,t} + Governance_{i,t} + Ownership_{i,t} + IndustryLeverage_{i,t} + FirmSize_{i,t} + R\&DAdvExp_{i,t} + MktBook_{i,t} + BoardSize_{i,t} + Risk_{i,t} + ZScore_{i,t} + \varepsilon d_{i,t}$$

The primary focus of this study will be on equation (1a), and specifically on the coefficient on *Governance* in that equation.

In using instrumental variables estimation, two questions need to be addressed: Are the instruments valid and is instrumental variables estimation necessary? To address these questions, we use the Stock and Yogo (2004) test for weak instruments and the Hahn and Hausman (2002) test for the validity of the instruments. We also use the Hausman (1978) specification test to test for differences between the OLS and 2SLS results and to determine which estimation method is most appropriate for statistical inference.⁵

IV. Corporate governance and company performance

A. Descriptive statistics

Table I, Panel A presents the descriptive statistics for the main governance, performance, and other variables, for the entire sample and for the pre-2002 and post-2002 subsamples. In

⁵ In addition to 2SLS we also consider 3SLS which allows for cross-correlation in the errors of the equations in the system. There is qualitatively very little difference between the 2SLS and 3SLS results so we only report the 2SLS results.

general, the summary statistics for the entire sample period are similar to prior literature. The average board has 9.3 directors, 67% of whom are outsiders. The average *G-Index* is 9.2 and the average *E-Index* is 2.2. The median director owns about \$887,000 worth of company stock, and the CEO is also the board chair in about 60% of the firms.

Some notable differences are seen when we compare the pre-2002 and post-2002 subsamples. We note that boards have become more independent, directors own more stock, boards have become more entrenched (with *G-Index* increasing from 8.9 to 9.4 and *E-Index* increasing from 2.0 to 2.3), but slightly fewer CEOs are serving as board chair. Fewer directors are active CEOs, directors are less busy, and directors are less well protected as seen in *D-Index*, despite the increasing *G-Index* and *E-Index* values. The size of the board has remained relatively constant, but *Independence* has increased from 61.6% before 2002 to 72.0% after 2002. Median director ownership has significantly increased from about \$790,000 before 2002 to about \$1,100,000 after 2002.

Table I, Panel B presents the descriptive statistics sorted by the change in number of independent directors. On average, 40.9% of firms do not have a change in the number of independent directors; 33.0% of firms increased the number of independent directors while 26.1% decreased the number of independent directors during this period. Firms with lower *Independence* this year are more likely to increase the number of independent directors next year, and vice versa. Larger firms have larger boards and add more independent directors. Firms with more charter provisions – as measured by *G-Index*, *E-Index* and *D-Index* – generally have a greater increase in independent directors (this is consistent with the evidence in Gillan, Hartzell and Starks (2007)).

Table II presents the correlation coefficients for select governance and other variables for the full time period. For the most part, the main governance variables are not highly correlated, with the exception of *G-Index* and *E-Index*. *Independence* and *G-Index* are moderately highly correlated around 0.25, also consistent with Gillan, Hartzell and Starks (2007).

B. Governance & performance, pre-2002 and post-2002 periods

As discussed above, the year 2002 was a seminal year in terms of corporate governance regulation, and specifically with respect to board independence. We use 2002 as the break-point for our two sub-periods since important governance regulation, such as the SOX Act was enacted in 2002; for this reason, we exclude 2002 from our analysis.⁶

We find a most interesting result when we consider the relationship between Independence and *ROA* during the pre-2002 and post-2002 periods. Consistent with the extant literature, we find *Independence* is negatively related to *ROA* during the 1998-2001 period; see Table III, Panels A and B. However, during the 2003-2007 period, we find that *Independence* is *positively* and significantly related to *ROA*; see Table III Panels C and D. Boards have become more independent, and now this independence is associated with better operating performance.

A second interesting result in Table III is that the relationship between *ROA* and *G-Index* is negative and significant in the pre-2002 period, but positive and significant during the post-2002 period. The other three governance variables – *DirectorOwn*, *CEO-Duality*, and *E-Index* – all have similar signs and significance pre- and post-2002. Director ownership is positively related to operating performance, whereas *CEO-Duality* and *E-Index* are negatively related.

Table III also summarizes the relationship between various governance measures and stock market based measures of performance, *Return* and *Q*. Consistent with Bhagat and Bolton

⁶ The results are robust to excluding both 2002 and 2003 from the analysis. We choose to include 2003 because it gives us a larger sample and because many firms were already compliant with the rules changes by 2003.

(2008), we do not find any consistent significant relation between any measure of governance and stock market based measures of performance.

Table IV summarizes the relationship between various governance measures and future firm performance. In general, these results are consistent with those discussed above.

We next try to better characterize and understand the surprising significant *positive* relation between board independence and operating performance for the period 2003-2007. We have about 12,000 firm-year observations on board independence. An increase in the number of independent directors from the previous year was observed for only about one-third of these observations. In Table V, Panel A, we observe a significant *positive* relation between board independence and contemporaneous operating performance for the period 2003-2007 for those observations where there was an increase in the number of independent directors from the previous year; in contrast to the negative relation for the period 1998-2001. In Table V, Panel B, we consider observations where there was no increase in the number of independent directors from the previous year: we do not observe a significant relation between board independence and contemporaneous operating performance for the period 2003-2007. Hence, the positive relation between board independence and operating performance for the period 2003-2007 appears to be driven by those companies that increased their number of independent directors from the previous year.

We documented above that director ownership is positively correlated with operating performance. It is possible that the positive relation between board independence and operating performance for the period 2003-2007 might be due to an increase in director ownership over the period 2003-2007. We examine this possibility in Table VI by including both director ownership and board independence along with the other variables in equation (1a). Consistent with the

evidence in Tables III and IV, we document a significant *positive* relation between board independence and contemporaneous operating performance for the period 2003-2007; this is in contrast to the negative relation for the period 1998-2001. Director ownership is positively associated with firm performance during each of the subsample periods.

D. Governance & performance, busy boards

Fich and Shivdasani (2006) document that boards with busy directors are associated with weaker corporate governance. One relevant feature of SOX is it requires all firms to have at least one “financial expert” serving on the audit committee. This should increase the demand for certain types of directors to serve on boards; if so, these “financial expert” directors may become busier, which could be detrimental to the firm given Fich and Shivdasani’s findings.

Comparing the descriptive statistics in Table I, we see a noticeable change in the number of busy directors (*BusyBoards*). The number of directors serving on more than 3 boards at a given time decreases from 4.56% before 2002 to 3.14% after 2002. This suggests that either directors are limiting their directorships due to the increased liability associated with SOX, or firms are replacing busy directors who did not meet the new standards with new directors who are less busy but do meet the standards.

In Table VII we present the results for estimating equation (1a) with *BusyBoards* as the governance variable.⁷ Focusing on the 2SLS results, we see a negative relationship between *BusyBoards* and *ROA* for the pre-2002 time period, but this result reverses and becomes positive in the post-2002 time period.

E. Governance & performance, director index

⁷ Results for contemporaneous performance are presented in Table VII; results for future performance are qualitatively similar and available upon request.

The corporate governance regulations of 2002 placed new responsibilities on corporate boards. While all aspects of the company might be affected by these new rules, it is the directors themselves that are affected most explicitly. For this reason, we consider the corporate charter provisions that are directly related to directors. The *G-Index* is comprised of 24 corporate charter provisions that pertain to the entire corporate governance environment; of these 24 provisions, four pertain directly to board members. These four director provisions are directors' duties, director indemnification, director indemnification contracts, and limitations on director liability.⁸ We create a *D-Index* based on these four provisions, one point attributed if a firm has an individual provision, with values ranging from zero to four. The greater the *D-Index* score, the more protected the directors are from shareholder oversight.

Consistent with Gompers et al. (2003) and Bebchuk et al. (2009), we would expect higher *D-Index* scores to be associated with weaker governance and, thus, worse performance. However, the new regulations imposed by legislators and the Exchanges may change the environment for director protection. The *D-Index* has declined over time from 0.925 before 2002 to 0.748 after 2002. This alone is noteworthy considering the overall *G-Index* has increased from 8.887 in 1998-2001 to 9.356 in 2003-2007, meaning that firms have added anti-takeover provisions in general, but not provisions directly related to directors.

Also in Table VII, we present regression results for estimating equation (1a) with *D-Index* as the governance variable. Focusing on the 2SLS results, we see a negative relationship between *D-Index* and *ROA* for the pre-2002 time period, but this result reverses and becomes positive in the post-2002 time period. Directors have less protection through charter provisions,

⁸ It is possible that other provisions may be more relevant to directors than these four. We include only these four because they are the only provisions that relate exclusively to the board members.

but the amount of the protection they do have following 2002 appears to be more related to improving firm performance.

F. Governance & performance, director index

Table VII documents a positive relation between independent insiders and contemporaneous and next year's performance. Additionally, this relation does not change post-2002.

V. Corporate governance & CEO turnover

The preceding analysis focused on the relation between governance and performance generally. However, governance scholars and commentators suggest that governance is especially critical in imposing discipline and providing fresh leadership when the corporation is performing particularly poorly. For this reason, we study the relationship between governance, performance, and CEO turnover.

Using Compustat's Execucomp database, we identify 1,951 CEO changes from 1998 to 2007. We hand-collected information from company press releases and press articles to determine whether the departure was disciplinary or not. Table VIII documents the number of disciplinary and non-disciplinary CEO turnovers during this period. Our criteria for classifying CEO turnover as disciplinary or non-disciplinary is similar to that of Weisbach (1988), Gilson (1989), Huson, Parrino, and Starks (2001), and Farrell and Whidbee (2003). CEO turnover is classified as "non-disciplinary" if the CEO died, if the CEO was older than 63, if the change was the result of an announced transition plan, or if the CEO stayed on as chairman of the board for more than a year. CEO turnover is classified as "disciplinary" if the CEO resigned to pursue other interests, if the CEO was terminated, or if no specific reason is given.⁹

⁹ For our purposes, distinguishing between the different sub-categories within the "disciplinary" and "non-disciplinary" groups is not essential. There may be situations where a 65 year-old CEO leaves as part of a

We consider a multinomial logit regression, with three independent categories: no turnover, disciplinary turnover, and non-disciplinary turnover.¹⁰ The dependent variable is equal to 0 if no turnover occurred in a firm-year, 1 if the turnover was disciplinary, and 2 if the turnover was non-disciplinary. We consider the past two years' stock return as the performance measure. We estimate the following baseline equation:

$$(2a) \quad \text{Type of CEO Turnover}_{i,t} = \text{Last 2 Years' Return}_{i,t} + \text{Last 2 Years' Industry Return}_{i,t} \\ + \text{CEOOwn\%}_{i,t} + \text{FirmSize}_{i,t} + \text{CEO Age}_{i,t} + \text{CEOTenure}_{i,t} + \varepsilon_{i,t}$$

The control variables are motivated by a substantial extant literature on performance and CEO turnover; for example, see Huson, Parrino, and Starks (2001), Farrell and Whidbee (2003), and Engel, Hayes and Wang (2003). To determine the role that governance plays in CEO turnover, we create an interactive variable that is equal to (Past 2 years' stock return \times Governance). The reason behind this is that if the firm is performing adequately, good governance *per se* should not lead to CEO turnover; only when performance is poor do we expect better governed firms to be more likely to replace the CEO. To measure this effect, we estimate the following modified version of equation (2a):

$$(2b) \quad \text{Type of CEO Turnover}_{i,t} = \text{Last 2 Years' Return}_{i,t} + \text{Last 2 Years' Industry Return}_{i,t} \\ + \text{Governance}_{i,t} + (\text{Governance}_{i,t} \times \text{Last 2 Years Return}_{i,t}) \\ + \text{CEOOwn\%}_{i,t} + \text{FirmSize}_{i,t} + \text{CEO Age}_{i,t} + \text{CEOTenure}_{i,t} + \varepsilon_{i,t}$$

Table IX highlights the relation between different measures of governance and disciplinary CEO turnover. Table IX, Panel A, details the multinomial logit regression results for the determinants of disciplinary CEO turnover for the pre-2002 period. Consider first the baseline results without governance variables in the regression. The baseline results indicate that a firm's

succession plan and stays on as board chair for 6 months. This is a "disciplinary" turnover, regardless of which sub-category it gets classified in.

¹⁰ We also considered a fixed effects logit estimator model. However, there are concerns regarding the bias of such an estimator. Greene (2004) documents that when the time periods in panel data are five or less (as is the case in this study), nonlinear estimation may produce coefficients that can be biased in the range of 32% to 68%.

stock market returns during the previous two years, CEO stock ownership, and CEO tenure are significantly negatively related to disciplinary CEO turnover; these findings are consistent with the prior literature noted above. Interestingly, we find that the prior two years' returns of similar firms in the industry is significantly positively related to disciplinary CEO turnover.

Does good governance have an impact on disciplinary CEO turnover directly, or is governance related to disciplinary turnover only in poorly performing companies? The results in Table IX, Panel A, shed light on this question. Note that when the governance variables are included, the prior return variable is not significant in three of the five cases, suggesting that bad performance alone is not enough to lead to a change in senior management. Also note that the governance variable by itself is statistically not significant in most cases.¹¹ This suggests that good governance *per se* is not related to disciplinary turnover. The coefficient of the interactive term (Past 2 years' stock return \times Governance) sheds light on the question whether governance is related to disciplinary turnover only for poorly performing firms. The interactive term suggests that good governance as measured by the dollar value of the median director's stock ownership and the percentage of directors who are independent, increases the probability of disciplinary turnover for poorly performing firms.^{12 13} Both the GIM and BCF measures of good governance are *negatively* related to the probability of disciplinary turnover for poorly performing firms. This suggests that better governed firms as measured by the GIM and BCF indices are *less* likely to experience disciplinary management turnover in spite of their poor performance. Finally,

¹¹ When the CEO is also the Chairman, he is less likely to experience disciplinary turnover.

¹² The finding of the probability of disciplinary CEO turnover (given poor prior firm performance) increasing with greater board independence is consistent with the extant literature, for example, see Fich and Shivdasani (2005), and Weisbach (1988).

¹³ The economic importance of the dollar ownership of the median director is greater than board independence. We calculate the predicted probability of disciplinary and non-disciplinary turnover, using the coefficient estimates from Table IX. When all parameters are measured at their mean values, the probability of disciplinary turnover is 2.28% with the dollar ownership of the median director as the governance variable; this increases to 12.55% when the (Past Return \times Director \$ Ownership) interaction term decreases by one standard deviation. The corresponding probabilities are 2.90% and 7.96% for board independence.

when the CEO is also the Chairman, he is more likely to experience disciplinary turnover *given* poor firm performance.

Table IX, Panel B, details the multinomial logit regression results for the determinants of non-disciplinary CEO turnover. We do not expect any relation between good governance and non-disciplinary CEO turnover both unconditionally, and conditional on poor prior performance; the results in Panel B are consistent with this. Panels C and D show the results for disciplinary turnover in the post-2002 period. The results in the 2003-2007 are qualitatively unchanged from the results in the 1998-2001, with the exception of board independence which is not significantly related to disciplinary turnover.

5.1. Robustness checks

We conduct three robustness checks: We have highlighted above the endogenous relationships among corporate governance, performance, capital structure, and corporate ownership structure. It is possible that management turnover and performance (and ownership) are also endogenous. To address turnover endogeneity we estimate a system of five equations: 1a, 1b, 1c, 1d, and 2b.¹⁴ Motivated by the findings of Fich and Shivdasani (2006) we use percentage of board members who are on more than three boards as an instrument for CEO Turnover. The Stock-Yogo (2004) test, the Hahn and Hausman (2002) test and the Hansen-Sargan test suggest that this is an appropriate instrument. Results from taking turnover endogeneity into account are consistent with the disciplinary turnover results noted in Table IX.

Second, we computed the clustered (Rogers) standard errors for the coefficients in the CEO turnover model; the results are consistent with those reported in Table IX.

¹⁴ Wooldridge (2002) cautions about the two-stage estimation procedure when the dependent variable in one of the equations is dichotomous. However, on the basis of the evidence in Angrist (2001) and Alvarez and Glasgow (1999) we interpret the signs of the two-stage estimates in the usual way.

Third, it is possible that the board considers industry adjusted performance instead of firm performance in deciding whether to discipline the CEO. Results considering industry adjusted performance are similar to those reported above.

VI. Conclusion and discussion

This paper studies the relationship between corporate governance and company performance, focusing on possible differences in results before and after 2002. We choose 2002 as the dividing time because it was the year that the SOX Act was passed. A significant part of SOX and other exchange requirements tried to increase the role of independent board members. Given that prior academic research suggested there was no positive relationship between board independence and firm performance, the above efforts are especially notable.

We find a shift in the relationship between board independence and firm performance after 2002. Prior to 2002, we document a *negative* relationship between board independence and operating performance. After 2002, we find a *positive* relationship between independence and operating performance. We also find that the *G-Index* introduced by Gompers, Ishii and Metrick (2003) also switches signs following 2002, suggesting that firms with stronger manager entrenchment actually perform better in 2003-2007.

The most consistent relationship we see concerns director ownership. On average, the median director's stock ownership is 45% greater in 2003-2007 than it was in 1998-2001 – and the relationship between director ownership and firm performance is consistently positive through each of the subperiods. Hence, this study proposes a governance measure, namely – dollar ownership of the board members – that is simple, intuitive, less prone to measurement error, and not subject to the problem of weighting a multitude of governance provisions in

constructing a governance index. This measure, and its relevance to providing suppliers of capital with a return on their investment, is the most consistent across the time periods and robust to a battery of sensitivity tests. We recommend that consideration of this governance measure by future accounting, finance, and corporate law researchers would enhance the comparability of research findings.

References

- Adams, Renee and Daniel Ferreira, 2007, A theory of friendly boards, *Journal of Finance* 62, 217-250.
- 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.
- Altman, Edward I., 1968, Financial Ratios, discriminates analysis, and the prediction of corporate bankruptcy, *Journal of Finance* 23, 589-609.
- Alvarez, R. and G. Glasgow, 1999, Two-stage estimation of non-recursive choice models, California Institute of Technology working paper.
- Anderson, Ronald C., Sattar A. Mansi and David M. Reeb, 2004, Board characteristics, accounting report integrity, and the cost of debt, *Journal of Accounting and Economics* 37, 315-342.
- Angrist, J., 2001. Estimation of limited dependent variable models with dummy endogenous regressors: Simple strategies for empirical practice, *Journal of Business and Economic Statistics* 19, 2-16.
- Ashbaugh-Skaife, Hollis, Daniel W. Collins and Ryan LaFond, 2007, The effects of corporate governance on firms' credit ratings, *Journal of Accounting and Economics* 42, 203-243.
- Bergstresser, Daniel and Thomas Philippon, 2006, CEO incentives and earnings management, *Journal of Financial Economics* 80, 511-530.
- Baker, M. and J. Wurgler, 2002, Market timing and capital structure, *Journal of Finance* 57, 1-32.
- Barber, Brad and John Lyon, 1996, Detecting abnormal operating performance: The empirical power and specification of test statistics, *Journal of Financial Economics* 41, 359-400.
- Bebchuk, Lucian, Alma Cohen, and Allen Ferrell, 2009, What matters in corporate governance? *Review of Financial Studies* 22, 783-827.
- Bebchuk, Lucian and Alma Cohen, 2005, The costs of entrenched boards, *Journal of Financial Economics* 78, 409-433.
- Berle, A.A. and G. Means, 1932, *The Modern Corporation and Private Property*, Macmillan, New York.
- Bhagat, Sanjai and Bernard Black, 2002, The non-correlation between board independence and long term firm performance, *Journal of Corporation Law* 27, 231-274.

- Bhagat, Sanjai and Brian Bolton, 2008, Corporate governance and firm performance, *Journal of Corporate Finance* 14, 257-273,
- Bhagat, Sanjai, Brian Bolton and Roberta Romano, 2008, The promise and peril of corporate governance indices, *Columbia Law Review* 108, 1803-1882,
- Bhagat, Sanjai, Dennis Carey and Charles Elson, 1999, Director ownership, corporate performance, and management turnover, *The Business Lawyer* 54.
- Bhagat, Sanjai and Richard Jefferis, Jr., 2002, *The econometrics of corporate governance studies*, MIT Press, Cambridge, MA.
- Black, Bernard, 1990, Shareholder passivity reexamined, *Michigan Law Review* 89, 2550.
- Bowen, Robert M., Shivaram Rajgopal and Mohan Venkatachalam, 2005, Accounting discretion, corporate governance, and firm performance, University of Washington working paper.
- Brickley, James A., Jeffrey L. Coles, and Gregg Jarrell, 1997, Leadership structure: Separating the CEO and chairman of the board, *Journal of Corporate Finance*, 3, 189-220.
- Brown, Lawrence D. and Marcus L. Caylor, 2004, Corporate governance and firm performance, Georgia State University working paper.
- Bushman, Robert, Qi Chen, Ellen Engel and Abbie Smith, 2004, Financial accounting information, organizational complexity and corporate governance systems, *Journal of Accounting and Economics* 37, 167-201.
- Carhart, Mark M., 1997, On persistence in mutual fund performance, *Journal of Finance* 52(1), 57-82.
- Chhaochharia, Vidhi and Yaniv Grinstein, 2007, Corporate governance and firm value: the impact of the 2002 governance rules, *Journal of Finance* 62, 1789-1825.
- Coles, Jeffrey L., Naveen D. Daniel, and Lalitha Naveen, 2008, Boards: Does one size fit all? *Journal of Financial Economics*, 79, 329-356.
- Core, John E., Wayne R. Guay, Tjomme O. Rusticus, 2007, Does weak governance cause weak stock returns? An examination of firm operating performance and investors' expectations, *Journal of Finance* 61, 655-687.
- Core, John E., Robert W. Holthausen, and David F. Larcker, 1999, Corporate governance, chief executive officer compensation, and firm performance, *Journal of Financial Economics* 51, 371-406.
- Cragg, John G. and Stephen G. Donald, 1993, "Testing Identifiability and Specification in Instrumental Variable Models," *Econometric Theory* 9, 222-240.
- Cremers, Martijn K.J., and Vinay B. Nair, 2005, Governance mechanisms and equity prices, *Journal of Finance* 60, 2859-2894.
- Davidson, Russell, and James G. MacKinnon, 2004, *Estimation and Inference in Econometrics*, Oxford University Press, New York.
- Defond, Mark L., Rebecca N. Hann and Xuesong Hu, 2005, Does the market value financial expertise on audit committees of boards of directors? *Journal of Accounting Research* 43, 153-193.
- Demsetz, Harold, 1983, The structure of ownership and the theory of the firm, *Journal of Law and Economics* 26, 375-390.

- Demsetz, Harold and Kenneth Lehn, 1985, The structure of corporate ownership: Causes and consequences, *Journal of Political Economy* 33, 3-53.
- Dufour, J., 1997, Some impossibility theorems in econometrics, with applications to structural and dynamic models, *Econometrica* 65, 1365-1389.
- Engel, Ellen, Rachel M. Hayes, and Xue Wang, 2003, CEO turnover and properties of accounting information, *Journal of Accounting and Economics* 36, 197-226.
- Erickson, Merle, Michelle Hanlon and Edward L. Maydew, 2007, Is there a link between executive equity incentives and accounting fraud? *Journal of Accounting Research* 44, 113-143.
- Fama, Eugene F., 1980, Agency problems and the theory of the firm, *Journal of Political Economy* 88, 288-307.
- Farell, K.A. and Whidbee, D.A., 2003, The impact of firm performance expectations on CEO turnover and replacement decisions, *Journal of Accounting and Economics* 36, 165-196.
- Fich, Eliezer M. and Anil Shivdasani, 2006, Are busy boards effective monitors? *Journal of Finance* 61, 689-724.
- Gibbons, Robert and Murphy, Kevin J, 1992. Optimal incentive contracts in the presence of career concerns: Theory and evidence," *Journal of Political Economy* 100(3), 468-505.
- Gillan, Stuart L., Jay C. Hartzell, Laura T. Starks, 2003, Explaining corporate governance: Boards, bylaws, and charter provisions, Working paper.
- Gillan, Stuart L., Recent developments in corporate governance: An overview, *Journal of Corporate Finance* 12, 381-402.
- Gompers, Paul A., Joy L. Ishii, and Andrew Metrick, 2003, Corporate governance and equity prices, *Quarterly Journal of Economics* 118(1), 107-155.
- Gilson, Stuart C., 1989, Management turnover and financial distress, *Journal of Financial Economics* 25, 241-262.
- Graham, J.R., 1996, Proxies for the corporate marginal tax rate, *Journal of Financial Economics* 42, 187-221.
- Graham, J.R., M.H. Lang and D. A. Shackelford, 2004, Employee stock options, corporate taxes, and debt policy, *Journal of Finance* 59, 1585-1618.
- Greene, William H., 2004, The behavior of the fixed effects estimator in nonlinear models, *The Econometrics Journal* 7, 98-119.
- Grossman, Sanford and Oliver D. Hart, 1983, An analysis of the principal-agent problem, *Econometrica* , 51, no 1, 7-45.
- Grossman, Sanford and Oliver D. Hart, 1986, The costs and benefits of ownership: A theory of vertical and lateral integration, *Journal of Political Economy* 44, 691-719.
- Graham, John R, 1996, Debt and the marginal tax rate, *Journal of Financial Economics* 41, 41-73.
- Guggenberger, Patrick, 2005, Finite-sample evidence suggesting a heavy tail problem of the generalized empirical likelihood estimator, UCLA Department of Economics working paper.`
- Hahn, Jinyong and Jerry A. Hausman, 2002, A new specification test for the validity of instrumental variables, *Econometrica* 70, 163-189.

- Hall, A., G. Rudebusch and D. Wilcox, 1996, Judging instrument relevance in instrumental variables estimation, *International Economic Review* 37, 283-298.
- Hallock, Kevin F., 1997, Reciprocally interlocking boards of directors and executive compensation, *Journal of Financial and Quantitative Analysis* 32, 331-344.
- Harris, Milton, and Artur Raviv, 1988, Corporate control contests and capital structure, *Journal of Financial Economics* 20, 55-86.
- Harris, Milton, and Artur Raviv, 2008, A theory of board control and size, *Review of Financial Studies*, 21, 1797-1832.
- Hart, Oliver D. and John Moore, 1990, Property rights and the theory of the firm, *Journal of Political Economy* 48, 1119-1158.
- Hausman, Jerry A., 1978, Specification tests in econometrics, *Econometrica* 46, 1251-1271.
- Hermalin, Benjamin, 2005, Trends in corporate governance, *The Journal of Finance* 60, 2351-2384.
- Hermalin, Benjamin E. and Michael S. Weisbach,, 1991, The effects of board composition and direct incentives on firm performance, *Financial Management*, 20.
- 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 and Michael Weisbach, 2003, Boards of directors as an endogenously determined institution: A survey of the economic evidence. *Economic Policy Review*, 9: 7-26.
- Hermalin, Benjamin and Michael Weisbach, 2007, Transparency and corporate governance, University of California and University of Illinois working paper.
- Hermes Pensions Management, 2005, Corporate governance and performance, Lloyds Chambers, London, U.K.
- Huson, Mark R. Robert Parrino and Laura T. Starks, 2001, Internal monitoring mechanisms and CEO turnover: A long-term perspective, *Journal of Finance* 54(6), 2265-2297.
- Huson, Mark R., Paul H. Malatesta and Robert Parrino, 2004, Managerial succession and firm performance, *Journal of Financial Economics* 74, 237-275.
- Jensen, Michael, 1986, Agency costs of free cash flow, corporate finance, and takeovers, *American Economic Review* 76, 323-329.
- Jensen, Michael, and William Meckling, 1976, Theory of the firm: Managerial behavior, agency costs, and ownership structure, *Journal of Financial Economics* 3, 305-360.
- Jensen, Michael, and Jerold B. Warner, 1988, The distribution of power among corporate managers, shareholders and directors, *Journal of Financial Economics* 20, 3-24.
- Johnston, Jack and John DiNardo, 1997, *Econometric Methods*, Fourth edition, The McGraw-Hill Companies.
- Kennedy, Peter, 2003, *A Guide to Econometrics*, Fifth Edition, MIT Press.
- Khanna, N. and S. Tice, 2005, Pricing, exit, and location decisions of firms: Evidence on the role of debt and operating efficiency, *Journal of Financial Economics* 75, 397-428.

- Larcker, David F. and Rusticus, Tjomme O., 2005, On the use of instrumental variables in accounting research, Stanford University working paper.
- Larcker, David F., Scott A. Richardson and Irem Tuna, 2005, How important is corporate governance? Stanford University working paper.
- Laux, Volker, 2008, Board independence and CEO turnover, *Journal of Accounting Research* 46, 137-171
- Linck, James S., Jeffrey M. Netter and Tina Yang, 2008, The determinants of board structure, *Journal of Financial Economics* 87, 308-328.
- Linck, James S., Jeffrey M. Netter and Tina Yang, The effects and unintended consequences of the Sarbanes-Oxley Act on the supply and demand for directors, *Review of Financial Studies*, forthcoming.
- MacKie-Mason, Jeffrey K., 1990, Do taxes affect corporate financing decisions? *Journal of Finance* 45, 1471-1493.
- Maddala, G.S., 1992, *Introduction to Econometrics*, Second Edition, MacMillan.
- Masulis, Ronald W., and Shawn Mobbs, 2008, Are all inside directors the same? CEO entrenchment or board entrenchment. Vanderbilt University working paper.
- Milanovic, Branko, Do more unequal countries redistribute more? Does the median Voter hypothesis hold?, World Bank policy research working paper series, Carnegie Endowment for International Peace, 2004
- Morck, Randall, Andrei Shleifer, and Robert W. Vishny, 1988, Management ownership and market valuation, *Journal of Financial Economics* 20, 293-315.
- Myerson, Roger, 1987, Incentive compatibility and the bargaining problem, *Econometrica* 47, 61-73.
- Novaes, Walter, and Luigi Zingales, 1999, Capital structure choice under a takeover threat, University of Chicago working paper.
- Palia, Darius, 2001, The endogeneity of managerial compensation in firm valuation: A solution, *Review of Financial Studies* 14, 735-764.
- Petersen, Mitchell A., 2005, Estimating standard errors in finance panel data sets: Comparing approaches, Northwestern University working paper.
- Raheja, Charu G., 2005, Determinants of board size and composition: A theory of corporate boards, *Journal of Financial and Quantitative Analysis* 40, 283-306.
- Roe, Mark J., 1994, *Strong managers, weak owners: The political roots of American corporate finance*, Princeton University Press, Princeton, NJ.
- Shleifer, Andrei and Kevin M. Murphy, Persuasion in politics, *American economic association papers and proceedings*, Vol. 94, No. 2, May 2004
- Shleifer, Andrei and Robert W. Vishny, 1997, A survey of corporate governance, *Journal of Finance* 52, 737-783.
- 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.
- Staiger, Douglas and James H. Stock, 1997, "Instrumental Variables Regression with Weak Instruments," *Econometrica* 65(3), 557-586.

- Stock, James H., and Motohiro Yogo, 2004, "Testing for weak instruments in linear IV regression, in D.W.K. Andrews and J.H. Stock, eds., *Identification and Inference for Econometric Models: Essays in Honor of Thomas J. Rothenberg*. Cambridge: Cambridge University Press.
- Stock, J., J. Wright and M. Yogo, 2002, A survey of weak instruments and weak identification in generalized method of moments, *Journal of Business and Economic Statistics* 20, 518-529.
- Stulz, Rene M, 1988, Managerial control of voting rights: Financing policies and the market for corporate control, *Journal of Financial Economics* 20, 25-54.
- Westphal, James D. and Poonam Khanna, 2003, Keeping Directors in Line: Social Distancing as a Control Mechanism in the Corporate Elite, *Administrative Science Quarterly* 48, 361-398.
- Weisbach, Michael S., 1988, Outside directors and CEO turnover, *Journal of Financial Economics* 20, 432-460.
- Wooldridge, J.M., 2002, *Econometric Analysis of Cross Section and Panel Data*, MIT Press, Cambridge, Massachusetts.
- Wooldridge, J.M., 2004, Cluster sample methods in applied econometrics, Michigan State University working paper.
- Yermack, David, 1996, Higher market valuation for firms with a small board of directors, *Journal of Financial Economics* 40, 185-211.
- Yermack, David, 2007, Flights of fancy: Corporate jets, CEO perquisites, and inferior shareholder returns, *Journal of Financial Economics* 80, 211-242.

Table I: Descriptive Statistics

This table presents the mean, median and standard deviation for the primary governance, performance and other variables. The statistics are presented for three time periods: the full sample 1998-2007 and the two subsamples, 1998-2001 and 2003-2007. The variables are as defined in the text. Panel A present the statistics for all firms; Panel B presents the statistics for the subsample of firms that increased the number of independent directors, by the change in number of independent directors. The number of observations refers to observations with *Independence* only; the other governance variables may have slightly more or less observations depending on availability.

Panel A: All firms

	1998-2007 (n=13,135)			1998-2001 (n=5,230)			2003-2007 (n=6,683)		
	Mean	Median	Std Dev	Mean	Median	Std Dev	Mean	Median	Std Dev
<u>Governance Variables</u>									
<i>Independence</i>	67.03%	70.00%	17.28%	61.56%	63.64%	19.90%	71.95%	75.00%	14.55%
<i>DirectorOwn</i>	13.696	13.739	1.584	13.580	13.486	1.890	13.898	13.943	1.348
<i>CEO-Duality</i>	59.55%	100.00%	43.05%	59.46%	100.00%	40.75%	58.28%	100.00%	42.26%
<i>G-Index</i>	9.176	9.000	2.663	8.887	9.000	2.789	9.356	9.000	2.579
<i>E-Index</i>	2.210	2.000	1.298	2.029	2.000	1.325	2.332	2.000	1.269
<u>Performance Variables</u>									
<i>ROA</i>	12.50%	12.38%	8.11%	12.63%	12.85%	8.49%	13.02%	12.28%	7.75%
<i>Return</i>	13.20%	7.28%	38.00%	13.81%	1.95%	42.72%	17.82%	13.72%	32.87%
<i>Q</i>	1.999	1.522	1.018	2.200	1.472	1.119	1.957	1.594	0.961
<u>Other Variables</u>									
<i>CEOOwn%</i>	1.78%	0.00%	3.86%	3.53%	0.00%	4.63%	1.32%	0.00%	3.02%
<i>Leverage</i>	18.56%	16.14%	13.45%	20.15%	17.65%	13.84%	17.62%	15.19%	12.97%
<i>FirmSize</i>	7.671	7.508	1.676	7.480	7.294	1.659	7.876	7.699	1.674
<i>R&DAdvExp</i>	3.90%	0.97%	4.63%	4.06%	0.52%	4.63%	3.62%	1.16%	4.62%
<i>BoardSize</i>	9.251	9.000	2.873	9.265	9.000	3.340	9.381	9.000	2.529
<i>Risk</i>	11.20%	9.32%	5.48%	14.49%	12.41%	6.05%	8.27%	7.38%	3.89%
<i>TreasStock</i>	5.71%	0.28%	10.57%	6.07%	0.28%	9.78%	8.01%	0.31%	10.65%
<i>Dir%Own</i>	0.41%	0.05%	2.24%	0.40%	0.05%	5.36%	0.14%	0.51%	0.45%
<i>Dir%CEOs</i>	24.22%	22.22%	13.87%	26.53%	25.00%	16.11%	21.36%	20.00%	11.92%
<i>CEOTenAge</i>	0.135	0.095	0.119	0.153	0.108	0.122	0.129	0.093	0.109
<i>MktBook</i>	2.684	2.240	1.708	3.397	2.200	1.912	2.763	2.303	1.560
<i>BusyBoards</i>	3.79%	0.00%	7.35%	4.56%	0.00%	8.63%	3.14%	0.00%	6.19%
<i>D-Index</i>	0.822	0.000	0.986	0.925	1.000	0.992	0.748	0.000	0.973
<i>IndepInsider</i>	9.62%	0.00%	29.49%	12.04%	0.00%	32.54%	8.69%	0.00%	28.18%

Panel B: Firms that increased the number of independent directors, by the change in number of independent directors

	All Firms	Change in Number of Independent Directors								
		< -3	-3	-2	-1	0	+1	+2	+3	> +3
Percent of Sample	100.0%	3.6%	2.0%	4.8%	15.7%	40.9%	21.3%	7.3%	2.4%	2.0%
<i>Governance Variables</i>										
<i>Independence</i>	67.03%	51.36%	60.24%	64.34%	65.48%	67.08%	71.03%	72.95%	75.11%	77.06%
<i>Independence_{t-1}</i>	66.31%	80.42%	77.10%	75.14%	71.71%	66.76%	64.09%	60.59%	56.82%	50.34%
<i>DirectorOwn</i>	13.696	13.698	13.759	13.705	13.684	13.777	13.682	13.672	13.476	13.488
<i>CEO-Duality</i>	59.55%	51.64%	67.10%	63.05%	61.45%	60.76%	58.83%	58.59%	59.93%	55.74%
<i>G-Index</i>	9.176	7.866	8.767	9.192	9.411	9.203	9.312	9.333	9.224	9.360
<i>E-Index</i>	2.210	1.849	2.140	2.194	2.284	2.199	2.255	2.235	2.356	2.381
<i>Performance Variables</i>										
<i>ROA</i>	12.50%	10.89%	11.66%	10.90%	12.20%	13.26%	13.43%	13.15%	11.41%	10.85%
<i>ROA_{t-1}</i>	13.21%	10.85%	12.55%	11.37%	12.60%	13.70%	13.98%	13.11%	12.46%	11.37%
<i>Return</i>	13.20%	16.27%	17.90%	9.43%	12.74%	14.30%	12.66%	15.76%	8.51%	13.79%
<i>Return_{t-1}</i>	14.47%	17.27%	14.78%	19.66%	15.22%	16.31%	16.70%	17.91%	15.24%	14.37%
<i>Q</i>	1.999	2.334	2.055	2.038	1.936	2.016	2.009	2.001	1.682	1.852
<i>Q_{t-1}</i>	2.080	1.859	1.735	1.955	1.933	2.089	2.059	2.053	1.856	1.759
<i>Other Variables</i>										
<i>CEOOwn%</i>	1.78%	2.875	2.379	1.208	1.441	2.034	1.612	1.427	1.569	0.961
<i>Leverage</i>	18.56%	20.50%	18.36%	19.35%	19.20%	18.50%	19.02%	18.82%	19.47%	18.94%
<i>FirmSize</i>	7.671	6.790	7.548	7.931	7.950	7.613	7.849	7.984	8.138	8.555
<i>R&DAdvExp</i>	3.90%	4.74%	3.47%	3.79%	3.69%	3.84%	3.71%	3.74%	3.14%	2.75%
<i>BoardSize</i>	9.251	6.949	8.662	9.364	9.335	9.065	9.726	10.168	10.876	12.609
<i>Risk</i>	11.20%	16.12%	12.48%	11.60%	10.42%	10.57%	10.27%	10.68%	10.94%	9.73%
<i>TreasStock</i>	5.71%	0.04%	5.23%	6.55%	7.76%	8.04%	7.88%	8.28%	5.93%	4.15%
<i>Dir%Own</i>	0.41%	0.44%	0.26%	0.28%	0.37%	0.37%	0.53%	0.52%	0.38%	0.28%
<i>Dir%CEOs</i>	24.22%	26.83%	25.73%	25.82%	25.38%	24.05%	23.66%	23.38%	21.94%	23.53%
<i>CEOTenAge</i>	0.135	0.148	0.137	0.121	0.125	0.142	0.136	0.121	0.117	0.116
<i>MktBook</i>	2.684	2.644	2.511	3.191	3.051	2.431	2.525	3.290	3.204	3.077
<i>BusyBoards</i>	3.79%	3.40%	3.98%	3.95%	4.21%	3.74%	3.70%	4.18%	4.21%	5.53%
<i>D-Index</i>	0.822	0.344	0.580	0.804	0.905	0.867	0.870	0.840	0.708	0.704
<i>IndepInsider</i>	9.62%	15.63%	13.93%	12.04%	11.41%	9.83%	8.87%	8.41%	7.69%	7.54%

Table II: Correlation coefficients

This table presents the correlation coefficients for the primary governance variables and other select variables. Pearson correlation coefficients are below the diagonal; Spearman rank correlation coefficients are above the diagonal. Panel A presents the coefficients for 1998-2001 and Panel B presents the coefficients for 2003-2007.

Panel A: Correlation coefficients, 1998-2001

-	<i>Independence</i>	<i>DirectorOwn</i>	<i>CEO-Duality</i>	<i>G-Index</i>	<i>E-Index</i>	<i>ROA</i>	<i>Return</i>	<i>Q</i>	<i>Ownership</i>	<i>Leverage</i>	<i>FirmSize</i>	<i>BoardSize</i>	<i>BusyBoards</i>	<i>D-Index</i>	<i>IndepInsider</i>
<i>Independence</i>	-	-0.29	0.06	0.29	0.28	-0.04	0.01	-0.04	-0.17	0.06	0.15	0.13	0.16	0.14	-0.09
<i>DirectorOwn</i>	-0.23	-	-0.04	-0.12	-0.14	0.13	0.19	0.45	0.20	-0.16	0.09	-0.09	-0.05	-0.10	0.09
<i>CEO-Duality</i>	0.05	-0.03	-	0.10	0.07	0.01	-0.02	-0.03	0.07	0.05	0.16	0.14	0.08	0.03	-0.03
<i>G-Index</i>	0.27	-0.04	0.10	-	0.74	0.02	0.00	-0.07	-0.12	0.12	0.21	0.30	0.11	0.51	0.06
<i>E-Index</i>	0.28	-0.10	0.07	0.74	-	-0.02	-0.01	-0.10	-0.10	0.12	0.08	0.17	0.04	0.16	-0.02
<i>ROA</i>	0.02	0.07	0.01	0.02	-0.03	-	0.18	0.48	0.12	-0.04	-0.12	-0.02	0.02	0.01	0.06
<i>Return</i>	-0.02	0.15	-0.01	-0.04	-0.03	0.09	-	0.29	0.05	-0.05	0.04	0.03	0.01	0.00	0.02
<i>Q</i>	-0.06	0.31	-0.02	-0.11	-0.13	0.00	0.28	-	0.07	-0.28	-0.09	-0.11	0.02	-0.07	0.07
<i>Ownership</i>	-0.19	0.10	0.10	-0.14	-0.15	0.07	0.02	0.03	-	-0.12	-0.23	-0.21	-0.15	-0.09	-0.07
<i>Leverage</i>	0.00	-0.08	0.03	0.06	0.06	0.00	-0.02	-0.20	-0.10	-	0.21	0.15	0.08	0.05	0.01
<i>FirmSize</i>	0.16	0.08	0.15	0.17	0.05	0.08	-0.03	-0.12	-0.12	0.11	-	0.58	0.30	0.25	0.22
<i>BoardSize</i>	0.14	-0.04	0.14	0.24	0.13	0.07	-0.04	-0.12	-0.12	0.05	0.59	-	0.27	0.29	0.24
<i>BusyBoards</i>	0.11	-0.04	0.05	0.07	0.02	-0.02	-0.01	0.02	-0.07	0.05	0.21	0.12	-	0.08	0.17
<i>D-Index</i>	0.13	-0.04	0.02	0.52	0.16	0.03	-0.04	-0.08	-0.04	0.00	0.22	0.23	0.04	-	0.07
<i>IndepInsider</i>	-0.08	0.08	-0.03	0.05	-0.02	0.04	0.00	0.04	-0.03	-0.01	0.23	0.24	0.12	0.06	-

Panel B: Correlation coefficients, 2003-2007

	<i>Independence</i>	<i>DirectorOwn</i>	<i>CEO-Duality</i>	<i>G-Index</i>	<i>E-Index</i>	<i>ROA</i>	<i>Return</i>	<i>Q</i>	<i>Ownership</i>	<i>Leverage</i>	<i>FirmSize</i>	<i>BoardSize</i>	<i>BusyBoards</i>	<i>D-Index</i>	<i>IndepInsider</i>
<i>Independence</i>	-	-0.18	0.10	0.18	0.17	-0.04	-0.03	-0.04	-0.10	0.09	0.17	0.12	0.13	0.09	-0.14
<i>DirectorOwn</i>	-0.17	-	-0.04	-0.09	-0.07	0.21	0.12	0.40	0.05	-0.13	0.13	-0.03	-0.01	-0.11	0.09
<i>CEO-Duality</i>	0.09	-0.05	-	0.11	0.07	-0.02	0.06	-0.06	0.06	0.06	0.14	0.05	0.04	0.07	-0.10
<i>G-Index</i>	0.18	-0.07	0.11	-	0.71	-0.02	0.05	-0.10	-0.10	0.12	0.16	0.25	0.06	0.47	0.00
<i>E-Index</i>	0.18	-0.07	0.07	0.70	-	-0.07	0.04	-0.10	-0.05	0.09	0.02	0.12	0.01	0.12	-0.03
<i>ROA</i>	-0.04	0.17	-0.02	-0.02	-0.07	-	0.11	0.61	-0.02	-0.08	-0.18	-0.12	0.01	0.01	0.01
<i>Return</i>	-0.05	0.08	0.03	0.02	0.02	0.08	-	0.21	0.01	0.00	0.02	0.00	0.00	0.04	0.03
<i>Q</i>	-0.04	0.31	-0.05	-0.09	-0.11	0.47	0.21	-	0.03	-0.34	-0.25	-0.21	-0.02	-0.10	0.03
<i>Ownership</i>	-0.15	0.01	0.07	-0.14	-0.14	0.04	-0.02	0.04	-	-0.10	-0.29	-0.24	-0.08	-0.13	-0.06
<i>Leverage</i>	0.06	-0.09	0.03	0.08	0.06	-0.05	-0.03	-0.26	-0.08	-	0.30	0.22	0.11	0.08	0.01
<i>FirmSize</i>	0.16	0.10	0.14	0.12	0.00	-0.13	-0.04	-0.22	-0.15	0.20	-	0.61	0.22	0.27	0.11
<i>BoardSize</i>	0.09	0.01	0.05	0.21	0.10	-0.11	-0.05	-0.19	-0.14	0.11	0.61	-	0.18	0.28	0.15
<i>BusyBoards</i>	0.12	-0.01	0.04	0.05	0.01	0.01	0.00	-0.02	-0.05	0.07	0.20	0.12	-	0.06	0.06
<i>D-Index</i>	0.07	-0.09	0.06	0.49	0.11	0.02	0.02	-0.08	-0.04	0.03	0.22	0.22	0.04	-	0.04
<i>IndepInsider</i>	-0.12	0.08	-0.10	-0.01	-0.03	0.01	0.01	0.02	-0.02	0.00	0.11	0.16	0.05	0.03	-

Table III: Governance and performance, equation (1a)

This table presents the results from estimating equation (1a), the performance equation. Five different specifications are presented with five different governance variables: *Independence*, board independence; *DirectorOwn*, the dollar value of the median director's stock ownership; *CEO-Duality*, whether or not the CEO is also the board chair; *G-Index*, the Gompers, Ishii and Metrick (2003) Governance Index; and, *E-Index*, the Bebchuk, Cohen and Ferrell Entrenchment index. *ROA*, return on assets in the current period is used as the measure of performance. All other variables are as defined in the text. Panel A presents the results using Ordinary Least Squares (OLS) for the 1998-2001 period; Panel B presents the results using Two-Stage Least Squares (2SLS) for the 1998-2001 period. Panel C presents the results using OLS for the 2003-2007 period; Panel D presents the results using 2SLS for the 2003-2007 period. An intercept and year and industry dummy variables are included but not presented. Standard errors are clustered by firm. Coefficients are presented with *p*-values below in parentheses.

Panel A: Ordinary least squares estimation, 1998-2001

	Dependent Variable: Return on Assets (ROA_t)				
	<i>Independence_t</i>	<i>DirectorOwn_t</i>	<i>CEO-Duality_t</i>	<i>G-Index_t</i>	<i>E-Index_t</i>
<i>Governance_t</i>	-0.027 (0.01)	0.015 (0.00)	-0.003 (0.57)	-0.001 (0.54)	-0.006 (0.00)
<i>Ownership_t</i>	-0.001 (0.80)	-0.001 (0.38)	0.000 (0.59)	-0.001 (0.93)	-0.001 (0.51)
<i>Leverage_t</i>	-0.123 (0.00)	-0.105 (0.00)	-0.122 (0.00)	-0.133 (0.00)	-0.131 (0.00)
<i>Industry Performance_t</i>	0.575 (0.00)	0.565 (0.00)	0.576 (0.00)	0.590 (0.00)	0.588 (0.00)
<i>FirmSize_t</i>	-0.003 (0.11)	-0.007 (0.00)	-0.003 (0.11)	-0.002 (0.15)	-0.003 (0.07)
<i>R&DAdvExp_t</i>	-0.895 (0.00)	-0.940 (0.00)	-0.897 (0.00)	-0.890 (0.00)	-0.898 (0.00)
<i>BoardSize_t</i>	-0.003 (0.00)	-0.002 (0.05)	-0.003 (0.00)	-0.003 (0.00)	-0.003 (0.00)
<i>Risk_t</i>	-0.076 (0.00)	-0.094 (0.00)	-0.074 (0.00)	-0.053 (0.06)	-0.059 (0.04)
<i>TreasStock_t</i>	0.263 (0.00)	0.266 (0.00)	0.263 (0.00)	0.261 (0.00)	0.261 (0.00)
# of Observations	5,156	4,665	5,156	4,566	4,566

Panel B: Two-stage least squares estimation, 1998-2001

	Dependent Variable: Return on Assets (ROA_t)				
	<i>Independence_t</i>	<i>DirectorOwn_t</i>	<i>CEO-Duality_t</i>	<i>G-Index_t</i>	<i>E-Index_t</i>
<i>Governance_t</i>	-0.739 (0.00)	0.028 (0.02)	-0.167 (0.00)	-0.097 (0.00)	-0.196 (0.00)
<i>Ownership_t</i>	-0.014 (0.00)	-0.008 (0.01)	-0.001 (0.10)	-0.016 (0.00)	-0.014 (0.00)
<i>Leverage_t</i>	-0.205 (0.00)	-0.200 (0.00)	-0.202 (0.00)	-0.213 (0.00)	-0.274 (0.00)
<i>Industry Performance_t</i>	0.714 (0.00)	0.694 (0.00)	0.694 (0.00)	0.791 (0.00)	0.708 (0.00)
<i>FirmSize_t</i>	0.015 (0.00)	0.006 (0.33)	0.002 (0.00)	0.006 (0.30)	-0.003 (0.67)
<i>R&DAdvExp_t</i>	-0.689 (0.00)	-0.753 (0.00)	-0.658 (0.00)	-0.910 (0.00)	-0.795 (0.00)
<i>BoardSize_t</i>	-0.008 (0.00)	-0.006 (0.01)	-0.005 (0.04)	0.002 (0.68)	-0.004 (0.20)
<i>Risk_t</i>	-0.226 (0.00)	-0.198 (0.01)	-0.190 (0.01)	-0.390 (0.00)	-0.251 (0.01)
<i>TreasStock_t</i>	0.367 (0.00)	0.364 (0.00)	0.389 (0.00)	0.368 (0.00)	0.329 (0.00)
# of Observations	5,156	4,665	5,156	4,566	4,566

Panel C: Ordinary least squares estimation, 2003-2007

	Dependent Variable: Return on Assets (ROA_t)				
	<i>Independence_t</i>	<i>DirectorOwn_t</i>	<i>CEO-Duality_t</i>	<i>G-Index_t</i>	<i>E-Index_t</i>
<i>Governance_t</i>	0.014 (0.14)	0.015 (0.00)	-0.001 (0.65)	-0.001 (0.07)	-0.004 (0.00)
<i>Ownership_t</i>	0.000 (0.05)	0.000 (0.07)	0.000 (0.02)	0.000 (0.08)	0.000 (0.17)
<i>Leverage_t</i>	-0.042 (0.00)	-0.021 (0.01)	-0.042 (0.00)	-0.042 (0.00)	-0.041 (0.00)
<i>Industry Performance_t</i>	0.478 (0.00)	0.461 (0.00)	0.477 (0.00)	0.470 (0.00)	0.468 (0.00)
<i>FirmSize_t</i>	-0.003 (0.00)	-0.006 (0.00)	-0.003 (0.00)	-0.003 (0.00)	-0.004 (0.00)
<i>R&DAdvExp_t</i>	-0.202 (0.00)	-0.242 (0.00)	-0.204 (0.00)	-0.199 (0.00)	-0.203 (0.00)
<i>BoardSize_t</i>	-0.003 (0.00)	-0.002 (0.01)	-0.003 (0.00)	-0.003 (0.00)	-0.002 (0.00)
<i>Risk_t</i>	0.456 (0.00)	-0.414 (0.00)	-0.454 (0.00)	-0.460 (0.00)	-0.464 (0.00)
<i>TreasStock_t</i>	0.147 (0.00)	0.147 (0.00)	0.147 (0.00)	0.147 (0.00)	0.147 (0.00)
# of Observations	6,515	6,377	6,515	7,665	7,665

Panel D: Two-stage least squares estimation, 2003-2007

	Dependent Variable: Return on Assets (ROA_t)				
	<i>Independence_t</i>	<i>DirectorOwn_t</i>	<i>CEO-Duality_t</i>	<i>G-Index_t</i>	<i>E-Index_t</i>
<i>Governance_t</i>	0.178 (0.01)	0.006 (0.03)	-0.029 (0.04)	0.014 (0.16)	-0.493 (0.05)
<i>Ownership_t</i>	0.002 (0.05)	0.000 (0.16)	0.001 (0.15)	0.001 (0.18)	0.018 (0.06)
<i>Leverage_t</i>	-0.671 (0.00)	-0.656 (0.00)	-0.649 (0.00)	-0.673 (0.00)	-0.030 (0.09)
<i>Industry Performance_t</i>	0.537 (0.00)	0.537 (0.00)	0.537 (0.00)	0.544 (0.00)	0.501 (0.07)
<i>FirmSize_t</i>	0.005 (0.00)	-0.007 (0.00)	0.008 (0.00)	-0.008 (0.00)	-0.072 (0.08)
<i>R&DAdvExp_t</i>	-0.481 (0.00)	-0.453 (0.00)	-0.456 (0.00)	-0.396 (0.00)	-0.500 (0.01)
<i>BoardSize_t</i>	-0.003 (0.28)	-0.001 (0.27)	-0.001 (0.37)	-0.003 (0.09)	-0.031 (0.07)
<i>Risk_t</i>	-0.266 (0.00)	-0.305 (0.00)	-0.313 (0.00)	-0.212 (0.01)	-0.288 (0.03)
<i>TreasStock_t</i>	0.156 (0.00)	0.163 (0.00)	0.165 (0.00)	0.156 (0.00)	0.150 (0.01)
# of Observations	6,515	6,377	6,515	7,665	7,665

Table IV: Governance and performance, equation (1a), by subperiod

This table presents the results from estimating equation (1a), the performance equation, across two different time periods: 1998-2001 and 2003-2007. Only the coefficient and p -value associated with the *Governance* variable in equation (1a) is presented. Five different specifications are presented with five different governance variables: *Independence*, board independence; *DirectorOwn*, the dollar value of the median director's stock ownership; *CEO-Duality*, whether or not the CEO is also the board chair; *G-Index*, the Gompers, Ishii and Metrick (2003) Governance Index; and, *E-Index*, the Bebchuk, Cohen and Ferrell (2009) Entrenchment index. Only the coefficient on the *Governance* variable in equation (1a) is presented. Three different measures of performance are estimated: *ROA*, return on assets, *Return*, stock return, and *Q*, Tobin's Q. Performance is measured in three different time periods: t , $t+1$, $t+2$. All other variables are as defined in the text. Ordinary Least Squares (OLS) and Two-Stage Least Squares (2SLS) results are both presented. An intercept and year and industry dummy variables are included but not presented. Standard errors are clustered by firm. Coefficients are presented with p -values below in parentheses.

	Dep Var: Contemporaneous ROA				Dep Var: Next Year's ROA				Dep Var: Next Two Years' ROA			
	1998-2001		2003-2007		1998-2001		2003-2007		1998-2001		2003-2007	
	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS
<i>Independence</i>												
<i>ROA_t</i>	-0.027 (0.01)	-0.739 (0.00)	0.014 (0.14)	0.178 (0.01)	-0.043 (0.00)	-0.401 (0.00)	0.019 (0.03)	0.116 (0.10)	-0.020 (0.00)	-0.081 (0.06)	0.016 (0.00)	0.013 (0.17)
<i>Return_t</i>	-0.051 (0.33)	-0.352 (0.27)	0.021 (0.56)	-0.180 (0.39)	-0.033 (0.61)	-0.594 (0.13)	0.017 (0.60)	-0.129 (0.47)	-0.037 (0.21)	-0.357 (0.05)	0.008 (0.59)	-0.047 (0.61)
<i>Q_t</i>	-0.537 (0.00)	-0.641 (0.55)	-0.250 (0.06)	0.351 (0.19)	-0.457 (0.01)	1.319 (0.32)	-0.269 (0.13)	0.833 (0.23)	-0.317 (0.07)	-2.210 (0.05)	-0.393 (0.33)	0.613 (0.14)
# of Observations	5,156	5,156	6,515	6,515	4,537	4,537	5,738	5,738	3,354	3,354	4,558	4,558
<i>DirectorOwn</i>												
<i>ROA_t</i>	0.015 (0.00)	0.028 (0.02)	0.015 (0.00)	0.006 (0.03)	0.008 (0.00)	0.034 (0.00)	0.012 (0.00)	0.004 (0.13)	0.004 (0.00)	0.010 (0.00)	0.003 (0.00)	0.003 (0.07)
<i>Return_t</i>	0.061 (0.00)	0.046 (0.03)	0.025 (0.00)	0.021 (0.10)	0.006 (0.41)	0.073 (0.00)	0.018 (0.28)	0.012 (0.28)	0.003 (0.35)	0.029 (0.09)	0.009 (0.11)	0.003 (0.26)
<i>Q_t</i>	0.417 (0.00)	0.345 (0.00)	0.286 (0.00)	-0.033 (0.54)	0.308 (0.00)	0.452 (0.00)	0.234 (0.00)	0.015 (0.44)	0.174 (0.00)	0.250 (0.18)	0.142 (0.12)	0.142 (0.18)
# of Observations	4,665	4,665	6,377	6,377	4,537	4,537	5,738	5,738	2,976	2,976	4,300	4,300

CEO-Duality_t

ROA_t	-0.003 (0.57)	-0.167 (0.00)	-0.001 (0.65)	-0.029 (0.04)	-0.003 (0.43)	-0.094 (0.00)	-0.003 (0.41)	-0.024 (0.12)	-0.003 (0.30)	-0.023 (0.02)	-0.003 (0.06)	-0.005 (0.37)
$Return_t$	-0.034 (0.18)	-0.088 (0.22)	-0.009 (0.46)	-0.019 (0.61)	-0.024 (0.45)	-0.193 (0.03)	-0.007 (0.58)	-0.027 (0.50)	-0.021 (0.15)	-0.950 (0.02)	-0.007 (0.28)	-0.012 (0.56)
Q_t	-0.077 (0.28)	-0.243 (0.27)	-0.062 (0.18)	0.028 (0.86)	-0.121 (0.17)	-0.297 (0.28)	-0.082 (0.09)	0.091 (0.59)	0.058 (0.50)	-0.199 (0.45)	-0.048 (0.50)	-0.409 (0.21)
# of Observations	5,156	5,156	6,515	6,515	4,537	4,537	5,738	5,738	3,354	3,354	4,558	4,558

G-Index_t

ROA_t	-0.001 (0.54)	-0.097 (0.00)	-0.001 (0.07)	0.014 (0.16)	0.002 (0.00)	-0.040 (0.04)	-0.007 (0.15)	0.035 (0.00)	-0.001 (0.01)	-0.019 (0.03)	-0.001 (0.30)	0.014 (0.39)
$Return_t$	-0.001 (0.82)	-0.049 (0.28)	0.003 (0.11)	-0.015 (0.52)	0.006 (0.13)	-0.106 (0.05)	-0.003 (0.06)	-0.006 (0.72)	-0.003 (0.23)	-0.073 (0.06)	0.001 (0.25)	0.007 (0.53)
Q_t	-0.047 (0.00)	-0.583 (0.00)	-0.027 (0.00)	0.138 (0.18)	-0.031 (0.00)	-0.248 (0.05)	-0.020 (0.00)	0.144 (0.08)	-0.016 (0.19)	-0.150 (0.39)	-0.011 (0.40)	0.018 (0.90)
# of Observations	4,566	4,566	7,665	7,665	3,758	3,758	6,733	6,733	2,909	2,909	5,479	5,479

E-Index_t

ROA_t	-0.006 (0.00)	-0.196 (0.00)	-0.004 (0.00)	-0.493 (0.05)	-0.004 (0.00)	-0.247 (0.01)	-0.004 (0.00)	-0.126 (0.17)	-0.003 (0.00)	-0.047 (0.03)	-0.001 (0.02)	0.067 (0.01)
$Return_t$	0.000 (0.99)	-0.118 (0.28)	0.007 (0.10)	-0.156 (0.24)	0.007 (0.48)	-0.488 (0.04)	0.007 (0.30)	-0.189 (0.26)	0.003 (0.54)	-0.176 (0.05)	0.004 (0.05)	-0.020 (0.68)
Q_t	-0.135 (0.00)	-0.202 (0.00)	-0.072 (0.00)	0.383 (0.21)	-0.149 (0.00)	-2.428 (0.01)	-0.070 (0.00)	0.977 (0.17)	-0.074 (0.01)	-0.953 (0.05)	-0.059 (0.28)	-0.395 (0.12)
# of Observations	4,566	4,566	7,665	7,665	3,758	3,758	6,733	6,733	2,909	2,909	5,479	5,479

Table V: Governance and performance, equation (1a), by change in independent directors

This table presents the results from estimating equation (1a), the performance equation, across the two different time periods, 1998-2001 and 2003-2007, for two unique sub-samples: those firms that increased their number of independent directors and those that did not.. Five different specifications are presented with five different governance variables: *Independence*, board independence; *DirectorOwn*, the dollar value of the median director's stock ownership; *CEO-Duality*, whether or not the CEO is also the board chair; *G-Index*, the Gompers, Ishii and Metrick (2003) Governance Index; and, *E-Index*, the Bebchuk, Cohen and Ferrell Entrenchment index. Only the coefficient on the *Governance* variable in equation (1a) is presented. Return on assets, *ROA*, is the measure of performance. Panel A shows the results for the subsample of firms that *increased* the number of independent directors on its board; Panel B shows the results for the subsample of firms that *did not increase* the number of independent directors on its board. All other variables are as defined in the text. Only Two-Stage Least Squares (2SLS) results are presented. An intercept and year and industry dummy variables are included but not presented. Standard errors are clustered by firm. Coefficients are presented with *p*-values below in parentheses.

Panel A: Increase in number of independent directors

	Dep Var: Contemporaneous ROA		Dep Var: Next Year's ROA		Dep Var: Next Two Years' ROA	
	1998-2001	2003-2007	1998-2001	2003-2007	1998-2001	2003-2007
<i>Independence_t</i>	-0.412 (0.10)	0.509 (0.00)	-0.583 (0.00)	0.014 (0.13)	-0.052 (0.29)	0.177 (0.03)
# of Observations	1,344	2,066	1,187	1,982	887	1,588
<i>DirectorOwn_t</i>	0.018 (0.03)	0.001 (0.01)	0.017 (0.00)	0.009 (0.00)	0.001 (0.82)	0.007 (0.02)
# of Observations	1,283	1,967	1,160	1,871	863	1,454
<i>CEO-Duality_t</i>	-0.087 (0.18)	-0.004 (0.84)	-0.092 (0.01)	0.000 (0.98)	-0.012 (0.52)	-0.075 (0.00)
# of Observations	1,344	2,066	1,187	1,982	887	1,588
<i>G-Index_t</i>	-0.053 (0.13)	0.040 (0.08)	0.010 (0.27)	-0.047 (0.00)	0.005 (0.56)	-0.033 (0.01)
# of Observations	1,208	2,015	1,085	1,958	793	1,621
<i>E-Index_t</i>	-0.063 (0.32)	-0.567 (0.27)	-0.169 (0.00)	-0.004 (0.00)	-0.008 (0.58)	-0.071 (0.03)
# of Observations	1,208	2,015	1,085	1,958	793	1,621

Panel B: No Increase in number of independent directors

	Dep Var: Contemporaneous ROA		Dep Var: Next Year's ROA		Dep Var: Next Two Years' ROA	
	1998-2001	2003-2007	1998-2001	2003-2007	1998-2001	2003-2007
<i>Independence_t</i>	-0.230 (0.01)	-0.077 (0.40)	-0.133 (0.03)	0.181 (0.23)	-0.085 (0.01)	0.074 (0.02)
# of Observations	3,812	4,449	3,350	3,756	2,468	2,970
<i>DirectorOwn_t</i>	0.018 (0.00)	0.019 (0.08)	0.015 (0.01)	0.024 (0.02)	0.005 (0.04)	0.010 (0.00)
# of Observations	3,382	4,410	2,945	3,656	2,113	2,847
<i>CEO-Duality_t</i>	-0.061 (0.00)	-0.023 (0.18)	-0.217 (0.00)	-0.116 (0.00)	-0.048 (0.00)	-0.038 (0.01)
# of Observations	3,812	4,449	3,350	3,756	2,468	2,970
<i>G-Index_t</i>	-0.036 (0.02)	0.039 (0.10)	0.041 (0.00)	0.019 (0.07)	-0.016 (0.04)	0.029 (0.00)
# of Observations	3,358	5,650	2,673	4,775	2,115	3,858
<i>E-Index_t</i>	-0.064 (0.03)	-0.161 (0.06)	0.032 (0.29)	0.145 (0.17)	-0.032 (0.02)	0.217 (0.15)
# of Observations	3,358	5,650	2,673	4,775	2,115	3,858

Table VI: Horse race – two endogenous governance variables

This table presents the results from estimating a modified version of equation (1a), the performance equation, across two different time periods: 1998-2001 and 2003-2007. A fifth equation is added to equation (1) for a second endogenous governance variable. *Independence*, board independence, is presumed to be endogenous in one equation, and *DirectorOwn*, is included as a second endogenous governance variable in a separate equation. Only the coefficients on the two *Governance* variables in equation (1a) are presented. Return on Assets, *ROA*, is the measure of performance for three time periods: contemporaneous with governance, one year after governance, and two years after governance. Two-Stage Least Squares (2SLS) results are presented. An intercept and year and industry dummy variables are included but not presented. Standard errors are clustered by firm. Coefficients are presented with *p*-values below in parentheses.

	Dep Var: Contemporaneous <i>ROA</i>		Dep Var: Next Year's <i>ROA</i>		Dep Var: Next Two Years' <i>ROA</i>	
	1998-2001	2003-2007	1998-2001	2003-2007	1998-2001	2003-2007
<i>DirectorOwn_t</i>	0.010 (0.03)	0.199 (0.03)	0.009 (0.00)	0.012 (0.17)	0.004 (0.00)	0.002 (0.00)
<i>Independence_t</i>	-0.325 (0.03)	0.480 (0.04)	-0.015 (0.15)	0.391 (0.02)	-0.006 (0.37)	0.009 (0.02)
# of Observations	4,492	6,035	2,515	5,332	1,861	4,217

Table VII: Governance and performance, equation (1a), *BusyBoards*, *D-Index*, and *IndepInsider*

This table presents the results from estimating equation (1a), the performance equation, across two different time periods: 1998-2001 and 2003-2007. Three different governance specifications are presented measuring performance in three different time periods relative to governance. *BusyBoards* is the percentage of directors on more than 3 boards. *D-Index* is the subset of charter provisions that pertain exclusively to directors (0 to 4 scale) including directors duties, director indemnification, director indemnification contracts and limits on director liability. *IndepInsider* is the number of sample firm's executives on the board who hold at least one additional outside directorship. Only the coefficient on the *Governance* variable in equation (1a) is presented. Three different measures of performance are estimated: *ROA*, return on assets, *Return*, stock return, and *Q*, Tobin's Q. Performance is measured in the same year as governance, the year after governance, and two years after governance. All other variables are as defined in the text. Ordinary Least Squares (OLS) and Two-Stage Least Squares (2SLS) results are both presented. An intercept and year and industry dummy variables are included but not presented. Standard errors are clustered by firm. Coefficients are presented with *p*-values below in parentheses.

	<u>Dep Var: Contemporaneous ROA</u>				<u>Dep Var: Next Year's ROA</u>				<u>Dep Var: Next Two Years' ROA</u>			
	<u>1998-2001</u>		<u>2003-2007</u>		<u>1998-2001</u>		<u>2003-2007</u>		<u>1998-2001</u>		<u>2003-2007</u>	
	<u>OLS</u>	<u>2SLS</u>	<u>OLS</u>	<u>2SLS</u>	<u>OLS</u>	<u>2SLS</u>	<u>OLS</u>	<u>2SLS</u>	<u>OLS</u>	<u>2SLS</u>	<u>OLS</u>	<u>2SLS</u>
<i>BusyBoards_t</i>												
<i>ROA_t</i>	0.037 (0.11)	-5.200 (0.03)	0.009 (0.59)	3.259 (0.00)	0.002 (0.09)	-5.828 (0.00)	-0.022 (0.22)	3.171 (0.00)	-0.008 (0.51)	-0.412 (0.02)	0.032 (0.00)	0.636 (0.00)
<i>Return_t</i>	-0.083 (0.49)	-3.827 (0.15)	-0.052 (0.49)	0.286 (0.86)	-0.294 (0.08)	3.700 (0.31)	-0.007 (0.92)	1.001 (0.20)	-0.190 (0.01)	1.405 (0.15)	0.003 (0.93)	0.779 (0.38)
<i>Q_t</i>	-0.201 (0.57)	-1.677 (0.74)	0.095 (0.67)	3.154 (0.64)	-0.590 (0.21)	2.739 (0.20)	-0.076 (0.75)	1.191 (0.30)	-0.541 (0.17)	1.942 (0.07)	-0.056 (0.79)	1.132 (0.62)
# of Observations	5,156	5,156	6,515	6,515	4,537	4,537	5,738	5,738	3,354	3,354	4,558	4,558
<i>D-Index_t</i>												
<i>ROA_t</i>	0.001 (0.52)	-0.813 (0.08)	-0.001 (0.52)	0.159 (0.00)	-0.001 (0.66)	-0.035 (0.30)	0.001 (0.25)	0.146 (0.00)	-0.003 (0.01)	-0.027 (0.12)	0.000 (0.81)	0.039 (0.00)
<i>Return_t</i>	-0.006 (0.55)	0.362 (0.36)	0.009 (0.09)	-0.033 (0.53)	-0.007 (0.66)	0.036 (0.87)	0.014 (0.00)	0.064 (0.29)	-0.009 (0.16)	-0.007 (0.94)	0.004 (0.14)	0.043 (0.16)
<i>Q_t</i>	-0.077 (0.01)	0.104 (0.89)	-0.086 (0.00)	0.153 (0.49)	-0.074 (0.07)	-1.119 (0.08)	-0.029 (0.78)	0.706 (0.12)	-0.036 (0.30)	-1.284 (0.41)	-0.025 (0.12)	0.450 (0.29)
# of Observations	4,566	4,566	7,665	7,665	3,758	3,758	6,733	6,733	2,976	2,976	4,300	4,300
<i>IndepInsider_t</i>												
<i>ROA_t</i>	0.017 (0.00)	0.984 (0.13)	0.007 (0.06)	0.142 (0.17)	0.016 (0.00)	0.254 (0.00)	0.007 (0.07)	0.088 (0.01)	0.004 (0.14)	0.118 (0.01)	-0.002 (0.34)	-0.207 (0.16)
<i>Return_t</i>	0.020 (0.49)	-0.538 (0.63)	-0.021 (0.19)	0.384 (0.18)	0.012 (0.75)	0.399 (0.41)	-0.027 (0.06)	0.235 (0.49)	0.015 (0.00)	0.272 (0.30)	-0.017 (0.60)	0.899 (0.05)
<i>Q_t</i>	0.244 (0.00)	-0.237 (0.61)	0.111 (0.04)	0.373 (0.54)	0.172 (0.09)	0.061 (0.53)	0.116 (0.02)	-0.120 (0.18)	0.172 (0.05)	0.043 (0.25)	0.093 (0.04)	-0.527 (0.42)
# of Observations	5,156	5,156	6,515	6,515	4,537	4,537	5,738	5,738	3,354	3,354	4,558	4,558

Table VIII: Reasons for CEO Turnover

This table presents the classifications for reasons why CEO turnover occurred in a specific year. Lexis-Nexis archives were reviewed to determine the stated reason for why a CEO left the firm. CEO turnover data was obtained from Compustat's Execucomp database. CEO Turnover is classified as "Non-disciplinary" if the CEO died, if the CEO was older than 63, if the change was the result of an announced transition plan, or if the CEO stayed on as chairman of the board. CEO Turnover is classified as "Disciplinary" if the CEO resigned to pursue other interests, if the CEO was fired, or if no specific reason is given.

Reasons for CEO Turnover: 1998 - 2007				
	Disciplinary	Non-Disciplinary	Other	Total
1998	65	118	18	201
1999	66	127	5	198
2000	92	143	9	244
2001	86	162	7	255
2002	81	100	1	182
2003	82	94	3	179
2004	49	122	3	174
2005	73	135	2	210
2006	61	126	0	187
2007	46	73	2	121
Total	701	1,200	50	1,951
% of Total	35.9%	61.5%	2.6%	100%

Table IX: CEO turnover-governance relation

This table presents the results from multinomial logistic regressions estimating the probability of CEO Turnover. The dependent variables are type of CEO turnover: 1 = Disciplinary turnover, 2 = Non-disciplinary turnover, 0 = no turnover. Baseline results without governance are presented in the first column; all other columns present results including Governance and (Performance \times Governance) variables. The other control variables are described in the text 1. Year dummy variables are included but are not shown. Panel A presents the results for disciplinary turnover for 1998-2001; Panel B presents the results for non-disciplinary turnover for 1998-2001. Panel C presents the results for disciplinary turnover for 2003-2007; Panel D presents the results for non-disciplinary turnover for 2003-2007. Sample size refers to the entire sample for the particular period, and not just to cases of disciplinary turnover and non-disciplinary turnover.

Panel A: Disciplinary turnover, 1998-2001

	<i>Governance Variable</i>					
	Baseline Performance	<i>Independent_t</i>	<i>DirectorOwn_t</i>	<i>CEO-Duality_t</i>	<i>G-Index_t</i>	<i>E-Index_t</i>
<i>Intercept</i>	-3.330 (0.00)	-3.268 (0.00)	-4.000 (0.00)	-3.310 (0.00)	-2.978 (0.00)	-3.170 (0.00)
<i>Return_{t-2 to t-1}</i>	-1.576 (0.00)	-0.486 (0.59)	-2.443 (0.27)	-0.956 (0.06)	-1.277 (0.20)	-1.483 (0.01)
<i>IndustryReturn_{t-2 to t-1}</i>	0.452 (0.20)	0.454 (0.19)	0.531 (0.12)	0.443 (0.21)	0.512 (0.14)	0.543 (0.12)
<i>Governance_t</i>	-	-0.140 (0.22)	0.045 (0.42)	-0.513 (0.01)	-0.030 (0.36)	0.001 (0.99)
<i>Return_{t-2 to t-1} \times Governance_t</i>	-	-1.784 (0.07)	-0.044 (0.08)	-0.929 (0.12)	-0.004 (0.85)	-0.119 (0.60)
<i>CEOOwn%_t</i>	-0.119 (0.00)	-0.121 (0.00)	-0.121 (0.00)	-0.118 (0.00)	-0.114 (0.00)	-0.111 (0.00)
<i>FirmSize_t</i>	-0.093 (0.09)	-0.090 (0.10)	-0.094 (0.09)	-0.059 (0.30)	-0.077 (0.17)	-0.082 (0.14)
<i>CEOAge_{t-1}</i>	0.020 (0.12)	0.020 (0.11)	0.021 (0.10)	0.022 (0.08)	0.015 (0.23)	0.014 (0.27)
<i>CEOTenure_{t-1}</i>	-0.025 (0.07)	-0.026 (0.07)	-0.027 (0.06)	-0.025 (0.08)	-0.020 (0.15)	-0.019 (0.18)
Years Included	1998-2001	1998-2001	1998-2001	1998-2001	1998-2001	1998-2001
Sample Size	4,257	4,257	4,228	4,257	4,075	4,075

Panel B: Non-disciplinary turnover, 1998-2001

	<i>Governance Variable</i>					
	Baseline Performance	<i>Independent_t</i>	<i>DirectorOwn_t</i>	<i>CEO-Duality_t</i>	<i>G-Index_t</i>	<i>E-Index_t</i>
<i>Intercept</i>	-8.250 (0.00)	-8.460 (0.00)	-8.037 (0.00)	-7.992 (0.00)	-8.212 (0.00)	-8.259 (0.00)
<i>Return_{t-2 to t-1}</i>	-0.203 (0.31)	0.481 (0.39)	-1.435 (0.20)	-0.175 (0.59)	0.243 (0.70)	-0.243 (0.49)
<i>IndustryReturn_{t-2 to t-1}</i>	0.306 (0.24)	0.316 (0.22)	0.331 (0.20)	0.248 (0.35)	0.378 (0.15)	0.388 (0.14)
<i>Governance_t</i>	- -	0.300 (0.38)	-0.022 (0.58)	-0.947 (0.00)	-0.004 (0.85)	0.010 (0.84)
<i>Return_{t-2 to t-1} X Governance_t</i>	- -	-1.118 (0.20)	0.086 (0.26)	-0.036 (0.92)	-0.061 (0.39)	-0.013 (0.93)
<i>CEOOwn%_t</i>	-0.212 (0.00)	-0.210 (0.00)	-0.213 (0.00)	-0.208 (0.00)	-0.226 (0.00)	-0.224 (0.00)
<i>FirmSize_t</i>	0.020 (0.58)	0.018 (0.62)	0.024 (0.50)	0.082 (0.03)	0.022 (0.55)	0.021 (0.57)
<i>CEOAge_{t-1}</i>	0.100 (0.00)	0.101 (0.00)	0.101 (0.00)	0.100 (0.00)	0.101 (0.00)	0.100 (0.00)
<i>CEOTenure_{t-1}</i>	0.010 (0.18)	0.010 (0.16)	0.011 (0.15)	0.009 (0.22)	0.011 (0.14)	0.011 (0.13)
Years Included	1998-2001	1998-2001	1998-2001	1998-2001	1998-2001	1998-2001
Sample Size	4,257	4,257	4,228	4,257	4,075	4,075

Panel C: Disciplinary turnover, 2003-2007

	<i>Governance Variable</i>					
	Baseline Performance	<i>Independent_t</i>	<i>DirectorOwn_t</i>	<i>CEO-Duality_t</i>	<i>G-Index_t</i>	<i>E-Index_t</i>
<i>Intercept</i>	-0.978 (0.98)	-14.468 (0.87)	-11.677 (0.90)	-13.555 (0.88)	-12.921 (0.88)	-12.879 (0.88)
<i>Return_{t-2 to t-1}</i>	-3.510 (0.00)	-0.712 (0.83)	-0.161 (0.92)	-2.942 (0.00)	0.628 (0.72)	-2.194 (0.03)
<i>IndustryReturn_{t-2 to t-1}</i>	0.344 (0.05)	0.456 (0.49)	0.542 (0.41)	0.491 (0.46)	0.337 (0.58)	0.309 (0.61)
<i>Governance_t</i>	- -	1.935 (0.14)	-0.121 (0.26)	-0.948 (0.10)	-0.009 (0.83)	-0.025 (0.76)
<i>Return_{t-2 to t-1} x Governance_t</i>	- -	-3.726 (0.39)	-0.248 (0.05)	-1.407 (0.21)	-0.519 (0.01)	-0.777 (0.03)
<i>CEOOwn%_t</i>	-0.205 (0.04)	-0.230 (0.08)	-0.221 (0.09)	-0.206 (0.11)	-0.289 (0.03)	-0.285 (0.04)
<i>FirmSize_t</i>	0.079 (0.14)	0.074 (0.23)	0.101 (0.10)	0.145 (0.02)	0.103 (0.06)	0.105 (0.06)
<i>CEOAge_{t-1}</i>	0.056 (0.00)	0.068 (0.00)	0.067 (0.00)	0.078 (0.00)	0.059 (0.00)	0.058 (0.00)
<i>CEOTenure_{t-1}</i>	-0.030 (0.07)	-0.036 (0.07)	-0.039 (0.04)	-0.029 (0.12)	-0.035 (0.05)	-0.034 (0.05)
Years Included	2003-2007	2003-2007	2003-2007	2003-2007	2003-2007	2003-2007
Sample Size	6,410	5,547	5,501	5,547	5,876	5,876

Panel D: Non-disciplinary turnover, 2003-2007

	<i>Governance Variable</i>					
	Baseline Performance	<i>Independent_t</i>	<i>DirectorOwn_t</i>	<i>CEO-Duality_t</i>	<i>G-Index_t</i>	<i>E-Index_t</i>
<i>Intercept</i>	1.840 (0.02)	-12.901 (0.00)	-13.541 (0.00)	-13.366 (0.00)	-13.062 (0.00)	-13.056 (0.00)
<i>Return_{t-2 to t-1}</i>	-0.121 (0.64)	0.948 (0.47)	-3.857 (0.17)	0.067 (0.85)	-1.479 (0.15)	-0.767 (0.19)
<i>IndustryReturn_{t-2 to t-1}</i>	0.138 (0.66)	0.303 (0.42)	0.313 (0.40)	0.344 (0.37)	0.062 (0.87)	0.081 (0.82)
<i>Governance_t</i>	- -	-0.332 (0.57)	0.028 (0.66)	-1.612 (0.00)	0.023 (0.45)	0.047 (0.43)
<i>Return_{t-2 to t-1} X Governance_t</i>	- -	-1.564 (0.39)	0.263 (0.18)	-0.214 (0.70)	0.157 (0.13)	0.295 (0.14)
<i>CEOOwn%_t</i>	-0.578 (0.00)	-0.672 (0.00)	-0.687 (0.00)	-0.609 (0.00)	-0.606 (0.00)	-0.611 (0.00)
<i>FirmSize_t</i>	0.062 (0.06)	0.077 (0.03)	0.061 (0.10)	0.149 (0.00)	0.053 (0.13)	0.060 (0.09)
<i>CEOAge_{t-1}</i>	0.128 (0.00)	0.136 (0.00)	0.139 (0.00)	0.149 (0.00)	0.134 (0.00)	0.135 (0.00)
<i>CEOTenure_{t-1}</i>	-0.015 (0.06)	-0.020 (0.03)	-0.019 (0.03)	-0.008 (0.39)	-0.015 (0.08)	-0.014 (0.09)
Years Included	2003-2007	2003-2007	2003-2007	2003-2007	2003-2007	2003-2007
Sample Size	6,410	5,547	5,501	5,547	5,876	5,876