Internal Control Mechanisms and Forced CEO Turnover:

An Empirical Investigation

by

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<u>ABSTRACT</u>

The dissertation empirically examines the efficacy of internal control mechanisms by analyzing 94 forced turnovers of chief executive officers (CEOs). It seeks to answer two primary questions: One, do governance-related characteristics influence the promptness with which poorly-performing CEOs are removed from office; and two, are removals of CEOs followed by changes in internal control mechanisms? The results suggest that poorly performing managers are removed more quickly in firms that have a larger percentage of independent outside directors on their board, that have higher equity ownership by the non-CEO directors and lower equity ownership by the CEO, and that separate the positions of CEO and chairperson. The results also suggest that the removal of the CEO provides both the opportunity and the incentive to alter internal governance systems. There is significant turnover of board members and the new boards generally have a higher fraction of independent outside directors and are more likely to separate the positions of CEO and chairperson. In addition, the sensitivity of CEO compensation to firm performance increases significantly following turnover. These post-turnover

improvements in monitoring and incentive schemes are more significant in those firms that require a crisis in the product and/or capital market before they remove their CEOs. However, there is no evidence of short-term improvement in operating performance following changes in CEOs and governance systems. Overall, the results suggest that board and ownership characteristics do influence the effectiveness of internal monitoring systems and that CEO turnover is associated with broad changes in monitoring and incentive systems.

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Introduction

The separation of ownership and control that characterizes the modern corporation creates potential conflicts of interests between managers and shareholders. The corporate governance system that helps resolve such conflicts consists of the internal control system, the external market for corporate control, and the discipline of the product and factor markets. Jensen (1993) suggests that "while the eventual discipline of the product and factor markets is inevitable, they are slow to act as control forces". In general, the literature reports favorably on the effectiveness of the corporate control market in resolving shareholder-manager conflicts (Jensen and Ruback (1983), Jarell, Brickley and Netter (1988), Brickley, Lease and Smith (1988,1994) among others). However, opposition from corporate managers, state anti-takeover amendments, and regulatory restrictions on the availability of financing, have significantly dampened activity in the external market in recent years. Consequently, there is heightened interest among academics and practitioners in the efficacy of the internal control system, headed by the board of directors.

The primary functions of the board of directors are to monitor managerial actions, assist management by providing advice, and veto any management decisions that will be harmful to shareholders. The board is responsible for setting goals, evaluating management performance in achieving these goals, compensating management for their performance, and promptly removing poorly performing managers. This dissertation examines the determinants

of the effectiveness with which boards perform their duties by analyzing the internal control systems of firms that remove their CEOs .

The empirical literature on the board's firing decision suggests that boards do remove CEOs after poor performance. However, Jensen (1993) suggests that "the effect, while statistically significant, seems too late and too small to meet the obligations of the board". Warner, Watts and Wruck (1988), and Weisbach (1988) find that the probability of top-management turnover is negatively related to prior firm performance; however, Weisbach (1988) documents that the implied probability of turnover is only 6.1% for the median firm in the bottom decile of market-adjusted stock returns. Jensen (1993) argues that "by nature, organizations abhor control systems, and ineffective governance is a major part of the problem with internal control mechanisms. They seldom respond in the absence of a crisis". He then provides anecdotal evidence of firms that waited too long to turnover top management, and firms that instituted changes in the absence of any obvious crisis . The dissertation investigates the efficacy of boards' firing decisions by formally examining the question of why some boards appear to remove top management before significant decline in firm performance, while others respond only in a crisis.

A sample of firms in which the CEO is forced to resign is stratified into subsamples of firms in which the CEO replacement decision is in response to a crisis in the capital and / or the product market (crisis-response turnover), and firms in which the CEO turnover decision is not triggered by any obvious crisis (non-crisis-response turnover). All relevant and quantifiable aspects of the board for these two subsamples are compared. These include board size, proportion of independent directors on the board, CEO ownership, board ownership, and the

proportion of boards with separate CEO and chairman positions. We quantify the association between the probability that a CEO will be replaced before significant declines in performance and these board characteristics by estimating a logistic regression. In addition, we investigate changes in internal corporate governance characteristics following turnover to determine whether crisis-response firms institute more significant changes in internal governance. We report that non-crisis CEO turnover is directly related to the percentage of independent outsiders on the board of directors and their equity stake in the firm, is inversely related to the equity ownership by the CEO, and such turnover is more likely if the CEO is not also the chairperson. Significant changes in the board characteristics, consistent with higher levels of monitoring, are observed after all forced turnover, and especially after crisis-response turnover.

In the second part of the dissertation, we investigate the boards' designs of CEO compensation packages around top-management turnover. Murphy (1985), and Coughlan and Schmidt (1985) document a statistically significant relationship between pay and performance. However, Jensen and Murphy (1990) conclude that, though the relationship is statistically significant, the magnitude of the association is too small to be considered economically significant. In particular, they report an overall pay-to-performance sensitivity of only $ 3.25 per $ 1,000 change in shareholder wealth. In their view, the "political forces operating both in the public sector and inside organizations implicitly regulate executive compensation through the contracting process by constraining the types of contracts that could be written", which leads to sub-optimal design of the compensation contract. The event of forced CEO turnover may change the political environment within the organization, making it more likely that boards write improved compensation contracts for the incoming CEO; this may be especially true if

poor performance precedes the turnover. The dissertation examines the changes in compensation structure and in pay-to-performance sensitivity, following CEO turnover, for the forced turnover sample and for a control sample of normal turnover. Unlike previous compensation studies, this dissertation uses more detailed post-1991 compensation data, which incorporates expanded SEC disclosure requirements. We find that forced CEO turnovers are preceded by small sensitivities of manager's pay to firm performance. On average, CEO's who are forced out are paid about two cents in annual cash bonuses for every $1,000 change in shareholder wealth in the last full fiscal year prior to their removal. The comparable bonus paid to CEOs in the control sample of normal turnover is four cents for $ 1,000 improvement in firm value, and is significantly higher than the bonus paid to CEOs in the forced turnover sample . We also observe a significant realignment of the compensation contract for the new CEOs in both subsamples. New CEOs after forced CEO turnover are paid about 29 cents, a large increase of about 27 cents, for every $ 1,000 increase in total shareholder wealth. The comparable increase for the control sample is significantly lower, and is about 13 cents.

The third part of the study examines the changes in market-adjusted operating performance following CEO turnover. Denis and Denis (1995) document that forced turnovers are preceded by operating performance declines and followed by operating performance improvements, on average. Operating performance changes are estimated for the subsample of firms used in this study, and these performance changes are then related to the changes in the internal control mechanisms documented in the first two parts of the study. Contrary to expectations, no significant improvements in operating performance is observed in

the first two years of the new CEO's tenure; and no significant relationship between changes in operating performance and changes in board characteristics is observed.

The rest of the dissertation is structured as follows: Chapter 2 provides a review of the relevant literature. Chapter 3 describes the sample used in the study. Chapter 4 analyzes the pre-turnover board characteristics of the crisis-response and non-crisis-response subsamples of firms, and compares the changes in these board characteristics following turnover. Chapter 5 documents changes in CEO compensation structure and pay-performance sensitivity pre-to-post turnover. In Chapter 6 the changes in performance around CEO turnover are estimated and related to the changes in board characteristics and compensation structures. Chapter 7 provides the concluding remarks.

Chapter 2

Relevant Literature

The board of directors of a corporation is the primary force within the organization for motivating and monitoring managerial decisions. They are responsible for designing incentives that motivate managers to make decisions consistent with firm value maximization, supervising managerial actions, evaluating managerial performance, and removing poorly-performing managers. The existing literature suggests that, while boards do perform these functions, their actions are often too late and too inadequate to be effective.

2.1 CEO Turnover and Firm Performance

Several authors have focused attention on boards' ability and willingness to remove poorly-performing managers promptly. Studies by Coughlan and Schmidt (1985), Warner, Watts, and Wruck (1988), Weisbach (1988), and Denis and Denis (1995) examine the relation between firm performance and the probability of CEO turnover. Coughlan and Schmidt (1985) analyze the compensation and firing decisions made by the boards of 249 firms included in the Forbes survey over the period 1978-1980. They utilize a logit model in which they relate the probability of CEO turnover during the period (t+1)

to (t+2) to the residual from a compensation regression for year t, the CEO's age in year t, and the cumulative residual from the market model in year t. For the sample of firms in which the CEO is less than 64 years old, their results indicate that there is an inverse relation between abnormal stock performance and the probability of CEO turnover, consistent with effective monitoring by the board.

Warner, Watts and Wruck (1988) study a sample of 269 firms randomly chosen from those listed on the NYSE or AMEX on July 2, 1962. They relate CEO turnover to the firm's stock returns in the prior year, three lags of stock returns, market returns based on the CRSP equally-weighted market index, and three lags of market returns. They report significant negative coefficients on the firms' contemporaneous stock returns, especially for those turnovers identified as forced departures, indicating that the probability of a management change is negatively related to share performance.

Warner, Watts, and Wruck (1988) further explore the relationship between poor performance and the probability of management turnover by dividing their sample into deciles. Separate logistic regressions on each of these deciles indicate that only very extreme levels of poor stock performance affect the likelihood of a management change. Similar results are presented by Weisbach (1988). He calculates the implied probability of resignation in 367 NYSE firms from 1973 to 1983. His results indicate that even firms in the bottom decile of stock returns have only a 6.1% probability of effecting CEO turnover, despite the fact that the median stock in this decile earns a -33.1% market adjusted return.

Event study results in the Warner, Watts, and Wruck study indicate that there is no significant stock price response to the announcement of a management change. Thus, the authors question whether management turnover is value-increasing, on average.

Denis and Denis (1995) also question the effectiveness of boards of directors in effecting prompt managerial turnover when necessary. They analyze the performance of firms prior to and following top-management turnover. Classifying a subsample of non-takeover-related top management changes into forced resignations and normal retirements, they find that forced resignations are preceded by large and significant decreases in operating performance (measured as the ratio of operating income to total assets) and followed by significant improvements in operating performance over the two years subsequent to the management change. Normal retirements, on the other hand, do not exhibit any significant declines in operating performance prior to the management change, but show small increases in operating performance subsequent to the change. They also find significant restructuring activity after forced resignations. While this evidence is consistent with effective monitoring by the board of directors, Denis and Denis (1995) note that the probability of a forced resignation is quite small. In addition, they find evidence of active monitoring by parties other than the board of directors in most of the firms in the forced turnover sample, suggesting that boards of directors may not function effectively in isolation.

In summary, while the observed negative relationship between firm performance and the probability of managerial turnover and significant improvements in operating performance subsequent to forced turnover suggest that boards of directors are effective

monitors of management, the small probability of CEO turnover in even the most poorly performing firms and the degree of external control activity that surrounds forced turnover suggest that they are weak monitors at best.

2.2. CEO Turnover and Board Characteristics

The literature on CEO turnover and firm performance suggests that boards of directors are reluctant to remove poorly performing top managers. Jensen (1993) argues that boards seldom respond in the absence of a crisis and that ineffective boards are a major part of the problem with internal control mechanisms.   However, anecdotal evidence indicates that some firms do remove managers promptly, prior to the onset of a crisis.

There is currently no consensus of opinion among financial economists regarding the relative importance of various internal control mechanisms. On one hand, the literature is replete with studies that indicate that effective corporate governance depends on board structure, ownership structure and, to a lesser extent, corporate leadership structure. For example, there is evidence that independent outsiders on the board of directors are better monitors of management [Byrd and Hickman (1992), Rosenstein and Wyatt (1992), Weisbach (1988), Brickley, Coles and Terry (1994), among others]; that firm performance is non-monotonically related to inside ownership [Morck, Schleifer, and Vishny (1988), McConnell and Servaes (1988)]; and that the separation of the chairperson and CEO positions improves firm performance [Pi and Timme (1993), Rechner and

Dalton (1991)]. Jensen (1993) posits that keeping boards small may help improve performance.

Others, however, question whether there is any relation between governance characteristics and firm value. For example, Jensen (1993) asserts that outside directors are more likely to be aligned with top management than with shareholders, both because top management has great influence on who sits on the board and because non-management directors typically hold a trivial portion of the stock of the firm. Demsetz (1983) argues that "the ownership structure of the firm (is) an endogenous outcome of a maximizing process in which more is at stake than just accommodating to the shirking problem" and that markets force managers to adopt optimal agency control mechanisms which are unique to the firm. Consistent with this, Demsetz and Lehn (1985) present evidence that there is no significant relation between ownership concentration and accounting profits. Finally, Brickley, Coles and Jarrell (1994) present evidence suggesting that the costs involved in separating the positions of chairperson and CEO exceed the benefits of doing so.

Board Composition

While each of the directors on a firm's board is responsible for monitoring the decisions of the management, the effectiveness with which they do so may depend upon their background and affiliations. It has been argued in the literature that insiders on boards have valuable knowledge about the firm and that the advice they provide is valuable to the CEO and to the firm [Mace (1986)]. Others argue that insiders and other

directors affiliated with the firm may be reluctant to criticize the CEO for the fear of losing promotions or their jobs.   They are then less likely to be effective monitors of the CEO's decisions.

There is a growing body of evidence that indicates that outside directors, especially if they are truly independent, are better monitors of management than are inside directors. One of the earlier studies to explore the issue is Weisbach (1988). He tests the hypothesis that outside directors are superior monitors of management by examining the relation between firm performance and the probability of CEO turnover in firms whose boards are dominated by outside directors, and firms whose boards are not.   His data consists of 495 firms listed on the New York Stock Exchange between 1977 and 1980.   He classifies directors as outsiders, insiders, or grey, depending upon their relationship with the firm. Outsiders are directors who neither work for the corporation nor have extensive dealings with the company; insiders are full-time employees of the firm; and grey directors do not work for the corporation, but have extensive business dealings or family relationships with management. Logistic regressions reveal that a significant negative relation between performance and CEO turnover exists only for firms dominated by outsiders, defined as firms that have at least 60% outside directors. He repeats the regressions using ownership rather than board composition; the insignificance of the coefficients of dummy variables classifying boards by whether total ownership by non-controlling directors is greater than or less than 2% suggest that board composition is not simply proxying for ownership. Overall, his results are consistent with the hypothesis that outsider dominated boards add to firm value by monitoring CEOs more effectively.

Brickley, Coles and Terry (1994) examine a sample of 247 firms that adopt poison pills over the period 1984-1986 to test the hypothesis that the likelihood of using a poison pill to harm shareholders decreases with the fraction of outsiders on the board of directors. Consistent with this hypothesis, they find a positive relation between the stock-market reaction to the adoption of poison pills and the fraction of outside directors on the board. Moreover, the stock-market reaction is significantly positive when the board is controlled by outside directors and significantly negative when it is not.

Rosenstein and Wyatt (1990) investigate the shareholder wealth effects of the announcement of an appointment of an outside director. Their data consists of 1,251 outside director announcements collected from the *Wall Street Journal* during the period 1981-1985. Categorizing their sample directors into financial outsiders, corporate outsiders, and neutral outsiders and eliminating contaminated announcements, they find that announcements of appointments of financial outsiders and neutral outsiders are associated with positive and significant abnormal returns. They conclude that even though most boards in their sample are dominated by outside directors, the addition of an outside director increases firm value.

Byrd and Hickman (1992) examine 128 tender offer bids made between 1980 and 1987 and find that the average announcement-date abnormal return is less negative for bidding firms with boards dominated by independent outsiders. Their cross-sectional piece-wise regression indicates that, over most of the range, there is a positive relation between the number of outsiders on the board and announcement-date abnormal returns. However, when independent outsiders hold very high proportions of the board seats, the

relation between independent outsiders and announcement date abnormal returns becomes negative. If they classify any director who is not an insider to be an outsider, there is no statistically significant relation between outsiders on the board and announcement date abnormal returns, suggesting that only those directors who have no other ties to the firm increase board effectiveness.

Shivdasani (1993) examines whether takeovers provide discipline when internal control mechanisms fail by examining the board characteristics and ownership structure of 214 hostile targets and 214 size-, industry-, and temporally-matched non-target firms. He considers three measures of board effectiveness: percentage of outside directors on the board, equity ownership by the outside directors, and the number of additional outside directorships held by outside directors. His logit regressions do not indicate any difference in the fraction of outsider directors between target and non-target firms, but they do indicate that unaffiliated outside directors in hostile targets have lower ownership stakes and hold significantly fewer additional outside directorships. Affiliated blockholders' ownership levels and number of additional directorships do not significantly affect the likelihood of a hostile bid. He argues that this result is more consistent with the monitoring view of unaffiliated outsiders than with the entrenchment hypothesis.

To summarize, while the definition of an outsider continues to be refined by each study, the evidence overall suggests that independent (unaffiliated) outsiders on the board of directors are better monitors of management and are more likely to promptly remove poorly performing managers.

Ownership Structure and Firm Performance

Managerial ownership creates two opposing forces in governing managerial behavior. On the one hand, a larger fractional ownership by management ensures a greater alignment of managers' and shareholder's interests, as management's' higher stakes in their firms mean that they bear more of the wealth consequences of their actions. This "convergence of interests" hypothesis suggests that larger managerial stakes will be associated with higher firm value. On the other hand, the "managerial entrenchment" hypothesis suggests that higher firm ownership by management increases their ability to pursue non-firm-value maximizing decisions that improve their own wealth and job security without fear of reprisal.

The evidence regarding the relation between managerial ownership and firm value is conflicting. Demsetz and Lehn (1985) and Holderness and Sheehan (1988) find no evidence of a significant relation between the level of insider holdings and firm value. However, Morck, Shleifer and Vishny (1988), and McConnell and Servaes (1990) document a non-linear relation between Tobin's q and inside ownership of equity. In general, these two studies suggest that increased managerial ownership aligns the interests of managers and investors at low levels of ownership but leads to managerial entrenchment at higher levels of ownership. Denis, Denis, and Sarin (1995) find that there is no relation between performance and turnover in firms in which insiders own 5% - 25% of the firm, suggesting that managers may become entrenched at quite low levels of

ownership. Shivdasani (1993) finds that CEO ownership is significantly lower in targets of hostile tender offers, consistent with entrenchment at higher levels of ownership.

Demsetz and Lehn (1985) examine a sample of 511 large firms to test whether diffuse ownership structures adversely affect corporate performance. Controlling for firm size, the ratio of capital expenditures to sales, advertising and R& D measures, and type of regulated industry, they regress accounting rates of return (5-year average of net income to book value of equity) on a logistic transformation of the percentage ownership of the five largest shareholders , the twenty largest shareholders, or a Herfindahl-type index applied to ownership. The regressions do not indicate any significant relation between accounting performance and ownership concentration. They further argue that the costs associated with the monitoring of managers depend on the stability of the firm's environment. The more stable the environment, the easier and less costly it is to observe and evaluate managerial decisions. The noisier the environment, the greater is the payoff to maintaining tighter control. Thus, noisier environments should give rise to more concentrated ownership structures. Consistent with this argument, their OLS regressions show that the level of stability of the firm's environment is an important determinant of ownership concentration. The authors argue that their evidence implies that the structure of corporate ownership varies systematically in ways consistent with value maximization.

Morck, Schleifer and Vishny (1988) and McConnell and Servaes (1988) investigate the possibility that the relation between ownership and firm performance is non-linear. Morck, Schleifer and Vishny (1988) suggest that a non-linear relation between firm value and insider ownership may exist due to the two opposing hypotheses discussed

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earlier: (1) the "convergence of interests" hypothesis, and (2) the "entrenchment" hypothesis. To capture the effect of both hypotheses, they formulate a piece-wise linear regression of Tobin's q (their proxy for firm value) on board ownership for a sample of 371 Fortune 500 firms from 1980. Their piece-wise regression indicates that Tobin's q increases with board ownership when boards own between 0% and 5% , decreases when boards own between 5% and 25%, and increases when boards own more than 25%. The authors acknowledge that various caveats apply to their interpretation of the results. While the evidence is inconsistent with the evidence from Demsetz and Lehn (1985), it still is not inconsistent with their argument that ownership is endogenously determined.

McConnell and Servaes (1988) investigate the relation between firm value (as measured by Tobin's q) and the distribution of equity ownership of two samples of firms, one for 1976 and the other for 1986. They find a strong curvilinear relationship between firm value and inside ownership. The curvilinear relation between Tobin's q and insider ownership increases initially, until it reaches approximately 38%, and then decreases as ownership becomes concentrated in the hands of the officers and directors. Regression analysis indicates that, in general, institutional ownership has a positive and significant effect on firm value, but that blockholders have little independent effect on firm value. The authors acknowledge that it is possible that more successful firms might reward managers with additional forms of ownership, and hence the direction of causality goes from firm value to insider ownership rather than the other way around. However, they note that this does not explain the negative relation between ownership and Tobin's Q at large levels of ownership.

Denis, Denis and Sarin (1995) examine the relationship between top-management turnover and ownership structure for a sample of Value Line firms during the period 1985 to 1988. They find that, conditional on firm performance, turnover rates in firms in which inside ownership is less than 5% are significantly greater than the turnover rates in firms in which inside ownership exceeds 5%. The turnover announcement period abnormal returns are significantly positive only for firms with inside ownership in the 5% to 25% range. These results leads the authors to conclude that entrenchment occurs at levels of inside ownership as low as 5%.

In summary, the majority of the recent studies of the relation between firm performance and inside ownership suggest that it is value-decreasing over certain ownership ranges. In such ranges, higher ownership by insiders may decrease the probability of a prompt removal of a poorly performing CEO.

CEO-Chairperson Separation

In theory, the CEO of a corporation is endowed with the power to make investment decisions, while the board of directors, led by the chairperson, is responsible for monitoring the CEO by setting goals, designing appropriate compensation packages, and evaluating managerial performance. Many corporate governance activists argue that the principal-agent problem is exacerbated when a single individual fills both of these roles. Jensen (1993) notes that "without an independent leader, it is much more difficult

for the board to perform its critical function". Pi and Timme (1992) provide some support for this argument. Brickley, Coles and Jarrell (1994), however, suggest that such a separation creates a new layer of agency costs and increases the costs of information transfer from the CEO to the chairperson.

Pi and Timme (1993) analyze the relation between management structure and firm performance in banks over the period 1987-1990. They regress return on assets (ROA) or a measure of cost efficiency on a dummy variable indicating separation of CEO and chairperson position (separation dummy), the percentage ownership of the CEO, an interaction of these two variables, and control variables including firm size (total assets), the ratio of loans to total assets, concentration, and a statewide branching dummy. The results indicate that ROA is significantly lower and the measure of cost efficiency is insignificantly different when the CEO is also the chairperson. Also, ROA is positively related to equity ownership by a CEO who is not also chairperson. No significant relation exists between ownership by a CEO and ROA if the CEO is also chairperson. This suggests that separating the title of chairperson from the CEO may be an important determinant of firm performance.

Arguments and evidence against the benefits of CEO-chairperson separation are presented by Brickley, Coles and Jarrell (1994). They argue that separating the titles of CEO and chairperson creates a new layer of agency problems. Such separation, they argue, also increases information costs because information held by the CEO as a natural byproduct of his or her position cannot be costlessly transferred to the chairperson. Their study of 628 firms from the Forbes survey of 1988 indicates that only an insignificant

percentage of firms have a truly independent chairperson. They suggest that this small percentage is inconsistent with the notion that separating the CEO-chairperson positions is value-increasing for a firm because it would imply that a vast majority of firms have inefficient corporate leadership. The evidence from their OLS regression of a separation dummy variable on firm size, tenure of CEO, experience of CEO with firm prior to becoming CEO, industry, Tobin's Q, Jensen and Murphy sensitivity of CEO wealth to change in shareholder wealth, and prior firm performance as independent variables, indicate that only firm size, tenure as CEO, and recent firm performance have significant explanatory power. They argue that the significance of recent firm performance is consistent with the view that attaining and keeping the combined positions depends on performance.

The literature on the leadership separation question is still sparse, especially when compared to the amount of literature about board composition or ownership structure, and the effect of separation of CEO-chairperson positions on firm value remains sketchy.

Board Size

Recently, arguments have been raised that limiting the size of the board of directors will improve firm performance. While additional directors could improve monitoring, they may also slow-down the decision making process. The costs associated with the slow decision making process may be greater than the benefits from increased monitoring once boards reach an optimal size. Jensen (1993) suggests that the optimal size of a board may be about seven or eight. The selection of seven or eight directors as

an appropriate size for a board is, of course, arbitrary and does not take into account characteristics of individual firms (e.g. firm size); however, it is possible that large boards may lead to protracted battles about issues that adversely affect the CEO, especially if the CEO is responsible for some of the appointments on the board. This implies that larger boards may not remove poorly performing CEOs promptly.

Yermack (1996) analyzes a sample of 452 large firms between 1984 and 1991. Consistent with the observation that smaller boards may function more effectively, he documents an inverse relation between board size and firm value (proxied by Tobin's Q). His study also documents that smaller boards are more likely to dismiss CEOs following periods of poor performance and to tie CEO compensation contracts with firm performance.

Studies have only started analyzing the effect of board size on firm value. The limited evidence suggests that smaller boards function more effectively and may more promptly remove poorly-performing managers.

2.3. CEO Compensation and Firm Performance

Agency theory suggests that tying managers' compensation to stock performance will increase managers' incentives to make decisions that are consistent with maximizing firm value. The responsibility for designing compensation packages rests with the board of directors. Studies by Murphy (1985), Coughlan and Schmidt (1985), Jensen and Murphy (1990), and Rosen (1990), among others, examine the extent to which boards of directors link managerial pay to firm performance. The agency argument implies that effective

boards will design compensation contracts that align a large portion of managerial earnings with improvements in share value.

Murphy (1985) studies 461 executives in 73 large industrial firms over the 1964-1981 period for evidence on the pay-performance issue. Combining cross-sectional and time series data, he estimates linear regressions relating changes in the logarithm of compensation (either salary+bonus, or total compensation) to firm stock performance and growth in firm sales. His results suggest that managers' remuneration is positively related to stock market performance. Mehran (1995) analyzes the relationship between compensation structure and firm performance using compensation data for 153 firms during the period 1979-1980. He finds that firm performance (proxied by Tobin's q and return on assets) is positively related to the percentage of executive compensation that is equity based and to the percentage of equity held by managers. These studies suggest that top managers' compensation is sensitive to performance and that this pay-performance sensitivity is valuable to firms.

Jensen and Murphy (1990) address the economic significance of the pay-performance relation by estimating the change in CEO wealth that is associated with a given change in shareholder wealth. They study 2,213 CEOs listed in the Executive Compensation Surveys published by Forbes from 1974 to 1986. Their results suggest that the average CEO's wealth from salaries, bonuses, stock-option grants, stock ownership, and potential losses in the event of dismissal, changes by $ 3.25 for every $ 1,000 change in shareholder wealth. Of this, $2.50 is due to stock ownership by the CEO. Jensen and Murphy suggest that, while there is a statistically significant relation between pay and

performance, its economic significance is too small to be consistent with optimal contracting. They argue that "political forces operating within and outside the organization constrain the type of contracts that could be written", resulting in many sub-optimal contracts.

Blackwell and Farrell (1994) argue that turnover of top management may induce a change in political climate such that significant changes in the compensation contract become possible. They identify 239 turnovers from the Forbes Survey of Executive Compensation during the period 1982-1989. They classify their sample of 239 turnovers into 134 endogenous turnovers and 105 exogenous turnover. All turnover arising from retirement, normal management succession, death, illness, CEO departures prior to takeover, and departures to assume another position are considered as endogenous turnover. All turnover not classified as endogenous turnover, including departures in which the reason for the departure was not identified, are considered as exogenous turnover. Their regressions of change in compensation on change in shareholder wealth, an endogenous turnover dummy, an exogenous turnover dummy, and the interaction of the endogenous turnover dummy with change in shareholder wealth and of exogenous turnover dummy with change in shareholder wealth, reveal very weak results. Changes in total compensation are not significantly related to any of the independent variables, and changes in salary+bonus are significantly related only to the exogenous turnover dummy. Yet, based on the magnitude of their estimated coefficients, they argue that their results are consistent with a significant realignment of the compensation contract subsequent to the turnover. This is consistent with their hypothesis that the political environment

changes subsequent to the turnover and allows compensation contracts to be more closely aligned with shareholder wealth.

Gilson and Vetsuypens (1993) also present evidence consistent with the argument that changes in the political environment may lead to more optimal compensation contracts. They analyze changes in levels and structure of compensation surrounding top management turnover in financially distressed firms. They show that, among firms that file for bankruptcy, newly appointed inside replacements are paid, on average, about 35 percent more than the CEOs they replace. New CEOs who are outside replacements are paid, on average, 36 percent more than are inside replacements and are often compensated with stock options.

Overall, these studies indicate that the alignment of CEOs' pay with firm performance is statistically significant. However, the sensitivity of pay-to-performance may be interpreted as being too small to be economically significant. Thus, it is not clear that boards of directors are effective in designing appropriate compensation contracts. If management turnover is to provide an appropriate correction, we expect to observe re-alignments of the compensation structures for new CEOs in cases in which a low pay-performance sensitivity negatively affected firm performance prior to the turnover.

Chapter 3

Primary Sample

3.1 Sample Selection

The initial sample consists of all 489 CEO turnover announcements identified from the Dow Jones Newswire during the period January 1992-March 1993. The data is restricted to the post-1991 period to take advantage of expanded SEC disclosure requirements that result in more comprehensive and informative compensation data being available.[1] The SEC disclosure requirements prescribe that firms report the various components of compensation separately and provide information as to how the committee determines the level of each component of compensation.[2]   This provides us with the opportunity to better understand how firms base and measure performance. Information is now available on salaries (separated from bonuses), bonuses, long-term incentives, incentive and non-qualified option grants, restricted stock awards, stock appreciation rights, signing bonuses, the maximum level of incentives, and the basis on which the compensation committee determines performance. The regulations also require that firms

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[1] For all fiscal years ending on or after December 31,1992, the SEC requires that the Compensation Committee report why they paid their top five executives (only if their total compensation exceeds $100,000) as they did. The components of the CEO's Compensation has to broken out and explained. The compensation components for all other executives could be summarized as a group

report the exact number of stock options granted, the dates on which they are granted, and the exercise date and exercise prices on these options. This allows for a more accurate valuation of the options granted. Prior to these SEC requirements, firms often reported only the sum of salaries, bonuses, and other cash payments made to the manager, the three-year cumulative total of options granted and their weighted average exercise price, and the number of options exercised by the manager during the year.[3] The enhanced data availability during the sample period provides for a more refined analysis of the compensation structure and of any changes in it surrounding CEO turnover.

Firms in the initial sample of turnovers identified from the Dow Jones News Wire are deleted if:

(a) they belong to a regulated industry (Compustat SIC codes 4800-5000 and 6000-6800);

(b) their proxy statements are not available;

(c) they are not included in the Standard and Poor's Industrial Compustat tapes or the Center for Research in Security Prices (CRSP) tapes, or;

(d) their total asset size is less than $25 million at the end of the fiscal year prior to the year of CEO turnover.

Regulated firms are eliminated from the study because regulation restricts the investment discretion of the manager and the investment opportunity set for the firm

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[2] Refer to the appendix for a description of the various components of compensation.

[3] Most studies utilize compensation data from Forbes, which publishes a compensation survey of approximately 800 firms annually, providing information about the salary & bonus of the top manager, any other cash compensation, the manager's tenure with the firm, and the value of the stock options exercised.

[Smith and Watts (1992) and Gaver and Gaver (1993)]; thus, the marginal products of managers in regulated and unregulated industries are not comparable. The above deletions result in a sample of 187 CEO turnovers.

Firm proxy statements are used to determine the age of the CEO, the size of the board, the affiliation of each director, whether the CEO is also chairperson, and the equity ownership (including all stock options held that could be exercised in 60 days) of the CEO, non-CEO directors, and unaffiliated directors.

3.2 Identification of Forced CEO Turnover

While turnover is commonly reported in the news, it is much more difficult to determine the exact reason for the turnover. However, it is important that turnovers be classified as to whether they represent an explicit decision by the board to remove the CEO if we are to be able to draw conclusions regarding the effectiveness of boards of directors. A CEO turnover is classified as forced if:

(a) the turnover is due to mentioned poor performance;

(b) the reason stated is "to pursue other interests" or due to "differences in opinion";

(c) the turnover is due to "management restructuring"; or

(d) no specific reason was given or found but the departing CEO is less than 63 years old and is replaced by an outsider.

This classification scheme is most similar to that employed by Warner, Watts, and Wruck (1988). It is less conservative in classifying turnover as forced than is the classification scheme employed by Denis and Denis (1995). From the sample of 187 CEO turnovers, 94 CEO turnovers are identified as forced based on the classification used. Table 1 provides the breakdown of the various reasons identified for forced CEO turnover.

Table 1

Overview of the Primary Sample

This table describes the reasons for the 94 forced CEO turnovers over the period January 1992 and March 1993, as identified from news stories in the Dow Jones News Retrieval Service.

Reason for turnover	Number of turnovers
Fired for poor performance	26
Differences in opinion	6
To pursue other interests	9
Management restructuring	2
No reason found and the CEO is <63 years old and is replaced by an outsider	51

Chapter 4

Efficacy of the CEO Turnover Decision

As discussed in Chapter 2, the evidence from the literature on the efficacy of the CEO turnover decision indicates that, while there is a negative association between poor performance and the probability of forced turnover, the turnover rates are too small and too late to be consistent with effective monitoring by the board of directors. The perception among academics is that boards seldom fire managers in the absence of a crisis in either the product market or in the corporate control market. However, anecdotal evidence suggests that some firms do fire their managers before the onset of any obvious external crisis (non-crisis-response). This raises the question: Why do some boards remove poor managers promptly before external crises occur (non-crisis-response) while other boards are reluctant do so (crisis-response)?

A director's willingness to fire a poorly performing CEO may depend on his/her personal interest in the firm, the power and ability of the CEO to ward off any opposition, the relationship the director has with the CEO, and the reputation capital of the director. While it is difficult to consider and quantify all aspects of the firm that might affect the board's promptness in effecting the CEO turnover decision, the first part of the study analyzes the effect of various characteristics of the board on the CEO turnover decision.

In particular, it seeks to document systematic differences between the board characteristics of crisis-response firms and non-crisis-response firms.

4.1 Board Characteristics and CEO Turnover

The earlier discussion indicates that the board characteristics that are likely to influence the CEO replacement decision are board size, the percentage of independent outside directors on the board, ownership by the CEO and other directors, and the separation of the CEO and chairperson positions.

Board Size

Jensen (1993) argues that boards with sizes greater than seven or eight are easy for the manager to control and hence may be less likely to effectively monitor the CEO. This implies that larger boards are less inclined and/or less able to take punitive actions against the CEO. Support for this argument is provided by Yermack (1996), who finds that smaller boards are more likely to remove poorly-performing managers. Thus, we would expect to observe a negative relationship between board size and prompt CEO turnover.

Hypothesis 1: Crisis-response firms have, on average, larger boards of directors than non-crisis-response firms.

Independent Directors

While it is possible that insiders on the board of directors bring valuable knowledge about the firm to the decision making process, they are also more likely to side with the CEO and less likely to criticize the CEO's decisions for fear of losing their jobs or their promotions. Outside directors, because they are associated with the firm only in that capacity, may be less reluctant to oppose the CEO's decisions. Fama (1980) mentions that "outside directors are in their turn disciplined by the market for their services which prices them according to their performance as referees". This view suggests that outside directors have incentives to be good monitors because it signals their value to the external labor market, which rewards them with additional directorships in other firms. However, outsiders who have family ties or business relationships with management cannot be considered as independent monitors of the firm's management. For the purposes of this study, an independent outside director is a member of the board of directors who has no family ties with a member of the current management, is not a former employee, has no business ties with the firm, and is not a consultant, banker, or a lawyer.

Consistent with the observation by Fama (1980), studies by Weisbach (1988), Byrd and Hickman (1992), and Rosentein and Wyatt (1990) present evidence that indicate that independent outside directors are better monitors of management. As more effective monitors of management, they may be less reluctant to remove poorly performing CEOs.

Hypothesis II: Crisis-response firms have lower percentages of independent outsiders on their boards of directors than do non-crisis-response firms.

CEO Ownership

Two opposing views dominate the discussion on the impact of increased CEO ownership on firm value. The "convergence of interests" view suggests that higher equity ownership by the CEO aligns more of his/her wealth with changes in firm value, and hence provides strong motivation to make decisions consistent with value maximization. The opposing "managerial entrenchment" view states that higher ownership by the CEO makes it more difficult for diffuse shareholders to remove a CEO. The lower punitive costs may encourage CEOs to make decisions that maximize their own wealth and job security and these decisions may deviate significantly from maximizing the value for all shareholders. Existing evidence suggest that, ceteris paribus, higher CEO ownership might reduce firm value, possibly due to managerial entrenchment. Thus, we would expect higher ownership 'above' the entrenchment threshold by the CEO to be associated with a lower probability of prompt removal after poor performance.

Hypothesis III: CEOs of crisis-response firms own a higher percentage of the firm's equity than do CEOs of non-crisis-response firms.

Ownership by Non-CEO directors

Large equity stakes by the directors of the corporation can provide them with incentives to better monitor managerial actions, or can promote managerial entrenchment. Since independent outsiders are less likely to be aligned with the firm's management, a large equity stake by independent outsiders may lead to improved monitoring. The effect of large equity stakes by affiliated directors is not as clear. But, it is likely that increased ownership will motivate them to more closely monitor managerial actions, especially if their individual stakes do not approach the entrenchment threshold suggested by the literature. We would then expect that higher ownership by all non-CEO directors, and especially independent outsiders, be associated with a prompt removal of poorly performing managers.

Hypothesis IV: Non-CEO directors of non-crisis-response firms hold a higher percentage of the firm's equity than do non-CEO directors of crisis-response firms.

CEO-Chairperson Separation

As the leader of the board, the chairperson is responsible for overseeing the process of hiring, firing and compensating the CEO. Clearly, the joint holding of the CEO and chairperson positions creates potential conflicts of interests, and a prompt removal of a CEO who is also the chairperson is less likely than if the powers of the chairperson rest with an individual other than the CEO.

Hypothesis V: More CEOs of crisis-response firms also hold the title of chairperson, as compared with CEOs of non-crisis-response firms.

Alternative Hypothesis

The alternative for each of the above hypotheses is that there is no difference in any of the board characteristics between crisis-response and non-crisis-response turnovers. Support for the above hypothesis would be consistent with the study by Khanna and Poulsen (1995). They report insignificant differences in the decisions by managers of Chapter 11 firms and better performing control firms. They conclude that "when managers are blamed for financial distress, they are serving as scapegoats". According to this view, the systematic differences in board characteristics in the direction hypothesized in this study will not be observed.

4.2 Crisis-response versus Non-Crisis-response Turnover

In the context of the research question of this dissertation, an effective board is one that identifies poor performance early and removes poorly performing managers before the onset of an external crisis. A board is considered ineffective if the removal of the CEO is in response to external crises in the product and/or control markets.

In this study, a forced turnover is considered to be ineffective (i.e. a crisis-response turnover) if :

(a) news stories of takeover threats, block formations, or proxy fights occur

during the year preceding the turnover; or

(b) the firm is in the bottom quintile of the forced turnover sample, ranked

by changes in market share.

All forced turnover that is not considered a crisis-response turnover is classified as a non-crisis-response turnover. The boards of non-crisis-response firms are believed to more efficiently perform their functions, and thus effect turnover of poorly performing CEOs before the onset of a threat from the external markets.

4.2.1. Pre-Turnover Performance

Evidence from Warner, Watts and Wruck (1985), Weisbach (1988), and Denis and Denis (1995) indicates that poor firm performance precedes forced top management turnover, on average.   If CEOs are removed promptly, then the poor performance should be a more recent phenomena; i.e. not as prolonged as the poor performance of firms that wait until the onset of a crisis to fire poor managers.   The measures of performance utilized in this study include:

(a) industry-adjusted (2-digit Compustat SIC medians) levels of operating

returns, defined as net operating income (NOI) standardized by the

beginning of period book value of assets (A-1), averaged over the three

years prior to the turnover year;

(b) industry-adjusted changes in operating returns, averaged over the two years

preceding CEO turnover; and

(c)   changes in market share, measured as the ratio of firm sales to industry

sales, averaged over the two years preceding the turnover.

Table 2 provides a summary of pre-turnover firm sizes and pre-turnover

performance measures for the non-crisis-response and crisis-response subsamples. The

average level of operating performance by non-crisis-response firms is positive, but not

significantly better than the average performance of other firms in the same industries.

Their market shares increase by 5.08%, on average (median=2.39%), during the period

prior to the turnover; however, there is an average 4.21% (median=3.41%) decline in

operating performance. The improvement in market share is statistically significant at the

5% level, and the decline in operating performance is significant at the 1% level. This

evidence suggests that non-crisis-response firms replace CEOs before persistent below-

industry performance and losses of market share. In contrast, the average operating

performance by crisis-response firms is more than 5% worse than that of their industries;

and is statistically significant at the 1% level. Industry-adjusted operating performance

declines by a significant 4.77%, on average, over the period and the average loss in market

share is 8.17%. The decline in market share and in operating performance of crisis-

response firms are significant at the 1% level. The levels of industry-adjusted operating

performance by crisis-response firms are significantly lower than those of the non-crisis-

Table 2

Selected Descriptive Statistics

This table describes the firm sizes and industry-adjusted performance prior to CEO turnover for the crisis-response subsample and the non-crisis-response subsample. The sample consists of 94 forced CEO turnovers identified between January 1992-March 1993.

Variable	Crisis-response subsample (N=47)[a]		Non-crisis-response subsample (N=47)[b]		Test of difference	
	Mean	Median	Mean	Median	Means[g] t-values	Medians[h] z-values
Firm Size [c]	267.65	102.24	7,390.36	169.65	1.67*	2.24**
NOI / A $_{-1}$ [d]	-5.07***	-4.23***	0.52	1.00	2.22**	2.77***
Δ(NOI / A $_{-1}$) [e]	-4.77***	-2.69***	-4.21***	-3.41***	0.25	0.11
ΔMkt.share[f]	-8.17***	-11.54***	5.08**	2.39*	3.86***	4.52***

*, **, *** represent significance at the 10%, 5%, and 1% levels respectively.

[a] Crisis-response subsample contains 47 firms in which the CEO replacement is in response to a crisis in the capital and/or the product markets.

[b] Non-crisis-response subsample contains 47 firms for which there is no obvious crisis in the capital or product markets.

[c] Firm size is measured as the total book value of assets ($ millions).

[d] Industry adjusted level of net operating income, standardized by the beginning of period book value of assets and averaged over three years prior to turnover year. (%).

[e] Two-year average of industry adjusted changes in operating income prior to turnover year. (%).

[f] Two-year average change in market share prior to the turnover year. (%)

[g] t-values from the test for difference in means.

[h] z-values from the Wilcoxon rank-sum test for testing difference in medians.

response firms, at the 5% level, though their changes in operating performance do not differ significantly. These results suggest that crisis-response firms are reluctant to remove poorly performing managers without a threat from the external market. The median crisis-response firm is also smaller than the median non-crisis-response firm, as measured by the book value of total assets at the end of the fiscal year prior to the turnover. The difference in size is significant at the 5% level.

4.2.2. Pre-Turnover Board Characteristics

Table 3 summarizes and compares the board characteristics of crisis-response firms and non-crisis-response firms. The mean (median) crisis-response firm board has 7.64 (7.0) members, as compared to 9.15 (8.0) for the non-crisis-response firms. The larger board sizes of non-crisis-response firms may reflect the larger firm sizes of non-crisis-response firms. This evidence appear inconsistent with Yermack (1996), who finds that smaller boards are more likely to remove CEOs after poor performance.

Relative to crisis-response firms, non-crisis-response firms have, on average, a significantly larger percentage of independent outsiders on their board. While only 26% of the board members of crisis-response firms are independent outsiders, on average, 37% of the board members of non-crisis-response firms are independent outsiders. The difference in the percentage of outsiders on the board of crisis-response firms and non-crisis-response firms is statistically significant at the 1% level. This is consistent with the

Table 3

Pre-turnover characteristics of effective and ineffective boards

This table describes the board characteristics relevant to the CEO replacement decision for the crisis-response and non-crisis-response subsamples. Each subsample consists of 47 firms for which a forced turnover is identified between January 1992-March 1993.

Variable	Crisis-response subsample[a]		Non-crisis-response subsample[b]		Tests of difference	
	Mean	Median	Mean	Median	Means[c] t-values	Medians[d] z-values
Board size	7.64	7.0	9.15	8.00	2.06[**]	0.827
% Independent directors [e]	25.93	25.0	37.46	36.36	2.78[***]	2.61[***]
% CEO ownership [f]	6.00	1.3	2.46	1.00	1.72	0.73
% Outside board ownership [g]	1.07	0.12	3.73	0.12	1.39	1.30
% Total board ownership [h]	10.28	4.84	15.11	5.15	1.25	0.31
Ratio of firms with independent chairperson[i]	8/46		21/47		2.94[***]	2.82[***]

*, **, *** represent significance at the 10%, 5%, and 1% levels respectively.

[a] Crisis-response subsample contains 47 firms in which the CEO replacement was in response to a crisis in the capital and/or the product markets.
[b] Non-crisis-response subsample contains 47 firms for which there is no obvious crisis in the capital or product markets.
[c] t-value for difference in means between the crisis-response and non-crisis-response subsamples.
[d] z-value for difference in medians between the crisis-response and non-crisis-response subsamples
[e] Percentage of directors not affiliated with management.
[f] Total equity ownership of the CEO as a percentage of all shares outstanding
[g] Total equity ownership of all members of the board not affiliated with management.
[h] Total equity ownership of all members of the board of directors excluding the CEO.
[i] Percentage of firms with separate CEO and chairperson positions.

evidence in the prior literature that suggests that independent outsiders are better monitors of management.

As hypothesized, non-crisis-response firms have lower CEO ownership than crisis-response firms. CEOs of non-crisis-response firms hold, on average, only 2.46% (median = 1.0%) of the firm's equity, as compared to 6.00% (median = 1.3%) by CEOs of crisis-response firms. Evidence in prior studies suggests that these levels of ownership are high enough to promote entrenchment. However; the difference in CEO ownership is only marginally significant; this may reflect the non-linear relation between inside ownership and firm performance suggested by the literature.

Consistent with our hypothesis regarding board ownership, ownership by independent outside directors and non-CEO directors are higher for the non-crisis-response sample than for the crisis-response sample; however, the differences are not statistically significant.

Finally, 45% of the non-crisis-response boards have separate CEO and chairperson positions, significantly higher than the 17% for the boards of crisis-response firms, as hypothesized. This is consistent with the hypothesis that separating the CEO and chairperson positions reduces agency costs, thereby improving firm value.

Overall, the evidence suggests that the removal of a CEO prior to the onset of external crises is more likely in firms that have a larger percentage of independent outside directors on the board, that have higher equity ownership by non-CEO directors and lower equity ownership by the CEO, and that separate the positions of CEO and chairperson.

4.3. Logistic Regression Analysis

4.3.1. Methodology

The previous subsection presents descriptive evidence on the various board characteristics of crisis-response and non-crisis-response firms. Because these characteristics are inter-related parts of a monitoring system, each characteristic cannot be viewed in isolation. To test the hypothesis that the probability of a non-crisis-response turnover is dependent on the various board characteristics simultaneously, a logistic regression approach is used. Ordinary least squares regression is not an appropriate statistical technique in this case because the dependent variable, i.e. whether or not the board effects a prompt turnover, is dichotomous.

The logistic regression approach assumes that

$$PTO(NCR) = f\,(xb) \;=\; \exp\,(xb)\;/\,(1\;+\;\exp\,(xb)) \tag{1a}$$

where PTO(NCR) is the probability of turnover by non-crisis-response board, x is a vector of variables that may determine whether the turnover is in response to a crisis or not, and b is a parameter vector. The vector of variables that are of interest in this study are the percent of outsiders on the board of directors, CEO ownership, non-CEO board ownership, total outsider board ownership, whether or not the CEO and chairperson positions are separate, board size, and firm size. The method of maximum likelihood is used to estimate the parameters.

Equation (1a) can be rewritten in log form as,

$$\ln\!\Big(\; \frac{PTO(NCR)}{1-PTO(NCR)}\;\Big) = \;_{1} + \;_{2}BS + \;_{3}COMP + \;_{4}CEOWN + \;_{5}BOWN + \;_{6}IND \tag{1}$$

where:

PTO (non-crisis-response)   = probability of turnover by non-crisis-response board

BS   = board size

OUT   = percent of independent directors on board

C-OWN   = percent of equity ownership by the CEO

B-OWN   = percent of (non-CEO) board ownership

IND   = Dummy variable that equals one if CEO-chairperson

          positions are separate, and zero otherwise.

The dependent variable equals one if the turnover occurs in a firm that is in the non-crisis-response subsample, and zero if it is a crisis-response turnover. A pseudo coefficient of determination (R^2) can be estimated as:

$$R^2 = \frac{(\mod el^{\;2} - 2p)}{-2L(0)},$$

where:

R^2 is the pseudo R^2 for the logit model;

p is the number of variables estimated;

L(0) is the maximum likelihood with only intercepts in the model; and

model χ^2 is the model Chi-Square.

In regression (2), LSIZE, the logarithm of firm size (measure as the book value of total assets) is added as a control variable. A positive (negative) significant coefficient, α_i , on any independent variable implies that the probability of a non-crisis or prompt turnover is directly (inversely) related to that variable. The hypotheses put forward suggest that we would expect

α_2 , the coefficient of board size, and α_4, the coefficient of CEO ownership, to be negative; and α_3, the coefficient of percentage of outsiders on the board of directors, α_5 , the coefficient of ownership by non-CEO directors, and α_6 , the coefficient of CEO-chairperson separation dummy, to be positive.

4.3.5. Discussion of Results

Table 4 presents the results from the logistic regressions (1) and (2). Regression (1) indicates that the probability of a non-crisis-response turnover increases significantly with the percentage of outside directors on the board, with non-CEO board ownership, and with CEO-chairperson separation. CEO ownership does not appear to be a significant determinant of the probability of CEO turnover. The addition of firm size as a control variable does not qualitatively affect the results with respect to independent outside directors and the CEO-chairperson separation; however, board ownership no longer has a significant impact on the promptness of the turnover decision. Overall, the results are consistent with the hypotheses and generally consistent with arguments in the literature.

Table 4

Logistic regression estimates of the probability of non-crisis CEO replacement

This table presents estimates from logistic regressions of the probability of non-crisis CEO replacement on board characteristics. The dependent variable is an indicator variable which equals one for non-crisis-response turnovers and zero for crisis-response firms. The sample consists of 94 forced turnovers over the period January 1992-March 1993.

Probability of a non-crisis-response turnover = f (Board size, independent directors, CEO ownership, total non-CEO board ownership, independent chairperson, and firm size)

Variable	Coefficient	p-values[a]	Coefficient	p-values[a]
	Regression (1)		Regression (2)	
Intercept	-3.9965	0.0009[***]	-4.8685	0.0003[***]
Board size	0.1136	0.1654	-0.0091	0.9321
% Independent directors[b]	3.2301	0.0161[**]	2.7905	0.0418[**]
% CEO ownership[c]	-0.0194	0.5520	-0.0183	0.5826
% Total board ownership[d]	0.0269	0.0687[*]	0.0213	0.2214
Independent chairperson[e]	1.3870	0.0143[**]	1.4115	0.0152[**]
Log of total assets			0.3859	0.0667[*]
Regression p-values	0.0008		0.0010	

*, **, and ***, represent significance at the 10%, 5%, and 1% levels respectively.

[a] p-values from the Wald Chi-Square test for the significance of estimates in the logistic regression.
[b] Percentage of directors not affiliated with management.
[c] Total equity ownership of the CEO as a percentage of all shares outstanding
[d] Total equity ownership of all members of the board of directors excluding the CEO.
[e] Dummy variable equals 1 if CEO-chairperson position are separate; zero otherwise.

4.4. Changes in Board Characteristics Pre-to-Post Turnover

4.4.1. General hypothesis

If firm value is to be maximized, the removal of a poorly-performing manager must be followed by the installation of an effective replacement manager. Denis and Denis (1995) document performance improvements following forced turnovers and conclude from this that boards do succeed, on average, in identifying good replacements for outgoing managers. However, to the extent that ineffective internal control mechanisms were responsible for prolonged poor performance prior to the turnover, broader changes in governance structure may be required, as well. Blackwell and Farrell (1994) argue that changes in the political environment following a turnover may create an atmosphere more conducive to appropriate governance structures being put in place. Gilson (1990) provides evidence of large changes in the internal environment in firms that have defaulted. He finds that most of the board members leave the firm at the time of corporate default, and that they subsequently hold fewer seats on other boards. Weisbach (1995) notes that turnover provides boards that were limited in their ability to force CEOs out with an opportunity to correct past managerial mistakes.

The sample of crisis-response firms are the most likely examples of the failure of internal governance systems. Thus, these firms are more likely to require changes in control mechanisms and the turnovers of their CEOs may present opportunities to make such changes. If so, crisis-response turnovers will be followed by larger and more significant changes in corporate governance structure than will non-crisis-response firms.

The evidence from the previous section indicates that a larger percentage of independent outsiders on the board of directors, increased ownership by the non-CEO directors, and separation of the CEO and chairperson positions appear to positively influence the effectiveness with which boards remove poorly-performing managers. We thus expect to find that crisis-response firms make more governance-related changes following turnover; in particular, they should increase the relative number of independent outsiders on their boards of directors and separate the positions of CEO and chairperson.

Hypothesis VI: More significant changes in board characteristics are expected after crisis-response turnover than after non-crisis-response turnover.

4.4.2. Description of Results

Table 5 summarizes the board characteristics of crisis-response and non-crisis-response firms prior to and following turnover. Crisis-response firms make significant changes in their board characteristics subsequent to the turnover and these changes are consistent with our hypotheses. For crisis-response firms, average board sizes drops to 7.28 from 7.63, but the drop is not statistically significant. The average percentage of independent outside directors on the board increases to 32% (median = 33%) after the turnover, relative to 26% (median=25%) prior to the turnover. Both the means and medians are significantly different at the one percent level, indicating that significantly

Table 5

Changes in board characteristics pre-to-post turnover

This table describes changes to the board instituted in the year following the CEO turnover, stratified by whether the CEO turnover was in response to an obvious external crisis or not. The sample consists of 94 forced turnovers over the period January 1992-March 1993.

Variable	Pre-turnover		Post-turnover		Tests of difference pre-to-post turnover	
	Mean	Median	Mean	Median	p-values t-test	p-values rank-sum test
Panel A: Crisis-Response Firms						
Board size	7.63	7.00	7.28	7.00	0.16	0.15
% Independent directors	25.93	25.00	31.88	33.33	0.00***	0.01***
% CEO ownership	6.00	1.3	4.79	0.66	0.99	0.41
% Board ownership	10.28	4.84	12.39	4.31	0.50	0.65
% Outside board ownership	1.07	0.12	3.79	0.18	0.18	0.06*
Ratio of firms with independent chairperson	8/46		22/43		0.00***	0.00***
Panel B: Non-crisis-response firms						
Board size	9.16	8	8.59	8	0.21	0.28
% Independent directors	37.46	36.36	43.18	43.30	0.00***	0.00***
% CEO ownership	2.46	1.00	3.13	0.45	0.70	0.16
% Board ownership	15.11	5.15	11.24	3.06	0.12	0.03**
% Outside board ownership	3.74	0.12	4.00	0.09	0.80	0.81
Ratio of firms with independent chairperson	21/47		21/43		1.00	1.00

*, **, and ***, represent significance at the 10%, 5%, and 1% levels respectively.

larger percentage of independent outsiders are on the board subsequent to crisis-response turnover. CEO ownership declines from 6% to 4.8%; however, the decline is not significant. Independent outside directors show marginal increases in ownership; the median ownership of independent outsiders increases to 0.18% from 0.12%. While the change in ownership by outside directors is statistically significant, the level of ownership both prior to and following the turnover seems too small to conclude that outside board ownership has a significant impact on the level of monitoring. Finally, the most striking result is the change in the number of firms that separate the CEO and chairperson positions subsequent to the turnover. While only eight crisis-response firms separated the positions prior to the turnover, 22 crisis-response firms had separate CEO and chairperson positions subsequent to the turnover.

Large changes in board characteristics are also observed following non-crisis-response turnovers. Even though non-crisis-response firms had relatively more independent outside directors on their boards prior to the turnovers than did the crisis-response firms, they also significantly increase the percentage of independent outsiders subsequent to the turnover. The percentage of independent outsiders on the board increases from 37.5%, on average, to 43%. There is no decline in ownership by the CEO and no increase in the equity ownership of the independent outsiders. The incidence of firms with separate CEO and chairperson positions does not change significantly following the turnover. The size of non-crisis-response firms' boards declines insignificantly from 9.16 to 8.59, on average.

Table 6 summarizes the turnover rates of directors surrounding CEO turnover. Significant number of departures are observed after both crisis-response and non-crisis-response CEO turnovers. On average, 45.92% of directors of the corporation before crisis-response CEO turnover are no longer with the firm by the second shareholder meeting after the announcement of CEO turnover. The corresponding board turnover rate in non-crisis-response firms is 32.33%. The mean and median board turnover rates after crisis-response CEO turnovers are significantly higher, at the 5% level, than the board turnover rates after non-crisis-response CEO turnovers.

These results indicate that forced turnover is followed by significant changes in board characteristics whether or not the board waited for a crisis before removing management. However, the changes made following crisis-response turnovers appear to be more significant than those made following non-crisis-response turnovers. Overall, this evidence suggests that management turnover often creates the impetus to alter firms' internal governance systems and that this is more likely the weaker their pre-turnover governance systems.

In summary, the analysis from the chapter indicates that there may be systematic differences in board characteristics of firms that remove their CEO promptly and those that do not. Boards that force CEO turnover make large changes, on average, in the governance structure subsequently. The average changes in governance structure made by boards that were unable to remove the CEO promptly are significantly larger.

Table 6

Board-turnover around CEO turnover

This table describes the number of changes made in the members who constitute the board for the crisis-response and non-crisis-response subsamples. Each subsample consists of 47 firms for which a forced turnover is identified between January 1992-March 1993.

Variable	Crisis-response subsample		Non-crisis-response subsample		Tests of difference	
	Mean	Median	Mean	Median	Means [c] t-values	Medians [d] z-values
Total Change[e]	3.90	4.00	3.57	3.00	0.61	1.15
Percentage total change[f]	49.47	50.00	36.84	33.33	2.36[**]	2.05[**]
Replacements[g]	3.45	3.00	2.98	2.00	0.84	1.37
Percent replaced[h]	45.92	44.44	32.33	28.57	2.41[**]	2.16[**]

*, **, *** represent significance at the 10%, 5%, and 1% levels respectively.

[a] Crisis-response subsample contains 47 firms in which the CEO replacement is in response to a crisis in the capital and/or the product markets.

[b] Non-crisis-response subsample contains 47 firms for which there is no obvious crisis in the capital or product markets.

[c] t-value for difference in means between crisis-response and non-crisis-response subsamples.

[d] z-value for difference in medians between crisis-response and non-crisis-response subsamples.

[e] Number of directors replaced + | change in size of the board|.

[f]   Total change divided by the maximum of board sizes prior to or post CEO turnover.

[g] Number of directors on board who are replaced after CEO turnover.

[h] Number of replacements divided by board size prior to turnover.

Chapter 5

Compensation Structure and Firm Performance

5.1 Overview and General Hypothesis

Agency theory suggests that boards of directors interested in ensuring that CEOs act in the interests of shareholders will design compensation contracts that align CEOs' welfare with that of their shareholders. Compensation policy can provide CEOs with incentives to maximize firm value through salary revisions, performance-based bonuses, and stock options. In this section, the effectiveness of compensation design is measured by estimating and comparing the magnitude of value-maximization incentive provided by these mechanisms prior to and following the turnover.

Empirical studies to date report a statistically significant association between CEO compensation and firm performance [Coughlan and Schmidt (1985), Jensen and Murphy (1990)]. Jensen and Murphy estimate that the average CEO wealth change from salaries, bonuses, stock options, stock ownership, and expected cost of dismissal is $3.25 for every $1,000 change in shareholder wealth. They suggest that the magnitude of the association between CEO's wealth and firm value raises doubts about whether boards do design compensation contracts that maximize firm value. Jensen and Murphy (1990) suggest that

the low pay-performance sensitivity may reflect political forces, both public and private, that constrain the type of contracts that can be written between managers and shareholders. Strong public antagonism to large payoffs to managers have led many firms to truncate the maximum level of incentives available to the CEO. This implies that incentives also need to be bounded from below in order to be consistent with equilibrium in the managerial labor market. Another reason for the low pay-performance sensitivity is that compensation contracts are designed by compensation committees, and, as Jensen (1993) notes, the directors that comprise these committees are likely to be aligned with top-management, and thus less likely to design compensation contracts that tie a large part of the CEO's wealth to firm performance.

Blackwell and Farrell (1994) suggest that the political environment may change subsequent to forced CEO turnover. Consistent with this, the evidence in the previous chapter suggests that board characteristics do change in the direction of more effective monitoring systems. The combination of a new board and a changed political environment may also be more conducive to changes in compensations systems that better align the new CEO's wealth with performance.

If misaligned compensation contracts were one reason for the sample managers' non-firm-value maximizing decisions, we should observe low CEO pay-performance sensitivities in these firms prior to the turnover. In addition, if the turnover creates an opportunity for valuable changes in the political environment, we should observe significant re-alignments of CEOs' compensation contracts following the turnover.

5.2. Control Sample of Normal Turnover

The discussion from the previous section suggests that low pay-performance sensitivities may be observed before forced CEO turnovers and that significant realignments of compensation contracts may be observed following the turnover. This assertion is tested by comparing the compensation structures of the forced CEO turnover sample with a control sample of 89 normal turnovers. A CEO turnover is considered normal if:

(a)   retirement is announced;

(b)   the CEO is replaced for health or death reasons;

(c)   the CEO leaves for another identifiable job, and

(d)   no reasons are found, but the departing CEO is at least 63 years of age, stays affiliated with the firm, and is replaced by an insider.

If changes in the internal political environments of firms are more substantial following forced turnovers, we should see more significant changes in compensation structures and pay-to-performance sensitivities following forced turnovers than we do following normal turnovers[4]. The fact that the CEO is replaced by an outsider following

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[4] Of the sample of firms initially identified from Dow Jones Newswire, 225 firms reported at least one quantifiable base on which they paid their annual cash bonuses. 197 of the 225 firms reported using some measure of accounting earnings (usually earnings before income and taxes) as a base to measure performance. Surprisingly, only 4 of the 225 firms reported using actual stock performance as a base to determine bonuses. The compensation committee reports reveal that the committee believes that earnings are a measure of performance that is not affected by the vagaries of the stock market, and is a good measure of short-term performance. This implies that the sensitivity of bonus paid to earnings performance may be more appropriate estimates to test the alignment of CEO and shareholder interests.

50% of the forced turnovers studied and only 23% of the normal turnovers is consistent with larger environmental changes following forced CEO turnovers.[5]

5.3. Comparative Changes in Compensation Structure Pre-to-Post Turnover

The expanded disclosures required by the SEC allow for the separation of salaries and bonuses, which facilitates pre-to-post comparisons of the sensitivity of bonus to performance. The SEC regulations also require firms to provide more information on options granted to CEOs. Data is now available on:

(a) bonuses as separated from salary

(b) the number and features of options granted;

(c) signing bonuses and other one-time incentives granted; and

(d) the maximum annual incentive compensation (often expressed as a percentage of base salary) that the CEO can earn.

The expanded information about options granted allows us to value them more accurately. The identification of signing bonuses may add insight to the change in political environment. In addition, the fact that they are separately identified allows for pre-to-post comparisons of option grants that are not one-time incentive grants.   The maximum levels of incentives are an apriori measure of the incentive structure and thus may provide better insights into the incentive mechanisms put into place than would ex-post data.

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[5] Replacements for the departing CEO are considered outsiders if they have been employed with the firm for less than six months before the turnover. All officers and directors employed with the firm for at least six months, consultants, lawyers, bankers, majority stock holders, and representatives of majority stockholders are not considered as outsiders.

Table 7 provides information on salaries, bonuses, and the values of stock options granted to CEOs of firms in the forced and normal turnover subsamples.[6] Relative to the departing CEO in his or her last full fiscal year of employment, the average incoming CEO following a forced turnover receives a similar salary and options but a higher bonus during his or her first full year on the job. Following the average normal turnover, the incoming CEO is paid a significantly lower salary than the outgoing CEO, but receives a marginally higher bonus in the second year following the turnover.[7] A comparison of the changes in compensation structure shows marginally significant increases in salary and bonus for forced turnover, relative to normal turnover.

Some firms report the maximum levels of annual incentive compensation (as a percentage of base salary) that the manager could achieve. Unlike the analysis in the previous section that uses ex-post data to measure incentive alignment, observations on the maximum levels of incentives offer us an apriori measure of the level of incentives

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[6] The features of executive stock options make them almost impossible to be valued accurately. But, most of the major studies in the research area use the Black-Scholes option pricing formula, or a minor modification of it, to value these options. Given the agency question of this dissertation, it may be inappropriate to apply such a framework to value these options. But, in order to keep the discussion focused on the issue, and for possible comparisons with other studies in the area, Black-Scholes option pricing formula is still employed.

Even after deciding on using the Black-Scholes option pricing model to valuate these options, arriving at an appropriate estimate of volatility for these options is extremely difficult. The 60 monthly returns immediately prior to the month in which the options were granted were used to estimate the volatility of the underlying security (as in Murphy (1985)). No estimates were made if there were less than 12 trading months before the month of the option grants. The risk-free interest rates used in the calculations are the daily 10-year treasury interest rates. The data was collected from the CITIBASE database.

[7] Long-term incentives are usually based on the cumulative performance over three years, and hence the new CEO may not be able to receive appropriate levels of such incentives during the sample period. Thus, no comparative analysis between the long-term incentives offered to new and old management could be done.

Table 7

Changes in compensation structure following forced and normal CEO turnover

This table describes the changes in the salaries, bonuses, options granted and the overall equity component of total compensation following forced and normal CEO turnover.

	Pre-turnover		Post-turnover		Test of Differences	
	Mean	Median	Mean	Median	t-test p-values	rank-sum test p-values
Panel A: Forced turnovers						
Salary[a]	355,663	291,262	348,662	286,408	0.47	0.69
Bonus[b]	25.67	0	36.58	21.60	0.00***	0.00***
Value of options[c]	1.3749	0	2.108	0.299	0.20	0.09*
Panel B: Normal turnover						
Salary[a]	402,605	382,461	364,647	325,658	0.54	0.01***
Bonus[b]	42.63	19.29	42.89	32.65	0.98	0.07*
Value of options[c]	0.8943	0	1.6878	0.6546	0.04**	0.01***

Tests of difference between forced and normal turnover

	t-values	z-values	t-values	z-values	t-values	z-values
Salary[a]	1.37	1.65*	0.40	1.11	0.75	1.55
Bonus[b]	1.35	1.72*	0.79	0.90	1.22	0.99
Value of options[c]	-1.23	0.21	-0.72	-0.32		

*,**, and ***, represent significance at the 10%, 5%, and 1% levels respectively.

[a] Annual cash salaries of the CEOs
[b] Annual cash bonus awarded, expressed as a percentage of total salary.
[c] Total value of options granted calculated from a modified form of the Black-Scholes formula.

available to management to make value maximizing decisions. Any observed change in these incentive levels available to management would then imply a change in the incentive alignment of the manager.

Such data was available for 72 firms in 1993/94, but only 32 reported such data in years before the turnover. The summary of the maximum levels are in Table 8. The average maximum levels before the turnover for the 30 firms with data before the turnover was about 69 percent of base salary. Subsequent to the turnover, the same set of firms report maximum levels that are about 15% higher than what it was prior to the turnover. Significant changes are observed after both forced turnovers and normal retirements and, despite the small sample size, these changes in the maximum level of incentives are statistically significant at the five percent level. This evidence indicates that boards significantly realign managerial contracts subsequent to CEO turnover.[8]

Table 9 summarizes incentives offered to incoming CEOs in the form of stock options at the time of signing their employment contracts. Relative to incoming CEOs after normal turnovers, incoming CEOs following forced turnover are granted significantly more stock options, both nominally and as a percentage of shares outstanding.[9] The number of options granted represent a significant portion of the manager's compensation,

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[8] It is possible that these changes are due to new SEC reporting requirements, or due to the heightened shareholder activism during the sample period.

[9] The numbers presented in the study are the mean and median values for all firms in the subsample. These numbers are much larger, and more significant, if we consider only those firms that offer a signing bonus.

Table 8

Maximum level of incentives

Table below summarizes the maximum level of annual cash bonuses that CEOs can receive prior to and following CEO turnover. The first row in columns 2-4 gives the mean and median values of the maximum levels of incentives expressed as a percentage of the CEO's total salary. The number of firms reporting the upper boundary of incentives are in row 2.

	Prior turnover		Post turnover		Difference	
	Mean	Median	Mean	Median	Means	Medians
Forced turnover	67.25	60	68.18	70	13.86	0
	n=16	n=16	n=22	n=22	n=14	n=14
					p=0.027	p=0.031
Normal turnover	70.28	70	87	75	17.17	5.00
	n=14	n=14	n=50	n=50	n=12	n=12
					p=0.04	p=0.031
All turnover	68.67	70	81.25	71	15.38	0
	n=30	n=30	n=72	n=72	n=26	n=26
					p=0.002	p=0.001

Table 9

Signing bonuses for the new CEO

Table below summarizes the incentives offered to new management in the form of stock options at the time of signing the employment contract. The sample consists of 89 incoming CEOs after a normal turnover and 94 incoming CEOs after a forced turnover.

| | Normal turnover | | Forced turnover | | Tests of difference | |
	Mean	Median	Mean	Median	t-values[a]	z-values[b]
Number of options	73,360	36,816	191,752	96,300	-3.31***	-3.57***
Option value / Salary (%)	3.97	3.3	12.66	3.11	-1.34	0.95
Number of options / outstanding shares (%)	0.65	0.20	1.38	0.81	-1.80*	-2.06**
# outside replacements	21/89		47/94			

*,**, and ***, represent significance at the 10%, 5%, and 1% levels respectively

[a] t-test for the testing differences in means.
[b] z-values from Wilcoxon rank sum test for testing differences in medians.

consistent with boards of directors attempting to provide incentives that may motivate the new CEOs to make firm-value maximizing decisions.

5.4 Comparative Changes in Pay-to-Performance Sensitivities Pre-to-Post Turnover

Poorly designed compensation contracts provide little incentive for the CEO to make decisions that are in the best interests of the shareholders. Thus, we may expect to observe little or no sensitivity of pay to performance prior to forced CEO turnovers. However; the removal of the CEO may provide the opportunity for more appropriate mechanisms to be put in place.

Hypothesis VII: The sensitivity of bonus paid to stock performance is low prior to forced CEO turnover and increases significantly for the new CEO.

5.4.1. Methodology

The hypothesized relationship between the bonus awarded to the CEO and firm performance is estimated using an ordinary least squares regression of the following form:

Bonus = $_0$ + $_1$ *(shareholder wealth) +* $_2$ *D* (shareholder wealth)*

where

Bonus = bonus paid in the last full year of the departing CEO's tenure and

the first full year of the new CEO's tenure.

(shareholder wealth) = change in shareholder wealth measured as $r_t V_{t-1}$, where r_t is the

inflation-adjusted rate of return on the firm's common stock
realized during the fiscal year t, and V_{t-1} is the value of the firm
at the end of fiscal year t-1.

D   = dummy variable which equals 1 if bonus corresponds to post-
turnover period and zero if bonus corresponds to the pre-
turnover period.

Because the dependent variable is truncated from below at zero, we also run a Tobit
(truncated at zero)[10] model of the form

Bonus = $_0$ + $_1$ *(shareholder wealth)* + $_2$ *D* (shareholder wealth),* if RHS>0

= 0, otherwise.

where Bonus, Δ(shareholder wealth) and D are as defined before.

The coefficient $_1$ indicates the pre-turnover sensitivity of bonus paid to
performance. A significant $_1$ would imply a significant alignment of the departing CEO's
cash incentives with firm stock performance. Coefficient $_2$ refers to the incremental
sensitivity of the new CEO's bonus over that of the departing CEO's. A significant $_2$
would indicate that the new CEO's bonus is more sensitive to performance than was the
departing CEO's.

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[10] See Amemiya (1973), and Tobin (1958) for a more complete discussion of this model.

5.4.2. Results

The results from the OLS and Tobit regressions of bonus paid on firm stock performance are presented in Table 10. For the forced CEO turnover sample, the coefficient that measures the pre-turnover pay-performance sensitivity is not significantly different from zero. However, the coefficient that indicates the re-alignment of the new CEO's bonuses with performance is significantly positive. New CEOs are paid, on average, $0.27 for every $1,000 change in shareholder wealth (Tobit=$0.31), approximately 24 cents higher than that of the old CEO. For the control sample of normal turnovers, bonuses are significantly tied to performance prior to the turnover; the sensitivity increases by approximately $0.08 following the turnover. The difference in sensitivity increase between the forced and normal turnovers is significant at the one percent level.[11]

These results are consistent with the hypothesis that CEOs that were forcibly removed had low pay-performance sensitivities, on average, and that their replacements' compensations contracts are more closely tied to performance.

Overall, the results from this chapter indicate that managerial incentives to maximize firm performance may be small prior to forced CEO turnover. The new board aligns more of the manager's wealth with firm performance through large stock option grants and by tying more of the annual pay to improvements in firm value.

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[11] These sensitivities are not exactly comparable to the sensitivities of Jensen and Murphy (1990) because the dependent variable used in this study is the amount of bonuses paid, whereas, Jensen and Murphy (1990) use changes in (salary+bonus) as their dependent variable.

Table 10

OLS and Tobit regression estimates of pay-performance sensitivity

This table presents estimates from OLS and Tobit regressions of the cash bonuses awarded to the CEO on the corresponding year's stock performance, for the forced turnover subsample and the normal turnover subsample. Bonuses and performance correspond to the final year of the departing CEO and the second full year of the new CEO. In the regressions, dummy variable "d" equals '0' if bonus corresponds to old CEO and '1' if it corresponds to new CEO. Dummy variable "e" equals '0' if observation corresponds to normal turnover and '1' if observation corresponds to forced turnover.

$$Bonus\ Awarded = \ + \ (\Delta shareholder\ wealth) + \ d*(\Delta shareholder\ wealth))$$

	Intercept	Coefficient of $\Delta shareholder\ wealth$	Coefficient of $d*\Delta shareholder\ wealth$
Forced turnover	-133,043	0.018	0.306***
	106,579	0.020	0.266***
Normal turnover	65,757	0.050***	0.131***
	140,529	0.040***	0.125***

$$Bonus\ Awarded = \ + \ (\Delta shareholder\ wealth) + \ d*(\Delta shareholder\ wealth) + \ d*e*(\Delta shareholder\ wealth)$$

All turnover	-1,633	0.042**	0.152***	0.111**
	127,746***	0.032***	0.136***	0.115***

$$Bonus\ Awarded = \ + \ (\Delta shareholder\ wealth) + \ d*(\Delta shareholder\ wealth) + \ d*e*(\Delta shareholder\ wealth) + \ e*(\Delta shareholder\ wealth)$$

All turnover	-1,028	0.058**	0.135***	0.150***	-0.038
	127,419***	0.041**	0.126***	0.137***	-0.021

*,**, and ***, represent significance at the 10%, 5%, and 1% levels respectively.

Chapter 6

Internal Corporate Governance and Changes in Firm Performance

Denis and Denis (1995) present evidence that forced turnovers are preceded by operating performance declines and followed by operating performance improvements, on average. If the changes in the corporate governance structure evidenced in the previous section are important determinants of firm performance, then post-turnover performance improvements may be related to these changes. This section estimates the operating performance improvements of the firms in the sample subsequent to the turnover and relates these changes to the changes in the internal control mechanisms documented in the previous section.

6.1. Hypotheses

The evidence from section 4 indicates that firm performance and board effectiveness may be determined by the percentage of outsiders on the board of directors, the ownership of the CEO and other board members, and the separation of the CEO and chairperson positions. If these mechanisms are important determinants of firm value and if firm performance improves subsequent to forced CEO turnover, then we may be able to

observe a relation between changes made in the internal control mechanisms and changes in firm performance.

Hypothesis VIII: Operating performance improves subsequent to forced CEO turnover and improved operating performance is positively related to the changes in internal corporate governance.

6.2. Methodology

As before, operating performance is measured by industry-adjusted net operating income during the fiscal year standardized by the book value of assets at the beginning of the fiscal year. To measure whether there are significant improvements in firm performance subsequent to the turnover, we measure the changes in operating performance from the fiscal year-end preceding the turnover (year-1) to operating performance two years subsequent to the turnover (year+2). These changes are then related to the changes in board characteristics observed from section 4 by OLS regressions of the form:

$$\Delta(NOI_t / TA_{t-1}) = \alpha_1 + \alpha_2\ \Delta(BS) + \alpha_3\ \Delta(OUT) + \alpha_4 \Delta(CEOWN)$$

$$+ \alpha_5 \Delta(BOWN) + \alpha_6 \Delta(IND)$$

where,

$\Delta(NOI_t / TA_{t-1})$ = Change in operating income to total assets from the last fiscal year prior to the turnover (year-1) to two years subsequent to the turnover (year+2).

Δ(BS)   = Change in board size pre-to-post turnover.

Δ(OUT)   = Change in percentage of independent outside directors pre-to-post

                     turnover.

Δ(CEOWN)   = Change in percent CEO ownership pre-to-post turnover.

Δ(BOWN)   = Change in percent of (non-CEO) board ownership.

Δ (IND)   = Change in leadership structure, equals 0 if there are no changes in the

                     structure, equals 1 if firms move from separating the titles to

                     concentrating them, and equals -1 if firms that had concentrated

                     leadership separate the titles.

6.3. Discussion of results

Table 11 presents the results of changes in operating performance subsequent to the turnover. The changes in operating performance unadjusted for industry performance are comparable to those presented by Denis and Denis (1995), but insignificant. However, unlike their study, no significant change in industry-adjusted operating performance is observed following forced turnovers in this study.

None of the variables from the OLS regression (4) of changes in operating performance on changes in board characteristics are significant in explaining the changes in operating performance. The results are presented in Table 12.

Table 11

Operating performance following CEO turnover

Table below presents the mean and median industry-adjusted operating performance of the crisis-response and non-crisis-response firms from the fiscal year ending prior to the turnover (year 0) to two years subsequent the turnover (year +2).

Variable	Crisis-response subsample (N=47)[a]		Non-crisis-response subsample (N=47)[b]		Tests of difference	
	Mean	Median	Mean	Median	Means[g] t-values	Medians[h] z-values
NOI / A $_{-1}$ [e]	-6.597 p=0.0011	-5.425 p=0.001	-2.061 p=0.34	-1.383 0.51	1.59 p=0.12	2.01 p=0.044
Δ(NOI / A $_{-1}$) [f]	-3.409 p=0.17	-0.808 p=0.33	-3.256 p=0.13	-1.785 p=0.09	0.0467 p=0.96	0.2022 p=0.84

*, **, *** represent significance at the 10%, 5%, and 1% levels respectively.

[a] Crisis-response subsample contains 47 firms in which the CEO replacement is in response to a crisis in the capital and/or the product markets.

[b] Non-crisis-response subsample contains 47 firms for which there is no obvious crisis in the capital or product markets.

[c] t-value for difference in means between crisis-response and non-crisis-response subsamples.

[d] z-value for difference in medians between crisis-response and non-crisis-response subsamples.

[e] Average of Operating Income to total assets over two years after the turnover, adjusted by industry medians.

[f] Changes in operating performance from the year of the turnover to two years subsequent to the turnover, adjusted by industry medians.

Table 12

Changes in operating performance and changes in board characteristics

This table presents the results from OLS regressions of changes in operating performance on changes in board characteristics following forced turnover. Changes in operating performance is measured as the industry-adjusted changes in the ratio of operating income to total assets from the year preceding the turnover (year-1) to two years following the turnover (year +2). The sample consists of 94 forced turnovers over the period January 1992-March 1993.

operating performance= f (Board size, independent directors, CEO ownership, total non-CEO board ownership, independent chairperson, and firm size)

Variable	Coefficient	p-values[a]	Coefficient	p-values[a]
	Regression (4)		Regression (4)	
Intercept	-0.024	0.17	-0.030	0.14
ΔBoard size	-0.003	0.67	-0.003	0.71
ΔIndependent directors[b]	-0.028	0.82	0.107	0.52
ΔCEO ownership[c]	-0.001	0.47	-0.001	0.55
Δ Non-CEO board ownership[d]	0.001	0.58	0.001	0.74
ΔIndependent chairperson[e]	-0.012	0.58	0.010	0.71
Δownership by independent directors			-0.000	0.96

*, **, and ***, represent significance at the 10%, 5%, and 1% levels respectively.

[a] p-values from the t-test for parameter estimates.
[b] Change in percentage of directors not affiliated with management.
[c] Total equity ownership- Total equity ownership of departing CEO
[d] Change in total equity ownership of all members of the board of directors excluding the CEO.
[e] Variable equals 0 if there are no changes in leadership structure, -1 if firm move from seperating titles to concentrating them, and equals -1 if firms that had concentrated leadership separate the titles.

Chapter 7

Conclusions

The results presented in this dissertation suggest that board and ownership characteristics are important determinants of the effectiveness of internal monitoring systems. The empirical evidence based on 94 forced CEO turnovers suggests that poorly-performing managers are removed more quickly in firms that have a larger percentage of independent outside directors on their board, that have higher equity ownership by the non-CEO directors and lower equity ownership by the CEO, and that separate the positions of CEO and chairperson.

In addition, examination of post-turnover governance systems in the sample firms reveals that CEO turnover is associated with broad changes in monitoring and incentive systems. The removal of the CEO apparently provides both the opportunity and the incentive to alter internal governance systems. There is significant turnover of board members and the new boards generally have a higher fraction of independent outside directors and more likely to separate the positions of CEO and chairperson. In addition, the sensitivity of CEO compensation to firm performance increases significantly following turnover. These post-turnover improvements in monitoring and incentive schemes are greatest in those firms whose pre-turnover control systems are weakest; i.e. those firms that require crises in the product

and/or capital markets before they remove their CEOs. There is no evidence, however, that short-term performance improves following changes in CEOs and governance systems.

This study contributes to our understanding of the importance of internal control systems. However, there is much that is not yet understood. For example, the evidence here suggests that even firms whose boards respond promptly to the need to remove the CEO alter their board structures following turnover, albeit not as much as do firms with weaker boards. This may suggest that optimal board characteristics are related to the identity of the CEO and/or that they change over time. In addition, most governance evidence to date focuses on relatively large firms; governance systems in smaller firms may also yield important insights. These and other governance-related issues warrant further study.

Appendix

Components of Compensation

A recipient of a restricted-stock award is entitled to full rights in a certain number of shares of the company's stock, but he/she can not sell or assign the stock until the restriction period associated with it has lapsed. The recipient of the shares have full voting rights with respect to the shares, and any dividends paid between the time of grant and exercise will be paid when the restrictions lapse.

Long-term bonus plans pay incentives that are based on the cumulative performance of the firm over a given period. Most of the firms in the sample base these incentives on three-year cumulative performance of the firm. Up to six-year measurement periods are reported by Pavlik, Scott and Tiessen (1993). Performance is often based on accounting-based measures.

A stock appreciation right (SARs) is the right to receive payment from the company equal to the excess of the fair market value of a share or stock at the date of exercise over the exercise price for the accompanying incentive stock options, which exercise price is the fair market value of the stock at the date of the grant (usually). If any stock appreciation rights are exercised, the related stock option will terminate for a number of shares equal to the number of SARs exercised. Payouts may be made in cash, stock, restricted stock, or any combination thereof. SARs are not differentiated from option grants for the purpose of this study.

Options granted to the managers could be incentive options (ISO) or non-qualified options (NSO). Incentive options are based on performance and are mostly issued with exercise price equal to the fair market price of the underlying security. Incentive stock options do not trigger taxable income until the stock received from exercising the option is sold. Exercising an ISO, does, however, result in

income for alternative minimum tax purposes and, therefore, may trigger alternative minimum tax. If ISO stock is sold at least one year after the date of exercise and two years following the date the ISO was granted, the difference between the sale price and exercise price is taxed as a long-term capital gain at the 28% rate.   By contrast, the exercise of an NSO will be taxed as ordinary income, which could be as much as 39.6% under the new law.

Under the new 1993 tax law the firm will not be allowed a deduction   for compensation paid to the extent   that   the compensation exceeds $1 million. Performance based compensation is exempt from this $1m cap only if (1) it is paid solely on account of the attainment of one or more performance goals (2) the performance goals are established by a compensation committee consisting of two or more outside directors (3) the   material terms   under which the compensation is to be paid, including the performance goals, are disclosed to and approved   by   the shareholders in a separate vote prior to payment, and (4) prior to   payment, the compensation committee certifies that the performance goals and any other material terms were in fact satisfied. Stock options that are granted with an exercise price at least equal to the stock's fair market value on the date of grant will be treated as performance-based. There is no need to certify that the performance standards have been met (Ernst & Young's 'Guide to the new tax law', 1993).

The restricted stock awards, stock appreciation rights, and the options have a vesting period and the contracts often specify that the managers will forfeit these awards if they leave the firm or if they are terminated for cause. (There are many instances in which the firm enters into a termination agreement, under which this clause is waived/modified).

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