7-31-2014

Can Compensation Committees Effectively Mitigate the CEO Horizon Problem? The Role of Co-opted Directors

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DOI: 10.25148/etd.FI14071194

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CAN COMPENSATION COMMITTEES EFFECTIVELY MITIGATE THE CEO HORIZON PROBLEM? THE ROLE OF CO-OPTED DIRECTORS

A dissertation submitted in partial fulfillment of

the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

ACCOUNTING

by

Ruonan Liu

2014

To: Dean David R. Klock
College of Business Administration

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Date of Defense: July 29, 2014

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ABSTRACT OF THE DISSERTATION

CAN COMPENSATION COMMITTEES EFFECTIVELY MITIGATE THE CEO HORIZON PROBLEM? THE ROLE OF CO-OPTED DIRECTORS

by

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Florida International University, 2014

Miami, Florida

Professor Stephen Lin, Major Professor

Extant research finds inconclusive evidence about the CEO horizon problem. One possibility is that compensation committees design CEO compensation in a way that discourages retiring CEOs from opportunistic earnings management and R&D reduction. However, compensation committees dominated by co-opted directors may not be as effective as those with fewer co-opted directors in mitigating the CEO horizon problem, because directors co-opted by the CEO tend to bias their decisions in favor of the CEO. I find that compensation committees dominated by co-opted directors are associated with higher CEO compensation packages. I document R&D reduction and accruals management in firms with retiring CEOs and compensation committees dominated by co-opted directors, and find that R&D reduction and income-increasing accruals are less discouraged by compensation committees dominated by co-opted directors when deciding CEO compensation. I also examine the effect of boards of directors and compensation committee characteristics on CEO compensation and on mitigating the CEO horizon problem. I find that CEO compensation positively associates with CEO power, director independence, and the percentage of busy directors, and negatively

associates with board of directors and committee size and director ownership. Moreover, I find that retiring CEOs are more likely to reduce R&D expenditures when CEOs have more power, and director tenure is longer; retiring CEOs in firms with large boards of directors and compensation committees are less likely to manage accruals.

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INTRODUCTION

Due to the separation of ownership and control in corporations, the interests of a CEO may deviate from the interests of the corporation's shareholders. To reduce any problems that may arise from this deviation, boards of directors typically act as monitors to reduce agency problems. For example, the compensation committee, a subcommittee of the board of directors, is responsible for designing CEO compensation packages that can align the interests between shareholders and the CEO. However, not all compensation committees are equally effective. "Co-opted directors" are defined as the directors appointed after a CEO assumes office. CEOs may use their influence over the director appointment process to co-opt directors who share some similarities or ties with them. Therefore, the co-opted directors are more likely to feel sympathetic to the CEO. In addition, the co-opted directors may be less willing to challenge their CEO since they believe they owe their board seats to him or her. As a result, the co-opted directors are less effective monitors (Coles et al., 2014). This study examines whether compensation committees' effectiveness at mitigating the CEO problem is diminished when the majority of the committee is made up by co-opted directors.

CEOs with earnings-based compensation may focus on boosting firms' short-term performance by cutting R&D spending or engaging in accruals management. However, these opportunistic behaviors have a negative effect on a firm's value. This problem becomes more severe in CEOs' final years prior to retirement, when they are less concerned with their reputation in the job market. However, compensation committees can adjust CEO compensation to alleviate opportunistic R&D reduction (Cheng, 2004) and opportunistic accruals management (Huson et al., 2012). If the co-opted directors are

less effective, the compensation committees dominated by co-opted directors may be less responsive to the CEO horizon problem.

Using a sample of 13,606 firm-year observations for S&P 1500 firms from 1998 to 2011, I find that CEO compensation is likely to be higher if compensation committees are dominated by co-opted directors. I find evidence of R&D reduction and accruals management in firms with retiring CEOs and in compensation committees dominated by co-opted directors. Further, I find that R&D reduction and income-increasing accruals are less discouraged when determining the compensation for retiring CEOs by compensation committees that are dominated by co-opted directors.

My findings are robust to alternative measures of the compensation committee co-option and additional controls of corporate governance. CEOs' direct involvement in the director nomination process has reduced since 2004, after the NYSE Corporate Governance Section 303A, NASDAQ Rule 4350 (c), and AMEX Enhanced Corporate Governance Rules, section 805 required that nomination committees of listing firms must solely consist of independent directors. Despite this reduction in CEO direct involvement, I still find evidence that compensation committees dominated by co-opted directors are less effective in reducing CEO compensation and mitigating accruals management when CEOs approach retirement in the subsample firm-year observations during the period 2004-2011[1].

I also investigate whether board and compensation committee characteristics are associated with CEO compensation and the CEO horizon problem using a principal

[1] One possibility is that the CEO can still exert indirect influence. Another explanation may be that the results are driven by the directors appointed before the year of 2004.

components analysis. I find evidence that CEO compensation positively correlates with CEO power and busy directors, while negatively correlating with director ownership. In addition, I find that both CEO power and director tenure increase the likelihood of R&D curtailment when CEOs approach retirement. I also find that the size of the board of directors and the compensation committee affect the likelihood of accruals management when companies face a CEO horizon problem.

This study contributes in three ways. First, it reveals that although many organizations reduce their CEOs' direct involvement in the appointment process of new directors, co-opted directors are weak monitors. Coles et al. (2014) find evidence that board co-option reduces monitoring effectiveness. Since the design of CEO compensation packages is delegated to compensation committees, I focus on the role of co-opted directors on compensation committees. Second, the study adds empirical evidence to the debate of organizations' CEO horizon problem. Extant literature finds mixed evidence of the horizon problem, which may be due to the intervention of compensation committees or failure to identify when the horizon problem is the most severe. The results provide evidence that retiring CEOs engage in opportunistic R&D cutting and income-increasing accruals management when compensation committees are less effective. Finally, the study adds to the literature on corporate governance, revealing that compensation committees play an important role in mitigating an organization's CEO horizon problem by adjusting CEO compensation. Cheng (2004) and Huson et al. (2012) discover that compensation committees intervene to mitigate an organization's CEO horizon problem by studying the association between CEO compensation and the CEO horizon problem. However, these two studies do not directly investigate compensation committees.

Moreover, they assume all compensation committee are effective. My findings suggest that the effectiveness of compensation committees in mitigating an organization's CEO horizon problem is contingent on the quality of compensation committees.

The remainder of this study is organized as follows. Chapter 2 presents a literature review; Chapter 3 discusses the hypothesis development; Chapter 4 describes the research design; Chapter 5 reports the study's sample population and empirical results; and Chapter 6 discusses the roles of boards of directors and compensation committees in designing CEO compensation packages. The final section concludes the paper with a discussion about the significance of the findings.

1. LITERATURE REVIEW

1.1 Horizon Problem

A manager's tenure is much shorter than a firm's lifespan. When managers have shorter horizons than a firm's optimal investment horizon, managers prefer to engage projects with lower net present value but with higher current earnings, which would maximize the manager's bonus compensation. This is what is known as a horizon problem, according to Smith and Watts (1982). In other words, managers with shorter horizons are myopic; they tend to focus on increasing the firm's short-term earnings. At the beginning of their career, managers are concerned with reputation. Fama (1980) argues that managers are disciplined by the labor market because their human capital depends on the success of the firm. Therefore, CEOs care more about the firm's long-term success. However, as managers approach retirement, they have weaker career concerns and therefore the horizon problem is more severe (Gibbons and Murphy, 1992).

Horizon problem predicts that retiring CEOs may reduce R&D expenditures or involve in accruals management to maximize their earnings-based compensation, irrespective of the impact on the long-term benefits of the shareholders. However, extant literature finds mixed evidence of R&D reduction and accruals management. Effective since 1974, the Financial Accounting Standards Board (FASB) require companies to expense R&D expenditures in the year that they are incurred. However, the benefits from R&D investment take years to be fully realized. Therefore, reducing R&D expenditures results in the increase of current-year accounting earnings. Dechow and Sloan (1991) finds empirical evidence of R&D reduction prior to CEO departures for a sample of firms with large R&D expenditures and CEO compensation based on earnings performance for firm-years from 1974 to 1988. They suggest that CEOs reduce R&D expenditures to increase their earnings-based compensation in the years prior to CEO departures, which is consistent with the CEO horizon problem. They find no evidence that the R&D reductions around CEO departures are driven by poor firm performance or because the outgoing CEOs leave new investment initiatives to the incoming CEOs. Specifically, they find that CEOs who leave the company after they reach mandatory retirement age and thus anticipate departure, reduce R&D expenditures even more. They also find similar reductions in advertising expenditures but not in capital expenditures, which do not affect earnings immediately as R&D expenditures.

However, Murphy and Zimmerman (1993) suggest that the reductions in R&D expenditures preceding CEO departures are driven by poor firm performance rather than horizon problems. Dechow and Sloan (1991) use a small, selected sample of firms in R&D intensive industries. Murphy and Zimmerman (1993) examine a larger sample of

CEO turnovers from the Forbes annual surveys during 1971 to 1989; they find that the growth rate of R&D in the CEO's transition year (in which the old CEOs depart and the new CEOs assume office), and the CEO's last full year (the year before the transition year) is not significantly different from the three years before the CEO's last full year. They find no evidence of R&D reductions in the transition year and the last full year after controlling for firm performance, and no evidence of R&D reduction preceding CEO turnover for the subsample of CEO turnovers unrelated to poor firm performance.

Also contrary to CEO horizon problem predictions, Gibbons and Murphy (1992) find that firms spend most on R&D and advertising in the CEO's last year prior to retirement. They find that the level of R&D expenditures increases, but the R&D growth rate decreases as CEOs approach retirement. They further argue that the declining R&D growth rate prior to retirement is not driven by the CEO horizon problem, because they do not find an increase in concurrent earnings. Butler and Newman (1989) fail to find evidence of R&D reductions in the sample of firms with CEOs in their final year before departures compared with a matched sample of firms; they also fail to provide empirical evidence for the CEO horizon problem. They suggest that their findings do not identify when the CEO horizon problem is most severe.

Consistent with the CEO horizon problem, several studies find a negative association between CEO age or tenure and R&D expenditures and suggest that CEOs reduce R&D as they grow older (Barker and Mueller, 2002; Lundstrum, 2002; Naveen, 2006; Demers and Wang, 2009). However, Cazier (2011) points out the problems with these studies' research design. He identifies two factors that induce a negative bias between CEO age and R&D expenditures in the cross-section, and thus erroneously

support the CEO horizon problem. He finds that: 1) firms that invest more in R&D are more likely to be delisted, so firms with CEOs who are older or have longer tenure invest less in R&D; and 2) firms that invest more in R&D are more likely to hire younger CEOs. He examines CEO retirement rather than CEO age and finds that CEOs do not reduce R&D in the five years prior to their retirement.

Two recent studies, which argue that CEOs may use discretionary accruals to increase contemporaneous earnings, provide support for the CEO horizon problem (Kalyta, 2009; Antia et al., 2010). In a sample of Fortune 1000 firms from 1997 to 2006, Kalyta (2009) finds evidence of income-increasing accruals management in the years prior to CEO retirement only when the CEO's Supplemental Executive Retirement Plan (SERP) is contingent on firm performance. His findings suggest that if CEOs have performance-contingent SERPs, they have a more powerful incentive to boost firm earnings in the final years prior to retirement, in which SERPs pensionable earnings are determined. He finds negative market reaction only after the retirement of the CEO with a performance-contingent SERP. Antia et al. (2010) use CEO expected tenures to proxy CEO decision horizons and argue that shorter CEO horizons are associated with greater agency costs, higher information risk, and less market valuation. They find that accruals management is negatively associated with CEO decision horizons, which is consistent with horizon problems, and which leads to more accruals management.

However, several studies find inconsistencies with outgoing CEOs who boost earnings by involving income-increasing accruals management. Pourciau (1993) classifies CEO turnovers as routine turnovers in which a successor is chosen, or several contestants are identified; and non-routine turnovers, which include voluntary and

involuntary resignations. He focused on the non-routine CEO turnovers and found income-decreasing accruals and write-offs before the non-routine CEO turnovers. One reason for these results is that his model fails to control for firm performance. Murphy and Zimmerman (1993) did control for firm performance, and found a significant negative association between accruals and the transition year dummy. But after further controlling for the endogeneity of CEO turnover, no significant association is found. In a sample of Australian firms, Wells (2002) does not find income-increasing accruals management prior to CEO turnover, despite whether the turnovers are routine or non-routine. In addition, he finds no evidence of income-increasing earnings management through non-current asset sales or abnormal and ordinary items before the CEO routine and non-routine turnovers.

1.2 The Role of the Compensation Committee

The CEO horizon problem is one example of the conflict of interests between managers and shareholders. Shareholders cannot directly monitor managers, so they trust the board of directors with monitoring responsibilities (Fama and Jensen, 1983; Jensen and Meckling, 1976). As a subcommittee of the board of directors, the compensation committee is given the task of designing a compensation package that aligns the interests between shareholders and managers and therefore alleviates CEO horizon problem.

A firm's compensation committee is responsible for determining and overseeing the executive compensation process. For example, Apple Inc. describes the functions of its compensation committee in a proxy statement for its 2014 annual meeting of

shareholders as "reviewing the compensation arrangements for the Company's executive officers, including the CEO, administering the Company's equity compensation plans, and reviewing the Board's compensation. The compensation committee's authority to grant equity awards may not be delegated to the Company's management or others" (Apple Inc. Proxy Statement of 2012). Hermanson et al. (2012) interview 17 compensation committee chairs and three compensation committee members of public firms about the compensation committee process. According to the interviewees, one responsibility of the compensation committee is to oversee CEO compensation. Several studies also empirically support the important role that the compensation committee plays in designing CEO compensation (e.g., O'Reilly et al., 1988).

Accounting income is one of the performance measures used to determine CEO compensation (Lambert and Larcker, 1987). Prior research provides evidence that when compensation committees determine CEO compensation based on accounting income, they treat income items differently. In fact, they sometimes shield certain income items, for example, restructuring charges (Dechow et al., 1994; Adut et al., 2003), and even reward CEOs for certain expenditures that reduce income (Cheng 2004). More importantly, the different treatments are based on individual circumstances. Balsam (1998) examines the association between different components of earnings and CEO cash compensation, and finds that when including CEO cash compensation, the weight on discretionary accruals is relatively lower than the weight on nondiscretionary accruals, which in turn is lower than the weight on operating cash flows. He also shows that the weight of positive discretionary accruals is higher than negative discretionary accruals, indicating that compensation committees reward CEOs for positive discretionary accruals

while avoiding punishing CEOs for negative discretionary accruals. He further documents that compensation committees reward CEOs for positive discretionary accruals even more if the firms need to meet an earnings target. Gaver and Gaver (1998) examine the weight of above-the-line earnings and below-the-line earnings when including CEO cash compensation. Their findings suggest that above-the-line and below-the-line gains are included while above-the-line and below-the-line losses are excluded from CEO cash compensation. They separately examine unusual transactions, extraordinary transactions, and discontinued operations, for which gains are included while losses are excluded from CEO cash compensation.

In a sample of firms reporting restructuring charges between 1982 and 1989, Dechow et al. (1994) specifically examine whether compensation committees shield CEO cash compensation from restructuring charges, which are reported as a component of income from continuing operations. They argue that restructuring charges can enhance firm value, but those costs reduce current earnings. Their findings suggest that CEO compensation is shielded from restructuring charges, especially when the restructuring charges are not frequent and the CEO has a shorter expected horizon. This is consistent with the compensation committees' adjustment for the income-decreasing effects of restructuring charges. Following Dechow et al. (1994), Adut et al. (2003) find that compensation committees partially shield CEO compensation from restructuring charges after controlling for growth in CEO compensation for their sample between 1982 and 1997, and the degree of shielding varies depending on the CEO tenure and how close the current restructuring charge is to the prior restructuring charge. Generally, Adut et al. (2003) find less shielding if the restructuring charges are more likely to be opportunistic

in nature. Duru et al. (2002) attempt to explain the reason of this shielding by analyzing the agency model. Their analysis suggests that if evaluated based on income with no adjustments, managers have no incentives to invest in value-enhancing but income-decreasing activities. In addition, they provide empirical evidence that compensation committees shield recurring expenditures, such as R&D and advertising expenditures, and R&D expenditures are more filtered than advertising expenditures from CEO cash compensation.

Compensation committees treat CEOs differently, providing various incentives for CEOs. Balsam (1998) reveals that when a CEO's compensation is tied closely to earnings, then the CEO is more likely to use discretionary accruals to boost earnings. Cheng (2004) finds that the association between changes in R&D spending and changes in value of CEO annual option grants is significantly positive when the CEO approaches retirement and when the firm faces a small decline in earnings and a small loss, but insignificant when there is no horizon problem or myopia problem. Cheng's (2004) findings indicate that compensation committees mitigate opportunistic R&D reduction by rewarding (penalizing) CEOs for increasing (reducing) R&D expenditures when a firm is faced with a CEO horizon problem and myopia problem. Huson et al. (2012) find that compensation committees are able to place a lower relative weight on the positive change in discretionary accruals compared with other components of earnings when setting CEO cash pay during the years before CEO voluntary turnovers. They claim that compensation committees allow income-increasing discretionary accruals to increase CEO compensation the same way as other earnings components during non-terminal years, since the reverse feature of accruals will reduce CEO compensation in the subsequent

years. However, when fewer possibilities reverse accruals, compensation committees intervene to reduce the relative weight on the increase of discretionary accruals when they decide a CEO's cash compensation in his or her terminal years. They also show that Selling, General, and Administration (SG&A) expenditures are at least partially shielded from CEO compensation in the non-terminal years, but not shielded at all in the terminal years. Their results are consistent with the idea that compensation committees generally encourage spending in SG&A but less so during a CEO's terminal years.

Collectively, the prior literature shows that compensation committees use discretion to adjust CEO compensation to mitigate adverse incentives for CEOs.

1.3 Compensation Committee Effectiveness

Firms that separate ownership and control create a divergence in the interests between shareholders and managers (Jensen and Meckling, 1976). Demsetz (1983) argues that compensation contracts can adequately align the interests of managers with those of shareholders. Prior studies provide support that compensation committees are able to alleviate the CEO horizon problem (Cheng 2004; Huson et al., 2012). However, compensation committees are not equally effective monitors. Uzun et al. (2004) note that the presence of a compensation committee is positively associated with the likelihood of fraud. They claim that compensation committees are "systematically dysfunctional" and responsible for "lucrative stock options" (Uzun et al., 2004).

The monitoring effectiveness of compensation committees is affected by their characteristics (e.g. Sun and Cahan, 2012; Sun and Cahan, 2009; Sun et al., 2009; Bebchuk et al., 2010; Collins et al., 2009; Laksmana, 2008; Nelson et al., 2010; Uzun et al., 2004). Sun and Cahan (2012) argue that six compensation committee characteristics

affect compensation committee quality: the proportion of co-opted directors, the proportion of senior directors, the proportion of directors who are CEOs of other companies, the proportion of directors with block shareholdings in the company, the proportion of directors who have three or more board seats, and the size of the compensation committee. They conduct a principal components analysis of these six characteristics and develop a compensation committee quality measure. They show that their compensation committee quality measure is negatively associated with CEO tenure, institutional holdings, growth opportunities, and firm size. Two other studies (Sun et al., 2009; Sun and Cahan, 2009) use the same measure of compensation committee quality to examine whether the compensation committee quality affects the pay-for-performance. Sun et al. (2009) investigate a sample of 474 firms with compensation committees composed solely of independent directors in 2001, when compensation committee independence was not a mandatory requirement. They suggest that a compensation committee's quality has a positive effect on the relationship between a CEO's stock option grants and the firm's future performance, measured as future operating performance and future stock returns. They also separately examine the effect of the six compensation committee characteristics on the pay-for-performance sensitivity. They find consistent evidence that the proportion of co-opted directors, senior directors, CEO directors, and busy directors affect the pay-for-performance, but find weak evidence for director shareholdings and size of the committee. Sun and Cahan (2009) show that the relationship between CEO cash compensation and accounting earnings increase as a compensation committee's quality increases. Moreover, the effect of a compensation committee is less positive in firms with high growth or incurring losses, which is

consistent with the idea that high growth firms and loss-bearing firms rely on other performance measures than accounting earnings. The findings of those two studies suggest that high-quality compensation committees can design better compensation packages that align a CEO's incentives with the firm's economic benefits.

Bebchuk et al. (2010) examine the association between corporate governance and the timing of CEO stock options. They document that a compensation committee consists of independent directors and at least one blockholder who is less likely to grant CEO options opportunistically at the lowest price of the month. Similarly, Collins et al. (2009) document a negative association between the likelihood of backdating CEO stock option grants and having an outsider who owns at least five percent of outstanding shares on the compensation committee.

Several studies also claim that compensation committee characteristics to relate to the disclosure transparency of executive compensation (Laksmana, 2008; Nelson et al., 2010). Managers are generally inclined to avoid the scrutiny from shareholders and therefore reluctant to disclose their compensation, while better corporate governance leads to more disclosures. Laksmana (2008) suggests that disclosure transparency of compensation practices is positively associated with compensation committee independence, meeting frequency, and size. Using Australian data, Nelson et al. (2010) find that firms with more independent and effective compensation committees are more likely to disclose sensitive information related to executive stock options. They also use a principal components analysis to reduce three compensation committee characteristics, including committee size, number of committee meetings, and proportion of independent

directors on the committee, into one factor to proxy for compensation committee independence and effectiveness.

A growing body of literature has examined whether the independent status of compensation committee directors affects how effective the compensation committee protects shareholders from excessive CEO pay (Daily et al., 1998; Chhaochharia and Grinstein, 2009; Sapp, 2008; Conyon, 2006; Anderson and Bizjak, 2003; Vafeas, 2003b; Conyon and Peck, 1998; Newman and Mozes, 1999). Despite the general belief that better governance can oversee CEOs' rent extraction more effectively, the literature finds little evidence that a more independent compensation committee leads to lower CEO compensation. Daily et al. (1998) investigate whether a compensation committee with a higher proportion of "captured directors" tends to increase CEO pay and CEO non-contingent pay. To define a director as being "captured," Daily et al. (1998) uses three measures: whether the director is affiliated with the CEO of the firm, whether the director is appointed during the tenure of an incumbent CEO, and whether the director is a CEO of another company. They find no significant association between CEO pay and the proportion of affiliated directors, or the proportion of CEO directors on the compensation committee. Chhaochharia and Grinstein (2009) examine the change in CEO compensation when firms make changes to the composition of their boards of directors in compliance with a list of board requirements set by the SEC in 2002. They find no evidence that the requirements imposed on independent compensation committees are associated with a reduction in CEO compensation, although they document a negative association between the requirement which states that the majority of the board of directors must be independent and the change of CEO compensation. This infers that the

board's independence is more important than the compensation committee's independence when determining CEO compensation.

Conyon (2006) shows that CEO pay is not affected by the presence of affiliated directors on compensation committees. He uses the Investor Responsibility Research Center (IRRC) database and defines directors as "affiliated" if they are either "Employee" or "Linked." According to IRRC, a linked director is "is linked to the company through certain relationships, and whose views may be affected because of such links" (IRRC), for example a former employee. Similarly, Newman and Mozes (1999) classify inside directors as former employees of the focal firm, employees of a firm who have the focal firm's CEO on their board of directors, current employees of a firm conducting material business with the focal firm, or interlocking directors. Using data from 1992, they conclude that CEO pay is not higher in firms with compensation committees that include insiders, than those whose compensation committees are composed solely of outsiders. Anderson and Bizjak (2003) classify directors who are not current or formal employees, are not immediate family members, or who have no business ties with the firm as outside directors. They find little evidence that CEO pay is higher when the percentage of outside directors on a compensation committee is lower, or when the CEOs are members of their compensation committee. Vafeas (2003b) defines insiders as directors who are or were firm executives or employees of subsidiaries. He finds no evidence among a sample of 271 firms from 1991 to 1997 that CEO pay is related to the presence or percentage of insiders on the compensation committee.

Two studies find a positive association between compensation committee independence and CEO compensation. In a sample of Canadian firms, Sapp (2008) finds

that the number of independent directors on a compensation committee is positively associated with CEO pay, which is contrary to his prediction. The author argues that this finding may be due to the definition of "independence." He also finds that a higher proportion of directors who are CEOs of other companies and a lower proportion of financial experts leads to higher CEO compensation. In their sample of U.K. companies, Conyon and Peck (1998) also document an unanticipated positive association between the proportion of nonexecutive directors on the remuneration committee and management pay.

Some of the above-mentioned studies (Anderson and Bizjak, 2003; Newman and Mozes, 1999; Vafeas, 2003b) and a number of other studies (Capezio et al., 2011; Conyon and Peck, 1998) have addressed whether compensation committee independence affects CEO pay-for-performance. Capezio et al. (2011) examine a sample of Australian companies and find no evidence that a compensation committee dominated by non-executive directors improves CEO pay-for-performance. Anderson and Bizjak (2003) find only marginal evidence that the proportion of outside directors on a compensation committee is positively related to CEO equity-based pay; they also find no evidence that the pay mix or pay-for-performance in firms with a compensation committee composed only of outsiders is different than those with a less independent compensation committee. Overall, they do not provide strong support that the proportion of outsiders in a compensation committee increases CEO incentives. Newman and Mozes (1999) find no significant difference between the pay-for-performance in firms with compensation committees that have no insiders, and firms with compensation committees with insiders when the firm's return is positive. However, they find a significant difference when the

firm's return is negative, although the pay is not related to performance, despite whether compensation committees consist of insiders or not. Their findings suggest that compensation committees with insiders reward CEOs for a favorable performance the same way a compensation committees with no insiders would, but those with insiders are more likely to shield CEO compensation from unfavorable performance. In addition, Conyon and Peck (1998) show that the pay-for-performance is greater in firms with remuneration committees with a higher proportion of nonexecutive directors. Vafeas (2003b) provides evidence that before the compensation disclosure rules of the SEC in 1992, insider participation in compensation committees led to more non-contingent pay, but less contingent pay and thus less risk for CEOs.

Extant research about compensation committees' independence reflects, to some degree, the public's concern that insider participation in compensation committees may compromise its independence and may lead to an excessive compensation package that CEO's do not deserve. Also motivated by the public's concern, regulations have become stricter regarding compensation committees' degree of independence over the years. In 1992, the SEC adopted provisions to encourage directors without ties to the firm to be more responsible for establishing executive pay by increasing disclosure requirements when corporate insiders serve on compensation committees. The 1993 congressional tax code stipulates that compensation committees must be composed solely of two or more outside directors, or any performance-based executive pay in excess of $1 million is not tax deductible. Approved in 2003, the New York Stock Exchange (NYSE) and NASDAQ require listed firms' compensation committees to consist solely of independent directors. According to NYSE section 303A, an independent director is defined as a director with

no material relationship with the listed company, directly, or as a partner, shareholder, or officer of an organization that has a relationship with the company. In addition, NYSE section 303A specifically states that a director is not independent if within three years, the director has been an employee, an executive officer, or an immediate family member of the executive officer within the last three years; if the director or his/her family has received more than $120,000 direct compensation, except for directorship or prior service in the firm; if the director or his/her family has been an executive officer of another company in which any current executive officers serve or served on the focal company's compensation committee; and, if the director is a current employee or family member of the current executive officer of a company that does business with the focal company at an amount exceeding $1 million, or 2% of the company's consolidated gross revenues. The Dodd-Frank Act of 2010 requires each member of a compensation committee in a public company to be independent if: the compensation committee member's source of compensation is received from the company, or the compensation committee member is affiliated with the company or its subsidiary.

However, the literature has not determined conclusively whether a compensation committee's independence affects CEO pay or pay-for-performance. One explanation for the mixed findings may be because it is hard to measure the real independence of a compensation committee. According to Hermanson et al. (2012), many compensation committee directors interviewed had previous professional or personal connections to CEOs at the time they were appointed; however, they are independent if judged by the stock exchange listing standards. Likewise, Bebchuk et al. (2005) allege that even directors who satisfy the legal requirement for independence may not truly be

independent, because the CEO controls the director nomination process and maintains social relations with directors. O'Reilly and Main (2007) point out two important social psychological effects: reciprocity and social influence. Under reciprocity, directors may feel obligated to the CEO if they believe they get their board seats, to some degree, thanks to the CEO. Under social influence, directors sympathize with the CEO, especially if they share more similarities with the CEO. They provide empirical evidence that the board of directors is more prone to reciprocity and social influence tends to be more generous on CEO pay decisions.

1.4 Co-opted Directors

Coles et al. (2014) argue that directors appointed during the tenure of an incumbent CEO (i.e., co-opted directors) are less independent. Consistent with their predictions, they find that the proportion of co-opted directors on the board of directors is negatively associated with turnover-to-performance sensitivity, and positively associated with CEO pay and investment, after controlling for the proportion of outsiders on the board. Their findings infer that co-opted directors are more sympathetic to CEOs, as evidenced by their tendency to keep CEOs who have performed poorly, to be generous about CEO pay, and to agree to CEOs' over-investment. They also argue that non-co-opted independence can better explain the independent status of the board, which is the proportion of directors who are outsiders and appointed before the CEO assumes office. They document that non-co-opted-independence increases CEO turnover-to-performance and pay-for-performance, while decreasing CEO pay and investment.

Similarly, Lambert et al. (1993) find that the percentage of outside board members appointed by the CEO increases the level of executive compensation; they

investigate the confidential compensation data at different organization levels, including plant manager, divisional CEO, group CEO, and corporate CEO. Core et al. (1999) also find a positive association between CEO compensation and the percentage of outside directors who are appointed after the CEO takes office, indicating that CEOs' involvement in the nomination of new directors increases their own pay.

Wade et al. (1990) and Collins et al. (2009) reveal a lack of dependence among co-opted directors. They find that as the percentage of directors appointed during an incumbent CEO's tenure on the board increases, the CEO is more likely to be granted a golden parachute, indicating that CEOs have more influence over the board concerning their compensation package if the board is composed of more co-opted directors. Collins et al. (2009) find that a higher proportion of co-opted directors on the board increases the probability of backdating CEO stock option grants.

Prior studies focus on the boards' co-options, while only one study (Daily et al., 1998) examines the compensation committee co-option and provides rather weak evidence that the compensation committee co-option increases CEO compensation. Daily et al. (1998) find a positive association between the proportion of co-opted directors on the compensation committee and CEO total pay and non-contingent pay in one of three years for their sample from 1992 to 1994.

Two underlying reasons may have contributed to the findings of the above studies. First, CEOs exert considerable influence on the director nomination process. It has been criticized that directors are selected by the very CEOs whom they are supposed to monitor. CEOs propose the slate of directors, and the slate is almost always voted in by the shareholders (Hermalin and Weisbach, 1998). Cai et al. (2009) also show that the

differences in shareholders' votes for directors are small. DeAngelo et al. (1989) document that even when shareholders disagree with CEOs in a proxy fight, the odds for shareholders to win the board seat are only about one-third. Mace (1971) interviewed CEOs and directors, and found that CEOs exert considerable influence on the director nomination process. With power over the nomination of new directors, CEOs can negotiate more favorable compensation contracts. For example, Grinstein and Hribar (2004) document that CEOs receive a higher mergers and acquisitions (M&As) bonus when they sit on the nomination committee, and when they are also the board chair.

After the Sarbanes Oxley Act of 2002, a CEO's direct involvement in the director nomination process has significantly reduced. For example, NYSE Corporate Governance, section 303A, which was approved on June 30, 2003, requires listed companies to have a nominating committee composed entirely of independent directors. A CEO can still exert informal or indirect influence over the nomination, however. NASDAQ Rule 4350 (c), and AMEX Enhanced Corporate Governance Rules, section 805, have similar requirements. However, CEOs can still exert indirect influence on the appointment of directors.

Studies focusing on CEOs' influence in the director nomination process suggest that CEOs favor directors who are sympathetic (Finkelstein and Hambrick, 1989), who are similar to themselves (Westphal and Zajac, 1995; Hwang and Kim, 2009) or who are gray directors (Shivdasani and Yermack, 1999) to gain more board support. Finkelstein and Hambrick (1989) allege that the longer a CEO stays in a company, then he or she may appoint more sympathetic directors to the board of directors. Westphal and Zajac (1995) allege that CEOs prefer directors who share a similar functional background, age,

education level, and outsider/insider status, since those directors are less likely to disagree with CEOs. They consider the director nomination process to be a power battle between CEOs and the existing board, in which more CEO power leads to the appointment of directors who are more similar demographically to the CEO. Meanwhile, directors who are more similar to the board will be appointed if the board is more powerful relative to the CEO. Their findings generally support their predictions. They also find that the change in the similarity between the CEO and the board is positively associated with the change in a CEO's total compensation; it is negatively associated with the change in a CEO's contingent compensation, indicating that by appointing a more similar director, CEOs may increase their total pay while decreasing their exposure to risk. Similarly, Hwang and Kim (2009) find evidence that the number of socially linked directors increases as a new CEO's tenure at the firm progresses, suggesting that CEOs select directors who share similar ideas and views, or who have certain social ties to the CEO. O'Reilly et al. (1988) observe a significant association between the salary levels of compensation committee directors and CEO compensation. They suggest that CEOs may select directors who are highly paid current or retired CEOs of other companies so that those directors use their own compensation as a reference when they determine CEO compensation. But they fail to establish the causality because they do not have the data for the director's appointment date.

Shivdasani and Yermack (1999) reveal that when a CEO serves on the nomination committee or there is no separate nomination committee, companies appoint a higher number of gray directors and fewer independent directors. Their results indicate that

when CEOs are involved in the director nomination, they select directors more subjective to their control.

The second reason why co-opted directors are less independent is because they may feel as if they owe their board seats to the CEO (Dailey et al., 1998); they are likely to offer their gratitude by biasing for the CEO (Bebchuk et al., 2002; Bebchuk et al., 2005). In other words, co-opted compensation committee directors may put CEO interest over their fiduciary responsibility to shareholders.

2. HYPOTHESIS DEVELOPMENT

Prior studies investigating firms' CEO horizon problem focus on two opportunistic behaviors that CEOs exhibit to maximize their earnings-based compensation. The first is opportunistic R&D reduction, and the second is opportunistic accruals management. Although career concerns mitigate a firm's CEO horizon problem early in the CEO's career, career concerns may be subjected to the CEO horizon problem when CEOs approach retirement. To alleviate this horizon problem, compensation committees can take an active role to adjust CEO compensation to induce the right incentives.

Literature examining the association between CEO compensation and the components of earnings suggest that compensation committees intervene to adjust CEO compensation. For example, according to Cheng (2004), a positive association between change in R&D expenditures and change in CEO compensation suggests that compensation committees reward investment in R&D and punish opportunistic reduction in R&D expenditures. He finds no association between CEO compensation and R&D

expenditures, which is consistent with prior literature that R&D expenditures are generally shielded from CEO compensation. However, he finds a positive association between change in R&D expenditures and change in CEO stock option compensation when CEOs approach retirement, which suggests that compensation committees penalize CEOs for opportunistic R&D reduction in a CEO's final years before retirement. Using a sample of 476 firms in which CEOs retired or departed voluntarily, Huson et al. (2012) investigated the effect of the horizon problem on the association between positive change in discretionary accruals and CEO cash compensation. They document that the relative weight of positive change in discretionary accruals reduces significantly in the year of CEO turnover, and in the year before. They suggest that although an increase in discretionary accruals is treated the same way as other earnings components in CEOs' non-terminal years, the increase receives less weight compared to other earnings components when CEOs are in their terminal years. This indicates that compensation committees restrain CEOs from opportunistic income-increasing accruals management prior to CEO departures. To some degree, these studies are in line with the optimal contracting theory that compensation contracts are optimally designed to motivate the managers to act in the best interests of shareholders (Holmstrom, 1979). However, this literature reveals the roles of compensation committees in mitigating horizon problems without investigating compensation committees directly.

The effectiveness of compensation committees can be different between firms. Cheng (2004) separately investigates firms with opportunistic R&D reductions when CEOs approach retirement, and firms without such reductions. He only finds a significant association between changes in CEO stock option grants and changes in R&D

expenditures in firms without opportunistic R&D reductions, but not in other firms. This brings up the question: why do some firms successfully adjust CEO compensation and thus mitigate horizon problems, while others don't? For one thing, firms' different reactions to CEO horizon problem may be due to the different degree of co-option among compensation committees.

Under the managerial power theory, because managers use their influence to extract rents from the board of directors, compensation contracts always deviate from the optimum (Finkelstein, 1992). In other words, to control the compensation contracting process, CEOs need agreeable or loyal directors on the board of directors. Therefore, they tend to appoint directors who are sympathetic. These co-opted directors feel obligated to their CEOs and as a result make decisions favorable to the CEOs. In a recent study, Coles et al. (2014) provide empirical evidence that board co-option decreases monitoring effectiveness. They document that CEO pay and investment are positively related to board co-option, while CEO turnover to performance sensitivity is negatively related to board co-option. They further suggest that the proportion of co-opted directors who are outsiders increases CEO pay, while the proportion of co-opted directors who are insiders is not related to CEO pay or CEO pay-for-performance, inferring that even outside directors' independence, if co-opted by CEOs, are damaged. Furthermore, they propose that the proportion of outsiders who are not co-opted by CEOs is a more 'incisive' measure for board monitoring because it increases CEO turnover to performance sensitivity, and to pay-for-performance sensitivity, while reducing CEO pay and investment. Their findings are consistent with the managerial power theory, which states that CEOs use their power to gain control over the board. Social and psychological

factors keep directors from real independence. Directors who are co-opted by the incumbent CEO may feel obligated to the CEO, and as a result, are less willing to challenge the CEO.

Coles et al. (2014) examine entire boards of directors. It is not clear that the increased CEO pay and reduced CEO pay-for-performance is driven by the co-option of compensation committees or the co-option of the board. Similarly, Lambert et al. (1993), Wade et al. (1990), and Collins et al. (2009) also focus on the co-option of the board. Daily et al. (1998) examine the co-option of compensation committees. However, they document little empirical evidence that the co-option of compensation committees is positively associated with CEO non-contingent pay in 1992, but no evidence for 1993 or 1994. They find no association between the co-option of compensation committees and CEO contingent pay or CEO total pay.

Excessive CEO payment has been under fire. Since the authority to set CEO compensation is delegated to compensation committees, if co-option decreases the monitoring effectiveness of the compensation committee, then the co-option may increase CEO compensation. Therefore, I predict:

H1: CEO compensation is positively associated with the co-option of compensation committees.

Prior literature examining the CEO horizon problem found mixed evidence of opportunistic R&D reductions and opportunistic accruals management. One explanation for the lack of consistent evidence in support of the CEO horizon problem may be due to the intervention of compensation committees. Effective compensation committees should predict CEO horizon problem and mitigate CEOs' opportunistic behavior. However, if

compensation committees dominated by co-opted directors are less effective monitors, they are less likely to alleviate CEO opportunistic behaviors. Therefore, I predict:

H2a: R&D expenditures are negatively associated with the CEO horizon problem when compensation committees are dominated by co-opted directors.

H2b: Discretionary accruals are positively associated with the CEO horizon problem when compensation committees are dominated by co-opted directors.

CEOs' compensation packages are an important means of resolving the conflict between shareholders and the CEO (Watts and Zimmerman, 1978?). For example, compensation packages can be used to prevent a CEO's opportunistic behaviors. If R&D expenditures are shielded from CEO compensation, CEOs' incentives to cut R&D expenditures will be alleviated. Cheng (2004) finds a positive association between change in R&D and change in CEO stock options when a firm is confronted with a CEO horizon problem, indicating that compensation committees reward R&D investment and punish R&D reduction when CEOs have incentives to act opportunistically. According to interviews conducted by Hermanson et al. (2012), compensation committees communicate with CEOs about their compensation packages. CEOs who are aware that R&D expenditures are shielded or rewarded should refrain from opportunistic R&D cutting. Compensation committees who are aligned with shareholders' best interests are more likely to predict CEO horizon problem and adjust CEO compensation accordingly. Therefore, effective compensation committees should shield or reward an increase in R&D in a CEO's final years before his or her retirement, to mitigate the CEO horizon

problem. However, compensation committees dominated by co-opted directors may be less responsive to the CEO horizon problem or less willing to punish CEOs for R&D reduction. As a result, R&D expenditures are less shielded from CEO compensation, or R&D reduction is punished less severely, so that as CEOs reduce R&D expenditures, their compensation increases. Therefore, I predict:

H3a: Changes in CEO compensation are more negatively associated with changes in R&D expenditures when firms have a CEO horizon problem and compensation committees are dominated by the co-opted directors.

The CEO horizon problem is also alleviated if income-increasing discretionary accruals are weighted less when deciding CEO compensation. Effective compensation may reduce the association between CEO compensation and income-increasing discretionary accruals when firms are faced with the CEO horizon problem. However, compensation committees dominated by co-opted directors may be less effective in adjusting the association between CEO compensation and income-increasing discretionary accruals in the final years before CEO retirement, and as a result, when CEOs are involved in income-increasing accruals management, their compensation increases. Therefore, I predict:

H3b: Changes in CEO compensation are more positively associated with income-increasing discretionary accruals when firms are confronted with the CEO horizon problem and compensation committees are dominated by the co-opted directors.

3. RESEARCH DESIGN

3.1 Variable Construction

Compensation Committee Co-option

Following Coles et al. (2014), I measure co-option *CC_COOPTION* as the percentage of co-opted directors on the compensation committee. The effect of co-opted directors on CEO compensation decisions may not be linear. Therefore, I define co-opted directors as directors appointed after the incumbent CEO takes office. I define compensation committees dominated by co-opted directors *COOPTED_CC* as a dummy variable that equals one if the majority of directors on the compensation committee are co-opted directors, and zero otherwise.

Horizon Problem

I follow Kalyta (2009) and define *Horizon* as a dummy variable that equals one if CEOs are in any of the final two years prior to their retirement, and zero otherwise. The first reason I focus on CEO retirement rather than on CEO turnovers is because retiring CEOs have more severe horizon problems since they are less concerned with their reputation on the labor market (Gibbons and Murphy, 1992). Also, minus unplanned CEO turnover, CEOs can plan their retirement. Most companies have a specified retirement age (Sundaram and Yermack, 2007)[2]. CEOs who are able to predict their departures have more chances to cut R&D or manage accruals (Dechow and Sloan, 1991). I first identify CEO turnovers, and then remove the CEOs who leave their firm at an age

[2] Sundaram and Yermack (2007) suggest that companies expect CEOs to retire at the specified age. If CEOs leave early, they will not obtain the full value of the pension benefit. If CEOs stay beyond the specified retirement age, they forfeit the right to pension benefits that would otherwise have been collected by retiring.

younger than 63, consistent with Kalyta (2009). RiskMetrics identifies the reason for CEO departures, although this information is missing for most firms. Out of 303 retirements identified by RiskMetrics, the retirement age ranges from 46 to 82. The average retirement age is 64.6, and the median is 64.5. 77 CEOs retired at 64, 61 CEOs retired at 65, 55 CEOs retired at 60, and 52 CEOs retired at 63. I also assume the retirement age as 60, 61, and 62, and the results are similar. I also impose another criterion that a retired CEO must have held the position for more than three full years to eliminate the potential effect of the horizon problem associated with the departure of the previous CEO, similar to prior studies (Kalyta, 2009; Huson et al., 2012). The pre-departure years are two years before CEO retirement in this study.

CEO compensation

Total CEO compensation is defined as the sum of a CEO's salary, bonus, other annual compensation, restricted stock grants, long-term incentive payouts, all other compensation, and value of option grants (EXECUCOMP data item TDC1). CEO cash compensation includes salary and a bonus. CEO long-term compensation is measured as the sum of restricted stock grants, value of option grants, and long-term incentive payouts. I use the natural logarithm of all the compensation measures to reduce heteroskedasticity, similar to prior studies (Cheng, 2004; Huson et al., 2012). I also adjust all the compensation measures to 2003 dollars, using the Consumer Price Index. My findings are robust without the adjustment.

I examine cash compensation, total compensation, and long-term compensation separately, because compensation committees may use different compensation

components to mitigate opportunistic R&D curtailment and accruals management. Dechow and Sloan (1991) show that equity-based compensation can be used to alleviate R&D reduction. Cheng (2004) documents that compensation committees adjust CEO stock options that are vested in future years when R&D investments benefit the firm. They suggest stock options are used rather than cash compensation to guarantee the quality of R&D investments. However, Huson et al. (2012) provide evidence that compensation committees adjust CEO cash compensation to prevent accruals management. They do not test long-term based compensation; nevertheless, they claim that most of CEO supplemental employee retirement plans (SERPs) are based on CEO cash compensation during CEOs' final years before retirement, and Kalyta (2009) only finds accruals management in firms with a retiring CEO whose SERP depends on firm performance.

Discretionary accruals

I measure discretionary accruals using the forward-looking discretionary accruals model developed by Dechow et al. (2003). Specifically, I define total accruals $TA_{i,t}$ as the difference between earnings before extraordinary items and cash flows from operations, scaled by total assets at the beginning of year t. I then estimate the following model cross-sectionally by industry[3] and year.

$$TA_{i,t} = \alpha + \beta_1((1 + k)\, \Delta SALE_{i,t} - \Delta REC_{i,t}) + \beta_2 PPE_{i,t} + \beta_3\, A_{i,t-1} + \beta_4 GR\_SALE_{i,t} + \varepsilon_{i,t} \quad (1a)$$

[3]Industry is defined by two-digit SIC code.

Where k[4] is the slope coefficient from the regression of change in accounts receivable on change in sales for each industry and year group, and captures the expected change in accounts receivable for a given change in sales. $\Delta SALE_{i,t}$ is the change in sales from the year *t-1* to the year *t* scaled by total assets at *t-1*, $\Delta REC_{i,t}$ is the change in net receivables from the year *t-1* to year *t* scaled by total assets at *t-1*, $PPE_{i,t}$ is the gross property plants and equipment in year *t* scaled by total assets at *t-1,* $A_{i,t-1}$ is total assets at the beginning of year *t,* and $GR\_SALE_{i,t-1}$ is the sales growth from year *t* to year *t+1*.

Nondiscretionary accruals for each firm-year observation are calculated by applying industry and year-specific parameters $\beta_1, \beta_2,$ and β_3 as follows:

$$NDA_{i,t} = \alpha + \beta_1((1 + k)\, \Delta SALE_{i,t} - \Delta REC_{i,t}) + \beta_2 PPE_{i,t} + \beta_3\, A_{i,t-1} + \beta_4 GR\_SALE_{i,t} \quad (1b)$$

Discretionary accruals are then estimated by subtracting the predicted level of nondiscretionary accruals (*NDA*) from total accruals (*TA*), as follows:

$$Discretionary\ accruals_{i,t} = TA_{i,t} - NDA_{i,t} \quad (1c)$$

3.2 Empirical Model and Control Variables

Hypothesis *H1* predicts that CEO compensation is higher if the compensation committee is dominated by co-opted directors. Moreover, a CEO is more likely to enjoy increased compensation in the final years before retirement if the compensation committee is dominated by co-opted directors. To test *H1*, I run the model (2), as specified below:

$$lnCEO\_PAY_{i,t} = \alpha + \beta_1 COOPTED\_CC_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 ROA_{i,t} + \beta_4 CEO\_TENURE_{i,t} + \beta_5 CEO\_OWNERSHIP_{i,t} +$$

[4] K is restricted to be between 0 and 1, following Dechow et al. (2003).

$$\beta_6 CEO\_CHAIR_{i,t} + \beta_7 B\_INDEPENDENCE_{i,t} + \beta_8 B\_SIZE_{i,t} +$$

$$\beta_9 B\_FEMALE_{i,t} + G\_INDEX + YEAR + \varepsilon_{i,t} \quad (2)$$

Where *COOPTED_CC* is an indicator variable that equals one if the majority of compensation committee directors are co-opted by the incumbent CEO, and zero otherwise. Hypothesis *H1* predicts the coefficient β_1 to be positive and significant.

My control variables are similar to Coles et al. (2014). *SIZE* is the natural logarithm of sales, *RET* is the firm's stock return, *ROA* is the earnings before extraordinary item divided by total assets, *CEO_TENURE* is the CEO tenure, *CEO_OWNERSHIP* is the proportion of outstanding shares held by the CEO, *CEO_CHAIR* is an indicator variable that equals one if the CEO is the chairman of the board of directors, and zero otherwise, *B_INDEPENDENCE* is the proportion of outsiders on the board of directors, *B_OWNERSHIP* is the total shares held by directors on a board, divided by total outstanding shares, *B_SIZE* is the number of directors on board, *B_FEMALE* is an indicator that equals one if at least one of the directors on board is female, and zero otherwise, and *G_INDEX* is the governance index described by Gompers et al. (2003), which states that *G1* equals one if $G <= 6$, and zero otherwise; *G2* equals one if $7 <= G <= 9$, and zero otherwise; *G3* equals one if $10 <= G <= 12$, and zero otherwise; *G4* equals one if $G >= 13$, and zero otherwise. I also control year fixed effect (*YEAR*).

Consistent with prior literature, I expect that CEO compensation positively associates with firm size (*SIZE*), as CEOs of larger firms add more value (Smith and Watts, 1992), and better firm performance, as measured by *RET* and *ROA* (Murphy, 1985; Smith and Watts, 1992). Core et al. (1999) show that CEO compensation positively

relates to *CEO_CHAIR*, *B_SIZE,* and negatively relates to *CEO_OWNERSHIP*, as weak governance tends to increase CEO compensation. I do not predict the sign for *B_OWNERSHIP* and *B_INDEPENDENCE* because Core et al. (1999) find an insignificant association between CEO compensation and *B_OWNERSHIP*, and a negative association between CEO compensation and the proportion of insiders on the board of directors, which is contrary to their prediction. Adams and Ferreira (2009) suggest that female directors impact board decisions as well. I expect that CEO compensation varies with the *B_FEMALE*, but I do not predict the sign for the association. Hill and Phan (1991) suggest that the CEO's control over the board of directors and internal information system increase as CEO tenure increases. They find that as CEO tenure grows, CEO pay is more related to firm size and firm risk, but less related to firm performance, which indicates CEOs with longer tenure are more capable to influence their compensation packages. Drawing from their findings, I predict a positive relationship between CEO compensation and CEO tenure.

I rely on the model of Cazier (2011) to test Hypothesis *H2a*. Cazier (2011) finds no evidence that R&D spending is related to the CEO horizon problem, and concludes that CEOs do not cut R&D spending in their final years prior to retirement. However, he fails to take into account the role of the compensation committee in mitigating CEO opportunistic R&D cutting. *H2a* predicts that R&D spending may negatively associate with the CEO horizon problem if the compensation committee is dominated by co-opted directors, who are less effective monitors. I test *H2a* by estimating model (3) as follows:

$$RD_{i,t} = \alpha + \beta_1 HORIZON_{i,t} + \beta_2 COOPTED\_CC_{i,t} + \beta_3 HORIZON_{i,t} \times COOPTED\_CC_{i,t} + \beta_4 TOBINS\_Q_{i,t} + \beta_5 LAG\_RET_{i,t} + \beta_6 FCF_{i,t} +$$

$$\beta_7 ROA_{i,t} + \beta_8 SIZE_{i,t} + \beta_9 FIRM\_AGE_{i,t} + \beta_{10} EQUITY\_INCENTIVES_{i,t}$$

$$+ \beta_{11} INDUSTRY\_RD_{i,t} + YEAR + \varepsilon_{i,t} \quad (3)$$

Where *RD* is the R&D expense scaled by total assets, *COOPTED_CC* is an indicator variable that equals one if the majority of compensation committee directors are co-opted by the incumbent CEO, and zero otherwise, and *HORIZON* is an indicator variable that equals to one if the CEO is in the final two years before retirement, and zero otherwise. The interaction term between *HORIZON*×*COOPTED_CC* is interpreted as the indicator variable that equals one if the CEO is approaching retirement and the compensation committee is dominated by co-opted directors. According to *H2a*, the coefficient β_3 should be significantly negative, which indicates that R&D reduction is expected only when compensation committees fail to mitigate CEO opportunistic behaviors.

I also control for other variables that may affect R&D expenditures and relate to the CEO horizon problem and compensation committee co-option, which are similar to Cazier (2011). *TOBINS_Q* is calculated as the market value of equity plus the book value of debt, all scaled by total assets, *LAG_RET* is the firm's stock return from the previous year, *FCF* is the operating cash flows plus R&D expense minus capital expenditures, all scaled by sales, *ROA* is operating net income before R&D expense scaled by assets, *SIZE* is the natural logarithm of total assets at the beginning of fiscal year *t*, *FIRM_AGE* is the number of years between year *t* and the first year the company was listed on Compustat. *EQUITY_INCENTIVES* is the CEO's dollar wealth increase from a one percent change in

stock price, as measured in Core and Guay's study (2002)[5]. *INDUSTRY_RD* is the average R&D expenditure of other firms in the same two-digit SIC industry.

I predict the coefficient on *TOBINS_Q* and *LAG_RET* to be positive, since firms with more growth opportunities may invest more in R&D. Consistent with Himmelberg and Petersen (1994), I predict that R&D expenditures positively associate with internal finance, which is measured by the firm's free cash flow (*FCF*). I predict that R&D expenditures negatively relate to the accounting flexibility, as measured by *ROA*, since Wang and D'Souza (2006) suggest that when accounting flexibility is low, managers are more likely to engage in real earnings management. I expect that R&D spending varies with firm size. Cohen and Klepper (1996) suggest that larger firms can apply R&D results to greater output and therefore reduce the average cost of R&D. Based on the findings of Huergo and Jaumandreu (2004), I predict that firm age (*FIRM_AGE*) negatively associates with R&D expenditures, since older firms are less likely to introduce innovations. CEOs with more equity holdings are more long-term oriented and willing to spend in R&D, although R&D expenditures reduce current earnings (Barker and Mueller, 2002). Therefore, I predict the coefficient on *EQUITY_INCENTIVES* to be positive. Consistent with prior studies (Dechow and Sloan, 1991; Cheng, 2004), I also control for the industry average R&D expenditures. I exclude each firm-year from the calculation of the industry average R&D to prevent a mechanical relation between *RD* and *INDUSTRY_RD*.

[5] I calculate *EQUITY_INCENTIVES* as 1% × the firm's share price × (# of shares + # of options × option delta). I follow Core and Guay (2002) methodology to calculate option delta separately for newly granted options, unexercisable options, and exercisable options before the year of 2006. After the passage of SFAS 123R, Execucomp stops providing the inputs necessary to calculate Black-Scholes value of option delta. I follow Execucomp assumptions to construct self-calculated inputs.

To test hypothesis *H2b*, I run the following model (4) cross-sectionally:

$$DA_{i,t} = \alpha + \beta_1 HORIZON_{i,t} + \beta_2 COOPTED\_CC_{i,t} + \beta_3 HORIZON_{i,t} \times CO\_OPTED\_CC_{i,t} + \beta_4 EQUITY\_INCENTIVES_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 STD\_CASHFLOW_{i,t} + \beta_7 STD\_REV_{i,t} + \beta_8 STD\_SALESGROWTH_{i,t} + \beta_9 OLDFIRM_{i,t} + \beta_{10} LEVERAGE_{i,t} + \beta_{11} MARKETTOBOOK_{i,t} + G\_INDEX + EXCHANGE + INDUSTRY + YEAR + \varepsilon_{i,t} \quad (4)$$

Hypothesis *H2b* predicts the coefficient β_3 on the interaction term between *HORIZON*×*COOPTED_CC* to be significantly positive, if CEOs have incentive to engage in accruals management to boost their earnings-based compensation, and if compensation committees dominated by co-opted director fail to mitigate their incentives. *DA* is the discretionary accruals derived from the equation (1c).

My control variables are similar to Bergstresser and Philippon (2006). I control for CEO equity incentive, as CEOs have more incentive to manage earnings when their wealth is more sensitive to the firms' share price (Bergstresser and Philippon, 2006). I follow Bergstresser and Philippon (2006) to measure CEO equity incentives. *EQUITY_INCENTIVES* is the dollar change in a CEO's wealth from a 1% change in stock price, as measured in Core and Guay (2002), then normalized by the sum of the dollar change, salary, and bonus. *SIZE* is the natural logarithm of total assets at the beginning of fiscal year *t*. *STD_CASHFLOW* is the standard deviation of cash flows from operations deflated by total assets over the current and previous four years. *STD_REV* is the standard deviation of sales deflated by total assets over the current and previous four years. *STD_SALESGROWTH* is the standard deviation of sales growth over the current and previous four years. *OLDFIRM* equals one if a firm has been listed on Compustat for

more than 20 years, and zero otherwise. *LEVERAGE* is total liabilities deflated by total assets. *MARKETTOBOOK* represents deciles of market value of assets divided by the book value of assets ranked within each year. *G_INDEX* represents the governance indicator variables described in Gompers et al. (2003). *G1* is a dummy variable equal to one if the G-score is less than or equal to 6, and zero otherwise. *G2* is a dummy variable equal to one if the G-score is between 7 (inclusive) and 9 (inclusive), and zero otherwise. *G3* is a dummy variable equal to one if the G-score is between 10 (inclusive) and 12 (inclusive), and zero otherwise. *G4* is a dummy variable equal to one if the G-score is greater than or equal to 13, and zero otherwise. *EXCHANGE* is an indicator for the stock exchange where the company is traded. *INDUSTRY* is the Fama and French (1997) industry classification indicator. *YEAR* represents year indicators.

I expect firm size (*SIZE*) to negatively associate with discretionary accruals, since larger firms are under more scrutiny by analysts and the press (Duellman et al., 2013). I expect that discretionary accruals vary with firm age (*OLDFIRM*), the standard deviation of cash flows from operations (*STD_CASHFLOW*), the standard deviation of revenues (*STD_REV*), the standard deviation of sales growth (*STD_SALESGROWTH*), and governance (*G_INDEX*), consistent with prior literature (Duellman et al., 2013; Jiang et al., 2010).

To examine whether compensation committee co-option affects the committee's effectiveness in adjusting CEO compensation to mitigate the CEO horizon problem, I estimate the regressions (5) and (6) using control variables consistent with Huson et al. (2012).

$$\Delta lnCEO\_COMP_{i,t} = \alpha + \beta_1 \Delta ROA_{i,t} + \beta_2 ADJ\_RET_{i,t} + \beta_3 \Delta RD_{i,t} + \beta_4 HORIZON_{i,t} + \beta_5 COOPTED\_CC_{i,t} + \beta_6 HORIZON_{i,t} \times \Delta ROA_{i,t} + \beta_7 HORIZON_{i,t} \times ADJ\_RET_{i,t} + \beta_8 HORIZON_{i,t} \times \Delta RD_{i,t} + \beta_9 HORIZON_{i,t} \times COOPTED\_CC_{i,t} + \beta_{10} COOPTED\_CC_{i,t} \times \Delta RD_{i,t} + \beta_{11} HORIZON_{i,t} \times COOPTED\_CC_{i,t} \times \Delta RD_{i,t} + YEAR + \varepsilon_{i,t} \quad (5)$$

Where $\Delta lnCEO\_COMP$ is the change in natural logarithm of CEO compensation[6]. I use three measures of CEO compensation: ΔlnC_PAY is the change in the natural logarithm of CEO salary and bonus. ΔlnT_PAY is the change in the natural logarithm of CEO total compensation, which includes salary, bonus, other annual compensation, restricted stock grants, long-term incentive payouts, all other compensation, and value of option grants (EXECUCOMP data item TDC1). ΔlnL_PAY is the change in natural logarithm of long-term CEO compensation, which is defined as the sum of restricted stock grants, value of option grants, and long-term incentive payouts. ΔROA is the change in earnings before extraordinary items, scaled by lagged total assets. *ADJ_RET* is the firm's annual size-adjusted stock return, which is calculated by subtracting the firm's return by the market return for the corresponding market capitalization decile. ΔRD is the change in R&D expenditures, scaled by lagged total assets. *HORIZON* is an indicator variable equal to one if CEOs are in the final two years before retirement, and zero otherwise. *COOPTED_CC* is an indicator variable equal to one if the majority of compensation

[6] I only calculate the change in compensation for the same CEO.

committee directors are co-opted by the incumbent CEO, and zero otherwise. *YEAR* represents year indicators.

ΔROA and Δ*RD* are both included to examine the different treatment of Δ*RD* compared to other earnings components. If Δ*RD* is treated the same way as other earnings components when there is no horizon problem, then the coefficient β_3 on Δ*RD* should be insignificant, while a significant positive coefficient should indicate shielding of Δ*RD* from CEO compensation. The variable of interest is the interaction term between *HORIZON*, *COOPTED_CC*, and Δ*RD*. *H3a* predicts that compensation committees dominated by co-opted directors are less effective in mitigating opportunistic R&D reduction when CEOs approach retirement. Effective compensation committees can reduce the negative relationship between R&D expenditure and CEO compensation by shielding R&D from CEO compensation or tying CEO compensation to R&D. Nevertheless, compensation committees dominated by co-opted directors are less effective in adjusting the negative relationship between R&D and CEO compensation. Therefore, when CEOs reduce R&D spending, they are more likely to increase their compensation prior to retirement. I expect the coefficient β_{11} to be negative, if *H3a* is correct.

Consistent with prior studies (Murphy, 1985; Smith and Watts, 1992), I expect CEO compensation to be positively associated with accounting performance (*ΔROA*) and stock performance (*ADJ_RET*). I include the interaction terms *HORIZON×ΔROA* and *HORIZON×ADJ_RET* because Lewellen et al. (1987) suggest the proportion of accounting-related compensation and stock-related compensation is adjusted to address CEO horizon problem. I expect the coefficient β_6 on *HORIZON× ΔROA* to be negative

and β_7 on *HORIZON*×*ADJ_RET* to be positive, which indicates CEO compensation shifts from accounting-based compensation to stock-based compensation to reduce the agency costs related to the CEO horizon problem. When Δ*lnC_PAY* is the dependent variable, I also control for CEO equity incentives (*EQUITY_INCENTIVES*), as CEO equity holdings may be one of the factors that compensation committees consider to determine CEO cash compensation (Huson et al., 2012).

Hypothesis *H3b* predicts a more positive association between change in CEO compensation and a positive change in discretionary accruals when a compensation committee is dominated by co-opted directors. To test *H3b*, I estimate regression (6) as follows:

$$\begin{aligned}\Delta lnCEO\_COMP_{i,t} = \alpha &+ \beta_1 \Delta ROA_{i,t} + \beta_2 ADJ\_RET_{i,t} + \beta_3 POS\_\Delta DA_{i,t} + \\ &\beta_4 NEG\_\Delta DA_{i,t} + \beta_5 HORIZON_{i,t} + \beta_6 COOPTED\_CC_{i,t} + \\ &\beta_7 HORIZON_{i,t} \times \Delta ROA_{i,t} + \beta_8 HORIZON_{i,t} \times ADJ\_RET_{i,t} + \\ &\beta_9 HORIZON_{i,t} \times POS\_\Delta DA_{i,t} + \beta_{10} HORIZON_{i,t} \times \\ &NEG\_\Delta DA_{i,t} + \beta_{11}\, HORIZON_{i,t} \times COOPTED\_CC_{i,t} + \\ &\beta_{12} COOPTED\_CC_{i,t} \times POS\_\Delta DA_{i,t} + \\ &\beta_{13} COOPTED\_CC_{i,t} \times NEG\_\Delta DA_{i,t} + \beta \\ &_{14} HORIZON_{i,t} \times COOPTED\_CC_{i,t} \times POS\_\Delta DA_{i,t} + \\ &\beta_{15} HORIZON_{i,t} \times COOPTED\_CC_{i,t} \times NEG\_\Delta DA_{i,t} + \\ &YEAR + \varepsilon_{i,t} \qquad (6)\end{aligned}$$

Where *POS_*Δ*DA* is the positive changes in discretionary accruals, and *NEG_*Δ*DA* is the negative changes in discretionary accruals. My variable of interest is the interaction term *HORIZON*×*COOPTED_CC*×*POS_*Δ*DA*. I expect the coefficient to be positive, if *H3b* is

correct. My hypothesis only predicts that CEOs have incentives to engage in income-increasing accruals management, and compensation committees dominated by co-opted directors are less effective to mitigate the income-increasing accruals management. Consequently, I focus on the positive change of discretionary accruals. I test the interaction term *HORIZON*×*COOPTED_CC*×*NEG_*Δ*DA* for completeness. Nevertheless, I make no prediction about the sign of its coefficient.

4. RESULTS

4.1 Sample

Table 1 Panel A presents the sample selection procedure. I collect director data from RiskMetrics for the period from 1998 to 2011. RiskMetrics provides director information, including committee membership, shareholding, age, independence, additional directorships, and tenure, as well as the year directorship starts for directors in S&P 500, S&P MidCap, and S&P SmallCap firms. I lose 2,445 firm-year observations as they lack CEO compensation data from Execucomp. I further lose 479 firm-year observations which miss the date when the CEO was hired. I exclude 2,788 financial institutions (SIC codes 6000-6999) similar to prior studies. I exclude another 595 observations that are missing Compustat inputs to calculate sales, return, and ROA, and 352 observations lacking number of shares held by the CEO. Finally, I trim the top and bottom one percent of all continuous variables to mitigate the effect of outliers. My final sample consists of 13,606 firm-year observations[7].

[7] When estimating model (3)-(6), I further remove the firm-year observations with CEO tenure less than 3 years, to avoid the influence of the previous CEO.

[See Table 1 Panel A, p.72]

In Table 1 Panel B, I present the number of firm-year observations in each of Fama-French (1997) 48 industries as well as average value of two measures of compensation committee co-option in each industry. The percentage of co-opted directors sitting on a compensation committee is 0.278 for the industry of candy and soda, which is the lowest, while the industry of nonmetallic mines has the highest percentage of co-opted directors on a compensation committee, which is as high as 0.649.

[See Table 1 Panel B, p.72]

In Table 1 Panel C, I provide the number of firm-year observations in each fiscal year for the period of 1998 to 2011 as well as average value of two measures of compensation committee co-option for each fiscal year. The mean value of the percentage of co-opted directors on a compensation committee varies by years. The lowest average value of *CC_COOPTION* is 0.394 in the year of 2001, while the highest average value of *CC_COOPTION* is 0.453 in the year of 2010.

[See Table 1 Panel C, p.72]

Table 1 Panel D displays the descriptive statistics for the variables used in model (2), and are consistent with the descriptive statistics reported by Coles et al. (2014). Pearson correlations are reported in Table 1 Panel E.

[See Table 1 Panel D, p.72]

[See Table 1 Panel E, p.72]

4.2 Regression Results

Table 2 presents the multivariate analysis of the effect of compensation committees dominated by co-opted directors on total CEO compensation. The reported p-

values presented in parentheses and are one-tailed for coefficients that have the predicted sign, and two-tailed for those without a predicted sign or those that do not have the predicted sign. The standard errors are heteroskedasticity robust, and clustered by firm and year. The coefficient on *COOPTED_CC* is significantly positive ($p<0.01$), which indicates that CEOs receive higher compensation in companies with compensation committees dominated by co-opted directors, holding all else constant. My findings support Hypothesis *H1*.

[See Table 2, p.78]

Among the control variables, firm size, firm performance, and CEO duality are positively associated with CEO compensation, while director ownership is negatively associated with CEO compensation, as expected. I do not find CEO tenure or board size to be associated with CEO compensation.

[See Table 3, p.79]

Panel A and Panel B of Table 3 report the descriptive statistics and Pearson correlations for the variables used in model (3), respectively. Table 4 reports the regression analysis of the effect of compensation committees dominated by co-opted directors on the association between R&D spending and the CEO horizon problem. The coefficient on *HORIZON* is not significantly different from zero, which is consistent with prior studies which state that R&D spending is not related to the CEO horizon problem (Cazier, 2011). However, the coefficient on the interaction term *HORIZON×COOPTED_CC* is significantly negative ($p=0.03$). Taken together, the results indicate that R&D reduction only exists in firms that have a CEO horizon problem

and a compensation committee dominated by co-opted directors, which is consistent with Hypothesis *H2a*.

[See Table 4, p.81]

Panel A and Panel B of Table 5 report the descriptive statistics and Pearson correlations for the variables used in model (4), respectively. The regression analysis of the effect of compensation committees dominated by co-opted directors on the association between discretionary accruals management and the CEO horizon problem is presented in Table 6. The coefficient on the interaction term *HORIZON*×*COOPTED_CC* is positive and significant (P=0.05). The coefficient on *HORIZON* is not significantly different from zero. This suggests that CEOs engage in accruals management only when the horizon problem exists and when the compensation committee is dominated by co-opted directors, which is consistent with Hypothesis *H2b*.

[See Table 5, p.82]

[See Table 6, p.84]

Panel A and Panel B of Table 7 report the descriptive statistics and Pearson correlations for the variables used in model (5), respectively. The estimates in Table 8 show the multivariate regression results of whether compensation committees dominated by co-opted directors are less effective in adjusting CEO compensation to prevent opportunistic R&D reduction when firms face a CEO horizon problem. The first column shows the regression results when the change in CEO cash compensation is a dependent variable, while the results for the change in total CEO compensation and the change in long-term CEO compensation are presented in column (2) and column (3), respectively. In column (2), the coefficient on *HORIZON*×Δ*RD* is significantly positive (p=0.09),

suggesting that R&D expenditures are generally shielded from total CEO compensation when firms have a CEO horizon problem. The coefficient on *HORIZON*×*COOPTED_CC*×Δ*RD* is negative and significant (p=0.05). The negative association suggests that retiring CEOs in firms with a compensation committee dominated by co-opted directors are more likely to increase their compensation by reducing R&D expenditures.

[See Table 7, p.85]

[See Table 8, p.87]

In Table 9, I present the OLS regression results of whether compensation committees dominated by co-opted directors are less effective in adjusting CEO compensation in the final years prior to CEO retirement to prevent income-increasing accruals management. The coefficients on *HORIZON*×*POS_*Δ*DA* are not significantly different from zero in all three columns. The coefficient on *HORIZON*×*COOPTED_CC*×*POS_*Δ*DA* is positive and significant (p=0.08) in column (1), indicating that change in CEO cash compensation is more positively associated with income-increasing discretionary accruals when CEOs present a horizon problem and compensation committees are dominated by co-opted directors.

[See Table 9, p.88]

Overall, my findings provide empirical support for Hypothesis *H3a* and Hypothesis *H3*.

4.3 Sensitivity Tests

As CEOs stay longer with a firm, more directors are appointed during the CEO's tenure. Therefore, co-option captures the effect of CEO tenure. Coles et al. (2014)

address this issue by both controlling for CEO tenure and developing a measure *RES_CC_COOPTION*, which is the residual from regression of *CC_COOPTION* on CEO tenure. I follow their measure, and I control for CEO tenure and other board governance. Another issue with the co-option measure is that it may capture the inexperience of new directors. The newly appointed directors may be less effective because they are new to their job, rather than because they are captured by the CEO. Therefore, following Coles et al. (2014) I develop *TW_CC_COOPTION*, the director tenure weighted co-option, which is the sum of tenure of co-opted compensation committee directors divided by the sum of tenure of all compensation committee directors. I also calculate *RES_TW_CC_COOPTION*, which is the residual from the regression of *TW_CC_COOPTION* on CEO tenure.

[See Table 10 Panel A, p.89]

Table 10 Panel A reports the regression results of CEO compensation on the alternative measures of compensation committee co-option. The coefficient on *CC_COOPTION* is positive and significant ($p<0.01$) in column (1), suggesting that CEO compensation positively associates with the percentage of co-opted directors on a compensation committee. The coefficients on *TW_CC_COOPTION, RES_CC_COOPTION, RES_TW_CC_COOPTION* are all positive and significant ($p<0.01$). This significance suggests that compensation committee co-option captures more than CEO tenure and director inexperience. I also report the regression analysis of the effect of compensation committees dominated by co-opted directors on adjusting a CEO's opportunistic R&D reduction and accruals management, after controlling for other corporate governance in Table 10 Panel B and Table 10 Panel C, respectively. My

findings still hold after controlling for CEO tenure, CEO duality, board independence, and board size.

[See Table 10 Panel B, p.89]

[See Table 10 Panel C, p.89]

Direct CEO involvement in the firm's director nomination process has been reduced since 2004. NYSE Corporate Governance Section 303A, NASDAQ Rule 4350 (c), and AMEX Enhanced Corporate Governance Rules, section 805 requires that nomination committees of listed firms must solely consist of independent directors. Therefore, I examine the subsample consisting of firm-year observations during the period 2004-2011. Panel D of Table 10 shows that CEO compensation is positively associated with compensation committees dominated by co-opted directors.

[See Table 10 Panel D, p.89]

Table 10 Panel E shows that the coefficient on interaction term *HORIZON*×*COOPTED_CC* is negative but insignificant. Table 10 Panel F reports that the coefficient on the interaction term *HORIZON*×*COOPTED_CC* is significantly positive, suggesting discretionary accruals is higher in firms with retiring CEOs and compensation committees dominated by co-opted directors.

[See Table 10 Panel E, p.89]

[See Table 10 Panel F, p.89]

Table 10 Panel G shows that the coefficient on the interaction term *HORIZON*×*COOPTED_CC*×Δ*RD* is insignificant in all three columns. Table 10 Panel H reports that the coefficient on the interaction term *HORIZON*×*COOPTED_CC*×*POS_*Δ*DA* is significantly positive in column (1),

suggesting that CEOs are more likely to increase their cash compensation using income-increasing accruals management when compensation committees are dominated by co-opted directors. Overall, I do not find evidence that compensation committees dominated by co-opted directors are less effective in alleviating R&D reduction when CEOs present their firms with a horizon problem in the subsample. However, I still find evidence that compensation committees dominated by co-opted directors are less effective in reducing CEO compensation and mitigating accruals management when CEOs approach retirement after the year of 2004.

[See Table 10 Panel G, p.89]

[See Table 10 Panel H, p.89]

5. BOARD AND COMPENSATION COMMITTEE CHARACTERISTICS

5.1 Literature Review and Hypothesis Development

CEO Power

CEOs who are also chairmen of the board of directors can exert more influence over the decision-making process (Adams et al., 2005). Jensen (1993) advocates the separation of the CEO and chairman positions, arguing that chairmen are responsible for overseeing CEOs, but if CEOs also hold the position of chairmen, they may act in their own interests when they perform critical functions such as evaluating and compensating themselves. Dechow et al. (1996) provide empirical evidence, and find that firms subject to enforcement actions by the SEC for earnings management are more likely to have CEOs who also serve as chairmen of the board of directors.

Director monitoring is a critical mechanism to alleviate agency costs; however, the effectiveness of the monitoring is reduced if the chairman of the board is assumed by the CEO, or if most of the directors on the board are co-opted by the incumbent CEO. Hence, I predict:

H4a: CEO compensation is positively associated with CEO power.

H4b: CEO horizon problem is positively associated with CEO power.

Director Independence

It's been widely documented that directors who are more independent monitor managers more effectively. Weisbach (1988) shows that boards dominated by outside directors are more likely to remove CEOs when the companies suffer from poor performance. A number of studies show that board independence improves the quality of the financial reporting process. Dechow et al. (1996) find that board independence is inversely associated with the likelihood of being charged by SEC for earnings manipulations. Similarly, Beasley (1996) finds that board independence negatively associates with financial statement fraud. Uzun et al. (2004) compare the governance in firms that have committed fraud and those that have not. They note that the percentage of independent directors is higher in firms that have not engaged in fraud than the firms that have. Klein (2002a) documents a negative association between board independence and abnormal accruals. Board independence also improves firm disclosures (Ajinkya et al., 2005; Karamanou and Vafeas, 2005). Finally, Byard et al. (2006) show that the quality of analysts' earnings forecast an increase if the board is more independent.

If independent directors are more aligned with shareholder benefits, I expect that board and compensation committee independence reduce CEO pay and the CEO horizon problem. Therefore, I hypothesize that:

H5a: CEO compensation is negatively associated with board and compensation committee independence.

H5b: CEO horizon problem is negatively associated with board and compensation committee independence.

Board and Compensation Committee Size

A number of scholars have expressed their concern about large board sizes (Lipton and Lorsch, 1992; Jensen, 1993; Yermack, 1996). For example, Lipton and Lorsch (1992) suggest that board sizes should not be larger than ten members, since it is difficult for every director to express his or her opinion freely in the limited time when they meet. Moreover, they point out that it's hard for a large board to become a cohesive body due to poor communication and lack of a common purpose. Jensen (1993) argues that boards that consist of more than seven or eight members are more subjective to CEO control. Those two studies are consistent with organizational behavior research studies, such as Steiner (1972) and Hackman (1990), which argue that as work groups become larger, productivity decreases. Yermack (1996) provides empirical evidence that board size negatively associates with a firm's value. He also shows that firms with large boards are less likely to have favorable profitability and operating efficiency financial ratios, to provide CEO compensation sensitive to firm performance, and to remove CEOs.

In contrast, larger boards have a wider knowledge base and it's easier for larger boards to distribute the workload. For example, Klein (2002b) and Anderson et al. (2004)

suggest that large boards are more effective in monitoring the financial accounting process. Klein (2002b) suggests that as a board size increases, the board is more likely to assign an independent audit committee. Consistent with her prediction, she finds that as a board size increases, an audit committee's independence increases. Anderson et al. (2004) find that larger boards are associated with lower cost of debt, while Karamanou and Vafeas (2005) find that larger boards are more likely to update management earnings forecasts. Laksmana (2008) finds that board size increases the executive compensation disclosure transparency.

Whether a firm can benefit from a large board of directors may depend on the complexity of the firm (Coles et al., 2008). Coles et al. (2008) argue that complex firms, those high in industry diversification, size, and leverage, require more advising from their board of directors, and as a result can benefit from a large board. They find that for simple firms, firm value decreases as board size increases; however, for complex firms, firm value increases as board size increases. Drawing from the findings of previous studies, I predict that the size of the board and compensation committee affects CEO compensation and CEO horizon problem. Nevertheless, I make no prediction about the sign. I hypothesize that:

H6a: CEO compensation is associated with board and compensation committee size.

H6b: CEO horizon problem is associated with board and compensation committee size.

Busy Directors

The number of directorship may be a sign of director reputation, since an external labor market disciplines directors by rewarding or reducing directorships based on their performance (Kaplan and Reishus, 1990; Gilson, 1990). Kaplan and Reishus (1990) find that CEOs whose dividends are reduced are less likely to sit on other boards. Gilson (1990) finds that the directorships reduce after directors resign from financially distressed firms. Consistently, Ferris et al. (2003) find that previous firm performance has a positive effect on directors' ability to attract directorships. Two studies examine the association between the likelihood of being a target of takeover and number of directorships (Shivdasani, 1993) and future directorships (Harford, 2003). Shivdasani (1993) documents that firms with outside directors holding fewer additional directorships are more likely to be a target of hostile takeover attempts. Harford (2003) documents that directors of a takeover or merger target lose future directorships. Ferris et al. (2003) find no support that busy directors are less effective monitors. They find no evidence that the number of directorships per director or number of directorships held by outside directors relate to firm value or the likelihood of securities fraud litigation. Moreover, they find positive abnormal returns in an event study that announced the addition of a director who held multiple directorships to the board for the first time, suggesting shareholders value the reputation of directors. They also find that directors holding multiple directorships sit on more committees and attend more committee meetings, which contrast the idea that directors holding multiple directorships are overcommitted and shirk their responsibilities.

However, Lipton and Lorsch (1992) are concerned that directors are busy with more than one board, and cannot emphasize one particular board. Beasley (1996) documents a positive relationship between the number of additional directorships held by

outside directors and the likelihood of financial statement fraud. Fich and Shivdasani (2006) define busy directors as those who hold three or more directorships. They show that firms with boards dominated by outside busy directors have lower market-to-book ratios, lower operating performance, and are less likely to remove CEOs for poor performance. They also find positive abnormal returns after busy outside directors announce their departure. Furthermore, they find negative abnormal returns when a director becomes a busy director as a result of obtaining one additional directorship, and even more negative when the board becomes dominated by busy directors. Core et al. (1999) measure busy directors as those who serve on three or more corporate boards. They argue that by focusing on directors who hold more than two other directorships rather than on those with average directorships, they can capture the degree of a director's over-commitment. They find that as the percentage of busy outside directors increases, CEO compensation increases. Shivdasani and Yermack (1999) find that if CEOs can exert more influence on the appointment of new directors positively, the appointee is more likely to be a busy director and hold more board seats, which indicates that CEOs prefer less effective monitors. If busy directors cannot devote adequate time and attention to one particular board, the percentage of busy directors on the board or compensation committee may increase CEO compensation and the CEO horizon problem. Therefore, I predict:

H7a: CEO compensation is positively associated with the percentage of busy directors on boards of directors and compensation committees.

H7b: The CEO horizon problem is positively associated with the percentage of busy directors on boards of directors and compensation committees.

Director Tenure

As director tenure increases, directors gain more experience. More experienced directors can provide higher quality governance. For example, Buchanan (1994) shows that managers' years of organizational service can enhance their commitment to exert high levels of effort to achieve the goal of the firm. Beasley (1996) finds that as outside director tenure increases, the likelihood of financial statement fraud decreases.

However, Katz (1982) finds that long tenure can be detrimental to the communication within and outside of organizations, due to the increasing stability in membership by studying R&D project groups with different group longevity. Vafeas (2003a) argues that directors with long tenure are more likely to be friendly to managers. He finds that senior directors who have held their board seats for twenty years or more in the compensation committee pay CEOs more generously, which supports the theory that long tenure compromises director monitoring efforts. The National Association of Corporate Directors (1996) advocates a limit of 10 to 15 years of board service so that new directors can bring new ideas and the board can better accommodate to the changing business conditions. If directors are more likely to be entrenched if they hold their directorships for a long time, I expect that the average tenure of directors on a board or a compensation committee increases CEO compensation and the CEO horizon problem. I hypothesize that:

H8a: CEO compensation is positively associated with the tenure of directors on boards of directors and compensation committees.

H8b: CEO horizon problem is positively associated with the tenure of directors on boards of directors and compensation committees.

Director Ownership

Directors who have high equity ownership have more incentives to monitor CEOs (Shivdasani and Yermack, 1999). Among others, Shivdasani (1993), Vafeas (2003a), Klein (2002a), and Beasley (1996) provide evidence that directors with high ownership are more aligned with shareholders. Shivdasani (1993) documents a negative association between equity ownership by outside directors and the possibility of firms being a target of hostile takeover attempts. Vafeas (2003a) shows that director ownership is rather low, even for senior directors whose tenure is longer than twenty years. He finds a negative relationship between director ownership and total CEO pay. Klein (2002a) documents an inverse association between the presence of an outside blockholder on an audit committee and abnormal accruals, indicating that director ownership affects the monitoring over financial reporting quality. Beasley (1996) finds that directors in firms who commit fraud have higher ownership than directors in no-fraud firms. Rosenstein and Wyatt (1997) note that shareholders value the expertise of inside directors when they own more than five percent of the firm's shares when investigating the stock market reaction to the addition of insiders in a board of directors. However, Core et al. (1999) find no empirical evidence that CEO compensation associates with director ownership. If director ownership enhances the alignment between directors and shareholders, I expect that as

director ownership increases, CEO compensation and the CEO horizon problem decreases, holding all else constant. Hence:

H9a: CEO compensation is negatively associated with the average tenure of directors on boards of directors and compensation committees.

H9b: The CEO horizon problem is negatively associated with the average tenure of directors on boards of directors and compensation committees.

5.2 Research Design

Table 11 shows the Pearson correlations between the variables in this study to capture board and compensation committee characteristics. *CC_COOPTION* is the proportion of directors who are appointed after the CEO assumes office on the compensation committee. *B_COOPTION* is the proportion of directors who are appointed after the CEO assumes office on the board of directors. *COOPTED_CC* is an indicator variable equal to one if the majority of compensation committee directors are co-opted by the incumbent CEO, and zero otherwise. *COOPTED_B* is an indicator variable equal to one if the majority of directors on a board are co-opted by the incumbent CEO, and zero otherwise. *CEO_CHAIR* is an indicator variable equal to one if the CEO is the chairman of the board of directors, and zero otherwise. *B_INDEPENDENCE* is the proportion of outsiders on the board of directors. *CC_INDEPENDENCE* is the proportion of outsiders on a compensation committee. *IND_NORM* is an indicator variable equal to one if the firm has a nominating committee that consists of only outside directors. *CC_SIZE* is the number of directors on a compensation committee. *B_SIZE* is the number of directors on the board of directors. Fich and Shivdasani (2006) argue that since the number of

directorships held by directors disperses widely, the average number of directorships is a noisy measure to identify busy directors. Therefore, I define busy directors as those who hold more than three additional directorships. *B_BUSY* is the proportion of board directors who sit on more than three other boards of public companies. *CC_BUSY* is the proportion of compensation committee directors who sit on more than three other boards of public companies. *B_LONGSERV* is the average tenure of directors on a board. *CC_LONGSERV* is the average tenure of directors on a compensation committee. *CC_OWNERSHIP* is the total shares held by directors on a compensation committee divided by total outstanding shares. *B_OWNERSHIP* is the total shares held by directors on a board divided by total outstanding shares. *B_SIZE* is the number of directors on board.

[See Table 11, p.101]

Most of those variables are correlated. Therefore, I use a principal component analysis to transform board and compensation committee characteristic variables into a set of common factors. Consistent with Laksmana (2002), I retain all factors with an eigenvalue greater than one. I use an oblique rotation since oblique rotation often produces more useful patterns than do orthogonal rotations. Six factors with an eigenvalue greater than one are retained and those six factors can explain 79.78% of the variation.

Table 12 presents the factors identified in a principal components analysis. *CC_COOPTION*, *B_COOPTION*, *COOPTED_CC*, *COOPTED_B*, and *CEO_CHAIR* have high loadings on the first factor *CEO_POWER*. *B_INDEPENDENCE*, *CC_INDEPENDENCE* and *IND_NORM* load highly on the second factor

INDEPENDENCE. Two variables, *CC_SIZE* and *B_SIZE,* have high loadings on the third factor *DIR_SIZE*. *B_BUSY* and *CC_BUSY* have high loadings on the fourth factor, *BUSY_DIR*. Two variables measuring director tenure, *B_LONGSERV* and *CC_LONGSERV,* load highly on the fifth factor, *DIR_TENURE*. *CC_OWNERSHIP* and *B_OWERSHIP* have high loadings on the sixth factor, *DIR_OWNERSHIP*.

[See Table 12, p.103]

5.3 Results

Table 13 shows the regression results of CEO compensation on board and compensation committee factors. Consistent with the prediction of *H4a* and *H7a*, *CEO_POWER* ($p<0.01$) and *BUSY_DIR* ($p<0.01$) are positively associated with CEO compensation. In support of *H9a*, *DIR_OWNERSHIP* is negatively associated with CEO compensation ($p<0.01$). The coefficient on *DIR_INDEPENDENCE*, *DIR_SIZE*, and *DIR_TENURE* is not significantly different from zero.

[See Table 13, p.104]

The multivariate analysis of the effect of board and compensation committee factors on the association between R&D spending and the CEO horizon problem is presented in Table 14. The coefficient on the interaction term *HORIZON×CEO_POWER* is negative and significant ($p=0.03$), suggesting that as CEO power increases, CEOs are more likely to reduce R&D expenditures when they approach retirement. The coefficient on the interaction term *HORIZON×DIR_TENURE* is significantly negative ($p=0.02$), which indicates that as the average tenure of directors on boards and compensation committees increases, retiring CEOs are more likely to cut R&D expenditures. The results provide support for *H4b* and *H8b*. Inconsistent with my prediction, the coefficient

on *HORIZON×DIR_INDEPENDENCE, HORIZON×DIR_SIZE, HORIZON×BUSY_DIR,* and *HORIZON×DIR_OWNERSHIP* is insignificant.

[See Table 14, p.105]

Table 15 reports the regression analysis of the effect of board and compensation committee factors on the association between accruals management and the CEO horizon problem. The coefficient on the interaction term *HORIZON×DIR_SIZE* is negative and significant (p=0.02), which indicates that the size of the board and compensation committee affect the likelihood of accruals management when CEOs present their firms with a horizon problem. Contrary to expectations, the coefficient on *HORIZON×DIR_OWNERSHIP* is negative and marginally significant (p=0.10).

[See Table 15, p.107]

7. CONCLUSION

Directors who are co-opted by CEOs are more likely to be sympathetic to CEOs or less willing to challenge CEOs since they feel in debt to CEOs for their directorship. I find that the percentage of co-opted directors on compensation committees is positively associated with CEO compensation. I also find compensation committees that are dominated by co-opted directors tend to pay higher CEO compensation than committees that are not dominated by co-opted directors.

Extant literature suggests that compensation committees play an important role in mitigating the CEO horizon problem. However, the effectiveness of compensation committees in this role varies. My results show that the percentage of co-opted directors

on a compensation committee has a negative effect on the association between R&D spending and the CEO horizon problem. Moreover, retiring CEOs are more likely to reduce R&D spending if the compensation committee is dominated by co-opted directors. I do not find evidence that the percentage of co-opted directors affects the association between discretionary accruals and the CEO horizon problem. However, I find that CEOs are more likely to engage in income-increasing accruals management in the final years prior to their retirement if the compensation committee is dominated by co-opted directors. Taken together, the findings indicate that a horizon problem exists when CEOs approach retirement and when the compensation committee is dominated by co-opted directors.

I further investigate whether compensation committees dominated by co-opted directors are less effective in adjusting CEO compensation to mitigate the CEO horizon problem. Consistent with my prediction, I document that retiring CEOs are more likely to increase their total compensation by reducing R&D spending if compensation committees are dominated by co-opted directors. I also document that income-increasing accruals are more likely to be rewarded when CEOs approach retirement, and when compensation committees are dominated by co-opted directors.

Finally, I examine whether board and compensation committee characteristics are associated with CEO compensation and the CEO horizon problem using a principal components analysis. I find evidence that CEO compensation is positively associated with CEO power and busy directors, while negatively associated with director ownership. In addition, I find that both CEO power and director tenure increases the likelihood of R&D curtailment when CEOs approach retirement. I also find that the size of the board

of directors and the compensation committee affect the likelihood of accruals management when CEOs present their firms with a horizon problem.

This study contributes in three ways. First, it reveals that although CEOs' direct involvement in the appointment process of new directors has been reduced since 2004, co-opted directors act as weak monitors. Second, the study adds empirical evidence to the debate of the CEO horizon problem, finding that retiring CEOs engage in opportunistic R&D cutting and income-increasing accruals management. Third, the study extends the literature on corporate governance. The findings reveal that compensation committees play an important role in mitigating the CEO horizon problem by adjusting CEO compensation. However, the effectiveness of compensation committees in this role is contingent on its quality.

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TABLE 1 Sample Description

Panel A: Sample Selection

	n
Total firm-year observations in Riskmetrics for the period of 1998-2011	21,681
Firm-year observations without CEO compensation data from Execucomp	(2,445)
Firm-year observations missing the date when CEO was hired	(479)
Firms in the financial service sector	(2,788)
Firm-year observations missing Compustat inputs to calculate sales, return, and ROA	(595)
Firm-year observations missing number of shares held by CEO	(352)
Firm-year observations at the top and bottom one percent of all continuous variables	(1,414)
Final Sample	13,606

This panel presents the information about the sample selection procedure.

Panel B: Industry Composition

Industry	n	The percentage of compensation committees dominated by co-opted directors
Candy and Soda	29	0.241
Electronic Equipment	366	0.268
Electrical Equipment	184	0.359
Shipbuilding, Railroad Eq	61	0.295
Petroleum and Natural Gas	991	0.315
Textiles	84	0.345
Consumer Goods	309	0.379
Recreational Products	88	0.375
Precious Metals	65	0.292
Rubber and Plastic Products	93	0.441
Tobacco Products	24	0.333
Measuring and Control Equip	318	0.399
Chemicals	485	0.419
Entertainment	95	0.421
Wholesale	1,009	0.408
Printing and Publishing	125	0.456
Miscellaneous	264	0.432
Defense	22	0.500
Agriculture	24	0.375
Construction Materials	319	0.433
Automobiles and Trucks	134	0.463
Aircraft	30	0.700
Business Services	485	0.487
Transportation	545	0.448
Food Products	314	0.468
Computers	1,004	0.476
Telecommunications	160	0.475
Alcoholic Beverages	53	0.434
Steel Works, Etc.	273	0.451
Machinery	664	0.480
Medical Equipment	428	0.477
Coal	611	0.516
Retail	337	0.475
Utilities	256	0.449
Pharmaceutical Products	519	0.511
Business Supplies	78	0.449
Personal Services	1,450	0.490

Shipping Containers	440	0.527
Healthcare	266	0.526
Trading	124	0.565
Apparel	225	0.613
Construction	194	0.644
Fabricated Products	26	0.769
Nonmetallic Mines	35	0.629

This panel presents the number of firm-year observations in each of Fama-French (1997) 48 industries and the percentage of compensation committees dominated by co-opted directors in each industry.

Panel C: Fiscal Year Composition

Fiscal Year	n	The percentage of compensation committees dominated by co-opted directors
1998	927	0.436
1999	907	0.436

2000	882	0.438
2001	938	0.425
2002	953	0.422
2003	990	0.434
2004	1,002	0.440
2005	980	0.448
2006	973	0.464
2007	892	0.478
2008	986	0.461
2009	1,027	0.479
2010	1,079	0.475
2011	1,070	0.473

This panel displays the number of firm-year observations and the percentage of compensation committees dominated by co-opted directors in each fiscal year between 1998 and 2011.

Panel D: Descriptive Statistics

Variable	n	Mean	Std Dev	Lower Quartile	Median	Upper Quartile
lnT_PAY	13,606	7.99	0.94	7.31	8.00	8.65
COOPTED_CC	13,606	0.45	0.50	0.00	0.00	1.00
SIZE	13,606	7.45	1.40	6.46	7.35	8.40
RET	13,606	0.05	0.41	-0.22	0.02	0.26
ROA	13,606	0.14	0.08	0.09	0.13	0.19
CEO_TENURE	13,606	6.74	6.99	2.00	5.00	9.00
CEO_OWNERSHIP	13,606	15.54	36.89	0.94	2.90	10.03
CEO_CHAIR	13,606	0.71	0.45	0.00	1.00	1.00
B_INDEPENDENCE	13,606	0.72	0.16	0.63	0.75	0.86
B_OWNERSHIP	13,606	63,423.10	93,799.10	8,777.73	25,292.56	73,053.44
B_SIZE	13,606	9.10	2.40	7.00	9.00	11.00
B_FEMALE	13,606	0.65	0.48	0.00	1.00	1.00

This panel displays the descriptive statistics. *lnT_PAY* is the natural logarithm of CEO total compensation. CEO total compensation includes salary, bonus, other annual compensation, restricted stock grants, long-term incentive payouts, all other compensation, and value of option grants (EXECUCOMP data item TDC1). It is adjusted to 2003 dollars using Consumer Price Index. *COOPTED_CC* is an indicator variable equal to one if the majority of compensation committee directors are appointed after the incumbent CEO assumes office, and zero otherwise. *SIZE* is the natural logarithm of sales. *RET* is the firm's stock return. *ROA* is the earnings before extraordinary item divided by total assets. *CEO_TENURE* is the CEO tenure. *CEO_OWNERSHIP* is the proportion of the firm's outstanding shares held by the CEO. *CEO_CHAIR* is an indicator variable equal to one if CEO is the chairman of the board of directors, and zero otherwise. *B_INDEPENDENCE* is the proportion of outsiders on board of directors. *B_OWNERSHIP* is the proportion of the firm's outstanding shares held by directors on the board. *B_SIZE* is the number of directors on the board. *B_FEMALE* is an indicator equal to one if at least one of the directors on board is female, and zero otherwise.

Panel E: Pearson Correlations

	lnT_PAY	*SIZE*	*RET*	*ROA*	*CEO_TENURE*	*CEO_OWNERSHIP*	*B_INDEPENDENCE*	*B_OWNERSHIP*	*B_SIZE*
SIZE	**0.60**								
RET	**0.04**	-0.02							
ROA	**0.14**	**0.11**	**0.06**						
CEO_TENURE	**-0.06**	**-0.10**	-0.00	0.01					
CEO_OWNERSHIP	**-0.21**	**-0.15**	0.00	**0.06**	**0.39**				
B_INDEPENDENCE	**0.18**	**0.18**	**0.02**	**-0.05**	**-0.11**	**-0.24**			
B_OWNERSHIP	**-0.22**	**-0.18**	**0.02**	**0.04**	**0.17**	**0.47**	**-0.41**		
B_SIZE	**0.31**	**0.53**	**-0.03**	**0.02**	**-0.11**	**-0.15**	**0.05**	**-0.04**	
B_FEMALE	**0.25**	**0.41**	-0.01	**0.05**	**-0.14**	**-0.14**	**0.2**	**-0.14**	**0.47**

This panel displays the Pearson correlations. *lnT_PAY* is the natural logarithm of CEO total compensation. CEO total compensation includes salary, bonus, other annual compensation, restricted stock grants, long-term incentive payouts, all other compensation, and value of option grants (EXECUCOMP data item TDC1). It is adjusted to 2003 dollars using Consumer Price Index. *SIZE* is the natural logarithm of sales. *RET* is the firm's stock return. *ROA* is the earnings before extraordinary item divided by total assets. *CEO_TENURE* is the CEO tenure. *CEO_OWNERSHIP* is the proportion of the firm's outstanding shares held by CEO. *B_INDEPENDENCE* is the proportion of outsiders on the board of directors. *B_OWNERSHIP* is the proportion of the firm's outstanding shares held by directors on the board. *B_SIZE* is the number of directors on the board. *B_FEMALE* is an indicator equal to one if at least one of the directors on the board is female, and zero otherwise. Correlations with p-values equal to or lower than 0.05 are in boldface.

TABLE 2 Regression Results: The effect of compensation committee dominated by co-opted directors on CEO compensation

Dependent Variable = *lnT_PAY*			
Variable	Predicted Sign	Coefficient	p-value
Intercept		4.880	(<0.01)
COOPTED_CC	+	0.071	(<0.01)
SIZE	+	0.374	(<0.01)
RET	+	0.106	(<0.01)
ROA	+	1.132	(<0.01)
CEO_TENURE	+	0.001	(0.32)
CEO_OWNERSHIP	?	-0.003	(<0.01)
CEO_CHAIR	+	0.130	(<0.01)
B_INDEPENDENCE	?	0.207	(<0.01)
B_OWNERSHIP	-	-0.000	(<0.01)
B_SIZE	+	0.002	(0.32)
B_FEMALE	?	-0.036	(0.03)
Observations		13,606	
R^2		40.15%	

This table presents regression results for model (2). *lnT_PAY* is the natural logarithm of CEO total compensation. CEO total compensation includes salary, bonus, other annual compensation, restricted stock grants, long-term incentive payouts, all other compensation, and value of option grants (EXECUCOMP data item TDC1). It is adjusted to 2003 dollars using Consumer Price Index. *COOPTED_CC* is an indicator variable equal to one if the majority of compensation committee directors are appointed after the incumbent CEO assumes office, and zero otherwise. *SIZE* is the natural logarithm of sales. *RET* is the firm's stock return. *ROA* is the earnings before extraordinary item divided by total assets. *CEO_TENURE* is the CEO tenure. *CEO_OWNERSHIP* is the proportion of the firm's outstanding shares held by CEO. *CEO_CHAIR* is an indicator variable equal to one if CEO is the chairman of the board of directors, and zero otherwise. *B_INDEPENDENCE* is the proportion of outsiders on the board of directors. *B_OWNERSHIP* is the proportion of the firm's outstanding shares held by directors on the board.*B_SIZE* is the number of directors on the board. *B_FEMALE* is an indicator equal to one if at least one of the directors on the board is female, and zero otherwise. The p-values are presented in parentheses and are one-tailed for coefficients that have the predicted sign and two-tailed for those without a predicted sign or those that do not have the predicted sign. The standard errors are heteroskedasticity robust, clustered by firm and year. For the sake of brevity, we do not report coefficient estimates for year indicators and G index dummies.

TABLE 3 Descriptive Statistics and Pearson Correlations for the R&D Test

Panel A : Descriptive Statistics

Variable	n	Mean	Std Dev	Lower Quartile	Median	Upper Quartile
RD	5,599	0.04	0.05	0.00	0.03	0.07
HORIZON	5,599	0.08	0.27	0.00	0.00	0.00
COOPTED_CC	5,599	0.62	0.49	0.00	1.00	1.00
TOBINS_Q	5,599	2.07	1.13	1.32	1.72	2.46
LAG_RET	5,599	0.10	0.45	-0.21	0.05	0.31
FCF	5,599	0.11	0.13	0.05	0.11	0.17
ROA	5,599	0.13	0.10	0.07	0.12	0.19
SIZE	5,599	7.29	1.43	6.22	7.12	8.23
FIRM_AGE	5,599	26.15	16.64	12.00	20.00	41.00
EQUITY_INCENTIVES	5,599	629.56	1,288.63	88.13	227.47	605.18
INDUSTRY_RD	5,599	0.15	0.17	0.01	0.12	0.20

This panel reports the descriptive statistics. *RD* is the R&D expense scaled by total assets. *COOPTED_CC* is an indicator variable equal to one if the majority of compensation committee directors are appointed after the incumbent CEO assumes office, and zero otherwise. *HORIZON* is an indicator variable equal to one if CEOs are in each of the final two years prior to their retirement, and zero otherwise. *TOBINS_Q* is calculated as the market value of equity plus the book value of debt, all scaled by total assets. *LAG_RET* is the firm's stock return from previous year. *FCF* is the operating cash flows plus R&D expense minus capital expenditures, all scaled by sales. *ROA* is operating net income before R&D expense scaled by assets. *SIZE* is the natural logarithm of total assets at the beginning of the current year. *FIRM_AGE* is the number of years between the current year and the first year the company listed on Compustat. *EQUITY_INCENTIVES* is the CEO's dollar wealth increase from a 1% change in stock price, as measured in Core and Guay (2002). *INDUSTRY_RD* is the average R&D expenditures of other firms in the same 2-digit SIC industry.

Panel B: Pearson Correlations

	RD	*TOBINS_Q*	*LAG_RET*	*FCF*	*ROA*	*SIZE*	*FIRM_AGE*	*EQUITY_INCENTIVES*
TOBINS_Q	**0.26**							
LAG_RET	0.00	**0.12**						
FCF	**-0.43**	**0.17**	**0.03**					
ROA	**0.33**	**0.58**	**0.17**	**0.25**				
SIZE	**-0.19**	**-0.08**	**-0.05**	**0.16**	**-0.07**			
FIRM_AGE	**-0.19**	**-0.15**	**-0.05**	**0.03**	**-0.07**	**0.51**		
EQUITY_INCENTIVES	0.02	**0.35**	**0.04**	**0.12**	**0.14**	**0.22**	**-0.05**	
INDUSTRY_RD	**0.31**	**0.09**	0.02	**-0.09**	**0.15**	0.01	**0.08**	**-0.03**

This panel reports the Pearson correlations. *RD* is the R&D expense scaled by total assets. *TOBINS_Q* is calculated as the market value of equity plus the book value of debt, all scaled by total assets. *LAG_RET* is the firm's stock return from previous year. FCF is the operating cash flows plus R&D expense minus capital expenditures, all scaled by sales. ROA is operating net income before R&D expense scaled by assets. *SIZE* is the natural logarithm of total assets at the beginning of the current year. *FIRM_AGE* is the number of years between the current year and the first year the company listed on Compustat. *EQUITY_INCENTIVES* is the CEO's dollar wealth increase from a 1% change in stock price, as measured in Core and Guay (2002). *INDUSTRY_RD* is the average R&D expenditures of other firms in the same 2-digit SIC industry. Correlations with p-values equal to or lower than 0.05 are in boldface.

TABLE 4 Regression Results: The effect of whether compensation committees are dominated by co-opted directors on the association between R&D spending and CEO horizon problem

Dependent Variable = *RD*			
Variable	Predicted Sign	Coefficient	P-value
Intercept		0.028	(<0.01)
HORIZON	?	0.003	(0.27)
COOPTED_CC	?	0.003	(<0.01)
HORIZON*×*COOPTED_CC	-	-0.006	(0.03)
TOBINS_Q	+	0.005	(<0.01)
LAG_RET	+	-0.007	(<0.01)
FCF	+	-0.198	(<0.01)
ROA	-	0.187	(<0.01)
SIZE	?	0.000	(0.80)
FIRM_AGE	-	-0.000	(<0.01)
EQUITY_INCENTIVES	+	-0.000	(0.30)
INDUSTRY_RD	+	0.064	(<0.01)
Number of observations		5,599	
R^2		47,33%	

The table presents OLS regression results for model (3). *RD* is the R&D expense scaled by total assets. *COOPTED_CC* is an indicator variable equal to one if the majority of compensation committee directors are appointed after the incumbent CEO assumes office, and zero otherwise. *HORIZON* is an indicator variable equal to one if CEOs are in each of the final two years prior to their retirement, and zero otherwise. *TOBINS_Q* is calculated as the market value of equity plus the book value of debt, all scaled by total assets. *LAG_RET* is the firm's stock return from previous year. *FCF* is the operating cash flows plus R&D expense minus capital expenditures, all scaled by sales. *ROA* is operating net income before R&D expense scaled by assets. *SIZE* is the natural logarithm of total assets at the beginning of the current year. *FIRM_AGE* is the number of years between the current year and the first year the company listed on Compustat. *EQUITY_INCENTIVES* is the CEO's dollar wealth increase from a 1% change in stock price, as measured in Core and Guay (2002). *INDUSTRY_RD* is the average R&D expenditures of other firms in the same 2-digit SIC industry. The p-values are presented in parentheses and are one-tailed for coefficients that have the predicted sign and two-tailed for those without a predicted sign or those that do not have the predicted sign. The standard errors are heteroskedasticity robust, clustered by firm and year. For the sake of brevity, we do not report coefficient estimates for year indicators.

TABLE 5 Descriptive Statistics and Pearson Correlations for the Discretionary Accruals Test

Panel A : Descriptive Statistics

Variable	n	Mean	Std Dev	Lower Quartile	Median	Upper Quartile
DA	8,541	0.01	0.84	-0.07	0.01	0.12
HORIZON	8,541	0.08	0.27	0.00	0.00	0.00
COOPTED_CC	8,541	0.62	0.48	0.00	1.00	1.00
EQUITY_INCENTIVES	8,541	0.25	0.22	0.09	0.17	0.34
SIZE	8,541	7.38	1.42	6.31	7.23	8.32
STD_CASHFLOW	8,541	0.04	0.03	0.02	0.04	0.06
STD_REV	8,541	0.14	0.10	0.06	0.11	0.18
STD_SALESGROWTH	8,541	0.19	0.17	0.08	0.13	0.24
OLDFIRM	8,541	0.55	0.50	0.00	1.00	1.00
LEVERAGE	8,541	0.22	0.16	0.06	0.22	0.34

This panel presents the descriptive statistics. *DA* is the discretionary accruals. *COOPTED_CC* is an indicator variable equal to one if the majority of compensation committee directors are appointed after the incumbent CEO assumes office, and zero otherwise. *HORIZON* is an indicator variable equal to one if CEOs are in each of the final two years prior to their retirement, and zero otherwise. *EQUITY_INCENTIVES* is the dollar change in CEO's wealth from a 1% change in stock price, as measured in Core and Guay (2002), then normalized by the sum of the dollar change, salary and bonus. *SIZE* is the natural logarithm of total assets at the beginning of the current year. *STD_CASHFLOW* is the standard deviation of cash flows from operations deflated by total assets over the current and previous four years. *STD_REV* is the standard deviation of sales deflated by total assets over the current and previous four years. *STD_SALESGROWTH* is the standard deviation of sales growth over the current and previous four years. *OLDFIRM* equals one if a firm is listed on Compustat for more than 20 years, and zero otherwise. *LEVERAGE* is total liabilities deflated by total assets.

Panel B : Pearson Correlations

	DA	*EQUITY_INCENTIVES*	*SIZE*	*STD_CASHFLOW*	*STD_REV*	*STD_SALESGROWTH*	*OLDFIRM*
EQUITY_INCENTIVES	-0.01						
SIZE	0.02	**0.04**					
STD_CASHFLOW	-0.02	-0.01	**-0.31**				
STD_REV	0.01	-0.02	**-0.19**	**0.36**			
STD_SALESGROWTH	0.01	-0.00	**-0.04**	**0.27**	**0.24**		
OLDFIRM	**0.03**	**-0.15**	**0.36**	**-0.17**	**-0.08**	**-0.14**	
LEVERAGE	**0.02**	**-0.2**	**0.38**	**-0.19**	**-0.07**	**0.05**	**0.18**

This panel presents the Pearson correlations. *DA* is the discretionary accruals. *EQUITY_INCENTIVES* is the dollar change in CEO's wealth from a 1% change in stock price, as measured in Core and Guay (2002), then normalized by the sum of the dollar change, salary and bonus. *SIZE* is the natural logarithm of total assets at the beginning of the current year. *STD_CASHFLOW* is the standard deviation of cash flows from operations deflated by total assets over the current and previous four years. *STD_REV* is the standard deviation of sales deflated by total assets over the current and previous four years. *STD_SALESGROWTH* is the standard deviation of sales growth over the current and previous four years. *OLDFIRM* equals one if a firm is listed on Compustat for more than 20 years, and zero otherwise. *LEVERAGE* is total liabilities deflated by total assets. Correlations with p-values equal to or lower than 0.05 are in boldface. Correlations with p-values equal to or lower than 0.05 are in boldface.

TABLE 6 Regression Results: The effect of whether compensation committees are dominated by co-opted directors on the association between discretionary accruals and CEO horizon problem

Dependent Variable = *DA*			
Variable	Predicted Sign	Coefficient	P-value
Intercept		0.213	(0.06)
HORIZON	+	-0.041	(0.38)
COOPTED_CC	?	-0.053	(0.01)
HORIZON×COOPTED_CC	+	0.103	(0.05)
EQUITY_INCENTIVES	+	0.048	(0.17)
SIZE	-	-0.006	(0.23)
STD_CASHFLOW	?	-0.807	(0.06)
STD_REV	?	0.147	(0.18)
STD_SALESGROWTH	?	-0.005	(0.94)
OLDFIRM	?	0.022	(0.33)
LEVERAGE	?	-0.001	(0.99)
MARKETTOBOOK	?	-0.005	(0.29)
Number of observations		8,541	
R^2		4.66%	

The table presents OLS regression results for model (4). *DA* is the discretionary accruals. *COOPTED_CC* is an indicator variable equal to one if the majority of compensation committee directors are appointed after the incumbent CEO assumes office, and zero otherwise. *HORIZON* is an indicator variable equal to one if CEOs are in each of the final two years prior to their retirement, and zero otherwise. *EQUITY_INCENTIVES* is the dollar change in CEO's wealth from a 1% change in stock price, as measured in Core and Guay (2002), then normalized by the sum of the dollar change, salary and bonus. *SIZE* is the natural logarithm of total assets at the beginning of the current year. *STD_CASHFLOW* is the standard deviation of cash flows from operations deflated by total assets over the current and previous four years. *STD_REV* is the standard deviation of sales deflated by total assets over the current and previous four years. *STD_SALESGROWTH* is the standard deviation of sales growth over the current and previous four years. *OLDFIRM* equals one if a firm is listed on Compustat for more than 20 years, and zero otherwise. *LEVERAGE* is total liabilities deflated by total assets. *MARKETTOBOOK* represents deciles of market value of assets divided by the book value of assets ranked within each year. The p-values are presented in parentheses and are one-tailed for coefficients that have the predicted sign and two-tailed for those without a predicted sign or those that do not have the predicted sign. The standard errors are heteroskedasticity robust, clustered by firm and year. For the sake of brevity, we do not report coefficient estimates for year indicators, G_index indicators, exchange indicators and industry indicators.

TABLE 7 Descriptive Statistics and Pearson Correlations for the Change in CEO Compensation Test

Panel A : Descriptive Statistics

Variable	n	Mean	Std Dev	Lower Quartile	Median	Upper Quartile
Δ*lnC_PAY*	8,950	-0.02	0.33	-0.08	0.01	0.11
Δ*lnT_PAY*	8,889	0.05	0.75	-0.20	0.04	0.32
Δ*lnL_PAY*	8,763	0.19	3.27	-0.29	0.07	0.51
Δ*ROA*	8,950	0.01	0.06	-0.01	0.01	0.03
ADJ_RET	8,950	-0.01	0.09	-0.06	-0.01	0.04
POS_ΔDA	8,950	0.33	0.94	0.00	0.00	0.16
NEG_ΔDA	8,950	-0.35	0.98	-0.17	-0.00	0.00
HORIZON	8,950	0.08	0.27	0.00	0.00	0.00
COOPTED_CC	8,950	0.62	0.49	0.00	1.00	1.00
EQUITY_INCENTIVES	8,950	601.68	1168.79	79.31	212.20	559.31
Δ*RD*	5,380	0.01	0.02	0.00	0.00	0.01

This panel presents the descriptive statistics. Δ*lnC_PAY* is the change in the natural logarithm of CEO salary and bonus. Δ*lnT_PAY* is the change in the natural logarithm of CEO total compensation (EXECUCOMP data item TDC1). Δ*lnL_PAY* is the change in natural logarithm of CEO long-term compensation, which is defined as the sum of restricted stock grants, value of option grants, and long-term incentive payouts. All the compensation measures are adjusted to 2003 dollars using Consumer Price Index. Δ*ROA* is the change in earnings before extraordinary items, scaled by lagged total assets. *ADJ_RET* is the firm's annual size-adjusted stock return. *POS_ΔDA* is the positive changes in discretionary accruals. *NEG_ΔDA* is the negative changes in discretionary accruals. *HORIZON* is an indicator variable equal to one if CEOs are in each of the final two years prior to their retirement, and zero otherwise. *COOPTED_CC* is an indicator variable equal to one if the majority of compensation committee directors are appointed after the incumbent CEO assumes office, and zero otherwise. *EQUITY_INCENTIVES* is the CEO's dollar wealth increase from a 1% change in stock price, as measured in Core and Guay (2002). Δ*RD* is the change in R&D expenditures, scaled by lagged total assets.

Panel B: Pearson Correlations

	Δ*lnC_PAY*	Δ*lnT_PAY*	Δ*lnL_PAY*	Δ*ROA*	*ADJ_RET*
Δ*lnT_PAY*	**0.2**				
Δ*lnL_PAY*	-0.00	**0.5**			
Δ*ROA*	**0.19**	**0.14**	**0.04**		
ADJ_RET	**0.05**	**0.04**	**0.02**	0.02	
EQUITY_INCENTIVES	**0.03**	**0.03**	0.01	**0.08**	**0.03**

This panel presents the Pearson correlations. Δ*lnC_PAY* is the change in the natural logarithm of CEO salary and bonus. Δ*lnT_PAY* is the change in the natural logarithm of CEO total compensation (EXECUCOMP data item TDC1). Δ*lnL_PAY* is the change in natural logarithm of CEO long-term compensation, which is defined as the sum of restricted stock grants, value of option grants, and long-term incentive payouts. All the compensation measures are adjusted to 2003 dollars using Consumer Price Index. Δ*ROA* is the change in earnings before extraordinary items, scaled by lagged total assets. *ADJ_RET* is the firm's annual size-adjusted stock return. *EQUITY_INCENTIVES* is the CEO's dollar wealth increase from a 1% change in stock price, as measured in Core and Guay (2002).

TABLE 8 Regression Results: The effect of whether compensation committees are dominated by co-opted directors and whether CEOs are approaching retirements on the association between the change in CEO compensation and the change in R&D

		Dependent Variable					
	Pred.	Δ*lnC_PAY* (1)		Δ*lnT_PAY* (2)		Δ*lnL_PAY* (3)	
Variable	Sign	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value
Intercept		-0.016	(0.08)	-0.001	(0.97)	-0.019	(0.78)
Δ*ROA*	+	1.034	(<0.01)	1.574	(<0.01)	1.627	(0.03)
ADJ_RET	+	0.125	(0.01)	0.293	(0.02)	0.519	(0.14)
Δ*RD*	?	0.073	(0.85)	0.383	(0.68)	1.814	(0.67)
HORIZON	?	0.029	(0.25)	-0.074	(0.16)	-0.571	(0.07)
COOPTED_CC	?	0.004	(0.67)	0.007	(0.75)	0.006	(0.95)
HORIZON×Δ*ROA*	-	0.353	(0.24)	-0.067	(0.46)	2.638	(0.54)
HORIZON×*RET*	+	-0.030	(0.84)	-0.377	(0.30)	-0.661	(0.84)
HORIZON×Δ*RD*	?	-2.440	(0.21)	5.447	(0.09)	-5.988	(0.65)
HORIZON×*COOPTED_CC*	?	-0.028	(0.39)	0.031	(0.64)	0.730	(0.08)
COOPTED_CC×Δ*RD*	?	0.770	(0.10)	0.367	(0.79)	-1.347	(0.79)
HORIZON*×*COOPTED_CC*×Δ*RD	-	1.314	(0.57)	-6.880	(0.05)	-22.84	(0.30)
EQUITY_INCENTIVES	?	0.000	(0.60)				
No. of observations		5,380		5,354		5,277	
R^2		17.44%		2.76%		1.01%	

The table presents OLS regression results for model (5). Δ*lnC_PAY* is the change in the natural logarithm of CEO salary and bonus. Δ*lnT_PAY* is the change in the natural logarithm of CEO total compensation (EXECUCOMP data item TDC1). Δ*lnL_PAY* is the change in natural logarithm of CEO long-term compensation, which is defined as the sum of restricted stock grants, value of option grants, and long-term incentive payouts. All the compensation measures are adjusted to 2003 dollars using Consumer Price Index. Δ*ROA* is the change in earnings before extraordinary items, scaled by lagged total assets. *ADJ_RET* is the firm's annual size-adjusted stock return. Δ*RD* is the change in R&D expenditures, scaled by lagged total assets. *HORIZON* is an indicator variable equal to one if CEOs are in each of the final two years prior to their retirement, and zero otherwise. *COOPTED_CC* is an indicator variable equal to one if the majority of compensation committee directors are appointed after the incumbent CEO assumes office, and zero otherwise. *EQUITY_INCENTIVES* is the CEO's dollar wealth increase from a 1% change in stock price, as measured in Core and Guay (2002). The p-values are presented in parentheses and are two-tailed. The standard errors are heteroskedasticity robust, clustered by firm and year. For the sake of brevity, we do not report coefficient estimates for year indicators.

TABLE 9 Regression Results: The effect of whether compensation committees are dominated by co-opted directors and whether CEOs are approaching retirements on the association between the change in CEO compensation and the change in discretionary accruals

		Dependent Variable					
		ΔlnC_PAY (1)		ΔlnT_PAY (2)		ΔlnL_PAY (3)	
Variable		Coeff.	P-value	Coeff.	P-value	Coeff.	P-value
Intercept		-0.009	(0.25)	0.022	(0.27)	0.034	(0.66)
ΔROA	+	1.015	(<0.01)	1.621	(<0.01)	1.886	(<0.01)
ADJ_RET	+	0.184	(<0.01)	0.326	(<0.01)	0.905	(0.02)
*POS_*Δ*DA*	?	0.000	(0.98)	-0.019	(0.19)	0.058	(0.64)
*NEG_*Δ*DA*	?	0.015	(0.01)	-0.005	(0.71)	-0.018	(0.73)
HORIZON	?	0.043	(0.06)	-0.035	(0.40)	-0.291	(0.03)
COOPTED_CC	?	0.008	(0.33)	0.008	(0.63)	0.037	(0.66)
HORIZON×Δ*ROA*	-	0.047	(0.86)	-0.177	(0.36)	2.279	(0.23)
HORIZON×*RET*	+	-0.024	(0.85)	-0.255	(0.34)	-0.426	(0.84)
HORIZON×*POS_*Δ*DA*	?	-0.002	(0.88)	-0.051	(0.22)	-0.838	(0.23)
HORIZON×*NEG_*Δ*DA*	?	0.016	(0.50)	0.028	(0.40)	-0.059	(0.61)
HORIZON×*COOPTED_CC*	?	-0.066	(0.02)	-0.006	(0.91)	0.249	(0.28)
COOPTED_CC×*POS_*Δ*DA*	?	-0.005	(0.47)	-0.002	(0.93)	-0.080	(0.53)
COOPTED_CC×*NEG_*Δ*DA*	?	-0.016	(0.02)	0.005	(0.77)	0.014	(0.85)
HORIZON*×*COOPTED_CC*×*POS_*Δ*DA	+	0.034	(0.08)	0.040	(0.24)	0.883	(0.11)
HORIZON×*COOPTED_CC*×*NEG_*Δ*DA*	?	-0.017	(0.53)	-0.018	(0.69)	0.141	(0.40)
EQUITY_INCENTIVES	?	-0.000	(0.98)				
No. of observations		8,950		8,889		8,763	
R^2		16.28%		2.98%		0.97%	

The table presents regression results for model (6). ΔlnC_PAY is the change in the natural logarithm of CEO salary and bonus. ΔlnT_PAY is the change in the natural logarithm of CEO total compensation. ΔlnL_PAY is the change in natural logarithm of CEO long-term compensation. ΔROA is the change in earnings before extraordinary items, scaled by lagged total assets. *ADJ_RET* is the firm's annual size-adjusted stock return. *POS_*Δ*DA* is the positive changes in discretionary accruals. *NEG_*Δ*DA* is the negative changes in discretionary accruals. *HORIZON* is an indicator variable equal to one if CEOs are in each of the final two years prior to their retirement, and zero otherwise. *COOPTED_CC* is an indicator variable equal to one if the majority of compensation committee directors are appointed after the incumbent CEO assumes office, and zero otherwise. *EQUITY_INCENTIVES* is the CEO's dollar wealth increase from a 1% change in stock price, as measured in Core and Guay (2002). The p-values are presented in parentheses and are one-tailed for coefficients that have the predicted sign and two-tailed for those without a predicted sign or those that do not have the predicted sign. The standard errors are heteroskedasticity robust, clustered by firm and year. For the sake of brevity, we do not report coefficient estimates for year indicators.

TABLE 10 Robustness Tests

Panel A: CEO compensation regressed on the alternative measures of compensation committee co-option

Dependent Variable = *lnT_PAY*

Variable		Compensation committee co-option measures			
		CC_COOPTION(1)	*TW_CC_COOPTION*(2)	*RES_CC_COOPTION*(3)	*RES_TW_CC_COOPTION*(4)
Intercept		4.872	4.881	4.894	4.890
		(<0.01)	(<0.01)	(<0.01)	(<0.01)
Co-option measures	+	0.128	0.124	0.128	0.124
		(<0.01)	(<0.01)	(<0.01)	(<0.01)
SIZE	+	0.374	0.374	0.374	0.374
		(<0.01)	(<0.01)	(<0.01)	(<0.01)
RET	+	0.106	0.106	0.106	0.106
		(<0.01)	(<0.01)	(<0.01)	(<0.01)
ROA	+	1.134	1.136	1.134	1.136
		(<0.01)	(<0.01)	(<0.01)	(<0.01)
CEO_TENURE	+	-0.001	-0.000	0.004	0.004
		(0.71)	(0.83)	(<0.01)	(<0.01)
CEO_OWNERSHIP	?	-0.003	-0.003	-0.003	-0.003
		(<0.01)	(<0.01)	(<0.01)	(<0.01)
CEO_CHAIR	+	0.127	0.128	0.127	0.128
		(<0.01)	(<0.01)	(<0.01)	(<0.01)
B_INDEPENDENCE	?	0.202	0.204	0.202	0.204
		(<0.01)	(<0.01)	(<0.01)	(<0.01)
B_OWNERSHIP	-	-0.000	-0.000	-0.000	-0.000
		(<0.01)	(<0.01)	(<0.01)	(<0.01)
B_SIZE	+	0.002	0.003	0.002	0.003
		(0.28)	(0.23)	(0.28)	(0.23)
B_FEMALE	?	-0.036	-0.036	-0.036	-0.036
		(0.02)	(0.02)	(0.02)	(0.02)
Observations		13,606	13,598	13,606	13,598
R^2		40.20%	40.18%	40.20%	40.18%

The table reports regression results for model (2) using alternative measures of compensation committee co-option. *lnT_PAY* is the natural logarithm of CEO total compensation (EXECUCOMP data item TDC1). *CC_COOPTION* is the proportion of directors who are appointed after the CEO assumes office on the compensation committee. *TW_CC_COOPTION* is the director tenure weighted co-option, which is the sum of tenure of co-opted Compensation Committee directors divided by the sum of tenure of all compensation committee directors. *RES_CC_COOPTION* is the residual from regression of *CC_COOPTION* on CEO tenure. *RES_TW_CC_COOPTION* is the residual from the regression of *TW_CC_COOPTION* on CEO tenure. *SIZE* is the natural logarithm of sales. *RET* is the firm's stock return. *ROA* is the earnings before extraordinary item divided by total assets. *CEO_TENURE* is the CEO tenure. *CEO_OWNERSHIP* is the proportion of the firm's outstanding shares held by CEO. *CEO_CHAIR* is an indicator variable equal to one if CEO is the chairman of the board of directors, and zero otherwise. *B_INDEPENDENCE* is the proportion of outsiders on the board of directors. *B_OWNERSHIP* is the proportion of the firm's outstanding shares held by directors on the board *B_SIZE* is the number of directors on the board. *B_FEMALE* is an indicator equal to one if at least one of the directors on the board is female, and zero otherwise. The p-values are presented in parentheses and are one-tailed for coefficients that have the predicted sign and two-tailed for those without a predicted sign or those that do not have the predicted sign. The standard errors are heteroskedasticity robust, clustered by firm and year. For the sake of brevity, we do not report coefficient estimates for year indicators and G index dummies.

Panel B: The effect of compensation committee dominated by co-opted directors on adjusting CEO compensation to mitigate R&D reduction after controlling for other corporate governance

		Dependent Variable					
	Pred.	Δ*lnC_PAY* (1)		Δ*lnT_PAY* (2)		Δ*lnL_PAY* (3)	
Variable	Sign	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value
Intercept		0.010	(0.80)	0.065	(0.41)	-0.067	(0.93)
Δ*ROA*	+	1.031	(<0.01)	1.572	(<0.01)	1.604	(0.03)
ADJ_RET	+	0.126	(0.01)	0.295	(0.02)	0.533	(0.13)
Δ*RD*	?	0.026	(0.95)	0.262	(0.78)	1.270	(0.76)
HORIZON	?	0.031	(0.22)	-0.063	(0.22)	-0.554	(0.08)
COOPTED_CC	?	0.003	(0.81)	0.029	(0.30)	-0.019	(0.85)
HORIZON×Δ*ROA*	-	0.351	(0.24)	-0.068	(0.46)	2.632	(0.54)
HORIZON×*ADJ_RET*	+	-0.037	(0.81)	-0.384	(0.29)	-0.745	(0.82)
HORIZON×Δ*RD*	?	-2.365	(0.23)	5.490	(0.09)	-4.531	(0.73)
HORIZON×*COOPTED_CC*	?	-0.027	(0.40)	0.031	(0.64)	0.742	(0.07)
COOPTED_CC×Δ*RD*	?	0.784	(0.10)	0.459	(0.74)	-1.148	(0.82)
HORIZON*×*COOPTED_CC*×Δ*RD	-	1.275	(0.59)	-6.717	(0.05)	-24.179	(0.28)
lnCEO_TENURE	?	-0.000	(0.99)	-0.033	(0.09)	0.009	(0.92)
CEO_CHAIR	?	-0.007	(0.48)	-0.024	(0.41)	-0.045	(0.66)
B_INDDIR	?	0.025	(0.62)	0.075	(0.49)	0.683	(0.44)
lnB_SIZE	?	-0.022	(0.20)	-0.034	(0.41)	-0.283	(0.17)
EQUITY_INCENTIVES	?	0.000	(0.48)				
No. of observations		5,380		5,354		5,277	
R^2		17.49%		2.84%		1.07%	

The table reports regression results for model (5) after controlling for other corporate governance. Δ*lnC_PAY* is the change in the natural logarithm of CEO salary and bonus. Δ*lnT_PAY* is the change in the natural logarithm of CEO total compensation (EXECUCOMP data item TDC1). Δ*lnL_PAY* is the change in natural logarithm of CEO long-term compensation, which is defined as the sum of restricted stock grants, value of option grants, and long-term incentive payouts. All the compensation measures are adjusted to 2003 dollars using Consumer Price Index. Δ*ROA* is the change in earnings before extraordinary items, scaled by lagged total assets. *ADJ_RET* is the firm's annual size-adjusted stock return. Δ*RD* is the change in R&D expenditures, scaled by lagged total assets. *HORIZON* is an indicator variable equal to one if CEOs are in each of the final two years prior to their retirement, and zero otherwise. *COOPTED_CC* is an indicator variable equal to one if the majority of compensation committee directors are appointed after the incumbent CEO assumes office, and zero otherwise. *lnCEO_TENURE* is the natural logarithm of CEO tenure. *CEO_CHAIR* is an indicator variable equal to one if CEO is the chairman of the board of directors, and zero otherwise. *B_INDDIR* is an indicator variable equal to one if the board of directors solely consists of outsiders, and zero otherwise. *lnB_SIZE* is the natural logarithm of number of directors on the board. *EQUITY_INCENTIVES* is the CEO's dollar wealth increase from a 1% change in stock price, as measured in Core and Guay (2002). The p-values are presented in parentheses and are one-tailed for coefficients that have the predicted sign and two-tailed for those without a predicted sign or those that do not have the predicted sign. The standard errors are heteroskedasticity robust, clustered by firm and year. For the sake of brevity, we do not report coefficient estimates for year indicators.

Panel C: The effect of compensation committee dominated by co-opted directors on adjusting CEO compensation to mitigate income-increasing accruals management after controlling for other corporate governance

		Dependent Variable					
		Δ*lnC_PAY* (1)		Δ*lnT_PAY* (2)		Δ*lnL_PAY* (3)	
Variable		Coeff.	P-value	Coeff.	P-value	Coeff.	P-value
Intercept		0.031	(0.33)	0.064	(0.32)	-0.252	(0.64)
Δ*ROA*	+	1.012	(<0.01)	1.620	(<0.01)	1.879	(<0.01)
ADJ_RET	+	0.184	(<0.01)	0.330	(<0.01)	0.939	(0.02)
POS_ΔDA	?	-0.000	(0.96)	-0.019	(0.18)	0.054	(0.66)
NEG_ΔDA	?	0.015	(0.01)	-0.005	(0.73)	-0.014	(0.78)
HORIZON	?	0.046	(0.04)	-0.027	(0.52)	-0.271	(0.04)
COOPTED_CC	?	0.009	(0.29)	0.030	(0.14)	0.056	(0.54)
HORIZON×ΔROA	-	0.045	(0.86)	-0.165	(0.37)	2.273	(0.46)
HORIZON×RET	+	-0.030	(0.81)	-0.258	(0.34)	-0.472	(0.83)
HORIZON×POS_ΔDA	?	-0.002	(0.89)	-0.050	(0.23)	-0.837	(0.23)
HORIZON×NEG_ΔDA	?	0.016	(0.51)	0.028	(0.40)	-0.069	(0.55)
HORIZON×COOPTED_CC	?	-0.065	(0.02)	-0.002	(0.97)	0.276	(0.23)
COOPTED_CC×POS_ΔDA	?	-0.005	(0.48)	-0.001	(0.96)	-0.080	(0.53)
COOPTED_CC×NEG_ΔDA	?	-0.016	(0.02)	0.005	(0.77)	0.015	(0.84)
HORIZON×COOPTED_CC×POS_ΔDA	+	0.034	(0.08)	0.042	(0.23)	0.885	(0.11)
HORIZON×COOPTED_CC×NEG_ΔDA	?	-0.017	(0.54)	-0.017	(0.71)	0.156	(0.35)
lnCEO_TENURE	?	0.000	(0.71)	-0.035	(0.01)	-0.060	(0.41)
CEO_CHAIR	?	-0.006	(0.35)	-0.014	(0.48)	-0.013	(0.85)
B_INDDIR	?	-0.006	(0.44)	0.101	(0.23)	1.034	(0.10)
lnB_SIZE	?	0.040	(0.31)	-0.036	(0.23)	-0.288	(0.05)
EQUITY_INCENTIVES	?	-0.031	(0.02)				
No. of observations		8,950		8,889		8,763	
R^2		16.36%		3.07%		1.05%	

The table presents OLS regression results for equation (6) after controlling for other corporate governance. Δ*lnC_PAY* is the change in the natural logarithm of CEO salary and bonus. Δ*lnT_PAY* is the change in the natural logarithm of CEO total compensation (EXECUCOMP data item TDC1). Δ*lnL_PAY* is the change in natural logarithm of CEO long-term compensation, which is defined as the sum of restricted stock grants, value of option grants, and long-term incentive payouts. All the compensation measures are adjusted to 2003 dollars using Consumer Price Index. Δ*ROA* is the change in earnings before extraordinary items, scaled by lagged total assets. *ADJ_RET* is the firm's annual size-adjusted stock return. *POS_*Δ*DA* is the positive changes in discretionary accruals. *NEG_*Δ*DA* is the negative changes in discretionary accruals. *HORIZON* is an indicator variable equal to one if CEOs are in each of the final two years prior to their retirement, and zero otherwise. *COOPTED_CC* is an indicator variable equal to one if the majority of compensation committee directors are appointed after the incumbent CEO assumes office, and zero otherwise. *lnCEO_TENURE* is the natural logarithm of CEO tenure. *CEO_CHAIR* is an indicator variable equal to one if CEO is the chairman of the board of directors, and zero otherwise. *B_INDDIR* is an indicator variable equal to one if the board of directors solely consists of outsiders, and zero otherwise. *lnB_SIZE* is the natural logarithm of a number of directors on the board. *EQUITY_INCENTIVES* is the CEO's dollar wealth increase from a 1% change in stock price, as measured in Core and Guay (2002). The p-values are presented in parentheses and are one-tailed for coefficients that have the predicted sign and two-tailed for those without a predicted sign or those that do not have the predicted sign. The standard errors are heteroskedasticity robust, clustered by firm and year. For the sake of brevity, we do not report coefficient estimates for year indicators.

Panel D: The effect of compensation committee dominated by co-opted directors on CEO compensation for the subsample of 2004-2011

Dependent Variable = *lnT_PAY*			
Variable	Predicted Sign	Coefficient	p-value
Intercept		4.696	(<0.01)
COOPTED_CC	+	0.067	(<0.01)
SIZE	+	0.373	(<0.01)
RET	+	0.146	(<0.01)
ROA	+	0.998	(<0.01)
CEO_TENURE	+	0.001	(0.41)
CEO_OWNERSHIP	?	-0.003	(<0.01)
CEO_CHAIR	+	0.112	(<0.01)
B_INDEPENDENCE	?	0.515	(<0.01)
B_OWNERSHIP	-	0.000	(<0.01)
B_SIZE	+	0.012	(0.01)
B_FEMALE	?	-0.009	(0.65)
Observations		6,618	
R^2		46.26%	

This table presents regression results of model (2) for the subsample of 2004-2011. *lnT_PAY* is the natural logarithm of CEO total compensation (EXECUCOMP data item TDC1). It is adjusted to 2003 dollars using Consumer Price Index. *COOPTED_CC* is an indicator variable equal to one if the majority of compensation committee directors are appointed after the incumbent CEO assumes office, and zero otherwise. *SIZE* is the natural logarithm of sales. *RET* is the firm's stock return. *ROA* is the earnings before extraordinary item divided by total assets. *CEO_TENURE* is the CEO tenure. *CEO_OWNERSHIP* is the proportion of the firm's outstanding shares held by CEO. *CEO_CHAIR* is an indicator variable equal to one if CEO is the chairman of the board of directors, and zero otherwise. *B_INDEPENDENCE* is the proportion of outsiders on the board of directors. *B_OWNERSHIP* is the proportion of the firm's outstanding shares held by directors on the board. *B_SIZE* is the number of directors on the board. *B_FEMALE* is an indicator equal to one if at least one of the directors on the board is female, and zero otherwise. The p-values are presented in parentheses and are one-tailed for coefficients that have the predicted sign and two-tailed for those without a predicted sign or those that do not have the predicted sign. The standard errors are heteroskedasticity robust, clustered by firm and year. For the sake of brevity, we do not report coefficient estimates for year indicators and G index dummies.

Panel E: The effect of whether compensation committees are dominated by co-opted directors on the association between R&D spending and CEO horizon problem for the subsample of 2004-2011

Dependent Variable = *RD*			
Variable	Predicted Sign	Coefficient	P-value
Intercept		0.034	(<0.01)
HORIZON	?	0.003	(0.39)
COOPTED_CC	?	0.004	(<0.01)
HORIZON×COOPTED_CC	-	-0.004	(0.19)
TOBINS_Q	+	0.002	(0.07)
LAG_RET	+	-0.004	(0.03)
FCF	+	-0.213	(<0.01)
ROA	-	0.237	(<0.01)
SIZE	?	-0.001	(0.27)
FIRM_AGE	-	0.000	(<0.01)
EQUITY_INCENTIVES	+	0.000	(0.15)
INDUSTRY_RD	+	0.049	(<0.01)
Number of observations		3,580	
R^2		49.40%	

The table presents OLS regressions results of model (3) for the subsample of 2004-2011. *RD* is the R&D expense scaled by total assets. *COOPTED_CC* is an indicator variable equal to one if the majority of compensation committee directors are appointed after the incumbent CEO assumes, and zero otherwise. *HORIZON* is an indicator variable equal to one if CEOs are in each of the final two years prior to their retirement, and zero otherwise. *TOBINS_Q* is calculated as the market value of equity plus the book value of debt, all scaled by total assets. *LAG_RET* is the stock return from previous year. *FCF* is the operating cash flows plus R&D expense minus capital expenditures, all scaled by sales. *ROA* is operating net income before R&D expense scaled by assets. *SIZE* is the natural logarithm of total assets at the beginning of the current year. *FIRM_AGE* is the number of years between the current year and the first year the company listed on Compustat. *EQUITY_INCENTIVES* is the CEO's dollar wealth increase from a 1% change in stock price, as measured in Core and Guay (2002). *INDUSTRY_RD* is the average R&D expenditures of other firms in the same 2-digit SIC industry. The p-values are presented in parentheses and are one-tailed for coefficients that have the predicted sign and two-tailed for those without a predicted sign or those that do not have the predicted sign. The standard errors are heteroskedasticity robust, clustered by firm and year. For the sake of brevity, we do not report coefficient estimates for year indicators.

Panel F: The effect of whether compensation committees are dominated by co-opted directors on the association between discretionary accruals and CEO horizon problem for the subsample of 2004-2011

Dependent Variable = *DA*			
Variable	Predicted Sign	Coefficient	P-value
Intercept		0.029	(0.85)
HORIZON	+	-0.066	(0.42)
COOPTED_CC	?	-0.059	(0.04)
HORIZON×COOPTED_CC	+	0.165	(0.05)
EQUITY_INCENTIVES	+	0.035	(0.31)
SIZE	-	-0.005	(0.34)
STD_CASHFLOW	?	-0.755	(0.27)
STD_REV	?	0.209	(0.21)
STD_SALESGROWTH	?	0.221	(0.05)
OLDFIRM	?	0.036	(0.25)
LEVERAGE	?	-0.007	(0.95)
MARKETTOBOOK	?	-0.004	(0.55)
Number of observations		5,248	
R^2		5.34%	

The table presents OLS regressions results of model (4) for the subsample of 2004-2011. *DA* is the discretionary accruals. *COOPTED_CC* is an indicator variable equal to one if the majority of compensation committee directors are appointed after the incumbent CEO assumes office, and zero otherwise. *HORIZON* is an indicator variable equal to one if CEOs are in each of the final two years prior to their retirement, and zero otherwise. *EQUITY_INCENTIVES* is the dollar change in CEO's wealth from a 1% change in stock price, as measured in Core and Guay (2002), then normalized by the sum of the dollar change, salary and bonus. *SIZE* is the natural logarithm of total assets at the beginning of the current year. *STD_CASHFLOW* is the standard deviation of cash flows from operations deflated by total assets over the current and previous four years. *STD_REV* is the standard deviation of sales deflated by total assets over the current and previous four years. *STD_SALESGROWTH* is the standard deviation of sales growth over the current and previous four years. *OLDFIRM* equals one if a firm is listed on Compustat for more than 20 years, and zero otherwise. *LEVERAGE* is total liabilities deflated by total assets. *MARKETTOBOOK* represents deciles of market value of assets divided by the book value of assets ranked within each year. The p-values are presented in parentheses and are one-tailed for coefficients that have the predicted sign and two-tailed for those without a predicted sign or those that do not have the predicted sign. The standard errors are heteroskedasticity robust, clustered by firm and year. For the sake of brevity, we do not report coefficient estimates for year indicators, G_index indicators, exchange indicators and industry indicators.

Panel G Regression Results: The effect of compensation committee dominated by co-opted directors on adjusting CEO compensation to mitigate R&D reduction for the subsample of 2004-2011

		Dependent Variable					
	Pred.	Δ*lnC_PAY* (1)		Δ*lnT_PAY* (2)		Δ*lnL_PAY* (3)	
Variable	Sign	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value
Intercept		-0.015	(0.11)	-0.014	(0.57)	-0.037	(0.57)
Δ*ROA*	+	0.521	(<0.01)	1.642	(<0.01)	1.536	(0.05)
ADJ_RET	+	0.043	(0.23)	0.056	(0.39)	0.534	(0.14)
Δ*RD*	?	0.013	(0.98)	1.501	(0.20)	7.097	(0.23)
HORIZON	?	0.051	(0.14)	-0.076	(0.25)	-0.708	(0.18)
COOPTED_CC	?	0.017	(0.10)	0.012	(0.64)	0.028	(0.76)
HORIZON×Δ*ROA*	-	0.171	(0.62)	-0.468	(0.23)	4.580	(0.52)
HORIZON×*RET*	+	0.205	(0.19)	0.199	(0.33)	-6.871	(0.12)
HORIZON×Δ*RD*	?	-4.445	(0.09)	-1.867	(0.73)	-71.730	(0.17)
HORIZON×*COOPTED_CC*	?	-0.047	(0.28)	0.005	(0.95)	0.797	(0.20)
COOPTED_CC×Δ*RD*	?	0.309	(0.62)	0.553	(0.71)	-7.901	(0.22)
HORIZON*×*COOPTED_CC*×Δ*RD	-	3.954	(0.19)	0.162	(0.98)	23.745	(0.78)
EQUITY_INCENTIVES	?	0.000	(0.57)				
No. of observations		3,450		3,435		3,409	
R^2		20.59%		2.66%		1.80%	

The table presents OLS regressions results of equation (5) for the subsample of 2004-2011. Δ*lnC_PAY* is the change in the natural logarithm of CEO salary and bonus. Δ*lnT_PAY* is the change in the natural logarithm of CEO total compensation (EXECUCOMP data item TDC1). Δ*lnL_PAY* is the change in natural logarithm of CEO long-term compensation, which is defined as the sum of restricted stock grants, value of option grants, and long-term incentive payouts. All the compensation measures are adjusted to 2003 dollars using Consumer Price Index. Δ*ROA* is the change in earnings before extraordinary items, scaled by lagged total assets. *ADJ_RET* is the firm's annual size-adjusted stock return. Δ*RD* is the change in R&D expenditures, scaled by lagged total assets. *HORIZON* is an indicator variable equal to one if CEOs are in each of the final two years prior to their retirement, and zero otherwise. *COOPTED_CC* is an indicator variable equal to one if the majority of compensation committee directors are appointed after the incumbent CEO assumes office, and zero otherwise. *EQUITY_INCENTIVES* is the CEO's dollar wealth increase from a 1% change in stock price, as measured in Core and Guay (2002). The p-values are presented in parentheses and are two-tailed. The standard errors are heteroskedasticity robust, clustered by firm and year. For the sake of brevity, we do not report coefficient estimates for year indicators.

Panel H: The effect of compensation committee dominated by co-opted directors on adjusting CEO compensation to mitigate income-increasing accruals management for the subsample of 2004-2011

		Dependent Variable					
		Δ*lnC_PAY* (1)		Δ*lnT_PAY* (2)		Δ*lnL_PAY* (3)	
Variable	Pred. Sign	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value
Intercept		-0.011	(0.18)	0.017	(0.40)	0.028	(0.70)
Δ*ROA*	+	0.563	(<0.01)	1.495	(<0.01)	1.962	(<0.01)
ADJ_RET	+	0.073	(0.06)	0.173	(0.12)	1.006	(0.02)
POS_ΔDA	?	0.002	(0.73)	-0.024	(0.11)	0.058	(0.67)
NEG_ΔDA	?	0.015	(0.01)	-0.006	(0.64)	-0.076	(0.11)
HORIZON	?	0.071	(0.04)	-0.054	(0.30)	-0.334	(0.06)
COOPTED_CC	?	0.019	(0.03)	0.019	(0.31)	0.036	(0.65)
HORIZON×ΔROA	-	-0.180	(0.27)	-0.479	(0.19)	2.150	(0.65)
HORIZON×RET	+	0.252	(0.12)	0.090	(0.40)	-4.157	(0.09)
HORIZON×POS_ΔDA	?	-0.009	(0.59)	-0.051	(0.23)	-0.886	(0.24)
HORIZON×NEG_ΔDA	?	0.011	(0.71)	0.025	(0.49)	0.016	(0.90)
HORIZON×COOPTED_CC	?	-0.111	(0.01)	-0.029	(0.64)	0.177	(0.58)
COOPTED_CC×POS_ΔDA	?	-0.009	(0.22)	0.002	(0.92)	-0.069	(0.63)
COOPTED_CC×NEG_ΔDA	?	-0.016	(0.03)	0.013	(0.46)	0.076	(0.28)
HORIZON×COOPTED_CC×POS_ΔDA	+	0.043	(0.04)	0.029	(0.30)	0.861	(0.12)
HORIZON×COOPTED_CC×NEG_ΔDA	?	-0.027	(0.40)	-0.028	(0.59)	0.058	(0.77)
EQUITY_INCENTIVES	?	0.000	(0.41)				
No. of observations		5,614		5,579		5,524	
R^2		21.05%		2.78%		1.14%	

The table presents OLS regression results of model (6) for the sample of 2004-2011. Δ*lnC_PAY* is the change in the natural logarithm of CEO salary and bonus. Δ*lnT_PAY* is the change in the natural logarithm of CEO total compensation (EXECUCOMP data item TDC1). Δ*lnL_PAY* is the change in natural logarithm of CEO long-term compensation, which is defined as the sum of restricted stock grants, value of option grants, and long-term incentive payouts. All the compensation measures are adjusted to 2003 dollars using Consumer Price Index. ΔROA is the change in earnings before extraordinary items, scaled by lagged total assets. *ADJ_RET* is the firm's annual size-adjusted stock return. *POS_ΔDA* is the positive changes in discretionary accruals. *NEG_ΔDA* is the negative changes in discretionary accruals. *HORIZON* is an indicator variable equal to one if CEOs are in each of the final two years prior to their retirement, and zero

otherwise. *COOPTED_CC* is an indicator variable equal to one if the majority of compensation committee directors are appointed after the incumbent CEO assumes office, and zero otherwise. *EQUITY_INCENTIVES* is the CEO's dollar wealth increase from a 1% change in stock price, as measured in Core and Guay (2002). The p-values are presented in parentheses and are one-tailed for coefficients that have the predicted sign and two-tailed for those without a predicted sign or those that do not have the predicted sign. The standard errors are heteroskedasticity robust, clustered by firm and year. For the sake of brevity, we do not report coefficient estimates for year indicators.

TABLE 11 Pearson Correlations between the Board and Compensation Committee Characteristics Variables

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
1.B_INDEPENDENCE	**1**														
2.CC_INDEPENDENCE	**0.57**														
3.B_COOPTION	-0.01	-0.01													
4.CC_COOPTION	**-0.03**	**0.02**	**0.91**												
5.B_LONGSERV	**-0.03**	0.00	0.00	0.01											
6.CC_LONGSERV	**-0.02**	-0.01	**-0.03**	**-0.06**	**0.69**										
7.B_SIZE	**0.01**	0.00	**0.02**	0.01	-0.00	0.00									
8.CC_SIZE	**0.03**	0.00	**0.02**	**0.02**	0.00	-0.00	**0.99**								
9.B_OWNERSHIP	**-0.24**	**-0.14**	**0.04**	**0.05**	**0.01**	0.01	-0.01	**-0.02**							
10.CC_OWNERSHIP	**-0.13**	**-0.21**	-0.00	**-0.02**	0.01	**0.02**	-0.01	0.00	**0.66**						
11.B_BUSY	**0.12**	**0.02**	**-0.09**	**-0.09**	**-0.02**	-0.01	**0.02**	**0.02**	**-0.05**	**-0.02**					
12.CC_BUSY	**0.07**	**0.03**	**-0.07**	**-0.07**	**-0.02**	-0.00	**0.02**	**0.02**	**-0.03**	**-0.03**	**0.79**				
13.CEO_CHAIR	0.01	**-0.03**	**0.19**	**0.17**	**-0.02**	**-0.02**	**0.05**	**0.03**	0.01	**-0.02**	**0.10**	**0.08**			
14.IND_NORM	**0.51**	**0.42**	-0.01	0.00	**-0.02**	**-0.02**	-0.01	-0.01	**-0.14**	**-0.10**	0.01	-0.00	**-0.04**		
15.COOPTED_CC	**-0.02**	**0.02**	**0.80**	**0.90**	0.01	**-0.05**	0.01	0.01	**0.04**	**-0.02**	**-0.08**	**-0.06**	**0.15**	-0.00	
16.COOPTED_B	-0.01	-0.01	**0.87**	**0.81**	0.00	**-0.03**	0.01	0.01	**0.03**	-0.01	**-0.07**	**-0.06**	**0.18**	**-0.02**	**0.77**

This panel displays the Pearson correlations between the board and compensation committee characteristics variables. Correlations significant at the 5% level or less appear in bold. *CC_COOPTION* is the proportion of directors who are appointed after the CEO assumes office on the compensation committee. *B_COOPTION* is the proportion of directors who are appointed after the CEO assumes office on the board of directors. *COOPTED_CC* is an indicator variable equal to one if the majority of compensation committee directors are appointed after the incumbent CEO assumes office, and zero otherwise. *COOPTED_B* is an indicator variable equal to one if the majority of directors on the board are appointed after the incumbent CEO assumes office, and zero otherwise. *CEO_CHAIR* is an indicator variable equal to one if CEO is the chairman of the board of directors, and zero otherwise. *B_INDEPENDENCE* is the proportion of outsiders on the board of directors. *CC_INDEPENDENCE* is the proportion of outsiders on the compensation committee. *IND_NORM* is an indicator variable equal to one if the firm has a nominating committee that consists of only outside directors. *CC_SIZE* is the number of directors on the compensation committee. *B_SIZE* is the number of directors on the board of directors. *B_BUSY* is the proportion of board directors who sit on more than three other boards of public companies. *CC_BUSY* is the proportion of compensation committee directors who sit on more than three other boards of public companies. *B_LONGSERV* is the average tenure of directors on the board. *CC_LONGSERV* is the average tenure of directors on the compensation committee. *CC_OWNERSHIP* is the total shares held by directors on the compensation committee divided by total outstanding shares. *B_OWNERSHIP* is the total shares held by directors on the board divided by total outstanding shares. *B_SIZE* is the number of directors on the board.

TABLE 12 Factors Identified in Principal Components Analysis

Factor	Factor Name	Board and Compensation Committee characteristics	Factor Loadings
1	*CEO_POWER*	*CC_COOPTION*	0.959
		B_COOPTION	0.951
		COOPTED_CC	0.919
		COOPTED_B	0.916
		CEO_CHAIR	0.269
2	*INDEPENDENCE*	*B_INDEPENDENCE*	0.848
		CC_INDEPENDENCE	0.794
		IND_NORM	0.793
3	*DIR_SIZE*	*CC_SIZE*	0.996
		B_SIZE	0.996
4	*BUSY_DIR*	*B_BUSY*	0.936
		CC_BUSY	0.93
5	*DIR_TENURE*	*B_LONGSERV*	0.919
		CC_LONGSERV	0.918
6	*DIR_OWNERSHIP*	*CC_OWNERSHIP*	0.909
		B_OWNERSHIP	0.896

This table presents the 6 factors identified in Principal Components Analysis. *CC_COOPTION* is the proportion of directors who are appointed after the CEO assumes office on the compensation committee. *B_COOPTION* is the proportion of directors who are appointed after the CEO assumes office on the board of directors. *COOPTED_CC* is an indicator variable equal to one if the majority of compensation committee directors are appointed after the incumbent CEO assumes office, and zero otherwise. *COOPTED_B* is an indicator variable equal to one if the majority of directors on the board are appointed after the incumbent CEO assumes office, and zero otherwise. *CEO_CHAIR* is an indicator variable equal to one if CEO is the chairman of the board of directors, and zero otherwise. *B_INDEPENDENCE* is the proportion of outsiders on the board of directors. *CC_INDEPENDENCE* is the proportion of outsiders on the compensation committee. *IND_NORM* is an indicator variable equal to one if the firm has a nominating committee that consists of only outside directors. *CC_SIZE* is the number of directors on the compensation committee. *B_SIZE* is the number of directors on the board of directors. *B_BUSY* is the proportion of board directors who sit on more than three other boards of public companies. *CC_BUSY* is the proportion of compensation committee directors who sit on more than three other boards of public companies. *B_LONGSERV* is the average tenure of directors on the board. *CC_LONGSERV* is the average tenure of directors on the compensation committee. *CC_OWNERSHIP* is the total shares held by directors on the compensation committee divided by total outstanding shares. *B_OWNERSHIP* is the total shares held by directors on the board divided by total outstanding shares. *B_SIZE* is the number of directors on the board.

TABLE 13 Regression Results: The effect of board and compensation committee factors on CEO compensation

Variable	Pred. Sign	Coeff.	p-value
Intercept		5.220	(<0.01)
CEO_POWER	+	0.083	(<0.01)
DIR_INDEPENDENCE	-	0.013	(0.14)
DIR_SIZE	?	-0.071	(0.20)
BUSY_DIR	+	0.081	(<0.01)
DIR_TENURE	+	0.000	(0.49)
DIR_OWNERSHIP	-	-0.091	(<0.01)
SIZE	+	0.366	(<0.01)
RET	+	0.109	(<0.01)
ROA	+	1.139	(<0.01)
CEO_TENURE	+	-0.002	(0.28)
CEO_OWNERSHIP	?	-0.003	(<0.01)
Observations		13,585	
R^2		40.47%	

The table presents regression analysis of the effect of board and compensation committee factors on CEO compensation. *lnT_PAY* is the natural logarithm of CEO total compensation (EXECUCOMP data item TDC1). It is adjusted to 2003 dollars using Consumer Price Index. *CEO_POWER* is the factor on which *CC_COOPTION*, *B_COOPTION*, *COOPTED_CC*, *COOPTED_B*, and *CEO_CHAIR* have high loadings. *DIR_INDEPENDENCE* is the factor on which *B_INDEPENDENCE, CC_INDEPENDENCE*, and *IND_NORM* have high loadings. *DIR_SIZE* is the factor on which *CC_SIZE* and *B_SIZE* have high loadings. *BUSY_DIR* is the factor on which *B_BUSY* and *CC_BUSY* have high loadings. *DIR_TENURE* is the factor on which *B_LONGSERV* and *CC_LONGSERV* have high loadings. *DIR_OWNERSHIP* is the factor on which *CC_OWNERSHIP* and *B_OWNERSHIP* have high loadings. *SIZE* is the natural logarithm of sales. *RET* is the firm's stock return. *ROA* is the earnings before extraordinary item divided by total assets. *CEO_TENURE* is the CEO tenure. *CEO_OWNERSHIP* is the proportion of outstanding shares held by CEO. The p-values are presented in parentheses and are two-tailed. The standard errors are heteroskedasticity robust, clustered by firm and year. For the sake of brevity, we do not report coefficient estimates for year indicators and G index dummies.

TABLE 14 Regression Results: The effect of board and compensation committee factors on the association between R&D spending and CEO horizon problem

Variable	Pred. Sign	Coeff.	p-value
Intercept		0.017	(<0.01)
HORIZON	?	0.001	(0.60)
CEO_POWER	?	0.002	(0.00)
DIR_INDEPENDENCE	?	0.003	(<0.01)
DIR_SIZE	?	-0.051	(<0.01)
BUSY_DIR	?	0.002	(0.01)
DIR_TENURE	?	0.003	(0.27)
DIR_OWNERSHIP	?	-0.002	(0.01)
HORIZON×CEO_POWER	-	-0.003	(0.03)
HORIZON×DIR_INDEPENDENCE	+	-0.001	(0.46)
HORIZON×DIR_SIZE	?	0.016	(0.18)
HORIZON×BUSY_DIR	-	-0.001	(0.25)
HORIZON×DIR_TENURE	-	-0.015	(0.02)
HORIZON×DIR_OWNERSHIP	+	-0.001	(0.20)
TOBINS_Q	+	0.005	(<0.01)
LAG_RET	+	-0.007	(<0.01)
FCF	+	-0.193	(<0.01)
ROA	-	0.184	(<0.01)
SIZE	?	0.001	(0.06)
FIRM_AGE	-	-0.000	(<0.01)
EQUITY_INCENTIVES	+	-0.001	(0.46)
INDUSTRY_RD	+	0.064	(<0.01)
Number of observations		5,589	
R^2		49.07%	

The table presents the regression analysis of the effect of board and compensation committee factors on mitigating opportunistic R&D reduction. *RD* is the R&D expense scaled by total assets. *HORIZON* is an indicator variable equal to one if CEOs are in each of the final two years prior to their retirement, and zero otherwise. *CEO_POWER* is the factor on which *CC_COOPTION*, *B_COOPTION, COOPTED_CC, COOPTED_B*, and *CEO_CHAIR* have high loadings. *DIR_INDEPENDENCE* is the factor on which *B_INDEPENDENCE, CC_INDEPENDENCE*, and *IND_NORM* have high loadings. *DIR_SIZE* is the factor on which *CC_SIZE* and *B_SIZE* have high loadings. *BUSY_DIR* is the factor on which *B_BUSY* and *CC_BUSY* have high loadings. *DIR_TENURE* is the factor on which *B_LONGSERV* and *CC_LONGSERV* have high loadings. *DIR_OWNERSHIP* is the factor on which *CC_OWNERSHIP* and *B_OWNERSHIP* have high loadings. *TOBINS_Q* is calculated as the market value of equity plus the book value of debt, all scaled by total assets. *LAG_RET* is the firm's stock return from previous year. *FCF* is the operating cash flows plus R&D expense minus capital expenditures, all scaled by sales. ROA is operating net income before R&D expense scaled by assets. *SIZE* is the natural logarithm of total assets at the beginning of the current year. *FIRM_AGE* is the natural logarithm of the number of years between year *t* and the first year the company listed on Compustat. *EQUITY_INCENTIVES* is the natural logarithm of the CEO's dollar wealth increase from a 1% change in stock price, as measured in Core and Guay (2002). *INDUSTRY_RD* is the average R&D expenditures of other firms in the same 2-digit SIC industry. The p-values are presented in parentheses and are two-tailed. The standard errors are heteroskedasticity robust, clustered by firm and year. For the sake of brevity, we do not report coefficient estimates for year indicators.

TABLE 15 Regression Results: The effect of board and compensation committee factors on the association between discretionary accruals and CEO horizon problem

Variable	Predicted Sign	Coefficient	p-value
Intercept		0.212	(0.08)
HORIZON	?	0.012	(0.71)
CEO_POWER	?	-0.019	(0.08)
DIR_INDEPENDENCE	?	-0.011	(0.36)
DIR_SIZE	?	0.130	(0.08)
BUSY_DIR	?	-0.005	(0.61)
DIR_TENURE	?	0.002	(0.42)
DIR_OWNERSHIP	?	-0.003	(0.39)
HORIZON×CEO_POWER	+	0.018	(0.30)
HORIZON×DIR_INDEPENDENCE	-	0.018	(0.61)
HORIZON×DIR_SIZE	?	-0.439	(0.02)
HORIZON×BUSY_DIR	+	0.017	(0.28)
HORIZON×DIR_TENURE	+	-0.192	(0.14)
HORIZON×DIR_OWNERSHIP	-	0.023	(0.10)
EQUITY_INCENTIVES	+	0.047	(0.35)
SIZE	-	-0.008	(0.40)
STD_CASHFLOW	?	-0.793	(0.07)
STD_REV	?	0.141	(0.20)
STD_SALESGROWTH	?	-0.008	(0.90)
OLDFIRM	?	0.019	(0.42)
LEVERAGE	?	-0.002	(0.97)
MARKETTOBOOK	?	-0.005	(0.32)
Number of observations		8,526	
R^2		4.72%	

The table reports regression analysis of the effect of board and compensation committee factors on mitigating opportunistic accruals management. *CEO_POWER* is the factor on which *CC_COOPTION*, *B_COOPTION, COOPTED_CC, COOPTED_B*, and *CEO_CHAIR* have high loadings. *DIR_INDEPENDENCE* is the factor on which *B_INDEPENDENCE, CC_INDEPENDENCE*, and *IND_NORM* have high loadings. *DIR_SIZE* is the factor on which *CC_SIZE* and *B_SIZE* have high loadings. *BUSY_DIR* is the factor on which *B_BUSY* and *CC_BUSY* have high loadings. *DIR_TENURE* is the factor on which *B_LONGSERV* and *CC_LONGSERV* have high loadings. *DIR_OWNERSHIP* is the factor on which *CC_OWNERSHIP* and *B_OWNERSHIP* have high loadings. *EQUITY_INCENTIVES* is the dollar change in CEO's wealth from a 1% change in stock price, as measured in Core and Guay (2002), then normalized by the sum of the dollar change, salary and bonus. *SIZE* is the natural logarithm of total assets at the beginning of the current year. *STD_CASHFLOW* is the standard deviation of cash flows from operations deflated by total assets over the current and previous four years. *STD_REV* is the standard deviation of sales deflated by total assets over the current and previous four years. *STD_SALESGROWTH* is the standard deviation of sales growth over the current and previous four years. *OLDFIRM* equals one if a firm is listed on Compustat for more than 20 years, and zero otherwise. *LEVERAGE* is total liabilities deflated by total assets. *MARKETTOBOOK* represents deciles of market value of assets divided by the book value of assets ranked within each year. The p-values are presented in parentheses and are two-tailed. The standard errors are heteroskedasticity robust, clustered by firm and year. For the sake of brevity, we do not report coefficient estimates for year indicators, G_index indicators, exchange indicators, and industry indicators.

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