

Does Changing Corporate Governance Alone Result in Better Firm Performance?

N. K. Chidambaran^{*}, Darius Palia^{**} and Yudan Zheng^{***1}
^{*}Fordham University ^{**}Rutgers University ^{***}Long Island University

Abstract

An important public policy issue actively debated in the financial economics literature is whether firms can increase their value solely by changing one or more corporate governance mechanisms. In this paper, we directly examine whether changing governance leads to changes in future firm performance. Specifically, we analyze a sample of firms that instituted governance changes and sort them based on the direction of their governance changes for thirteen different governance measures. We focus on firms that make large governance changes to enhance the power of our tests. We find no significant difference in future performance between firms that have a large increase in governance measures and firms that have a large decrease in governance measures. We also find that the governance changes are driven by movement towards mean industry governance levels, merger pressures, as well as changes in the firm's observable characteristics. We conclude that firms choose their governance structures in equilibrium, and changing governance alone does not result in better future performance. These findings are robust to many different specifications, definitions of large governance changes, samples, and definitions of firm performance.

¹ Corresponding Author. We thank Yakov Amihud, Ivan Brick, Stephen Brown, Markus Brunnermeier, Matt Clayton, Jeffrey Coles, Jay Dahya, Espen Eckbo, Manuela Gallo, Bikki Jaggi, Kose John, Ken French, Simi Kedia, Francis Longstaff, Andrew Metrick, Eli Ofek, Donna Paul, Roberta Romano, Nancy Rose, Hyun Shin, Anil Shivdasani, Sheridan Titman, Wei Xiong, and David Yermack for helpful discussions. We also thank conference participants at the 12th International Conference of the Society of Global Business and Economic Development in Singapore, the 2007 Triple Crown Conference, the 2007 ASSA meetings, the 2007 CAF Summer Research Conference at the Indian School of Business, the 2006 FMA meetings, the Rutgers Corporate Governance Conference, and seminar participants at American University, Helsinki School of Economics, Long Island University, London Business School, London School of Economics, New York University, Princeton University, Stockholm School of Economics, Swedish School of Economics, Texas Tech University, Tuck School of Business at Dartmouth, Tulane University, University of Bath, University of California at San Diego, Washington University in St. Louis, and Wayne State University. We thank Brian Bushee for institutional classification data and Christo Pirinsky for insider ownership data. We also thank the Whitcomb Financial Services Center and the Rutgers Research Council for partial financial support. All errors remain our responsibility.

1. Introduction

There has been considerable discussion in the academic literature of managerial agency problems that arise from the separation of ownership and control (see for example, Jensen and Meckling, 1976 and Amihud and Lev, 1981). A number of corporate governance mechanisms have been proposed to ameliorate this agency problem between managers and their shareholders (see Morck, Shleifer, and Vishny, 1988 and Jensen and Murphy, 1990 among many others). Such studies have found a positive *contemporaneous* correlation between firm performance and various governance measures, which have led to numerous attempts to reform governance by institutional investors, stock exchanges and the Congress. Notwithstanding studies have concluded that “one size does not fit all” (see e.g. Coles, Daniel, Naveen 2008), prescriptions for governance reform almost always suggest a particular *direction* for changing governance. For example, the NYSE and the NASDAQ require board committees to be mostly comprised of independent directors; activist institutional investors have lobbied firms for compensation reform and reduce option grants; and the 2002 Sarbanes-Oxley Act vastly increased director accountability. However, whether changing a firm’s governance structure in a particular direction can lead to better subsequent firm performance remains an open question, especially across a range of governance measures. We examine this question directly - “Do firms improve their performance by simply changing their governance?”

The empirical approach is as follows. A sample of firms that have changed their governance is compiled and classified into those that *change* governance in one direction, i.e. those that “Increased Governance”, and those that change in the opposite direction, i.e. those that “Decreased Governance.”² Then the analysis tests whether firms that change their governance structure in one direction consistently outperform those that change their governance structure in the opposite direction and whether the performance differences are consistent with the suggestions in the literature. Sorting firms based on the governance change alone and examining the future performance of each sample will reveal whether such governance changes results in value increases.

The governance changes in firms are determined with respect to thirteen different governance measures -- three measures based on the board of directors, five measures of pay-performance sensitivity, two measures of shareholder rights, a measure of institutional ownership and CEO turnover. To enhance the power of our tests, the focus is on firms with large governance changes. The firms are sorted into those that have experienced a large increase in the governance measure, and those that experience a large decrease in the governance measure. In constructing these samples, the study controls for abnormal prior performance to control for the problem of reverse causality. We also control for significant corporate events in the firm such as asset sales and mergers to control for governance changes driven by these corporate events.

The future performance is compared between the sub-sample of firms with a large increase in governance measures and the sub-sample of firms with a large decrease in governance measures.

² Alternate nomenclature might be “Positive vs. Negative” governance change or “Good vs. Bad” governance change. We use the more neutral nomenclature in keeping with our research question: Is one direction better than the other? The prescriptions from literature with respect to the direction that constitutes a good governance change as opposed to a bad governance change are discussed more fully in Section 2.

Findings show that governance changes in both directions lead to statistically significant performance changes. However, comparing the performance between the two sub-samples of firms with the opposite directions in governance changes, we find that there is no statistical difference in the percentage of firms with positive future performance, nor is there a statistical difference in the mean and median of future industry-adjusted stock returns in the two sub-samples. The only exceptions seem to be the samples in which firms have a large change in the amount of cash bonus paid to the CEO and the sample in which firms have a large change in the percentage of shares held by institutions. The latter result is likely to be due to “timing” of trades rather than an incentive to generate better performance.

Given that the above results show no difference in performance between the two sets of firms, next examined is what drives these firms to make these changes in the first place. We find that the changes in the firm’s governance structure are related to the changing nature of the firm, often in *complex* ways. The tests expand on the set of factors used in the literature to explain governance changes by including deviations from the average industry governance levels and merger pressure as control variables. A negative relationship between governance changes in firms and the extent to which the firm has deviated from industry average governance is found, suggesting that firms change their governance in order to approach the mean governance level in their industry. Indeed, the decision to move towards industry norms seems to be strongly statistically significant in determining the observed change in governance for all our governance measures. Given this result, it is not surprising that we find no significant performance differences between firms that experience large increases and large decreases in governance measures.

The results imply that firms optimize on a Coasian envelope across various governance measures. The results are also consistent with prior work that has found each of the governance mechanisms to be endogenously related to firm characteristics (see, for example, Demsetz and Lehn, 1985; Smith and Watts, 1992; Himmelberg, Hubbard, and Palia, 1999; and Wintoki, Linck, and Netter, forthcoming). This study adds to this literature in that the findings *directly* show that simply prescribing a particular change in any governance measure cannot generate value-increasing effects for all the firms. Our results also offer evidence in favor of firms being in equilibrium with respect to their governance structure. In addition, note that the study is over an 11-year period (1992-2002) that is significantly longer than most previous studies. Further, the study is a concurrent examination of a broad set of governance measures rather than focusing on just one or two governance measures as in the prior literature.

One reasonable argument that is often made is that a firm’s prior performance characteristic may influence the impact of governance changes. For example, governance changes can be expected to have a significant positive impact on performance in the sample of firms that experience large performance declines. Or, during good times some firms may use the opportunity to reduce the quality of their governance while others might seek to reinforce good performance by improving governance. We expand our study to examine these arguments by constructing two additional samples of firms. We create an *Abnormally Bad Performance* sample that consists of firms that have experienced a large performance decline and an *Abnormally Good Performance* sample that consists of firms that have experienced a large performance increase. Unlike the samples of firms in our main empirical tests, the set of firms in the *Abnormally Bad Performance* and the *Abnormally Good Performance* samples do not vary as a function of the governance measure

analyzed. In these samples therefore, we are able to construct a compound *Aggregate Governance Change* measure for each firm. In addition to examining the effect of changes in each of the thirteen governance measures, we also examine the impact of the *Aggregate Governance Change* for each firm in the abnormal performance samples. Once again, we find no statistical difference in the performance of the firms with increases in governance measures and the firms with decreases in governance measures.

Several additional steps are taken to ensure the robustness of our results (results available on request from the authors). The analysis is repeated for all the samples (i.e., no prior abnormal performance, abnormally good and abnormally bad performance samples) with firm performance defined as industry-adjusted return-on-assets, the intercept (Alpha) from the Fama-French-Carhart four-factor asset-pricing model, and Tobin's Q. The results hold for each of these alternative performance measures. Additionally, the various cutoff points for defining a large governance change and different non-monotonic functional forms on the value-insider ownership relation are used with no significant changes in the results.

As an alternative to future performance tests, we also utilize event studies to examine the impact of governance changes. Details on a firm's compensation and the board of directors are revealed in the firm's proxy statement. Therefore, the proxy filing date is used as the event date. Consistent with other results, no significant abnormal returns are found around the proxy filing date.

The rest of the paper is organized as follows: Section 2 describes our methodology and the data. Section 3 presents the analysis on the determinants of governance changes. Our empirical results on future performance are reported in Section 4 and Section 5. Section 6 reports the results of the extensive robustness checks that we perform. Section 7 presents our summary and conclusions.

2. Methodology and Data

This section describes the data sources, the construction of samples of firms with large increases and with large decreases in various governance measures, and provides summary statistics for the data.

2A. Research Design

The governance changes in firms are determined for thirteen different governance measures, among which are three measures based on the board of directors, five measures of pay-performance sensitivity, two measures of shareholder rights, a measure of institutional ownership, and CEO turnover. In constructing the sample, abnormal prior performance must be controlled to control for the problem of reverse causality. In the base case analysis, the sample excludes firms that experience extremely good or extremely bad performance changes in order to control for reverse causality. The sample also excludes firms that undergo a merger, an acquisition, or a CEO change in the two years before and after the current fiscal year (except when examining CEO turnover) as firms undergoing changes in control experience natural changes in their governance

(see Lehn and Zhao, 2006).³ In parallel empirical tests firms that have experienced abnormally large performance declines or abnormally large performance increases are separately examined.

The firms are sorted into those that experience a large increase in the governance measure, and those that experience a large decrease in the governance measure, and study the future performance effects in each of these sub-samples. The classification of the governance changes in the opposite directions is based on the significant linear relationship between various governance measures and performance that the literature has reported. For example, the literature has shown that board independence, pay-for-performance sensitivity, or shareholder rights are positively related to firm performance.

For each sub-sample, the future industry-adjusted performance is examined to test whether the performance is statistically significant. We then test for differences in performance between the sub-samples of firms with the opposite directions in governance changes. If one restricts the analysis to only increases in governance measures or only decreases in governance measures, one might incorrectly conclude that governance changes lead to performance changes. In performing these tests, our hypothesis is that governance changes in a specific direction can have value-increasing effects and deliver better performance than the opposite direction.

Next examined are the factors that affect the firms' decision to change their governance structure. The set of factors used as determinants of governance change in the literature is expanded to include deviations from the industry average and merger pressure in our regressions. If governance changes have an impact on future performance, and governance changes are affected by industry and firm characteristics, the study can seek to distinguish between the potential effect of governance changes and the potential effect of changes in firm characteristics, on the firm's future performance.

While the study classifies the governance changes in the opposite directions in determining the two large governance change samples, these ex-ante directions are not crucial to our differences-in-differences approach. By comparing the performance of firms that change governance in one direction to the performance of firms that change governance in the opposite direction, the research will also be able to identify any other consistent governance impact. In the robustness tests, other ways to sort firms based on their governance changes and firm characteristics are also considered, e.g. several different cutoffs for defining a large governance change, examining subsamples of firms with high and low R&D expenses, and differentiating between transient and dedicated institutional investors.

2B. Definitions of Governance Variables

Governance mechanisms are classified into board characteristics, CEO pay-performance sensitivity, insider ownership, institutional ownership, CEO turnover, and shareholder rights.

CEO pay-performance sensitivity (PPS): The first measure of the CEO's pay-performance sensitivity is the dollar value of bonus (*Bonus*) granted in that year. The second measure

³ For robustness, we replicate our tests and check all our results for samples without this exclusion of firms with a merger or CEO turnover and find no changes in the general results.

(*Options*), incorporates the impact of the change in the value of the common stock upon both the value of the options granted during the year and the options outstanding but yet unexercised (granted in previous years). The third measure is (*Ppswealth*) is the sum of the value change in CEO's total options and the value change in the CEO's stockholding for one-dollar change in market value of equity. To be comprehensive, two measures are also examined, *Newoptions* and *Shares*, which are the pay-performance sensitivity of the CEO's new options granted in that year and the percentage of total shares owned by the CEO in the firm, respectively. Using the methodology in Core and Guay (2002), the study computes the sensitivities of the CEO's exercisable outstanding options, unexercisable outstanding options and the newly awarded options in the current year, each multiplied by the corresponding proportion of shares represented by option grants.

Shareholder rights: The first measure of shareholder rights is the *G-Index* used by Gompers, Ishii, and Metrick (2003), which is based on the incidence of 24 governance rules. Firms with lowest *G-Index* values have the strongest shareholder rights and firms with highest values of the *G-Index* have the weakest shareholder rights. The second measure of shareholder rights is the *E-Index* defined by Bebchuk, Cohen, and Ferrell (2009). Bebchuk, Cohen, and Ferrell (2009) find that six of the governance provisions have the highest impact on firm value and use these provisions to construct an *E-Index* that measures the degree to which managers are protected from takeovers. A high level of the *E-Index* indicates that there are multiple impediments to a takeover and managers are entrenched. A low level of the *E-Index* indicates that a firm is easier to be taken over and managers are less entrenched.

Insider Ownership: As in Helwege, Pirinsky, and Stulz (2007) and Himmelberg, Hubbard, and Palia (1999), we use the ratio of insiders' holdings of common shares over total shares outstanding as our measure of insider ownership.⁴ Data on insider ownership is from Compact Disclosure CDs (October release) that provides information on all the firms that file with the SEC and have assets in excess of \$5 million. The total number of shares is obtained from CRSP for the same month as the date of the proxy. Morck, Shleifer, and Vishny (1988) find a non-monotonic relationship between insider ownership and firm value and show two inflection points at 5% and 25% respectively. Accordingly, one direction of the change in insider ownership (labeled as "increases") is defined if there is an increase in insider ownership and the level of ownership remains less than 5% or if there is a decrease in insider ownership and the level of ownership remains greater than 5%. On the other hand, when insider ownership decreases and the level of ownership remains less than 5% or when insider ownership increases and the level of ownership remains greater than 5%, the opposite direction (labeled as "decreases") is classified.⁵

Board characteristics: Studies have generally examined three characteristics of boards, namely, the size of the board, proportion of outsiders on the board, and the number of board meetings (see e.g. Brick and Chidambaran, 2010). Accordingly, the variable *Bsize*, the number of directors that are on the board, is defined, as is *Boutsiders*, the proportion of outsiders on the board, and

⁴ We thank Christo Pirinsky for the data on insider ownership from 1992-2001. We augmented the data set by adding the 2002 data from the October 2003 CD from Compact Disclosure.

⁵ We have also used an alternate definition of increases and decreases in insider ownership based on a linear specification of an increase or a decrease in insider ownership.

Bmeeting, the number of meetings of the board of directors. Gray directors, those directors that have some prior or current business affiliation with the company, are treated as inside directors.

Other Governance Variables: Consistent with the existing literature, the percentage of shares owned by large institutional shareholders is used as a proxy for institutional ownership (see Demiralp, D'Mello, Schlingemann, and Subramaniam, forthcoming). This variable is called *Instshares* and is computed from data from 13F filings reported by CDA Spectrum. We also measure the incidence of CEO turnover (*Turnover*) and compare the performance consequences for the *Turnover* and the non-*Turnover* sub-sample. ExecuComp is used to identify the incidence of CEO turnovers. Specifically, a firm has a turnover in a year if the CEO at the end of the previous fiscal year is different from the CEO at the end of the current year. As a robustness check, all tests are replicated using only forced CEO changes, which is defined to be turnovers when the previous CEO is less than 65 years old and the previous CEO is not reported to be deceased in ExecuComp. For each of the above thirteen governance metrics used, the performance consequence of increases in the measure is compared with that of decreases in the measure.

2C. Sample Construction

CRSP and COMPUSTAT data are used to construct fiscal-year industry-adjusted stock returns. The sample excludes ADRs and firms that have total assets less than \$100 million. Financial and utilities firms are also excluded to be consistent with earlier research (e.g. Gompers, Ishii, and Metrick, 2003). Further, to be included, the sample firms should not be sorted into the bottom quartile of industry-adjusted stock returns in each of the prior two years and then into the top quartile in the current (identification) year, nor should they be sorted into the top quartile of industry-adjusted stock returns in each of the prior two years and then into the bottom quartile in the identification year (to control for reverse causality).

Data from ExecuComp, IRRC, The Corporate Library, CD Compact Disclosure and CDA Spectrum is used to create our governance measures as described in the previous section. Using a random sample of firms the study first verifies from the firm's Proxy Statements that there are no any coding errors for each previously described governance measure. For each governance variable, the changes in the governance measures from the previous year to the current year are computed for each firm that satisfies the conditions above and for which data is available. Then the sample of firms with the changes in each governance measure is sorted into the top or bottom 5%,⁶ i.e., the sample of firms with the largest increases or with the largest decreases in each of the governance measures. These steps are performed separately for each of the governance measures, which results in thirteen different sample pairs consisting of firms with the largest changes in each of the governance measures with the opposite directions.

Table 1 reports the mean and median for each of the governance measures for the sub-sample of firms with a large increase in governance measures and for the sub-sample of firms with a large decrease in governance measures. Note that the governance changes are significantly different

⁶ Because every firm experiences changes in institutional ownership from year to year and the variance of the changes is high, we define large changes in the *Instshares* measure as the highest and lowest one-percent change in institutional ownership.

between each pair of the sub-samples with the opposite directions in governance changes in terms of each governance measure. For example, the median increase (decrease) in *Shares* is 1.6% (-2.8%), the median increase (decrease) in *G-Index* is 2(-2), the median increase (decrease) in *Instshares* is 40.8% (-40.8%), and the median increase (decrease) in *Bsize* is 2(-3). The percentage of firms with CEO turnover is 12.53%, which is in line with the base level of turnover rate of 11.19% in ExecuComp firms (we estimate this as the ratio of the number of total CEO changes to the number of firm-years in ExecuComp).

3. Future Firm Performance

We examine the impact of governance changes by examining the industry-adjusted stock returns over the two-year period subsequent to the year the firm experiences a large governance change (i.e., from Year₊₁ to Year₊₂). We also compare the industry-adjusted stock returns of the sub-samples over a three-year period that includes the current year and the subsequent two-year period (i.e., from Year₀ to Year₊₂). The three-year performance measure explicitly controls for the price impact of the governance change in Year₀; if a governance change occurs in the middle of the year and the firm's stock price moved at the time of the event, it would be reflected in the three-year performance measure.

Table 2 shows the subsequent industry-adjusted stock returns for the sub-samples of firms with an increase and with a decrease in each of the thirteen governance measures. The data shows that firms with decreased governance measures have significantly negative mean and median performance in the subsequent two-year period for some of the governance measures we examine. For example, the median two-year industry-adjusted stock returns following a decrease in *Ppswealth*, *Shares*, and *Insiders* are -6.91%, -6.91% and -10.48% respectively, all of which are significantly different from zero. However, firms with increased governance measures also show similar negative performance in the subsequent two-year period. For example, the median two-year industry-adjusted stock returns following an increase in *Ppswealth*, *Shares*, and *Insiders* are -3.27%, -2.46%, and -6.57% respectively, although the effect is not significantly different from zero for *Shares*. Further, the percentage of the firms with positive industry-adjusted stock returns is statistically the same for the sample with an increased governance measure and the sample with a decreased governance measure, except for *Bonus* and the *Instshares* measures for which firms with an increase in these measures have a significantly higher percentage of firms with positive industry-adjusted stock returns.

Table 1: Sample Governance Characteristics

This table shows the mean (median) level of governance characteristics for our sample of firms. Firms are classified based on whether they have an increased governance measure or a decreased governance measure. The table reports the number of firms, the average level of the governance measure in the identification year (Year₀), and the governance change from the previous year (Year₁ - Year₀), for firms with increased governance measures and for firms with decreased governance measures. The sample period is 1992-2002. Median values are shown in parentheses. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

	Increased Governance Measures			Decreased Governance Measures		
	# Firms	Level Year ₀	Change Year ₁ - Year ₀	# Firms	Level Year ₀	Change Year ₁ - Year ₀
<i>Pay-Performance Sensitivity:</i>						
Bonus	304	\$3600 (\$2000)	\$1949 ^{***} (\$1177) ^{***}	304	\$715 (\$98)	-\$1425 ^{***} (-\$917) ^{***}
Options	295	3.64% (2.85%)	1.61% ^{***} (1.16%) ^{***}	303	1.95% (1.41%)	-1.39% ^{***} (-0.98%) ^{***}
Ppswealth	290	14.74% (10.22%)	3.79% ^{***} (2.21%) ^{***}	299	13.53% (10.78%)	-5.22% ^{***} (-3.28%) ^{***}
Newoptions	294	1.37% (1.01%)	1.20% ^{***} (0.91%) ^{***}	293	0.20% (0)	-1.47% ^{***} (-1.06%) ^{***}
Shares	301	14.80% (11.23%)	3.05% ^{***} (1.56%) ^{***}	304	13.35% (9.90%)	-4.73% ^{***} (-2.76%) ^{***}
<i>Shareholder Rights:</i>						
G-Index	290	9.87(10)	2.57 ^{***} (2.00) ^{***}	41	8.37 (8)	-2.93 ^{***} (-2.00) ^{***}
E-Index	92	3.16 (3.00)	2.34 ^{***} (2.00) ^{***}	17	0.94 (1.00)	-2.29 ^{***} (-2.00) ^{***}
<i>Board Monitoring:</i>						
Bsize	229	10.48 (10.00)	2.36 ^{***} (2.00) ^{***}	133	9.73 (9.00)	-3.40 ^{***} (-3.00) ^{***}
Boutsiders	178	71.77% (75.00%)	26.08% ^{***} (20.00%) ^{***}	172	56.69% (58.33%)	-15.37% ^{***} (-12.50%) ^{***}
Bmeeting	510	11.15 (10.00)	4.87 ^{***} (4.00) ^{***}	263	6.68 (6.00)	-5.63 ^{***} (-5.00) ^{***}
<i>Other Governance Measures:</i>						
Instshares	139	74.62% (76.28%)	43.71% ^{***} (40.77%) ^{***}	136	28.88% (27.60%)	-42.68% ^{***} (-40.78%) ^{***}
Insiders	365	7.48% (6.91%)	-7.48% ^{***} (-10.42%) ^{***}	319	15.53% (18.21%)	6.77% ^{***} (8.01%) ^{***}
Turnover	755	-	-	4610	-	-

Table 2: Sample Performance Characteristics

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

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

When comparing the performance of the firms with large increases in governance measures with that of large decreases in governance measures,⁷ we note that the performance of the firms is not significantly different within each pair of samples for all the governance measures. These results hold for both mean and median values. For example, the mean (median) two-year industry-adjusted stock returns following a decrease in *Ppswealth* is -3.02% (-6.91%), which is not significantly different from -1.66% (-3.27%) of mean (median) two-year industry-adjusted stock returns following an increase in *Ppswealth*. Further, the results are robust to performance measured over the three-year period rather than the two-year period, except for the mean and median *Bonus* measure and the median *Instshares*, where firms with an increase in these measures have significantly better three-year period (Year₀-Year₊₂) performance, compared to the firms with a decrease in these measures. With respect to *Ppswealth*, *Shares*, and *Bmeeting*, there is also a significant difference for the three-year performance measure. Note however, that firms in the sample that are designated as having decreased these governance measures seem to perform better, which runs counter to those proposed in the literature.

For the performance differences between an increase and a decrease in *Instshares* measure, there is a reversal in sign between the performance differences measured over the three-year window (Year₀, Year₊₂), which is positive with the average return difference of 12.55%, and performance differences measured over the two-year window (Year₊₁, Year₊₂), which is negative with the average return difference of -36.75%. This implies that the performance measure in Year₀ is highly positive for the firms with an increase in *Instshares* (median increase of 40.77%), compared to firms with a decrease in *Instshares* (median decrease of -40.78%). There can be two potential explanations for the association between increased institutional shareholdings and performance. An increase in institutional shareholdings can result in better performance because institutions provide value increasing monitoring services. Alternatively, institutions may have superior information by virtue of being large shareholders and could be “timing” an increase (decrease) in their shareholdings when they know that share prices are likely to increase (decrease). This is studied further by separately examining the change in ownership by institutional shareholders that are classified as *Dedicated* institutions (those that hold shares and are likely to monitor) and those that are classified as *Transient* institutions (those that trade in reaction to firm performance) as defined by Bushee (1998). The differences in industry-adjusted stock returns exist only when changes in *Instshares* for the sample of *Transient* institutional shareholders are examined. This result makes it more likely that the difference in firm performance over the three-year window (Year₀-Year₊₂) for the *Instshares* measure is due to timing by institutional shareholders.

For the *Bonus* measure, the performance difference measured over the three-year window (Year₀, Year₊₂) is positive, and performance difference measured over the two-year

⁷ For the *Turnover* measure, we compare firms with CEO turnover and those without CEO turnover.

window (Year₊₁, Year₊₂) is not significant. This implies that the performance measure in Year₀ is highly positive for firms with an increase in *Bonus* (median increase of \$1177), compared to firms with a decrease in *Bonus* (median decrease of -\$917). An increase in bonus paid to executives can result in better performance because the prospect of bonus gives executives the incentives to expend effort and increase firm value. However, since the ex-ante bonus commitment made by firms is not observed, it could also be possible that the result only reflects the cases where firms have experienced better performance and therefore paid higher *Bonus* and not those cases where there was an ex-ante commitment to pay a higher bonus, but firms did not do so because the firm's performance was poor. The Year₀ performance alone for each of the sub-samples was also separately examined and the results (available from the authors) are similar to the results using the 3-year performance measure.

Table 2 shows results for each of the thirteen governance measures separately and does not aggregate the number of increases in governance measures and the number of decreases in governance measures for a specific firm. As noted earlier, the sample of firms with large governance changes is different for each of the governance measures considered. It is therefore not possible to construct an aggregate governance change measure for each firm in this sample.

The results are independent of assumptions that a governance change in any particular direction is good and a governance change in the opposite direction is bad, although the literature and the governance change proposals do suggest so. What is noted is that governance changes in either direction seem to generate similar performance effects and moving in one direction is not better than moving in the opposite direction.

The empirical methodology tests the impact of a sort on a single dimension, specifically a sort on a particular governance measure, and does not control for other firm characteristics in analyzing the performance of the two samples of firms. The findings imply governance changes alone do not capture the impact of governance on firm performance and have important implications for public policy with respect to governance reform in firms. Governance reform is not amenable to simple prescriptions that require cosmetic changes in any particular governance measure. This is a nuanced view that recognizes the endogeneity of governance and suggests that good governance varies across firms.

4. Governance Changes and Changes in Firm Characteristics

This section investigates the relationship between changes in firm characteristics and the changes in governance characteristics in our samples of firms that make large governance changes. The factors that could influence governance characteristics and the data used to capture the changes in firm characteristics are as follows.

Deviation from Industry Mean: The average industry governance level might serve as a benchmark for a given firm. For each of the governance measures, the difference

between the firm and the industry average (at the three-digit SIC level) in the prior fiscal year is calculated and denoted it as *GovDev*.

Growth: Managers in high growth firms may require greater discretion to respond to evolving market conditions and also to attract managerial talent. Therefore, a higher growth is expected to be associated with characteristics that enhance managerial discretion. We use the change in the logarithm of the firm's total assets (*Assets*) to proxy for the firm's growth.

Scope for Discretionary Spending: The nature of a firm's assets can make it inherently easier to monitor and less subject to managerial discretion. A firm's investment in property, plant, and equipment (PPE) is a tangible asset that is easy to monitor whereas investment in intangible assets such as R&D is more difficult. The change in a firm's PPE scaled by total assets (*PPE*) is used to proxy for the change in the level of hard assets and the change in the level of R&D expenses scaled by total assets (*RND*) is used to proxy for the change in the level of intangible investments. Expecting the monitoring level of a firm to be influence by the uncertainty of the firm's operating environment, we also use the changes in the standard deviation of the firm's stock returns (*Sigma*) as a proxy for changes in the level of uncertainty.

Profitability & Liquidity: The change in EBITDA scaled by total assets (*ROA*) and the change in the free-cash-flow (*FCF*) are used as measures of the firm's profitability. Following Linck, Netter, and Yang (2008), the study defines the change in free-cash flow as the change in earnings before interest, taxes and depreciation, minus taxes, minus change in deferred taxes, minus interest expense, minus dividends on preferred and common stock, scaled by total assets. The change in the firm's cash scaled by total assets (*Cash*) is also used as a measure of the firm's liquidity.

Mergers: The possibility of a merger can impact a firm's governance structure. The merger market pressures on the managers are captured by the level of merger activity they face. The number of mergers in the calendar year (*#Mergers*) is used as a proxy for merger market pressure, as a period of high merger activity increases the likelihood that a given firm will be involved in a merger either as an acquirer or as a target.

Table 3 presents the empirical results of our governance change regressions. As shown in the table, we run separate regressions for each of the governance variables. In keeping with our methodology of studying large governance changes, we only include the sample of firms with the largest increases and the largest decreases in each of the governance measures we consider. The adjusted R^2 are over 35% in most of the cases (except for the pay-performance sensitivity measures *Bonus*, *Options*, *Ppswealth*, *Shares*, and *Insiders*) and over 50% for the *G-Index*, *E-Index*, and *Instshares*. Further, the F-tests indicate that all the models are significant in explaining the variations in governance changes in all cases except *Bonus*. The t-tests and significance levels for the coefficients are presented assuming homoskedasticity, as the White test does not indicate that the errors are heteroskedastic.

Table 3: Governance Changes and Firm Characteristics

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

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

The coefficient for *GovDev* is negative and highly significant in all cases, suggesting that firms change their governance levels in order to approach the mean governance level in their industry. Findings also show that in periods of high merger activities, firms show significant increases in the *G-Index* and *E-Index*, the size of the board, board meetings, pay-for-performance sensitivity, and institutional ownership. The findings on the influence of industry governance levels and merger pressure on corporate governance structure adds to the extant literature on the determinants of governance structure in firms.

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

The findings relating to the determinants of governance changes in firms indicates that the governance changes are not random but firms' reactions to changes in firm characteristics, the deviation in their governance structure from industry levels, and the environment in which they operate. These findings are consistent with the results reported by Wintoki, Linck, and Netter (forthcoming) who similarly find that Tobin Q is not related to board size and board independence after controlling for dynamic endogeneity. These findings, in conjunction with the results that firms with governance changes in the opposite directions have similar performance, offer evidence in favor of firms being in equilibrium with respect to their governance structure.

5. Abnormal Performance Sub-Samples

One reasonable argument that is often made is that a firm's prior performance characteristic may influence the impact of governance changes. For example, governance changes can be expected to have a significant positive impact on performance in the sample of firms that experience large performance declines. Or, during good times some firms may use the opportunity to reduce the quality of their governance while others might seek to reinforce good performance by improving governance. To expand the study to examine these arguments, two additional samples of firms is constructed: an *Abnormally Bad Performance* sample that consists of firms that have experienced large performance declines and an *Abnormally Good Performance* sample that consists of firms that have experienced large performance increases.

5.1. Abnormal Bad Performance Sample

The *Abnormally Bad Performance* sample includes firms that are in the bottom quartile of industry-adjusted stock returns (at the three-digit SIC level based on all the firms on CRSP) in the fiscal year of identification and have industry-adjusted stock returns in the top quartile in each of the prior two fiscal years. The median industry-adjusted stock return is highly positive (54.9%) in the prior years and is highly negative (-52.8%) in the identification year for the *Abnormally Bad Performance* sample. For each firm in the *Abnormally Bad Performance* sample, the changes in

the governance measures from the previous year to the current year are determined then the governance changes are categorized into increases and decreases in each of the governance measures.

Table 4 reports the mean and median of the governance characteristics for the *Abnormally Bad Performance* sample. As the table shows, there is variation in the changes in the different governance measures. For example, for the five measures of pay-performance sensitivity that we use, namely, *Bonus*, *Options*, *Ppswealth*, *Newoptions*, and *Shares*, between 32%-45% of firms have increased these measures, and between 50%-64% of the sample experience a decrease in these measures. The averages (medians) of all these measures decrease from the previous fiscal year.

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

The average (median) board size, *Bsize*, is 8.49 (8.0) and the change in *Bsize* from the prior fiscal year is 0.23 (0). The percentage of firms with an increase in *Bsize* is 32.95% and the percentage of firms with a decrease in *Bsize* is 18.18%. The average (median) percentage of outsiders on the board, *Boutsiders*, is 70.25% (75%), which is 6.44% (1.69%) higher than the level in the previous fiscal year. The percentage of firms that increase *Boutsiders* is 51.14% and the percentage of firms that decrease *Boutsiders* is 17.05%. The average (median) firm has 7.06 (6) board meetings, which is 0.72 (0) more than the number of board meetings in the previous fiscal year. The percentage of firms that have more board meetings is 48.66% and the percentage of firms that have less board meeting is 24.60%.

The average (median) percentage of institutional shareholdings is 51.75% (53.31%) and is significantly lower by 3.32% (1.40%) from the previous fiscal year. The percentage of firms with an increase in the percentage of institutional shareholdings is 40%, and the percentage of firms with a decrease in the percentage of institutional shareholdings is 60%. The average (median) percentage of insider shareholdings is 16.78% (9.82%) and the average (median) decrease is statistically significant (insignificant). About 35% of the firms have increased insider shareholdings and 27% of the firms have decreased. The percentage of firms with CEO turnover is 7.31%, which is slightly less than the base level of turnover rate of 11.19% in all ExecuComp firms, which we calculated.

Table 4: Governance Characteristics of the *Abnormally Bad Performance* Sample (Stock Returns)

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

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

As Table 4 shows, firms in the *Abnormally Bad Performance* sample vary in the governance change that they institute. Since firms choose to change several of the governance characteristics simultaneously (and often in opposite directions), an *Aggregate Governance Change* measure is developed. Unlike the samples of firms in the main empirical tests, the set of firms in the *Abnormally Bad Performance* and the *Abnormally Good Performance* samples does not vary as a function of the governance measures analyzed. Therefore, the study incorporates the multiple governance changes implemented simultaneously by each firm. We define the *Aggregate Governance Change* measure as follows by using the prescriptions in the literature to identify the value-increasing governance changes and value-decreasing governance changes. Specifically, a value-increasing governance change is given a score of 1, no governance change is scored as 0, and a value-decreasing governance change is scored as -1. To avoid double counting of pay-performance measures, *Newoptions*, *Options* and *Shares* measures are not included in developing the *Aggregate Governance Change* index. Similarly, the *E-Index* is not included in the aggregate governance change measure as the *E-index* is a subset of the larger *G-Index* and changes in the *E-Index* would be reflected in changes in the *G-Index*. The percentage of firms with a positive *Aggregate Governance Change* is 34.94% and the percentage of firms with a negative *Aggregate Governance Change* is 43.37%. As a robustness check, an alternate aggregate governance change measure using all the governance variables is developed and the results are essentially the same.

Next the performance characteristics are examined over the subsequent two-year period and examine whether the firms with increased governance measures differ from the firms with decreased governance measures.⁸ Table 5 presents the results in the *Abnormally Bad Performance* sample. The data show that firms that have either increased or decreased governance measures do not consistently experience significant changes in performance in the subsequent two-year period. When we compare the performance of the firms with governance changes in the opposite directions,⁹ we find that they are not significantly different from each other for most of the governance measures. For example, the mean (median) two-year industry-adjusted stock returns following a decrease in *Ppswealth* is -6.26% (-11.35%), which is not significantly different from -2.69% (-10.26%) of mean (median) two-year industry-adjusted stock returns following an increase in *Ppswealth*. The exception is the measure *Newoptions*, where the firms with an average increase in *Newoptions* have higher industry-adjusted stock returns than the firms with an average decrease in *Newoptions*, but the difference is only marginally significant. In fact, in examining the difference in median values we find no significant differences between the firms that increased *Newoptions*, and the firms that decreased *Newoptions*. Overall, the firms with a positive *Aggregate Governance Change* have an insignificant industry-adjusted stock return and the firms with a negative *Aggregate Governance Change* have a significantly negative industry-stock return. However, a *t*-test for differences in their means shows that the difference is not significant. In summary, the evidence from the *Abnormally Bad Performance* sample shows that

⁸ We do not compare the performance of the sub-samples over the three-year period that includes the current year and the subsequent two-year period (Year₀ to Year₊₂) in the *Abnormally Bad Performance* sample because, by construction, Year₀ is a year of extreme performance declines and dominates the return measure over the three-year period.

⁹ For the *G-Index* and *E-Index* measure we compare the firms with an increase in the index with the firms with no increase in index as only one or two firms have a decrease in these measures. For the *Turnover* measure, we compare the firms with a turnover and those without a turnover.

after extreme performance declines, different firms that make opposite changes in governance measures have similar subsequent performance, which also offers evidence in favor of firms choosing their governance to optimally respond to changes in observable and unobservable characteristics.

5.2. Abnormally Good Performance sample

The third sample of firms is constructed to examine whether firms adopt governance changes when it is least costly for them to do so. That is, during good times some firms may use the opportunity to reduce the quality of their governance while others might seek to reinforce good performance by improving governance. Accordingly, we construct a sample of firms that are in the top quartile of industry-adjusted stock returns (at three-digit SIC level based on all the firms on CRSP) in the identification year and have industry-adjusted stock returns in the bottom quartile in each of the prior two years. These firms have thus experienced large improvements in their industry-adjusted stock returns and we call this sample the *Abnormally Good Performance* sample. The median industry-adjusted stock return is highly negative (-58.8%) in the prior years and is highly positive (54.2%) in the current year for the *Abnormally Good Performance* sample.

As in the primary tests, for each firm in the *Abnormally Good Performance* sample, the changes in the governance measures are determined from the previous year to the current year and categorize the firms into those with an increase in the governance measures, and those with a decrease in the governance measures. The study follows the performance of these two sub-samples and tests whether the firms with the governance changes in the opposite directions perform differently.

Table 6 reports the data on the governance characteristics for the *Abnormally Good Performance* sample. Four of the five measures of pay-performance sensitivity including *Options*, *Ppswealth*, *Newoptions*, and *Shares*, do not change significantly in examining mean values, whereas the change of *Options* becomes statistically significant when we examine the changes in median values. About 46%-67% of the firms have increased their measures of pay-performance sensitivity, and about 17%-54% of the firms have experienced a decrease in these measures. The mean (median) amount of *Bonus* increases significantly by \$183,000 (\$90,000). The percentage of the firms that increase *Bonus* is 66.42% and the percentage of the firms that decrease *Bonus* is 17.52%.

The average (median) *G-Index* is 8.56 (8) and changes by 0.13 (0) from the previous fiscal year. The average increase in the *G-Index* is statistically significant. Note however, that an increase in the *G-Index* represents a weakening of shareholder rights and is not considered to be a desirable change. The median change in the *G-Index* is not significant. The percentage of the firms with an increase in the *G-Index* is 11.72%. Only two firms experience a decrease in the *G-Index* and for all the subsequent analysis we include these firms along with the firms that see no change in the *G-Index* (total of 88.28%). The average (median) *E-index* is 1.83 (2) and increases by 0.07 (0) from the previous fiscal year. The percentage of the firms that have an increase in the *E-Index* is 7.81%. Only two firms experience a decrease in the *E-Index* and for all the subsequent analysis we include these firms along with the firms that see no change in the *E-Index* (total of 92.19%)

Table 5: Performance Characteristics Following Governance Changes for the Abnormally Bad Performance Sample (Stock Returns)

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

Governance Measure	Increased Governance Measures		Decreased Governance Measures		Test of Mean & Median Diff: Increased vs.. Decreased Governance Measures	
	Mean	Median	Mean	Median	Mean	Median
<i>Pay-Performance Sensitivity:</i>						
Bonus	2.16	-7.34	-8.42*	-9.87**	0.216	0.851
Options	-3.93	-11.37**	-3.69	-6.68	0.976	0.574
Ppswealth	-2.69	-10.26	-6.26	-11.35**	0.670	0.837
Newoptions	4.29	-5.55	-11.85	-13.36	0.072*	0.195
Shares	0.42	-3.16	-8.11**	-13.02**	0.247	0.455
<i>Shareholder Rights:</i>						
G –Index ¹⁰	-9.45	-29.21	-4.81	-10.26***	0.793	0.433
E –Index	10.32	-0.26	-5.95	-11.37***	0.483	0.506
<i>Board Monitoring:</i>						
Bsize	-12.06***	-13.52***	3.86	-7.48	0.234	0.791
Boutsiders	-11.35**	-13.52***	6.07	-4.50	0.129	0.446
Bmeeting	-2.01	-5.05	-2.70	-9.89	0.944	0.853
<i>Other Governance Measures:</i>						
Instshares	-4.36	-3.59	-5.56	-12.14*	0.853	0.256
Insiders	-4.22	-3.88	1.75	-10.83	0.565	0.829
Turnover	-1.33	-3.61	-5.06*	-8.85***	0.755	0.421
Aggregate Governance Change	0.49	-4.19	-7.70**	-13.36***	0.329	0.245

¹⁰ There is only one firm with a decline in the *G -Index* and no firms with a decline in the *E -Index*. We, therefore, do not calculate performance effects of a decline in these metrics. Instead, firms with a decline in the *G -Index* are added to the group of firms that show no increase in the *G -Index* to calculate the performance effects.

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

This table shows the mean and median governance characteristics of the *Abnormal Good Performance Sample* of firms created by using industry-adjusted stock returns as the performance measure. Column 1 reports the number of firm with available data. Column 2 shows the mean of the governance measure for the identification year, Year₀. Column 3 shows the change in the governance measure in Year₀, and its statistical significance. The remaining columns report the number and proportion of firms in the sub-sample of firms with increased governance measures and decreased governance measures. The sample period is from 1992-2002. Median values are shown in parentheses. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

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

Table 7: Performance Characteristics for the Abnormally Good Performance Sample (Stock Returns)

This table shows the mean and median of the industry-adjusted stock returns (%) in the years following a steep increase in performance, for firms in the *Abnormally Good Performance* sample created using industry-adjusted stock returns as the performance measure. For each governance measure, firms are classified as having adopted an increased governance measure or a decreased governance measure. The Aggregate Governance Change is the number of value-increasing governance changes minus the number of value-decreasing governance changes, using the prescriptions in the literature. Data reported are the average industry-adjusted stock returns over the two-year period following the identification year (Year_{t+1} - Year_{t+2}). The sample period is from 1992-2002. The table also reports the *p-values* for the t-test of the performance difference in the mean, between increased vs. decreased governance changes, and for the Wilcoxon rank-sum test of the performance difference in the medians. The superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

Governance Measure	Increased Governance Measures		Decreased Governance Measures		Test of Mean & Median Diff: Increased vs. Decreased Governance Measures	
	Mean	Median	Mean	Median	Mean	Median
<i>Pay-Performance Sensitivity:</i>						
Bonus	-3.71	-9.29	-7.14	-6.85	0.722	0.894
Options	-1.01	-8.65	-13.48**	-20.56***	0.158	0.408
Ppswealth	-7.59	-18.82**	-0.23	-3.85	0.352	0.181
Newoptions	-9.28*	-17.52**	-0.19	0.80	0.303	0.387
Shares	2.35	-1.28	-10.44**	-15.09**	0.100*	0.124
<i>Shareholder Rights:</i>						
G-Index ¹¹	-5.77	-6.26	-5.64	-9.48**	0.991	0.922
E-Index	-23.13**	-29.67	-4.26	-9.26*	0.185	0.166
<i>Board Monitoring:</i>						
Bsize	5.54	-20.43	-31.29**	-31.40**	0.109	0.155
Boutsiders	12.67	-17.52	-21.27**	-23.92**	0.050**	0.268
Bmeeting	-5.26	-1.10	-7.21	-13.73**	0.847	0.341
<i>Other Governance Measures:</i>						
Instshares	-2.62	-5.56**	10.69	-3.23	0.071*	0.166
Insiders	-5.10	-8.78	6.63	-4.57	0.180	0.243
Turnover	-11.15	-20.56	4.69	-4.68	0.174	0.144
Aggregate Governance Change	-3.18	-9.29**	6.58	-4.47	0.122	0.159

¹¹ There are only two firms with a decline in the *G-Index* and only 2 firms with a decline in the *E-Index*. We, therefore, do not calculate performance effects of a decline in these metrics. Instead, firms with a decline in the *G-Index* and the *E-Index* are added to the group of firms that show no increase in the *G-Index* and the *E-Index* respectively to calculate the performance effects.

With respect to the board monitoring governance measures, the average (median) board size, *Bsize*, is 7.79 (7) and the change in *Bsize* from the prior fiscal year is 0.14 (0), which is not significant. Once again, we find that changes are in both directions. The percentage of the firms with a decrease in *Bsize* is 14.47% and the percentage of the firms with an increase in *Bsize* is 26.32%. The average (median) percentage of outsiders on the board, *Boutsiders*, is 64.36% (66.67%), which is higher by 3.70% (0) than the level in the previous fiscal year. The percentage of the firms that increase the *Boutsiders* is 34.21% and the percentage of the firms that decrease *Boutsiders* is 27.63%. The average (median) firm has 7.16 (6) board meetings, which is not significantly different from the number of board meetings in the previous fiscal year. The percentage of the firms with higher *Bmeeting* is 27.82% and the percentage of the firms with lower *Bmeeting* is 47.37%.

The average (median) percentage of institutional shareholdings is 42.21% (43.12%) and is significantly higher by 5.6% (4.3%) than the previous fiscal year. The percentage of the firms with an increase in the institutional ownership is 70.27% and the percentage of the firms with a decrease in the institutional ownerships is 29.73%. The percentage of the firms with CEO turnovers is 16.36%, which is higher than the turnover rate of 7.31% in the *Abnormally Poor Performance* sample, and is also higher than the base level of CEO turnover rate of 11.19% in ExecuComp firms. If CEO turnover has a disciplinary effect, then good performing firms should have experienced fewer turnovers than poorly performing firms. The results, therefore, do not support that firms with poor performance experience more CEO turnovers in the year of their poor performance. Finally, the percentage of the firms with a positive *Aggregate Governance Change* measure is 47.65% and the percentage of the firms with a negative *Aggregate Governance Change* measure is 22.99%.

We next examine the performance characteristics over the subsequent two-year period following abnormally good performance and examine whether the firms with increased governance measures differ from the firms with decreased governance measures.¹² Table 7 shows the industry-adjusted stock returns for the sub-samples of the *Abnormally Good Performance* sample. Data are presented for the sub-sample of firms with increased governance measures and with decreased governance measures. The data shows that the firms with decreased governance measures have significantly negative performance in the subsequent two-year period for some of the governance measures that we examine. However, the firms with increased governance measures also experience negative performance in the subsequent two-year period, though the effect is less significant. When we compare the performance of the firms with increased governance measures with the performance of the firms with decreased governance measures,¹³ we find that they are not significantly different from each other for most of the governance measures. For example, the mean (median) two-year industry-adjusted stock returns following a decrease in *Ppswealth* is -0.23% (-3.85%), which is not significantly different from -7.59% (-

¹² We do not compare the performance of the sub-samples over the three-year period that includes the current year and the subsequent two-year period (Year₀ to Year₊₂) in the *Abnormally Good Performance* sample because, by construction, Year₀ is a year of extreme performance increases and dominates the return measure over the three-year period.

¹³ For the *G-Index* and *E-Index* measure we compare the firms with an increase in the index with the firms with no increase in the index as only one or two firms have a decrease in these measures. For the Turnover measure, we compare the firms with a turnover and those without a turnover.

18.82%) of mean (median) two-year industry-adjusted stock returns following an increase in *Ppswealth*. The exceptions are for the mean industry-adjusted stock returns for *Shares*, *Boutsiders*, and *Instshares*, although the different effect is only marginally significant and the tests for the median difference show no significant difference. The firms with a positive *Aggregate Governance Change* measure have an insignificant industry-adjusted stock return average and so do the firms with a negative *Aggregate Governance Change* measure, and a t-test for the mean difference shows that the difference is not significant. Similar results are found when we examine the median difference. In summary, the evidence from the *Abnormally Good Performance* sample does not support the hypothesis that governance changes in a specific direction can have value-increasing effects and deliver better performance than the opposite direction.

5.3. Results Summary for the Abnormal Performance Samples

The results for the Abnormal Performance Samples are summarized as follows. Similar to the results for the main sample of firms, this segment does not find significant differences in firm performance between the firms that have increased governance measures and the firms that have decreased governance measures, except for isolated instances. As before, governance changes in both directions lead to significant performance changes for both the *Abnormally Bad Performance* and *Abnormally Good Performance* samples. Since in each of these two samples the set of firms for all the governance measures is the same, the study also examines the range of the governance changes that firms implement. First, it is observed that governance changes often go in different directions after extreme performance changes, suggesting that firms change their governance in complex ways. Second, the *Aggregate Governance Change* measure confirms that there are no simple prescriptions of value-increasing governance changes for any particular governance measures. The results for the main sample and the two *Abnormal Performance* samples present strong evidence against the hypothesis that governance changes in a specific direction can have value-increasing effects and deliver better performance than the opposite direction.

Note that these results do not necessarily imply that governance is irrelevant but rather that firms are endogenously optimizing their governance structure in response to observable and unobservable firm characteristics. The results are consistent with the strand of the literature that has shown that firms are in equilibrium and that governance changes represent the envelope of value maximizing choices made by firms (see, for example, Demstet and Lehn, 1985; Lehn, Patro, and Zhao, 2009; Smith and Watts, 1992; Coles, Lemmon, and Meschke, 2012; Himmelberg, Hubbard and Palia, 1999; Palia, 2001; and Wintoki, Linck, and Netter, forthcoming).

6. Robustness Checks

Several additional tests are performed as robustness checks of the results presented in the paper. This section discusses these additional tests and their results.¹⁴ The research design has used industry-adjusted stock returns as the performance metric. The robustness tests use three alternative definitions of performance and repeat the analysis. First, the industry-adjusted return-on-assets is used, where industry performance is calculated at the three-digit SIC level including all the firms on COMPUSTAT. Second, the intercept (Alpha) from Fama-French-Carhart

¹⁴ In the interest of brevity, the results are not reported and are available from the authors on request.

regressions is used. The Fama-French-Carhart regressions are run using monthly returns and factors obtained from the French's website. Third, the industry-adjusted Tobin's Q is utilized, where industry Tobin's Q is calculated at the three-digit SIC level including all the firms on COMPUSTAT. The findings show that the basic results hold when using these alternative measures of performance. In particular, the empirical evidence using industry-adjusted ROA, Fama-French-Carhart Alpha, and industry-adjusted Tobin's Q as different performance measures supports the findings that the performance of the firms with increased governance measures is statistically similar to the performance of the firms with decreased governance measures.

Replicate the performance tests by including the year of the governance change in the period over which future performance is measured allows testing of whether the results arise because the stock market reacts quickly to the potential beneficial effect of governance changes. Including the year of the governance change does not change the results when either industry-adjusted stock returns or industry-adjusted ROA is used as the performance measure, making it unlikely that the results are driven by the possibility that the stock market reacts quickly in anticipation of future increases in accounting performance.

Alternative ways to construct a sample of firms with large governance changes are also considered. First, governance changes in firms that meet some criteria are considered, e.g. low R&D vs. high R&D firms, and large governance increases and large governance decreases are defined in these sub-samples. This addresses the concern whether governance changes in firms with high R&D and in firms with low R&D can be different, perhaps because of differences in their complexity. Second, the study is replicated using a two-year window to measure governance changes for the case when we use the industry-adjusted stock-returns as the performance measure. Note that governance changes over a two-year window require overlapping years for measuring governance changes and performance changes, otherwise it will incur a substantial time lag between governance changes and performance changes. Third, other cut-offs of up to 25% are considered in defining what constitutes a large governance change in developing samples of firms with large governance changes. In the case of the G-Index and E-Index, all changes in the index are examined, i.e. the performance of firms with an increase in the G-Index (E-Index) is compared with the performance of firms with a decrease in the G-Index (E-Index). The results are similar to those reported when we consider these alternative definitions of governance changes.

Event studies are performed around the proxy filing date for the firms in the samples and find no significant abnormal returns. It is difficult to find announcement dates for the changes in many of the governance measures that we examine and firms potentially disclose a plethora of information on various aspects of governance, compensation, and corporate events, on the proxy filing date, which makes it difficult to interpret the findings of these event studies.

7. Conclusions

Can any particular governance changes alone deliver value-increasing effects for the general firms, as the governance proposals suggest? This paper developed a differences-in-differences approach to infer the optimality of a firm's governance choices by using data on governance changes instituted by firms. If firms are not choosing their governance structure optimally, then firms can *change* their governance structure towards a "value-increasing practice." In other words,

firms that change their governance structure in a particular direction should consistently outperform those that change their governance structure in the opposite direction.

The study examines the determinants and the future performance of large governance changes made by firms for thirteen different governance measures. It controls for prior performance and corporate events in constructing the sample of firms that make large governance changes and sorts the firms into those making changes in the opposite directions, i.e. firms that make a large increase versus firms that make a large decrease in governance measures. By focusing on the sample of firms that make governance changes, it controls for observable and unobservable characteristics that do not change as in a fixed-effects model.

Performance changes are significant in both the sample of firms with increased governance measures and those with decreased governance measures, attesting to the statistical power of the tests. A *differences-in-differences* approach however shows that the mean (median) performance for the sample of firms that change their governance in one direction is similar to the mean (median) performance of the sample of firms that change their governance in the opposite direction. Sorting firms solely based on any particular governance characteristic thus does not differentiate firms' future performance, which is consistent with the hypotheses that firms optimize their governance choices. The results are robust to: alternative definitions of firm performance, a large sample of firms over eleven years, and alternative ways of defining a large governance change.

The study also finds that the governance changes are related to changes in the firm's observable characteristics as argued in the literature (for example, see Demstet and Lehn, 1985; Smith and Watts, 1992; and Himmelberg, Hubbard and Palia, 1999). The present work expands on these studies by incorporating the deviation from the average governance level in the industry and incorporating a measure that captures merger pressures in the economy. This study finds that the deviation from industry governance levels is highly statistically significant in determining governance changes for all governance measures. The overall effect of firm characteristics is complex, implying that firms differ in how they respond to changes in the contracting environment.

The findings suggest that the interplay between governance, observable and unobservable firm characteristics, and firm performance, is not amenable to a simple sort on any single governance measure or firm characteristic. This study is a large sample study based on a broad sample of firms across eleven years and speaks to the average impact of governance on firm performance. It is possible that for some firms, governance changes in a particular direction do lead to better performance. Future research is required to ex-ante identify a sample of the firms and their characteristics, in which such value-increasing effects can deliver.

This study suggests that there is no simple formulaic approach to governance reform, which is consistent with the arguments made by Brown, Goetzmann, Liang, and Schwarz (2008) and the Interim Committee on Capital Market Regulation (2006). Very dissimilar changes in governance can lead to similar performance results, suggesting that unobservable firm characteristics such as corporate culture and management philosophy play a role in determining the impact of governance reform. While these results indicate that firms should, and do, try to optimize their

governance structure, it is best perhaps to encourage firms to audit their governance choices rather than use one-size-fits all externally imposed mandates that can prove to be ineffective.

References

- Amihud, Yakov and B. Lev, 1981, Risk Reduction as a Managerial Motive for Conglomerate Mergers, *The Bell Journal of Economics*, 12 (2), 605-617.
- Bebchuk, Lucian A., Alma Cohen, and Allen Ferrell, 2009, What Matters in Corporate Governance?, *Review of Financial Studies*, 22 (2), 783-827.
- Brown, Stephen, William Goetzmann, Bing Liang, and Christopher Schwarz, 2008, Mandatory Disclosure and Operational Risk: Evidence from Hedge Fund Registration, *Journal of Finance*, 63 (6), 2785-2815.
- Bushee, B., 1998, The Influence of Institutional Investors on Myopic R&D Investment Behavior, *The Accounting Review*, 73 (3), 305-333.
- Coles, Jeffrey, Naveen D. Daniel, Lalitha Naveen, 2008, Boards: Does One Size Fit All?, *Journal of Financial Economics*, 87 (2), 329-356.
- Coles, Jeffrey, Michael Lemmon, Felix Meschke, 2012, Structural Models and Endogeneity in Corporate Finance: The Link between Managerial Ownership and Corporate Performance, *Journal of Financial Economics*, 103 (1), 149-168.
- Core, John, E., and Wayne Guay, 2002, Estimating the Value of Employee Stock Option Portfolios and Their Sensitivities to Price and Volatility, *Journal of Accounting Research*, 40 (3), 613-630.
- Ivan E. Brick, N. K. Chidambaran, 2010, Board Meetings, Committee Structure, and Firm Value, *Journal of Corporate Finance*, 16(4), 533-553.
- Demiralp, Ilhan, Ranjan D'Mello, Frederik P. Schlingemann, Venkat Subramaniam, Forthcoming, Are There Monitoring Benefits to Institutional Ownership? Evidence from Seasoned Equity Offerings, *Journal of Corporate Finance*.
- Demsetz, Harold, and Kenneth Lehn, 1985, The Structure of Corporate Ownership: Causes and Consequences, *Journal of Political Economy*, 93 (6), 1155-1177.
- Gompers, Paul, Joy Ishii, and Andrew Metrick, 2003, Corporate Governance and Equity Prices, *Quarterly Journal of Economics*, 118 (1), 107-155.
- Helwege, Jean, Christo A. Pirinsky, and René M. Stulz, 2007, Why Do Firms Become Widely Held? An Analysis of the Dynamics of Corporate Ownership, *Journal of Finance*, 62 (3), 995-102.

- Himmelberg, Charles P., R Glenn Hubbard, and Darius Palia, 1999, Understanding the Determinants of Managerial Ownership and the Link between Ownership and Performance, *Journal of Financial Economics*, 53 (3), 353-384.
- Interim Report of the Committee on Capital Markets Regulation, 2006, <http://www.capmksreg.org>.
- Jensen, Michael C., and William H. Meckling, 1976, Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure, *Journal of Financial Economics*, 3 (4), 305-360.
- Jensen, Michael C., and Kevin J. Murphy, 1990, Performance Pay and Top-Management Incentives, *Journal of Political Economy*, 98 (2), 225-264.
- Lehn, Kenneth, Sukesh Patro, and Mengxin Zhao, 2009, Determinants of the Size and Structure of Corporate Boards: 1935-2000, *Financial Management*, 38 (4), 747-780.
- Lehn, Kenneth and Mengxin Zhao, 2006, CEO Turnover after Acquisitions: Are Bad Bidders Fired?, *Journal of Finance*, 61(4), 1759-1811.
- Linck, James S., Jeffrey M. Netter, and T. Yang, 2008, The Determinants of Board Structure, *Journal of Financial Economics*, 87 (2), 308-328.
- Morck, Randall, Andrei Shleifer, and Robert W. Vishny, 1988, Management Ownership and Market Valuation, *Journal of Financial Economics*, 20 (1-3), 293-315.
- Palia, Darius, 2001, The Endogeneity of Managerial Compensation in Firm Value: a Solution, *The Review of Financial Studies*, 14 (3), 735-64.
- Smith, Clifford W. and Ross L. Watts, 1992, The Investment Opportunity Set and Corporate Financing, Dividend, and Compensation Policies, *Journal of Financial Economics*, 32 (3), 263- 292.
- Wintoki, M. Babajide, James S. Linck, and Jeffrey M. Netter, Forthcoming, Endogeneity and the Dynamics of Internal Corporate Governance, *Journal of Financial Economics*.