

# UC Irvine

## UC Irvine Previously Published Works

### Title

Internal Governance and Real Earnings Management

### Permalink

<https://escholarship.org/uc/item/15r2p0g1>

### Journal

ACCOUNTING REVIEW, 91(4)

### ISSN

0001-4826

### Authors

Cheng, Qiang  
Lee, Jimmy  
Shevlin, Terry

### Publication Date

2016

### DOI

10.2308/accr-51275

Peer reviewed

# **Internal governance and real earnings management\***

**Qiang Cheng**

qcheng@smu.edu.sg  
Singapore Management University

**Jimmy Lee**

jimmylee@smu.edu.sg  
Singapore Management University

**Terry Shevlin**

tshevlin@uci.edu  
University of California at Irvine

August 2015

## **ABSTRACT**

We examine whether internal governance affects the extent of real earnings management in U.S. corporations. Internal governance refers to the process through which key subordinate executives provide checks and balances in the organization and affect corporate decisions. Using the number of years to retirement to capture key subordinate executives' horizon incentives and using their compensation relative to CEO compensation to capture their influence within the firm, we find that the extent of real earnings management decreases with key subordinate executives' horizon and influence. The results are robust to alternative measures of internal governance and to various approaches used to address potential endogeneity including a difference-in-differences approach. In cross-sectional analyses, we find that the effect of internal governance is stronger for firms with more complex operations where key subordinate executives' contribution is higher, is enhanced when CEOs are less powerful, is weaker when the capital markets benefit of meeting or beating earnings benchmarks is higher, and is stronger in the post-SOX period. This paper contributes to the literature by examining how internal governance affects the extent of real earnings management and by shedding light on how the members of the management team work together in shaping financial reporting quality.

---

\* We thank Xia Chen, Richard Frankel, Weili Ge, Frank Hodge, Bin Ke, Jim Naughton, Dan Segal, Holly Skaife, Terry Warfield, Anne Wyatt, Huai Zhang, and workshop and conference participants at the 2012 Singapore three-school research conference, the 2013 Financial Accounting and Reporting Section mid-year conference, the 2013 University of Technology, Sydney Conference, the 2013 AAA annual meeting, Southern Methodist University, and the University of Wisconsin - Madison for helpful comments. Cheng and Lee thank the School of Accountancy Research Center (SOAR) at Singapore Management University for financial support. Shevlin acknowledges financial support from the Paul Merage School of Business at the University of California-Irvine.

**Key words:** internal governance, real earnings management, top management team

**JEL codes:** G32, M40

## I. INTRODUCTION

We examine whether internal governance affects the extent of real earnings management.<sup>1</sup> Internal governance refers to the process through which key subordinate executives provide checks and balances in the organization and affect corporate decisions.<sup>2</sup> We focus on key subordinate executives, or specifically the top four executives with the highest compensation other than the CEO, because we hypothesize that they are the most likely group of employees that have both the incentive and the ability to influence the CEO in corporate decisions. As argued in Acharya, Myers, and Rajan (2011), key subordinate executives have strong incentives not to take actions that increase short-term performance at the expense of long-term firm value. This tradeoff between current and future firm value is particularly salient in the case of real earnings management because overproduction and cutting of R&D expenditures are costly and can reduce the long-term value of the firm (e.g., Graham, Harvey, and Rajgopal 2005; Bhojraj, Hribar, Picconi, and McInnis 2009; Cohen and Zarowin 2010). In addition, we expect these key subordinate executives to have more direct impact on corporate decisions, such as research and development, production, and other activities that affect operating cash flows, and as a result, the extent of real earnings management. In contrast, these

---

<sup>1</sup> Following Roychowdhury (2006, 336), we define real earnings management as “management actions that deviate from normal business practices, undertaken with the primary objective of meeting certain earnings thresholds.” Some papers in the literature refer to “real earnings management” as “real activities management.”

<sup>2</sup> We use the term “internal governance” to be consistent with some of the closely related studies (e.g., Acharya et al. 2011). We refer to governance mechanisms other than the monitoring by the key subordinate executives broadly as “other governance mechanisms.”

executives, with the exception of the CFO, have little direct influence on the accrual process. Thus, we focus on real earnings management in this paper.

The motivation for the research question is two-fold. First, the majority of the papers in the literature explicitly or implicitly assume that the CEO is the sole decision maker for financial reporting quality, which includes both accrual and real earnings management.<sup>3</sup> Focusing only on the CEO does not provide a complete picture because firm management is typically a shared effort of all top executives (Finkelstein 1992). Recent literature starts to examine how CFOs affect the quality of financial reporting (e.g., Jiang, Petroni, and Wang 2010; Feng, Ge, Luo, and Shevlin 2011). However, the impact of other executives has been largely overlooked. As discussed briefly below and in detail in Section II, recent studies argue that subordinate executives usually have longer decision horizons and they can influence corporate decisions through various means. We hypothesize that differential preferences arising from differential horizons can affect the extent of real earnings management.

Second, while there are studies focusing on the impact of various corporate governance mechanisms on corporate decisions (e.g., board independence and institutional ownership), little is known about whether there are checks and balances within the management team. This lack of knowledge is an important omission because control is not just imposed from the top-down or from the outside, but also from the bottom-up (Fama 1980).

---

<sup>3</sup> Some papers pool all top five executives covered in the ExecuComp database together and examine their collective influence on financial reporting (e.g., Cheng and Warfield 2005). The distinct impact of other executives is not identified in such analyses.

Key subordinate executives usually care more about the long-term firm value than the CEO for several important reasons. First, as argued in Acharya et al. (2011), some of these executives desire to become the CEO in the future. As candidates for the CEO position in the future, key subordinate executives care about cash flows that the firm can generate in the future, which are in turn a function of the firm's current investments. As a result, these executives are less likely to sacrifice long-term investments to meet short-term earnings targets. Second, key subordinate executives have more to lose relative to their total wealth from corporate underperformance than the CEO. They are usually younger and have more remaining years of employment. As such, the potential loss of income for failing to find a comparable job in the future is high for younger executives and increases with horizon. Third, Fama (1980) argues that in general, a manager's outside opportunity wage depends on other managers', including the CEO's, actions and firm performance. This effect can motivate the key subordinate executives to be more long-term oriented and to exert monitoring on the CEO.

Not only do key subordinate executives have incentives to increase long-term firm value, they also have the means to influence corporate decisions toward their preferences. Prior research argues that because key subordinate executives' effort is an important determinant of current cash flows and the CEO's welfare, the CEO will consider key subordinate executives' preferences when making important corporate decisions;

otherwise, subordinate executives might not work hard, hence reducing current and future cash flows and the CEO's welfare (Allen and Gale 2000; Acharya et al. 2011).

The above discussion implies that the effectiveness of internal governance depends on the decision horizon of key subordinate executives and the influence they have on the CEO. In this paper, we use the number of years until retirement age (assumed to be 65) to capture these executives' decision horizon and we use the level of their compensation relative to the CEO's to capture their influence. We expect that the longer the horizon and the higher the relative compensation, the more effective is internal governance, and the lower the extent of real earnings management. Of course, subordinate executives might have the same incentives as the CEO to increase short-term performance at the expense of long-term value. Or, subordinate executives might be afraid of the consequences of disobeying the CEO (e.g., being demoted or fired) and hence do not exert monitoring on the CEO.<sup>4</sup> In addition, it is possible that the key subordinate executives are in a tournament or competition for the CEO's job with external candidates; as a result, they could undertake real earnings management to increase short-term earnings and/or to curry favor with the CEO who likely plays an important role in selecting his/her successor. These possibilities introduce tension to our research question and thus whether internal governance can effectively reduce the extent of real earnings management is an empirical

---

<sup>4</sup> See Feng et al. (2011) for evidence on the role of powerful CEOs in influencing CFOs to undertake material accounting manipulations.

question.

We test our hypothesis using 11,994 firm-year observations from the S&P 1500 firms in the period 1993-2011. The empirical results are consistent with our prediction. We find that the extent of real earnings management decreases with subordinate executives' horizon and relative compensation. The results hold after we control for CEO and firm characteristics that might affect the extent of real earnings management (e.g., CEO horizon, CEO compensation structure, firm age, analyst coverage, firm size, firm performance, leverage, firm growth opportunities, and other governance mechanisms). When we split the sample firms into suspect firms - the subsample of firms that meet or just beat analysts' forecasts - and other firms, we find that the results only hold for the suspect firms, where CEOs have incentives to engage in upward real earnings management. We do not find results for the other firms. The remaining analyses are thus based on the sample of suspect firms.

In the main analyses, we use the relative compensation of the key subordinate executives to capture their ability to influence the CEO on key corporate decisions. An alternative interpretation of our results is that this proxy captures CEO entrenchment, not internal governance per se, and entrenched CEOs engage in more real earnings management. In an additional analysis, we use two alternative measures to investigate the robustness of our results and to address this alternative explanation. More specifically, we use the abnormal compensation of subordinate executives



and whether the subordinate executives sit on other companies' boards as alternative proxies for their influence. Our inferences based on these two alternative proxies remain the same.

As with many corporate governance studies, we recognize that our analyses might be subject to endogeneity concerns because firms' internal governance is arguably endogenously determined. The factors that affect the strength of internal governance might also affect the extent of real earnings management. We address this endogeneity concern using a number of approaches. First, we use the lagged values of internal governance in all our analyses and include a comprehensive list of control variables that are likely correlated with both internal governance and the extent of real earnings management. Second, we use an instrumental variable approach to further control for potential endogeneity concerns. Specifically, following related prior studies (e.g., Coles, Daniel, and Naveen 2006; Boone, Field, Karpoff, and Raheja 2007; Kale, Reis, and Venkateswaran 2009; Bebchuk, Cremers, and Peyer 2011), we use the two-year lagged value of internal governance, the industry-year median of internal governance, the number of named executives in the proxy statement, and an indicator for outside CEOs as instruments. Our inferences remain the same. Third, we adopt a difference-in-differences design by examining the impact on the extent of real earnings management of the appointment of a subordinate executive as an independent director of another company (one of our alternative proxies for internal governance). We find that before such appointments, firms with

subordinate executives serving as independent directors of other companies do not differ in the extent of real earnings management from the firms without such subordinate executives. However, after such appointments, firms with subordinate executives serving as independent directors experience a significant decrease in the extent of real earnings management compared to other firms. These tests indicate that our results are not driven by the potential endogeneity concern.<sup>5</sup>

To corroborate the inference from the main analyses, we conduct a series of cross-sectional analyses. First, key subordinate executives' ability to influence the CEO's decision hinges on their contribution to firm performance and we argue that their contribution is greater when the firm's operations are more complex. Accordingly, we expect that the impact of internal governance is higher when operation complexity is higher. We use industry R&D intensity and a common factor based on the number of geographical segments, geographical sales concentration, and foreign sales to capture the complexity of a firm's operations. The results are consistent with our prediction that the impact of internal governance is stronger when operation complexity is higher. Second, we find that the effect of internal governance is stronger when the CEO is more effectively monitored and less powerful, proxied for by higher board independence, higher institutional ownership, and an indicator for newly appointed outside CEOs. This result also indicates that other governance mechanisms can enhance subordinate

---

<sup>5</sup> Our cross-sectional analyses also mitigate the endogeneity concern because it is arguably harder for an omitted variable to explain both our main and cross-sectional findings.

executives' ability to influence the CEO's decisions. Third, we find that the effect of internal governance is attenuated for firms in financial distress, for firms that routinely meet or beat earnings targets, and for firms with upcoming financing activities, presumably because subordinate executives have weaker incentives to constrain real earnings management when the capital markets benefit of meeting or beating earnings benchmarks is higher.

We also conduct a series of additional tests to ensure the robustness of our results and to provide additional insights. First, the Sarbanes-Oxley (SOX) Act exerts a shock to firms' governance (e.g., requiring higher board independence) and the extent of real earnings management (Cohen, Dey, and Lys 2008). As such, we expect internal governance to be more effective in constraining the extent of real earnings management in the post-SOX period. Consistent with our prediction, we find that our results are stronger in the post-SOX period than in the pre-SOX period.

Second, we find that internal governance is more effective in constraining real earnings management for firms in more homogeneous and competitive industries, where CEOs presumably have greater career concerns and thus have stronger incentives to manage earnings to report better financial performance (Parrino 1997; DeFond and Park 1999). Lastly, we find that internal governance is less effective in constraining real earnings management for firms with large forthcoming fixed-date option grants, where CEOs presumably have incentives to engage in downward earnings management in order to reduce the exercise price of option grants

(e.g., McAnally, Srivastava, and Weaver 2008).

This paper contributes to the literature in two important ways. First, this paper is the first to examine the association between internal governance and the extent of real earnings management. This examination is important as it sheds light on how the members of the management team work together and shape financial reporting. This paper differs from and complements studies on the impact of CFOs' characteristics on accrual quality or the likelihood of earnings restatements/frauds by focusing on all key subordinate executives and by focusing on real earnings management.

Second, our examination of internal governance helps provide a more complete picture of how firms work. Unlike prior research which generally views top executives as a unified team, this paper provides evidence that key subordinate executives can serve an important monitoring role and that effective internal governance can reduce the extent of CEOs' myopic behavior. Our study answers Fama's (1980, 293) call for research on internal governance. He argues that while each manager is concerned with the performance of others in the firm and as a consequence, undertakes certain monitoring of other managers, both above or below, "less well appreciated, however, is the monitoring that takes place from bottom to top."

The remainder of the paper is organized as follows. Section II provides a summary of prior research and develops hypotheses. Section III describes the sample and data and presents the research design. Section IV reports the main analysis of the impact of internal governance on the extent of real

earnings management, the analysis based on alternative proxies for internal governance, and analyses addressing the potential endogeneity concerns. Section V reports the cross-sectional analyses and Section VI additional analyses. Section VII concludes.

## **II. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT**

### **Literature Review**

We rely and build on two streams of the earnings management literature: the impact of individual executives on financial reporting quality and real earnings management.

One of the fundamental drivers of earnings management is the pressure on managers to deliver short-term performance that is used in contracting and firm valuation. See, for examples, DeFond and Park (1997) on the pressure related to job security, Matsunaga and Park (2001) on the pressure related to meeting earnings benchmarks, and Bartov, Givoly, and Hayn (2002) and Kasznik and McNichols (2002) on the capital market pressure to deliver short-term performance. A recent survey study, Dichev, Graham, Harvey, and Rajgopal (2013), concludes that “about 20 percent of firms manage earnings to misrepresent economic performance, and for such firms 10 percent of EPS is typically managed.” Using a different research methodology, Dyck, Morse, and Zingales (2013) also conclude that earnings management and accounting frauds are prevalent. Given the vast literature on earnings management, we do not provide a detailed literature review

here and we refer readers to the review papers that discuss in greater detail the demand for earnings management and how managers benefit from this activity (e.g., Schipper 1989; Healy and Wahlen 1999; Dechow and Skinner 2000; Fields, Lys, and Vincent 2001; Dechow, Ge, and Schrand 2010).<sup>6</sup>

Most prior studies tend to focus on the management team as a whole or solely on the CEO as the person(s) held primarily responsible for earnings management within the firm. Recently, the literature starts to examine the effect of CFOs on earnings quality. For example, Geiger and North (2006) find that the appointment of new CFOs is associated with a decrease in discretionary accruals and that the result is largely driven by new CFOs who are hired from outside. Focusing on CFO directors, Bedard, Hoitash, and Hoitash (2014) find that firms with CFOs who sit on their own board exhibit higher reporting quality (e.g., lower likelihood of internal control weaknesses, lower likelihood of restatements, and higher accruals quality). Ge, Matsumoto, and Zhang (2011) find that CFOs matter for various accounting choices, such as discretionary accruals, the likelihood of meeting or just beating earnings expectations, and the likelihood of restatements.<sup>7</sup>

There are also studies contrasting the impact of CFOs' incentives with that of CEOs' on earnings management. Jiang et al. (2010) find that the magnitude of accruals and the likelihood of meeting or just beating analysts'

---

<sup>6</sup> While the literature focusses primarily on accrual-based earnings management, the argument on the demand for and the benefit (to managers) of earnings management apply to real earnings management as well. Indeed, the recent development of the real earnings management literature builds on prior studies of accrual-based earnings management.

<sup>7</sup> Ge et al. (2011) capture the effect of CFO style by using a fixed effect model to track CFOs who work in multiple companies over their sample period.

forecast are more sensitive to CFOs' than to CEOs' equity incentives in the pre-SOX period. In contrast, Feng et al. (2011) find that while CEOs of firms that are involved in material accounting manipulations (manipulations that violate GAAP) have higher equity incentives than their counterparts in other firms, CFOs of these accounting manipulation firms have similar levels of equity incentives as their counterparts in other firms. Despite their lack of incentives, CFOs who are involved in material accounting manipulations suffer substantial losses. Feng et al. conclude that the direct financial gain is not the main motivation for CFOs to be involved in earnings manipulation. Rather, CFOs likely succumb to powerful CEOs' pressure to manipulate financial statements.

We extend this line of research by focusing on a broader set of key subordinate executives, including not only CFOs but also other top executives, and examine their impact on the extent of real earnings management. We focus on real earnings management for two reasons.<sup>8</sup> First, the tradeoff between increasing short-term performance and increasing long-term firm value is important for real earnings management. For example, cutting R&D expenditures now to meet current year's earnings targets will

---

<sup>8</sup> In an untabulated analysis, we examine the impact of internal governance on accrual earnings management. Ex-ante, whether non-CFO subordinate executives can influence the extent of accrual earnings management is unclear. On one hand, key subordinate executives do not play a direct role in accrual management because unlike the CFO, they are not directly involved in the financial reporting process. On the other hand, they likely have an important influence over the corporate culture and the overall corporate attitude toward earnings management. If the key subordinate executives focus on the long-term value of the firm, their preference might manifest in less accrual-based earnings management. After considering the interrelationship between real and accrual earnings management, we do not find robust evidence that subordinate executives have a significant impact on the extent of accrual earnings management, consistent with these executives playing a more limited role in the financial reporting process.

lead to lower long-term investment and likely reduce the company's ability to compete in the product markets and to generate profits in the future. Consistent with this notion, Bhojraj et al. (2009), Leggett, Parsons, and Reitenga (2009), and Mizik (2010) report that firms that reduce discretionary spending to beat earnings benchmark exhibit long-term underperformance. Cohen and Zarowin (2010) and Mizik and Jacobson (2008) document that firms engaging in real earnings management prior to seasoned equity offerings have poorer operating performance in the future. Graham et al. (2005) also provide supporting evidence based on their surveys of CFOs.<sup>9</sup> Second and importantly, key subordinate executives have more direct control and influence over real activities, such as R&D expenditures, production volumes, and sales decisions, than over accrual-based earnings management.

To our knowledge, ours is the first study that explicitly examines the impact of subordinate executives on the extent of real earnings management. The extant literature on real earnings management has focused primarily on documenting the existence of real earnings management. For example, Graham et al. (2005) report that 80 percent of surveyed CFOs stated that, in order to deliver earnings, they would decrease research and development (R&D), advertising, and maintenance

---

<sup>9</sup> In contrast, Gunny (2010) finds that firms engaging in real earnings management to report small positive earnings exhibit better subsequent performance and she attributes this result to the signaling role of real earnings management. In light of this contradictory evidence, in an untabulated analysis we examine the association between our real earnings management proxies and future performance in our sample. Unlike Gunny (2010), we find that our measures of real earnings management are associated with significantly lower one-year-ahead returns on assets and cash flow from operations.



expenditures, while 55 percent said they would postpone a new project, both of which are real activities manipulation. Roychowdhury (2006) documents the existence of real earnings management in firms that meet or just beat earnings benchmarks. Cohen et al. (2008) find that the extent of real earnings management is higher in the post-SOX period than in the pre-SOX period. We extend this line of research by examining how internal governance affects the extent of real earnings management, complementing studies that examine the impact on real earnings management of other governance mechanisms, such as institutional ownership, board independence, and employment agreement (e.g., Bushee 1998; Carcello, Hollingsworth, Klein, and Neal 2006; Zhao 2011; Chen, Cheng, Lo, and Wang 2015).

## **Hypothesis Development**

### ***Main Hypothesis***

In this section, we discuss why key subordinate executives have both the *incentive* and *ability* to provide monitoring and reduce the extent of real earnings management.

As discussed above, one of the fundamental drivers of earnings management is the pressure on CEOs to deliver short-term performance. While it is possible that key subordinate executives are under similar or even greater pressure to deliver short-term performance, yet as compared to CEOs, key subordinate executives have longer horizons that induce them to care more about long-term firm value for three reasons. First, one of the

career objectives of many key subordinate executives is to become the next CEO when the current CEO retires or resigns. As documented in Cremers and Grinstein (2011), 68.6 percent of CEOs are promoted within the firm; in other words, in 68.6 percent of the CEO turnover cases, one of the key subordinate executives becomes the next CEO.<sup>10</sup> As the potential CEO in the future, these subordinate executives care about the cash flows that the firm can generate in the future. Since a company's performance depends critically on the capital stock (i.e., value enhancing assets), how the company performs when the subordinate manager becomes the CEO depends on current investment. Thus, subordinate executives are hypothesized to care more about long-term investment and therefore less likely to support activities that sacrifice long-term positive NPV investments to meet short-term earnings targets.

Second, subordinate executives have more to lose in the event of corporate underperformance and operational failures. Key subordinate executives are usually younger than the CEO. In our sample, they are three years younger at the sample median, and this difference represents a 30 percent increase in the number of years of remaining employment (i.e., the number of years until the assumed retirement age of 65). Their future compensation likely represents a larger proportion of their overall income and wealth. While the CEO might also suffer from poor firm performance, the concept of diminishing marginal utility suggests that the relative impact, i.e.,

---

<sup>10</sup> Based on data from ExecuComp, we find that 59.7 percent of the CEOs in our sample were promoted within the company. Within this group of CEOs, 36.0 percent were the Chief Operating Officer, 40.8 percent were the President, and 7.5 percent were the Vice President. These statistics confirm that inside-CEOs are generally selected from the set of key subordinate executives we study.

the impact of the potential loss related to the individual's total wealth, is important. As such, lower compensation due to poor firm performance in the future or loss of income due to the difficulty of finding a comparable job is higher for younger executives and increases with their horizon. This is the same idea underlying the horizon problem discussed in Dechow and Sloan (1991).

Third, Fama (1980) argues that in general, a manager's outside opportunity wage depends on other managers', including the CEO's, actions and firm performance. This effect can motivate the key subordinate executives to be more long-term oriented and to exert monitoring on the CEO.

The above discussion implies that subordinate executives have longer horizons than the CEO. The longer the subordinate executives' horizon, the stronger their incentives not to sacrifice long-term value for short-term goals.

Not only do subordinate executives have incentives, they also have the means to influence the CEO's decision. The current CEO's welfare depends on the cash flow in the current period, which is affected by the key subordinate executives' effort levels.<sup>11</sup> If the CEO does not consider the subordinate executives' interests, subordinate executives can work less diligently, hence reducing the current cash flow and the CEO's welfare (Allen

---

<sup>11</sup> The importance of these key subordinate executives is self-evident. In a recent study, Graham, Harvey, and Puri (2013) find that only about 15 percent of the surveyed CEOs and CFOs indicate that the CEO is the sole-decision maker in their firms regarding important corporate decisions, such as M&A, capital allocation and investments.

and Gale 2000; Acharya et al. 2011).<sup>12</sup> Anticipating this, it is in the best interest of the CEO to consider subordinate executives' interests, motivating subordinate executives to work harder (Landier, Sraer, and Thesmar 2009). Applying the above general discussion to the real earnings management setting, if the CEO chooses real activity manipulation that decreases long-term firm value, key subordinate executives will choose a lower effort level. Anticipating this, the CEO will be less likely to engage in real earnings management. In other words, if the CEO does not engage in real earnings management, then the subordinate executives' interest is aligned and they will work harder to improve both current and future firm performance.

In addition, the CEO needs the subordinate executives' cooperation to engage in real earnings management because subordinate executives are usually more informed than the CEO in their own functional areas. For example, the president in charge of production likely has more information about the supply of raw materials and the demand from customers. Hence, he or she will play an important role if the firm decides to overproduce in order to increase the current period's earnings. Similarly, the executive in charge of R&D is better informed and can influence whether and how much the firm can reduce the current period's R&D. That is, while the CEO has the formal authority to make the decision, subordinate executives have the real authority, e.g., effective control over the decisions, due to their information

---

<sup>12</sup> This argument is plausible because an individual's effort level is usually unobservable and subordinate executives have the best information to decide the appropriate effort level. (This is the same reason why top executives are given performance-based bonus and stock-based compensation, not just a fixed salary).

advantage (Aghion and Tirole 1997). As such, the CEO will have to take the subordinate executives' preferences into consideration.

Overall, the effectiveness of key subordinate executives' influence in curbing myopic behavior depends on their horizon and their ability to influence CEOs' decisions. The longer the horizon and the more influence the key subordinate executives have, the more effective the internal governance, and the less likely that the company will engage in real earnings management. Thus, our first hypothesis (in alternative form) is as follows:

*H1: The extent of upward real earnings management is negatively associated with the effectiveness of internal governance.*

As discussed below, we use key subordinate executives' horizon (i.e., the number of years until retirement) and their relative pay (i.e., the average pay of subordinate executives divided by CEO pay) to capture the effectiveness of internal governance.

There are two critical assumptions underlying H1. First, we rely on prior research to argue that the CEO has incentives to increase short-term performance at the expense of long-term value, such as to increase job security (DeFond and Park 1997) and to increase compensation (e.g., Healy 1985; Cheng and Warfield 2005). One might argue that subordinate executives might be as myopic as the CEO. In addition, it is possible that the key subordinate executives are in a tournament or competition for the CEO's position with external candidates. As a result, they might undertake real earnings management to increase short-term earnings and/or to curry favor with the CEO who likely plays a role in selecting his/her successor. If this is

the case, we will not find results consistent with H1. Second, while prior research indicates that key subordinate executives have the ability to influence CEOs' decisions, CEOs have the power to demote or fire these subordinate executives. Job security concerns can motivate subordinates to cooperate with CEOs in carrying out myopic behavior (Feng et al. 2011). Of course, firing key subordinate executives because they do not cooperate in myopic behavior can backfire. Having nothing to lose after being fired, subordinate executives can become "whistle-blowers" and reveal the inappropriate behavior to the board, investors, and the press, or seek legal action against the firm for inappropriate dismissal. This potential outcome will deter CEOs from freely firing subordinate executives who choose not to engage in myopic behavior. Again, if subordinate executives have no influence on CEOs' myopic behavior or if CEOs have no incentive to engage in earnings management, we will not find results consistent with H1. Thus, whether we find results consistent with H1 is an empirical question.

### ***Cross-sectional Analyses***

To corroborate our theory and main hypothesis that key subordinate executives have the ability and incentive to influence the extent of real earnings management, we propose several cross-sectional predictions that exploit the variation in subordinate executives' ability and incentive. These cross-sectional tests also help rule out competing explanations for the main result.

### **Variation in subordinate executives' contribution**

One key assumption underlying H1 is that subordinate executives can influence corporate decisions to reflect their preferences. Because one of the fundamental reasons why key subordinate executives can influence CEOs' decisions is their contribution to firm performance, the greater the subordinate executives' contribution, the greater is their potential influence on CEOs (Finkelstein 1992; Acharya et al. 2011). Prior research indicates that complex firms are more difficult to manage and requires the collective efforts of all executives (e.g., Graham et al. 2013). We thus expect the impact of internal governance to be stronger in more complex firms than in other firms. Our next hypothesis (in alternative form) is as follows:

*H2: The effectiveness of internal governance in reducing the extent of upward real earnings management is stronger in more complex firms than in other firms.*

We discuss the proxy for firm complexity in the empirical section.

### **Variation in CEO power**

Subordinate executives' ability to influence CEOs' decision is likely affected by how powerful the CEOs are. According to Adams, Almeida, and Ferreira (2005), powerful CEOs are those who can consistently influence key decisions in their firms, despite the potential opposition from other executives. In firms where CEOs are powerful, decision making authority is usually centralized in the hands of the CEO and thus these CEOs are able to push their agenda even if the decision may be viewed as sub-optimal. Consistent with this reasoning, Feng et al. (2011) find that CFOs likely succumb to powerful CEOs' pressure to manipulate financial statements.

Therefore, we expect subordinate executives to have lower ability to influence CEOs' decision when CEOs hold substantial power and authority within the firm. Conversely, we expect internal governance to be more effective in constraining the extent of real earnings management when CEOs are less powerful, and thus our third hypothesis (in alternative form) is as follows:

*H3: The effectiveness of internal governance in reducing the extent of upward real earnings management is stronger for firms with less powerful CEOs than for other firms.*

We discuss the proxy for CEOs' power in the empirical analysis section.

### **Capital markets benefits of meeting or beating earnings expectations**

In developing the main hypothesis, we argue that subordinate executives have incentives to reduce the extent of real earnings management because such activities can reduce firm value in the long run. However, if such activities can increase firm value in the short run that also benefit subordinate executives, they will have weaker incentives to constrain real earnings management. Prior research documents the capital markets benefit of meeting or beating earnings expectations (e.g., Bartov et al. 2002; Kasznik and McNichols 2002). If the benefit is high enough to outweigh the cost of real earnings management, then the effectiveness of internal governance is expected to be lower. Firms in financial distress, such as those with poor credit rating, benefit more from meeting or beating earnings benchmarks because missing earnings expectations could lead to credit



rating downgrades, inhibiting the firm's ability in obtaining future financing and thus perpetuating financial distress. Consistent with this reasoning, Jiang (2008) finds that the reduction in the cost of debt from beating earnings benchmark is more pronounced for firms with high default risk. Firms which habitually meet or beat earnings expectations also benefit more from meeting earnings benchmarks because of the additional market premium from consistently meeting earnings targets (Kaznik and McNichols 2002). Finally, firms that have a forthcoming debt or equity issuance benefit more from beating earnings benchmarks, which can increase the proceeds from debt/equity financing. Therefore, in instances where the capital markets benefit of reporting higher earnings is high, we expect subordinate executives to have weaker incentives to constrain real earnings management, and thus our last hypothesis (in alternative form) is as follows:

*H4: The effectiveness of internal governance in reducing the extent of upward real earnings management is weaker for firms with higher capital markets benefit of meeting or beating earnings expectations than for other firms.*

### **III. RESEARCH DESIGN**

#### **Sample**

We obtain our initial sample of firms from Compustat ExecuComp in the period from 1993 to 2011. We limit our examination to firms with compensation details of the top five executives and require at least five executives (including the CEO) to be reported in the annual proxy

statement.<sup>13</sup> To ensure that we have an appropriate measure of CEO's influence within the firm, we require the CEO to be in office for the entire year. We exclude firms in financial (2-digit SICs between 60 and 69) and utility (2-digit SICs of 49) industries because firms in regulated industries have different financial reporting incentives from other firms. We then merge the sample of executive-level data with Compustat, CRSP, and I/B/E/S to obtain the data for the other variables required for the analyses and we drop the observations that have missing values for these variables. Our final sample consists of 11,994 firm-years, and Panel A of Table 1 reports the sample selection process.

Table 1, Panel B reports the job titles of the key subordinate executives in our sample firms.<sup>14</sup> In our empirical tests, key subordinate executives refer to the top four non-CEO executives included in the ExecuComp database.<sup>15</sup> The CFO is usually included in the top four executives, with an increased frequency in recent years, possibly because of the increasing influence of CFOs in the post-SOX era. Other key executives reported in the proxy statements usually hold job titles such as Chief Operating Officer (COO), President, Executive or Senior Vice President, and Vice President. These titles

---

<sup>13</sup> About 9 percent of firm-year observations in ExecuComp report compensation information for fewer than five executives. Following Bebchuk et al. (2011), we exclude these observations from our sample to ensure that our measure of key subordinate executives' influence is comparable across firms.

<sup>14</sup> Ideally, we would like to categorize the job title of the key subordinate executives based on their job function, such as sales, production, and R&D. However, the job titles in ExecuComp do not indicate the job scope of the key executives, and many firms categorize their job titles by business segments (e.g. subsidiaries), geographical segments or product segments rather than by function. As such, we can only provide generic job titles.

<sup>15</sup> We limit our scope of subordinate executives to the top four executives other than the CEO because most firms only disclose the compensation details of the top five executives (including the CEO) in their proxy statements.

suggest that the key subordinate executives in our sample usually hold very important positions and thus have significant responsibilities within the firm, leading to their ability to monitor the CEO and to influence real earnings management.

## **Measure of Internal Governance**

In this paper, we posit that the effectiveness of internal governance increases with key subordinate executives' incentives and ability to monitor the CEO. We measure key subordinate executives' monitoring incentives based on their decision horizon, which we proxy for using the number of years until the age of retirement (assumed to be 65):<sup>16,17</sup>

*Exec\_Horizon* = 65 - the average age of key subordinate executives

Next, we measure key subordinate executives' ability to monitor the CEO based on their influence within the organization. We posit that competitive labor markets dictate the compensation of top executives and hence their compensation reflects their contribution to, and their influence within, the firm.<sup>18</sup> In addition, Finkelstein (1992) argues that an executive's

---

<sup>16</sup> We use the horizon of key subordinate executives, not their horizon relative to the CEO's, because it is the horizon itself that leads subordinate executives to care about long-term firm value. The difference in horizon does not necessarily capture executives' incentives to increase long-term firm value. For example, in firm A, subordinate executives are on average 50 years old and the CEO is 55 years old; in firm B, subordinate executives are on average 60 years old and the CEO is 65 years old. While the difference in horizon between subordinate executives and the CEO is the same for the two firms, firm A's subordinate executives have longer horizon, arguably care more about the firm's long-term value, than their counterparts in Company B. In the empirical analyses, we include CEO horizon to control for its impact on the extent of real earnings management. Nevertheless, we obtain qualitatively similar results when using the difference in horizon.

<sup>17</sup> Assuming a different retirement age, such as 70, does not change the regression results (except the intercept) because the retirement age is assumed to be a cross-sectional constant and is thus just a scalar.

<sup>18</sup> Executives' compensation is also closely related to their outside opportunity wage, which is then related to their influence within the firm. An executive with a higher outside opportunity wage is more likely to stand by his or her position and is less concerned with the

compensation reflects her power derived from her structural position in the firm. Therefore, our measure of key subordinate executives' ability to monitor the CEO is defined as follows:<sup>19</sup>

$$Exec_{PayRatio} = \frac{\text{Average annual compensation of key subordinate executives}}{\text{CEO's annual compensation}}$$

We scale the average compensation of key subordinate executives by CEO's annual compensation because we want to capture key subordinate executives' influence *within* the firm. The level of key executives' compensation varies across firms and does not capture how much influence the executives have within the firm. For example, subordinate executives in a large firm might erroneously be regarded as having more influence than their counterparts in a small firm if one uses the unscaled level of compensation as the proxy for their influence within the firm. In an additional analysis, we use the unscaled abnormal compensation of key subordinate executives as an alternative proxy and the inferences remain the same; see Section IV for details.

Finally, we derive an aggregate measure of a firm's overall internal governance effectiveness based on both the incentive and ability of key subordinate executives to monitor the CEO. Specifically, we standardize both *Exec\_Horizon* and *Exec\_PayRatio* and sum the standardized measures as our proxy for the firm's overall internal governance effectiveness

---

CEO's reaction (e.g., being demoted or fired).

<sup>19</sup> Some prior studies use variations of the inverse of this measure, or pay slice, to capture tournament incentives (Kale et al. 2009) or CEO entrenchment (Bebchuk et al. 2011; Feng et al. 2011). We explore alternative proxies below to address the concern that our inferences are confounded by these alternative interpretations.

(*Int\_Governance*).<sup>20,21</sup>

## Measure of Real Earnings Management

We derive our measure of real earnings management following prior studies (Roychowdhury 2006; Cohen and Zarowin 2010). In particular, we use three individual metrics, abnormal levels of cash flow from operations (*RM\_CFO*), production costs (*RM\_PROD*) and discretionary expenses (*RM\_DISX*), and two aggregate metrics (*RM1* and *RM2*) to measure the level of real earnings management. These individual measures are the residuals from the corresponding estimation model, as described in the Appendix. Executives can artificially inflate reported earnings by: 1) accelerating sales using aggressive price discounts and/or more lenient credit terms which results in abnormally low cash flow from operations (*CFO*); 2) reducing the costs of sales by increasing production so as to spread the fixed costs of production over a larger number of units, thereby resulting in abnormally high production cost (*PROD*); 3) reducing the amount of discretionary research and development (R&D), advertising, and selling, general and administrative (SG&A) expenses which result in abnormally low discretionary expenses (*DISX*). Therefore, higher abnormal *PROD*, lower abnormal *CFO*,

<sup>20</sup> Specifically, for each of the two variables, we deduct the sample mean and then divide the difference by the sample standard deviation of the variable. We also explore an alternative aggregate measure based on a non-linear combination of *Exec\_Horizon* and *Exec\_PayRatio* and obtain quantitatively similar results (untabulated). In particular, we form tercile ranks on *Exec\_Horizon* and *Exec\_PayRatio*, sum the tercile rank of both variables, and then rescale the aggregate measure to lie within zero and one.

<sup>21</sup> Note that *Int\_Governance* is not a common factor of *Exec\_Horizon* and *Exec\_PayRatio*; we are not assuming that these two variables are highly correlated and capture the common underlying construct. Instead, we argue that these two variables capture different dimensions of internal governance; executives with long horizon and high pay relative to the CEO (a high value of *Int\_Governance*) have both the incentive and the ability to monitor CEOs compared to their counterparts with short horizon and low pay relative to the CEO (a low value of *Int\_Governance*).

and lower abnormal *DISX* are consistent with income-increasing real earnings management. For ease of interpretation, all measures (*RM\_CFO*, *RM\_PROD*, and *RM\_DISX*) are defined to be increasing in reported earnings.<sup>22</sup>

Following Cohen and Zarowin (2010), we define two aggregate measures of real earnings management, *RM1* and *RM2*, to capture the total amount of real earnings management engaged by the firm in a particular fiscal year:<sup>23</sup>

$$RM1 = RM\_DISX + RM\_PROD$$

$$RM2 = RM\_CFO + RM\_DISX$$

## **Empirical Model**

Below we describe the research design for the main test of H1. The design for other tests is described in the corresponding empirical analysis sections. To test H1, we estimate the following regression:

---

<sup>22</sup> Prior research on accruals-based earnings management suggests that discretionary accrual models might be mis-specified when applied to firms with extreme financial performance (e.g., Dechow, Sloan, and Sweeney 1995; Kothari, Leone, and Wasley 2005). A similar concern may apply to the real earnings management measures. In an untabulated analysis, we use a similar research design as proposed in Kothari et al. (2005) and estimate performance-matched real earnings management proxies. We use two alternative performance measures, earnings (ROA) and operating cash flow (CFO), because unlike accrual earnings management, real earnings management affects both earnings and cash flow. Our inferences remain the same. We do not use this approach in the main analyses because of smaller sample size due to the requirement of matching firms in the same industry-year with ROA/CFO within a narrow bandwidth. Cohen, Pandit, Wasley, and Zach. (2011) also note that performance-matched real earnings management measures can provide conservative tests that under-reject the null hypotheses relating to income-increasing real earnings management, which is our economic phenomenon of interest.

<sup>23</sup> We do not use an aggregate measure based on all three real earnings management proxies because, as suggested in Roychowdhury (2006) and Cohen and Zarowin (2010), some activities that lead to abnormally high production costs might also lead to abnormally low CFO. Therefore, combining these two measures can result in double counting. In addition, we note that the three individual measures capture different types of real earnings management. As a result, we do not use a common factor based on these three measures in the analyses.

$$RM_{i,t} = \alpha + \beta \text{Int\_Governance}_{i,t-1} + \gamma \text{CEO\_Controls}_{i,t-1} + \psi \text{Firm\_Controls}_{i,t} + \text{Industry\_FE} + \text{Year\_FE} + \varepsilon_{i,t}, \quad (1)$$

where  $RM_{i,t}$  is the measure of real earnings management and  $\text{Int\_Governance}_{i,t-1}$  is the measure of a firm's internal governance strength, as discussed above. Hypothesis H1 predicts a negative coefficient on  $\text{Int\_Governance}$ .  $\text{CEO\_Controls}_{i,t-1}$  are the CEO characteristics that are included to control for the CEO's incentives and power in the prior fiscal year;  $\text{Firm\_Controls}_{i,t}$  are contemporaneous firm-level control variables;  $\text{Industry\_FE}$  and  $\text{Year\_FE}$  are industry and year fixed-effects, respectively.<sup>24</sup> We use the lagged value of all variables relating to internal governance and CEO's characteristics to alleviate the potential endogeneity concern. We also utilize an instrumental variable approach and a difference-in-differences analysis to further mitigate this concern, as discussed in Section IV. Appendix A includes the detailed definition of all variables. To mitigate the influence of extreme values, all continuous variables are winsorized at the 1 percent and 99 percent levels. Because we use a pooled sample, we use firm and year clustered standard errors to control for cross-sectional and time-series dependence in the data (Petersen 2009; Gow, Ormazabal, and Taylor 2010).

We include CEO control variables to mitigate the concern that our

---

<sup>24</sup> Because of the inclusion of industry and year fixed effects, the intercept ( $\alpha$ ) captures the extent of real earnings management for firms in the industry and year that do not have corresponding indicators in the regression and when all independent variables have values of zero. As such, we do not present the estimates of the intercept in the tables.

proxies for key subordinate executives' incentives and ability to monitor the CEO merely capture the effect of CEO's incentives and power on real earnings management. Specifically, we include the CEO's decision horizon (*CEO\_Horizon*), proxied for by the number of years until the age of retirement (assumed to be 65), the CEO's annual compensation (*CEO\_Comp*), and CEO's pay-for-performance sensitivity (*CEO\_PPS*), measured as the sensitivity of the CEO's equity portfolio to the firm's stock performance (Core and Guay 2002).

Following prior studies, we include several firm-level control variables to capture the impact of firm characteristics on the extent of real earnings management. The inclusion of these variables can also help alleviate the omitted correlated variable concern arising from potential endogeneity of internal governance. Firm age (*Firm\_Age*) is included because younger firms, which are usually high-growth firms and are expected to obtain additional financing in the future, likely face greater capital markets pressure to deliver and hence are more likely to engage in real earnings management to meet earnings targets (Skinner and Sloan 2002; Erickson, Hanlon, and Maydew 2006; Armstrong, Larcker, Ormazabal, and Taylor 2013). We include the number of analysts following (*N\_Analyst*) because the monitoring by financial analysts is likely to constrain real earnings management (Cohen and Zarowin 2010). Lastly, firm performance (*ROA*), firm size (*Size*), the book-to-market ratio (*B/M*), and leverage (*Leverage*) are included as controls for other firm-specific characteristics such as capital structure and growth opportunities



that likely affect real earnings management (Roychowdhury 2006; Cohen and Zarowin 2010).<sup>25</sup>

## **Descriptive Statistics**

Table 1, Panel C reports descriptive statistics on the regression variables. Because the model for real earnings management is estimated using the ExecuComp universe and our sample is similarly obtained from ExecuComp, the means and medians of the individual real earning management proxies are close to zero. The mean (median) decision horizon of key subordinate executives (*Exec\_Horizon*) is 12.70 (13.00) years, which is longer than that of the CEO's mean (median) decision horizon (*CEO\_Horizon*) of 9.50 (10.00) years by 33.7 percent (30.0 percent). This comparison supports the notion that key subordinate executives have longer decision horizons than the CEO. The mean (median) annual compensation of the key subordinate executive relative to that of the CEO is 0.558 (0.436). By construction, the summary measure of internal governance, *Int\_Governance*, has a mean of zero. As our sample firms are from ExecuComp which only includes firms from the S&P1500, our sample firms are significantly more mature (mean *Firm\_Age* of 22.9 years), have more analysts following (mean

<sup>25</sup> We also control for other variables that might affect the extent of real earnings management, such as the G-index, an indicator for CEO-Chairman duality, the pay-for-performance sensitivity of key subordinate executives, and the squared term of internal governance measures. Similarly, we control for several variables that have been used to proxy for the cost of real earnings management: market share, Z-score, institutional ownership, and marginal tax rate (Zang 2012). The untabulated analyses indicate that the results on the variables of interest are qualitatively similar. The G-index and the CEO-Chairman duality exhibit marginally significant coefficients in some specifications, consistent with the extent of real earnings management being higher when there are more anti-takeover measures and when the CEO is more likely to be entrenched. The other aforementioned variables are insignificant in most specifications. We omit these controls in our main analyses in favor of a more parsimonious empirical model and a larger and more generalizable sample.

*N\_Analyst* of 11.1 analysts), have better performance (mean *ROA* of 5.5%), and are larger (mean *Size*,  $\ln(\text{Total assets})$ , of 7.3), as compared to the firms covered in the Compustat universe in the same time period.<sup>26</sup> The average book-to-market ratio is 0.505 and the average leverage is 0.512.

Table 2 reports the Pearson correlation table of the variables in our main analysis. The three measures of real earnings management (*RM\_CFO*, *RM\_PROD*, and *RM\_DISX*) are highly positively correlated with each other except for the correlation between *RM\_CFO* and *RM\_DISX*. These high correlations suggest that firms manage one real activity in tandem with other real activities. By construction, *RM1* and *RM2* are highly correlated with individual components and with each other. The correlation between *Exec\_Horizon* and *Exec\_PayRatio* is positive, but the relatively low correlation coefficient (0.08) suggests that key subordinate executives' decision horizon and influence capture different aspects of firms' internal governance. Consistent with H1, almost all real earnings management measures are negatively associated with the proxies of internal governance. None of the correlations between control variables are high enough to impose a multicollinearity problem.<sup>27</sup>

<sup>26</sup> The average firm in the Compustat universe in the same period is 13.1 years old, is followed by 4.4 analysts, has *ROA* of -0.8% and *Size* of 5.8.

<sup>27</sup> While internal governance is negatively associated with firm performance and size, we do not believe that performance and size drive the documented results. First, we control for both firm performance and size in the multiple regression analyses. Second, as mentioned above, the inferences remain the same when we use performance-matched real earnings management measures. Third, we separately examine the association between internal governance and both firm performance and size in the suspect firms and non-suspect firms subsample (samples defined below). We find that internal governance is negatively associated with firm performance and size for both subsamples. Given that we do not find consistent results in the hypothesized direction in the non-suspect sample, as discussed in Section IV, the negative association between internal governance and both firm performance and size is unlikely to drive the results in suspect firms.

## IV. MAIN ANALYSES - TESTS OF H1

### Full sample analysis

In this section, we report our main tests of H1. We first analyze the separate impact of executive horizon and pay ratio on the extent of real earnings management, and then the impact of the combined internal governance measure. Table 3 presents the results. For ease of exposition, all measures of real earnings management are multiplied by 100.

Table 3, Panel A presents the separate impact of subordinate executives' decision horizon and pay ratio on real earnings management. We find that as predicted in H1, both executives' decision horizon and influence are significantly negatively associated with the extent of real earnings management, whether proxied for by the three individual measures (with the exception of the association between *Exec\_Horizon* and *RM\_CFO*) or by the two summary measures.<sup>28</sup>

The results on control variables are generally consistent with prior studies. We find some evidence that firms with CEOs that have longer horizon are less likely to engage in real earnings management. CEOs with higher compensation (which also signifies their ability in the competitive

---

<sup>28</sup> In an untabulated analysis, we explore the potential non-linearity in the impact of executives' decision horizon on real earnings management by constructing three piece-wise linear terms in *Exec\_horizon*, following the approach used in Himmelberg, Hubbard, and Palia (1999). We find that when subordinate executives' horizon is short - less than 5 years, there is no impact on the extent of real earnings management. The impact occurs when executive horizon is between 5 and 15 years and executive horizon beyond 15 years has no incremental effect. This result indicates that executives' incentive to monitor the CEO is low when their horizon is too short (less than 5 years) and does not increase further after 15 years.

labor market) are less likely to engage in real earnings management, suggesting that better-ability CEOs are associated with better earnings quality (Demerjian, Lev, and McVay 2013). We also find that firms with more analysts following and better performance are less likely to engage in real earnings management and that larger firms and firms with higher book-to-market and leverage are more likely to engage in real earnings management. Finally, there is also evidence that younger firms are more likely to engage in real earnings management.

Table 3, Panel B reports the analysis of the impact of the overall internal governance on real earnings management. Consistent with the results reported above, the overall internal governance (*Int\_Governance*) is significantly associated with a lower extent of real earnings management. The effect of internal governance on real earnings management is also economically significant. A one standard deviation increase in *Int\_Governance* is associated with a decrease in *RM1* and *RM2* of 3.0 percent and 1.7 percent of total assets, respectively.<sup>29</sup>

We conduct a series of additional analyses to ensure the robustness of the results and we do not tabulate the results to save space. First, we examine whether our results are driven by CFOs' characteristics. For this purpose, we exclude CFOs from our measurement of internal governance. The untabulated results are quantitatively similar, suggesting that other key

---

<sup>29</sup> The impact on *RM1* expressed as a percentage of total assets is computed as  $-2.021$  (the coefficient on *Int\_Governance*)  $\times$   $1.468$  (the sample standard deviation of *Int\_Governance*). Note that all measures of real earnings management are already multiplied by 100 and hence presented as a percentage of total assets. The impact on *RM2* is computed analogously.

subordinate executives do influence real earnings management. Second, in the main analyses, we use the average of executive horizon and pay ratio to construct internal governance measures. We find similar results (1) when we use the median of key executives' decision horizon and pay ratio in order to mitigate the concern that our results are driven by extreme values in the internal governance variables, and (2) when we use the maximum value of key executives' decision horizon and pay ratio (internal governance can arguably be exerted by the executive who has the greatest incentive and ability to monitor the CEO).

Overall, the results reported above are consistent with H1 which predicts that the extent of real earnings management is negatively associated with the effectiveness of internal governance.

### **Suspect firms versus non-suspect firms**

One drawback of using the full sample to test H1 is that CEOs' incentives to engage in earnings management are not salient. To increase our ability to detect real earnings management, we focus on firm-years where there is a greater likelihood of earnings management - when firms meet or just beat important earnings benchmarks (e.g., Burgstahler and Dichev 1997; Degeorge, Patel, and Zeckhauser 1999). For this purpose, we follow prior research (e.g., Roychowdhury 2006) and limit our sample to firm-years with earnings surprise between zero and one percent of share price, where earnings surprise is calculated as actual earnings minus the most recent consensus analyst forecast before the earnings announcement. We then test

H1 using this sample of “suspect-firms.”

Panel A of Table 4 presents the results. We find that internal governance is negatively correlated with both summary measures of real earnings management (*t-statistic* = -3.83 and -4.37 for *RM1* and *RM2*, respectively). The inferences are the same when we examine individual real earnings management measures or individual internal governance measures. We do not tabulate the results to preserve space.

While Panel A presents the negative effect of internal governance on real earnings management, one might wonder whether suspect firms with ineffective internal governance indeed manage earnings upward. For this purpose, we split the suspect sample into five groups based on the quintile of internal governance. We find that for the subsample with internal governance in the bottom quintile, the average *RM1* (*RM2*) is 0.017 (0.007), significantly different from zero at the 0.01 (0.08) level (untabulated). This test indicates that suspect firms with less effective internal governance indeed engage in upward real earnings management.

The arguments underlying H1 imply that we will not find a negative association between internal governance and the extent of real earnings management in a sample where CEOs have low incentives to engage in upward earnings management. Therefore, as a falsification test, we re-run our main analyses on a sample where we do not expect earnings management and hence internal governance is less likely to matter. Specifically, we construct a sample of firm-years with earnings surprises less

than -0.5 percent of stock price (big miss) and larger than 1 percent of stock price (big beat). We exclude the sample of firm-years with earnings surprises between -0.5 percent and 0 percent of stock price for two reasons. First, given the potential stock price penalty associated with missing analyst forecast, it is possible that managers engaged in upward earnings management but still failed to meet the benchmark. Second, managers near the important earnings benchmark may still manage earnings upwards to meet other internal and unobservable targets (Roychowdhury 2006; Zang 2012). Panel B of Table 4 reports the results using this sample of “non-suspect” firms. We do not find a significant coefficient on the internal governance variable (*t-statistic* = -1.26 and -0.81 for *RM1* and *RM2*, respectively). This result reinforces our inference that internal governance plays a more important role in constraining real earnings management when the incentives to meet or beat earnings target is high.

Given that we find the predicted results only for the suspect firms, we focus on this sub-sample in the remaining analyses.

### **Alternative Measures of Key Subordinate Executives’ Influence**

In our earlier analyses, we use the subordinate executives’ compensation relative to the CEO’s as a proxy for their influence *within* the firm. However, this measure might also capture other constructs such as agency problems (Bebchuk et al. 2011; Feng et al. 2011): a lower ratio of subordinate executive pay to CEO pay implies entrenched CEOs. If so, our results could be interpreted as less entrenched CEOs (with high executive to

CEO pay ratio) engaging in less real earnings management. We do not think this alternative explanation is valid because our results are robust to controlling for corporate governance variables, as discussed above. To further refute this alternative interpretation, we utilize an alternative proxy for key subordinate executives' influence - their abnormal compensation. To do so, we follow the compensation model used by Core, Guay, and Larcker (2008) and regress the logged total compensation of the subordinate executives on economic determinants, including prior year's logged firm sales, S&P 500 membership dummy, prior year's book-to-market ratio, current and prior year's stock returns, current and prior year's return on assets, and industry and year fixed effects. We use the residual from this regression as a proxy for subordinate executives' abnormal compensation (*Exec\_AbComp*). This variable is not based on a comparison with CEO compensation and is thus not subject to the alternative interpretation, and as usually interpreted in the compensation literature, the abnormal compensation captures the executive's market value. Executives with higher abnormal compensation are more influential and thus better able to constrain the extent of earnings management.

Table 5, Panel A reports the regression results based on this variable in instead of *Exec\_Payratio* in Equation (1). As observed from columns (1) to (4), our results are robust to using this alternative proxy for subordinate executives' influence, either as a stand-alone measure or in the combined



internal governance measure with executive horizon.<sup>30</sup>

In addition, throughout the paper, we use the compensation-based measure to capture key executives' influence within the firm. In an additional analysis, we explore an alternative measure of key subordinate executives' influence: the number of directorships in other firms held by these executives (*Other\_Director*). Finkelstein (1992) argue that sitting on other firms' boards reflects an executive's power. Masulis and Mobbs (2011) also argue that these executives are more influential and are more likely to be the CEO in the future. Based on these findings, we expect that the key subordinate executives who have directorships in other firms to exert greater influence over the current CEO and that the more directorships they have, the stronger their influence. To test this prediction, we add this alternative measure of key executives' power to Equation (1) and report the results in Table 5, Panel B. In our sample, 8.0 percent of firm-year observations have at least one key executive holding directorship(s) in other firms.<sup>31</sup>

In columns (1) and (2), we use *Other\_Director* in place of *Exec\_PayRatio* as an alternative proxy for key subordinate executives' influence. As predicted, we find that *Other\_Director* is negatively associated with *RM1* and *RM2*, significant at the 0.01 level in both models (*t-statistic* = -2.44 and -

---

<sup>30</sup> In another untabulated sensitivity test, we use firms' total asset as the deflator when calculating executive pay ratio which avoids using CEO pay as the denominator of the pay ratio. Our inferences also remain the same.

<sup>31</sup> Within the group of firms with key subordinate executives serving as directors in other firms, 66 percent (23 percent, 11 percent) of the firms have one (two, three or more) key subordinate executive serving as directors in other firms.

2.55, respectively). This result suggests that key subordinate executives with outside directorships exert greater influence in constraining real earnings management. In columns (3) and (4), we explore whether *Other\_Director* captures a different dimension of executives' influence than *Exec\_PayRatio* by including both variables in the same regression. We find that both variables have significantly negative coefficients, suggesting that *Other\_Director* represents a different aspect of executives' influence within the firm.

In sum, our results reported above are not due to the alternative explanation based on CEO entrenchment or agency problems, and our results hold when using alternative measures of subordinate executives' influence.

### **Addressing Endogeneity Concerns**

We recognize that our analyses might be subject to endogeneity concerns because firms' internal governance is arguably endogenously determined and the determinants of the internal governance might also affect the extent of real earnings management. For example, some of the firms that are conscientious about real earnings management might select young and powerful subordinate executives to balance the influence of the CEO and these firms might also have lower extent of earnings management for other reasons (such as having a strong board of directors). For another example, unobservable subordinate executive talent might affect both measures; talented subordinate executives are likely paid more, leading to

higher value of the measured executive pay ratio, and are given more discretion in undertaking discretionary investments. We do not believe that these alternative arguments can explain our results.

First, theoretically, the potential omitted correlated variable, such as talent, likely affect subordinate executives and CEOs similarly. For example, under the alternative argument based on executive talent, if the board is willing to award more talented subordinate executives higher compensation and more discretion, they should be willing to do the same for the CEO. That is, the board will give more talented CEOs higher compensation and more discretion. This implies that in the absence of CEO entrenchment, firms with highly paid CEOs will be less likely to cut discretionary expenditures, leading to lower executive pay ratio and lower extent of real earnings management, i.e., a positive association between the two. This prediction is opposite to what H1 predicts and what we find above. Second, as highlighted earlier, we mitigate this concern by using the lagged values of internal governance and include a comprehensive list of control variables that are likely correlated with both internal governance and the extent of real earnings management in the main analyses or robustness checks, including corporate governance variables. Third, some of our cross-sectional analyses also mitigate this concern because it is arguably harder for an omitted correlated variable to explain both our main and cross-sectional findings.<sup>32</sup> Lastly, as discussed

---

<sup>32</sup> For example, it is difficult to argue why executive talent plays a less important role for firms that are expected to benefit more from meeting or just beating earnings targets (see the development of H4 in Section II). There is no compelling reason to believe that the capital market benefit of meeting or just beating earnings targets to the firm should vary with the talent of the subordinate executives.

above, we do not find consistent results for non-suspect firms. If omitted correlated variables drive the results, we should expect to find similar results in non-suspect firms as well.

Nevertheless, in this section we use two approaches, an instrumental variable approach and a difference-in-differences analysis, to further address the endogeneity concerns.

### ***An Instrumental Variable Approach***

In this section, we employ a two-stage least square instrumental variable approach to further address endogeneity concerns, as commonly used in the literature. In the first stage regression, we regress internal governance on the instrument variables and in the second stage, we use the predicted internal governance to explain the extent of real earnings management. For this purpose, we utilize four instruments: 1) the one-year lagged value of internal governance (*Lagged\_Int\_Governance*);<sup>33</sup> 2) the industry-year median value of internal governance (*Ind-Year-Median\_Int\_Governance*); 3) an indicator variable, *Outside\_CEO*, that equals one if the current CEO is recruited from outside, and zero otherwise; and 4) the number of named executives in the annual proxy statement besides the CEO (*Named\_Exec*). For the first two instruments, we follow prior studies (e.g., Coles et al. 2006; Boone et al. 2007; Kale et al. 2009) and use the lagged endogenous variable and the industry-year median endogenous variable as instruments, based on the reasoning that firm-specific

---

<sup>33</sup> Recall that our measures of internal governance are lagged one year in all our empirical specifications. Therefore, this instrument is lagged two years relative to our outcome variable.

governance practice that persists over time is more likely to be exogenous to the current year's decision (e.g., the extent of real earnings management engaged to meet the current year's short-term earnings targets) and that industry-specific governance characteristic are more likely exogenous because they are not under the firm's control in any particular year. The choice of the latter two instruments is based on related prior studies that utilize similar instruments (e.g., Kale et al. 2009; Bebchuk et al. 2011). Based on these studies, we argue that when the CEO is recruited from outside, the CEO is less likely to possess as much firm-specific knowledge as an inside-CEO and the influence of other executives is likely higher, improving the effectiveness of internal governance. In a similar vein, having a higher number of named executives in the annual proxy statement implies a greater number of highly-paid executives and a stronger presence of divisional managers who can arguably increase the effectiveness of internal governance. However, we are not aware of any prior research suggesting that having an outside CEO or the number of divisional managers is associated with the extent of real earnings management. As discussed below, we conduct the tests suggested by Larcker and Rusticus (2010) and find that these four instruments are relevant and valid.

We report the first stage regression results in Column (1) of Table 6, where we regress *Int\_Governance* on all four instruments as well as the controls used in the second stage regression. As predicted, we find that the instrument variables are significantly positively associated with

*Int\_Governance* with the exception of *Named\_Exec* (*t*-statistic = 27.46, 9.70, 2.75, and 0.90, respectively). The weak identification test suggests that these four instruments are relevant and powerful: the F statistic for the joint explanatory power of the instrument variables is 303.29, significantly higher than the critical value of 13.96, as suggested in Stock, Wright, and Yogo (2002).

Columns (2) and (3) of Table 6 report the second stage regression results. We find that *predicted* internal governance estimated from the first-stage regression is significant and negatively associated with *RM1* and *RM2* (*t*-statistic = -3.35 and -4.32, respectively). The result from the over-identification test of all instruments is insignificant (J-statistic = 5.197 and 5.499 for the two columns, respectively), suggesting that the instruments are valid in the second stage regression.<sup>34</sup>

### ***A Difference-in-differences Analysis***

As an alternative approach to address endogeneity concerns, we conduct a difference-in-differences (DID) analysis. If the omitted correlated variables that affect both internal governance and the extent of real earnings management are time-invariant, they are controlled for in the DID analysis. Because the year-on-year change in executive horizon is 1 by construction and executive pay ratio is relatively sticky over time, we examine the change in one of the alternative measures of internal governance – key subordinate

---

<sup>34</sup> In an additional robustness test, we follow Larcker and Rusticus's (2010) recommendation and conduct sensitivity analyses on the choice of instruments, and all the 2SLS test statistics are robust to using various subsets of the four instruments such as: 1) lagged and industry-year median internal governance and *Outside\_CEO*; 2) lagged and industry-year median internal governance; 3) *Outside\_CEO* and *Named\_Exec*.

executives serving on other firms' boards. In particular, we utilize a DID research design, as in Bertrand and Mullainathan (2003) and Chan, Chen, Chen, and Yu (2012), and examine the impact on real earnings management of the new appointment of key executives as independent directors on other firm's boards. We construct two variables: 1) an indicator variable (*CID\_FIRM*) that equals one if the firm has at least one key executive who holds independent directorships in other firms during the sample period, and zero otherwise; 2) an indicator variable (*POST\_CID\_FIRM*) that equals one for firm-years after the first key executive is appointed as an independent director in other firms, and zero otherwise.<sup>35</sup> The coefficient on *CID\_FIRM* captures the difference in real earnings management between firms with key subordinate executives being externally appointed as independent directors (i.e., treatment firm) and the other firms in the pre-appointment period. The coefficient on *POST\_CID\_FIRM* captures the incremental effect of *CID\_FIRM* on real earnings management after the appointment of key executives as external independent director.<sup>36</sup> We do not include a separate variable for the post-appointment period as it is subsumed by the year fixed effects. (*POST\_CID\_FIRM* is essentially the interaction between the *CID\_FIRM* and an indicator for the post-appointment period.)

Table 7 presents the result from this analysis. We observe a significant

---

<sup>35</sup> There are only very few firms with two or more subordinate executives concurrently serving as independent directors on other firms' boards.

<sup>36</sup> We exclude firm-years where the treatment firm becomes a non-treatment firm to have a cleaner set of treatment firms. In unreported analyses, our results are similar if we include these excluded firm-years in the analyses. In another robustness test, we restrict the treatment sample to firms with at least two pre-appointment years and at least two post-appointment years. Our inferences remain the same.

decrease in the extent of real earnings management after the appointment of the first key executive as independent directors in other firms; the coefficient on *POST\_CID\_FIRM* is significantly different from zero (*t-statistic* = -2.42 and -2.75, respectively).<sup>37</sup> This result indicates that key subordinate executives have a causal effect on the extent of real earnings management after their appointment as independent directors in other firms, presumably as a result of the increase in their standing and influence within their own firms.

Overall, the robust results based on the instrumental variable approach and the DID analysis strengthen our earlier inference that key executives exercise significant influence over real earnings management, mitigating concerns that our results are driven by omitted correlated variables.

## V. CROSS-SECTIONAL ANALYSES

### Research Design

To test H2-H4, we estimate the following regression:

$$\begin{aligned}
 RM_{i,t} = & \alpha + \beta \text{Int\_Governance}_{i,t-1} + \eta \text{Conditioning\_VAR}_{i,t} \\
 & + \phi \text{Int\_Governance}_{i,t-1} \times \text{Conditioning\_VAR}_{i,t} + \gamma \text{CEO\_Controls}_{i,t-1} \\
 & + \psi \text{Firm\_Controls}_{i,t} + \text{Industry\_FE} + \text{Year\_FE} + \varepsilon_{i,t}
 \end{aligned}
 , \quad (2)$$

where *Conditioning\_VAR<sub>i,t</sub>* is a conditioning variable that moderates the association between a firm's internal governance effectiveness and real earnings management. All other variables are defined as above. To preserve

---

<sup>37</sup> We also find that the coefficient on *CID\_FIRM* is insignificantly different from zero; that is, there is no significant difference in the extent of real earnings management in the pre-appointment period between firms that have executives being appointed as external independent directors and those without.



space, we focus on the two aggregate measures of real earnings management (*RM1* and *RM2*) and the aggregate measure of the firm's internal governance (*Int\_Governance*). The estimation of regression (2) is similar to that of regression (1). To test H2, H3, and H4, *Conditioning\_VAR<sub>i,t</sub>* refers to proxies for key subordinate executives' contribution to the firm's performance, proxies for CEO power, and proxies for the benefit of meeting or beating earnings benchmarks, respectively. We explain the proxies below in the corresponding sections.

### **The Conditioning Effect of Firm Complexity - Test of H2**

To test H2, we examine whether the effectiveness of internal governance in constraining real earnings management is stronger in firms where key subordinate executives' contribution to the firm's performance is expected to be higher. We expect key subordinate executives' contribution to the firm's performance to be more important when the firm operates in an R&D intensive industry where technological complexity is high and when the complexity surrounding operating in diverse geographical locations is high (e.g., Finkelstein 1992; Graham et al. 2013). We proxy for operation complexity using the following two measures: (1) an indicator for high R&D intensity (*IND\_RD*), which equals one (zero) if the average R&D intensity in the industry-year is above (below) the sample median; and (2) an indicator for high geographical complexity (*GEO\_Complexity*), which equals one (zero) for firm-year observations with above (below) the median first principle component of the following three variables: the number of geographical

segments, geographical sales concentration, and the percentage of foreign sales.<sup>38</sup> To test H2, we replace *Conditioning\_VAR<sub>i,t</sub>* in Equation (2) with each of the two measures and we expect a negative coefficient on the interaction term.

Table 8 reports the regression results. We find the association between internal governance and the extent of real earnings management is significantly more negative for firms in industries with higher R&D intensity (Panel A, *t-statistic* = -2.58 and -2.90, respectively) and for firms with more diverse geographical operations (Panel B, *t-statistic* = -1.63 and -2.00, respectively). Overall, the results in Table 8 are consistent with hypothesis H2 that the impact of internal governance is stronger in more complex firms where key subordinate executives are expected to play a more important role in the firm's operations.

### **The Conditioning Effect of CEO Power - Test of H3**

H3 predicts that the effectiveness of internal governance is higher when CEOs are less powerful. We measure CEO power using three proxies. The first two measures are based on two commonly studied governance mechanisms: the monitoring by the board of directors and by institutional shareholders. We expect CEOs to be less powerful when other strong governance mechanisms are in place. Prior research documents that the effectiveness of board monitoring increases with board independence (e.g., Weisbach 1988; Klein 2002) and that institutional investors are better

---

<sup>38</sup> We do not combine *IND\_RD* and *GEO\_Complexity* into one common factor because unreported factor analysis results in two principle components with an eigenvalue greater than one, suggesting that these two measures appear to capture different constructs.

monitors than other shareholders (e.g., Bushee 1998; Parrino, Sias, and Starks 2003; Chen, Harford, and Li 2007). Thus, we predict that the effectiveness of internal governance increases with board independence and institutional ownership, and we construct indicator variables that equal one (zero) if board independence (*BD\_IND*) and institutional ownership (*Inst\_Own*) are above (below) the corresponding sample median.<sup>39</sup> The third proxy is based on CEO's tenure and whether he is recruited from outside. We expect a CEO who is recently recruited from outside to be less experienced on his new position and thus less powerful. Hence, we create an indicator variable (*New\_OutsideCEO*) that equals one if the CEO is recruited from outside and the CEO's tenure is less than three years, and zero otherwise.<sup>40</sup>

<sup>41</sup> To test H3, we replace *Conditioning\_VAR<sub>i,t</sub>* with one of these three proxies and we expect a negative coefficient on the interaction term in Equation (2).

Table 9 presents the regression results. We find that the effectiveness of internal governance in constraining the extent of real earnings management is higher in firms with higher board independence (Panel A, *t-statistic* = -1.55 and -2.38, respectively), in firms with higher institutional ownership (Panel B, *t-statistic* = -1.58 and -1.52, respectively), and in firms with newly appointed outside CEOs (Panel C, *t-statistic* = -3.21 and -2.50, respectively). These

---

<sup>39</sup> While the monitoring by the board of directors and institutional investors is probably the most commonly examined dimensions of corporate governance, there are other dimensions of corporate governance. Examining all possible dimensions of corporate governance is beyond the scope of this paper.

<sup>40</sup> We do not focus on CEO tenure solely because a newly-appointed CEO could have worked within the firm for many years and thus would be very experienced and knowledgeable about his new position. Therefore these CEOs are arguably powerful.

<sup>41</sup> Results are qualitatively similar when we use different tenure cutoffs around 3, such as 2.5 years or 3.5 years.

results are consistent with hypothesis H3 that internal governance is more effective when CEOs are less powerful and that effective board oversight and higher institutional ownership can enhance key subordinate executives' ability to monitor the CEO.<sup>42</sup>

#### **The Conditioning Effect of the Capital Markets Benefit of Meeting or Beating Earnings Targets - Test of H4**

Finally, we examine whether subordinate executives' incentives to constrain real earnings management vary with the capital markets benefit of meeting or beating earnings targets. We expect subordinate executives to have weaker incentives to constrain real earnings management when the capital markets benefit of reporting higher earnings is high because they will enjoy the benefit as well. We proxy for the benefits of reporting higher earnings using three measures: (1) an indicator variable (*Distress*) that equals one if the Z-score of the firm is lower than 1.81 and the bond rating of the firm is below the investment grade, and zero otherwise; (2) an indicator variable (*Hab\_Beater*) that equals one if the firm is a habitual beater (i.e., meeting or beating at least three out of the last four quarters, and at least six out of the last eight quarters), and zero otherwise; and (3) an indicator variable (*Capital\_Issue*) that equals one if the firm has significant financing activities (i.e., issuing debt or equity greater than or equal to three percent

---

<sup>42</sup> This finding is also consistent with Acharya et al. (2011, 691) who analytically show that "a combination of internal governance and a rudimentary form of outside governance by shareholders can improve the efficiency of the firm dramatically." By "rudimentary form of outside governance by shareholders," they refer to shareholders' ability to take over the firm and replace the CEO if necessary. That is, the effectiveness of internal governance can be enhanced by the monitoring by shareholders who care about long-term value and have the ability to discipline the CEO if needed.

of market value) in the following fiscal year, and zero otherwise.<sup>43</sup> We expect the benefits of reporting higher earnings to be higher for firms with poor credit rating, for firms that are habitual benchmark beaters, and for firms with forthcoming financing activities, and hence we expect a positive coefficient on the interaction term in Equation (2).

Table 10 presents the regression results. Consistent with H4, we find that internal governance is less effective in constraining real earnings management for firms in financial distress (Panel A, *t-statistic* = 1.90 and 2.22, respectively), for firms that are habitual beaters (Panel B, *t-statistic* = 1.95 and 1.58, respectively), and for firms with future financing activities (Panel C, *t-statistic* = 1.07 and 1.42, respectively). Overall, the results are consistent with hypothesis H4 that subordinate executives have weaker incentives to constrain real earnings management when the capital markets benefit to reporting higher earnings is greater.

## **VI. ADDITIONAL ANALYSES AND SENSITIVITY CHECKS**

### **The Effectiveness of Internal Governance: Pre- versus Post-SOX Period**

The Sarbanes-Oxley Act (hereafter, “SOX”), passed on July 30, 2002, aims at strengthening corporate governance and mitigating managerial incentives to manipulate earnings via accruals. Prior research (e.g., Graham

---

<sup>43</sup> We use a relatively high cutoff of three percent of market value to classify debt or equity issuance so that we can focus on instances where the benefits of reporting higher earnings are greater as well as to prevent misclassification of debt and equity issuance (e.g., issuing equity for employee stock options plans, debt conversion). Our results are robust to using other cutoffs between two percent to five percent of market value.

et al. 2005; Cohen et al. 2008) finds that the passage of SOX and the increased regulatory scrutiny on accrual-based earnings management led many firms to switch from accrual to real earnings management. When CEOs switch to value-decreasing real activities manipulations, we expect key subordinate executives to exert more influence over real earnings management in the post-SOX period than in the pre-SOX period. In addition, the passage of SOX increases the overall emphasis on corporate governance. Hence, key subordinate executives are likely to obtain greater support from other governance mechanisms, such as the board of directors, in the monitoring of the CEO, also leading to more effective internal governance. Note that as shown in Section V, internal governance and other governance mechanisms work as complements, rather than substitutes. As such, SOX represents an exogenous shock that affects the effectiveness of internal governance in reducing the extent of real earnings management: both the effectiveness of internal governance and the extent of real earnings management are increased, and we should observe stronger results in the post-SOX period. In contrast, if the results documented above are driven by endogenous (or optimal) decision of the firm, we should not observe any change in the effectiveness of internal governance.

To test this prediction, we create an indicator variable (*Post\_SOX*) that equals one if the fiscal year is after 2003, and zero otherwise, and replace *Conditioning\_VAR* in Equation (2) with *Post\_SOX*.<sup>44</sup> Because of the inclusion of

---

<sup>44</sup> We do not include observations in 2002 and 2003 in the post-SOX period because these two years are regarded as a transition period when many sections of SOX were not yet fully effective. The results are quantitatively similar if we include 2002 and 2003 in the post-SOX

the *Post\_SOX* variable, we cannot include year fixed-effects; instead we include a time trend variable (*Time*), which is fiscal year minus 1993, the first fiscal year of the sample. The results are presented in Table 11. Consistent with our predictions, the coefficient on the interaction term is significantly negative (*t-statistic* = -2.29 and -2.76, respectively), implying that the effectiveness of internal governance in constraining real earnings management is strengthened in the post-SOX period.

### **Self-Serving CEOs**

An implicit assumption in our hypothesis is that the CEO has private incentives to increase short-term performance at the expense of long-term value. This assumption is based on the findings in prior research. However, not all CEOs are the same and our results should be stronger in cases where the CEOs are particularly self-serving because subordinate executives have stronger incentives to constrain real earnings management when the CEOs are perceived to be more self-serving. In this section, we explore a setting where CEOs are more likely to be self-serving. For this purpose, we rely on prior literature to identify instances where CEOs have greater career concerns and thus stronger incentives to manage earnings to report better financial performance. Parrino (1997) shows that it is easier to identify and replace poorly performing CEOs in homogeneous industries. Similarly, DeFond and Park (1999) show that market competition is likely to enhance the importance of accounting earnings in relative performance evaluation, and indeed they find that accounting-based measures are more associated period.

with CEO turnover in industries with high competition. Following these arguments, we predict that CEOs in homogenous and competitive industries are more self-serving and have greater incentives to manage earnings for job security consideration.<sup>45</sup> As such, internal governance is more effective for firms in such industries. To test our prediction, we create an indicator variable (*Self\_Serving\_CEO*) that equals one (zero) if the firm is in the more homogenous and competitive industries, which are classified based on the sample median of the first principle component of the industry homogeneity measure used in Parrino (1997) and the inverse of industry sales concentration ratio.

Table 12 presents the regression results. As reported in this table, we find that consistent with our prediction, the negative effect of internal governance on real earning management is stronger in more homogenous and competitive industries (*t-statistic* = -4.09 and -3.94, respectively).

### **The impact of internal governance when CEOs have incentives to engage in downward earnings management**

To triangulate our results, we identify a situation where CEOs have incentives to engage in downward earnings management and then test whether internal governance plays a less important role in constraining earnings management. The argument underlying H1 is that strong internal governance reduces upward real earnings management because such manipulation reduces long-term firm value. Presumably, if downward real

---

<sup>45</sup> On the other hand, Giroud and Mueller (2010) find that managerial slack is lower in competitive industries, which suggests that market competition improves firm governance and thus mitigates managerial self-serving behavior.



earnings management does not have an adverse impact on long-term firm value, subordinate executives will not restrain the extent of real earnings management. It thus follows that internal governance plays a less important role in situation where CEOs have incentives to report lower earnings. Following prior research (e.g., McNally et al. 2008), we use forthcoming fixed-date option grants to capture CEOs' incentives to engage in downward earnings management. McNally et al. (2008) find that CEOs have incentives to miss earnings targets prior to fixed-date option grants, because CEOs profit from a reduced option strike price if the firm's stock price decreases after missing earnings targets.<sup>46</sup> Following McNally et al. (2008), we create an indicator variable (*Future\_Option\_Grant*) that equals one if the one-year ahead fixed-date option grants scaled by salary after the earnings announcement is greater than the sample median and the firm misses analyst forecast by a small margin (less than 0.5 percent of stock price) or a really large margin (more than 10 percent of stock price), and zero otherwise.<sup>47</sup> We predict the negative effect of internal governance to be weaker, or the coefficient on the interaction term of internal governance and *Future\_Option\_Grant* to be positive.

Table 13 presents the regression results. As predicted, we find that the negative effect of internal governance on real earning management is significantly attenuated when CEOs have large forthcoming fixed-date option

---

<sup>46</sup> We focus on fixed-date option grants because the grant dates of these options are known and thus managers cannot time or backdate the options (McAnally et al. 2008).

<sup>47</sup> Because we are interested in the firms where managers have the incentives to manage earnings downward and benefit from missing earnings targets (i.e., reduction in option strike price prior to option grants), we examine the full sample in this set of analysis.

grants (*t-statistic* = 2.05 and 2.12, respectively). Moreover, the F-test indicates that the net effect of internal governance ( $\beta_1 + \beta_2$ ) is insignificant; that is, internal governance is not associated with the extent of real earnings management for the firms with large forthcoming fixed-date option grants. These results corroborate our evidence that internal governance only plays an important role in constraining upward earnings management.

## **VII. CONCLUSION**

In this paper, we examine whether key subordinate executives have the incentive and ability to constrain the extent of real earnings management. Compared to the CEO, key subordinate executives are usually younger, have longer horizon, and care more about future performance. Also, key subordinate executives have the ability to influence CEOs' decisions because of their significant involvement in the firm's operations as well as their contribution to the firm's current performance, which are important to the CEO. Using the number of years to retirement to capture key subordinate executives' incentives and their compensation relative to the CEO's to capture their influence within the firm, we find that the extent of real earnings management decreases with key subordinate executives' horizon and influence. Our results are robust to alternative measures of key subordinate executives' ability to influence corporate decisions: the abnormal compensation of subordinate executives and the number of directorships in other firms held by these executives. Our inferences also

remain the same after we control for potential endogeneity concerns using an instrumental variable approach and a difference-in-differences approach.

We then examine whether the impact of internal governance varies with proxies for key subordinate executives' contribution, proxies for CEO power, and proxies for capital markets benefit of meeting earnings benchmarks. We find that the effect of internal governance is stronger in more complex firms where key subordinate executives play a more important role, stronger in firms where the CEO is less powerful, and weaker in firms where the capital markets benefit of meeting earnings benchmark is higher. We conduct a series of additional tests to ensure the robustness of our results and to provide additional insights. First, we find that our results are stronger in the post-SOX period when real earnings management is likely more prevalent than in the pre-SOX period. Second, we find that internal governance is more effective in constraining real earnings management for firms where CEOs presumably have greater career concerns and thus have more incentives to manage earnings to report a better financial performance. Lastly, we find that the effect of internal governance is weaker for firms with large forthcoming fixed-date option grants, where CEOs presumably have incentives to manage earnings downward to reduce the exercise price of the option grants.

We contribute to the literature by examining the impact of internal governance on the extent of real earnings management. This examination is important because it sheds light on how the members of the management

team work together to shape financial reporting. Unlike prior research that generally views executives as a unified team, this paper provides evidence that subordinate executives can provide an important monitoring role on the CEOs from the bottom up and that effective internal governance can reduce the extent of real earnings management. This paper differs from and complements studies on the impact of CFO characteristics on accrual quality or the likelihood of earnings restatements/frauds by focusing on all subordinate executives and by focusing on real earnings management.

## REFERENCES

- Acharya, V., S. C. Myers, and R. G. Rajan. 2011. The internal governance of firms. *The Journal of Finance* 66, 689-720.
- Adams, R. B., H. Almeida, and D. Ferreira. 2005. Powerful CEOs and their impact on corporate performance. *Review of Financial Studies* 18 (4), 1403-1432.
- Aghion, P., and J. Tirole. 1997. Formal and real authority in organizations. *Journal of Political Economy* 105 (1), 1-29.
- Allen, F., and D. Gale. 2000. *Comparing financial systems*. Cambridge, MA: MIT Press.
- Armstrong, C., D. F. Larcker, G. Ormazabal, and D. J. Taylor. 2013. The relation between equity incentives and misreporting: The role of risk-taking incentives. *Journal of Financial Economics* 109, 327-350.
- Bartov, E., D. Givoly, and C. Hayn. 2002. The rewards to meeting or beating earnings expectations. *Journal of Accounting and Economics* 33 (2), 173-204.
- Bebchuk, L. A., M. Cremers, and U. Peyer. 2011. The CEO pay slice. *Journal of Financial Economics* 102, 199-221.
- Bedard, J. C., R. Hoitash, and U. Hoitash. 2014. Chief financial officers as inside directors. *Contemporary Accounting Research* 31(3), 787-817.
- Bertrand, M., and S. Mullainathan. 2003. Enjoying the quiet life? Corporate governance and managerial preferences. *Journal of Political Economy* 111, 1043-1075.
- Bhojraj, S., P. Hribar, M. Picconi, and J. McInnis. 2009. Making sense of cents: An examination of firms that marginally miss or beat analyst forecasts. *The Journal of Finance* 64 (5), 2361-2388.
- Boone, A. L., L. C. Field, J. M. Karpoff, and C.G. Raheja. 2007. The determinants of board size and composition: An empirical analysis. *Journal of Financial Economics* 85, 66-101.
- Burgstahler, D. C., and I. D. Dichev. 1997. Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics* 24 (1), 99-126.
- Bushee, B. J. 1998. The influence of institutional investors on myopic R&D investment behavior. *The Accounting Review* 73, 305-333.
- Carcello, J. V., C. W. Hollingsworth, A. Klein, and T. L. Neal. 2006. *Audit committee financial expertise, competing corporate governance mechanisms, and earnings management*. Working paper, University of Tennessee and New York University.
- Chan, L., K. Chen, T-Y. Chen, and Y. Yu. 2012. The effects of firm-initiated clawback provisions on earnings quality and auditor behavior. *Journal of Accounting and Economics* 54, 180-196.
- Chen, X., Q. Cheng, A. Lo, and X. Wang. 2015. CEO contractual protection and managerial short-termism. *The Accounting Review*, forthcoming in the September 2015 issue.

- Chen, X., J. Harford, and K. Li. 2007. Monitoring: Which institutions matter? *Journal of Financial Economics* 86, 279-305.
- Cheng, Q., and T. D. Warfield. 2005. Equity incentives and earnings management. *The Accounting Review* 80, 441-476.
- Cohen, D. A., A. Dey, and T. Z. Lys. 2008. Real and accrual-based earnings management in the pre- and post-Sarbanes-Oxley periods. *The Accounting Review* 83, 757-787.
- Cohen, D., S. Pandit, C. Wasley, and T. Zach. 2011. *Measuring real earnings management*. Working paper, University of Texas at Dallas, University of Illinois at Chicago, University of Rochester and The Ohio State University.
- Cohen, D. A., and P. Zarowin. 2010. Accrual-based and real earnings management activities around seasoned equity offerings. *Journal of Accounting and Economics* 50, 2-19.
- Coles, J. L., N. D. Daniel, and L. Naveen. 2006. Managerial incentives and risk-taking. *Journal of Financial Economics* 79, 431-468.
- Core, J. E., and W. Guay. 2002. Estimating the value of employee stock option portfolios and their sensitivity to price and volatility. *Journal of Accounting Research* 40, 613-630.
- Core, J. E., W. Guay, and D. F. Larcker. 2008. The power of the pen and executive compensation. *Journal of Financial Economics* 88, 1-25.
- Cremers, M., and Y. Grinstein. 2011. *Does the market for CEO talent explain controversial CEO pay practices?* Working paper, Yale University and Cornell University.
- Dechow, P., W. Ge, and C. Schrand. 2010. Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting and Economics* 50, 344-401.
- Dechow, P. M., and D. Skinner. 2000. Earnings management: reconciling the views of accounting academics, practitioners, and regulators. *Accounting Horizons* 14, 235-250.
- Dechow, P. M., and R. G. Sloan. 1991. Executive incentives and the horizon problem. *Journal of Accounting and Economics* 14(1), 51-89.
- Dechow, P., R. Sloan, and A. Sweeney. 1995. Detecting earnings management. *The Accounting Review* 70, 193-225.
- DeFond, M. L., and C. W. Park. 1997. Smoothing income in anticipation of future earnings. *Journal of Accounting and Economics* 23, 115-139.
- DeFond, M. L., and C. W. Park. 1999. The effect of competition on CEO turnover. *Journal of Accounting and Economics* 27, 35-56.
- DeGeorge, F., J. Patel, and R. Zeckhauser. 1999. Earnings management to exceed thresholds. *Journal of Business* 72 (1), 1-35.
- Demerjian, P. R., B. Lev, M. F. Lewis, and S. E. McVay. 2013. Managerial ability and earnings quality. *The Accounting Review* 88(2), 463-498.

- Dichev, I., J. Graham, C. R. Harvey, and S. Rajgopal. 2013. Earnings quality: Evidence from the field. *Journal of Accounting and Economics* 56, 1-33.
- Dyck, A., A. Morse, and L. Zingales. 2013. *How pervasive is corporate fraud?* Working paper, University of Toronto and University of Chicago.
- Erickson, M., M. Hanlon, and E. L. Maydew. 2006. Is there a link between executive equity incentives and accounting fraud? *Journal of Accounting Research* 44, 113-143.
- Fama, E. F. 1980. Agency problems and the theory of the firm. *Journal of Political Economy* 88, 288-307.
- Feng, M., W. Ge, S. Luo, and T. Shevlin. 2011. Why do CFOs become involved in material accounting manipulations? *Journal of Accounting and Economics* 51, 21-36.
- Fields, T. D., T. Z. Lys, and L. Vincent. 2001. Empirical research on accounting choice. *Journal of Accounting and Economics* 31, 255-307.
- Finkelstein, S. 1992. Power in top management teams: Dimensions, measurement, and validation. *Academy of Management Journal* 35 (3), 505-538.
- Ge, W., D. Matsumoto, and J. L. Zhang. 2011. Do CFOs have style? An empirical investigation of the effect of individual CFOs on accounting practices. *Contemporary Accounting Research* 28, 1141-1179.
- Geiger, M. A., and D. S. North. 2006. Does hiring a new CFO change things? An investigation of changes in discretionary accruals. *The Accounting Review* 81, 781-809.
- Giroud, X., and H. M. Mueller. 2010. Does corporate governance matter in competitive industries? *Journal of Financial Economics* 95, 312-331.
- Gow, I. D., G. Ormazabal, and D. J. Taylor. 2010. Correcting for cross-sectional and time-series dependence in accounting research. *The Accounting Review* 85, 483-512.
- Graham, J. R., C. R. Harvey, and M. Puri. 2013. *Capital allocation and delegation of decision-making authority within firms.* Working paper, Duke University.
- Graham, J. R., C. R. Harvey, and S. Rajgopal. 2005. The economic implications of corporate financial reporting. *Journal of Accounting and Economics* 40, 3-73.
- Gunny, K. A. 2010. The relation between earnings management using real activities manipulation and future performance: Evidence from meeting earnings benchmarks. *Contemporary Accounting Research* 27 (3), 855-888.
- Healy, P. M. 1985. The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics* 7, 85-107.
- Healy, P. M., and J. M. Wahlen. 1999. A review of the earnings management literature and its implications for standard setting. *Accounting Horizons* 13 (4), 365-383.
- Himmelberg, C. P., R. G. Hubbard, and D. Palia. 1999. Understanding the determinants of managerial ownership and the link between ownership and performance. *Journal of Financial Economics* 53 (3), 353-384.

- Jiang, J. 2008. Beating earnings benchmarks and the cost of debt. *The Accounting Review* 83 (2), 377-416
- Jiang, J., K. Petroni, and I. Wang. 2010. CFOs and CEOs: who has the most influence on earnings management. *Journal of Financial Economics* 96, 513-526.
- Kale, J., E. Reis, and A. Venkateswaran. 2009. Rank order tournaments and incentive alignment: The effect on firm performance. *The Journal of Finance* 64, 1479-1512.
- Kaszniak, R., and M. F. McNichols. 2002. Does meeting earnings expectations matter? Evidence from analyst forecast revisions and share prices. *Journal of Accounting Research* 40 (3), 727-759.
- Klein, A. 2002. Audit committee, board of directors characteristics, and earnings management. *Journal of Accounting and Economics* 33, 375-400.
- Kothari, S. P., A. J. Leone, and C. E. Wasley. 2005. Performance matched discretionary accrual measures. *Journal of Accounting and Economics* 39, 163-197.
- Landier, A., D. Sraer, and D. Thesmar. 2009. Optimal dissent in organizations. *Review of Economic Studies* 76, 761-794.
- Larcker, D. F., and T. O. Rusticus. 2010. On the use of instrumental variables in accounting research. *Journal of Accounting and Economics* 49, 186-205.
- Leggett, D., L. Parsons, and A. Reitenga. 2009. *Real earnings management and subsequent operating performance*. Working paper, University of Alabama.
- Masulis, R. W., and S. Mobbs. 2011. Are all inside directors the same? Evidence from the external directorship market. *The Journal of Finance* 66, 823-872.
- Matsunaga, S. R., and C. W. Park. 2001. The effect of missing a quarterly earnings benchmark on the CEO's annual bonus. *The Accounting Review* 76 (3), 313-332.
- McAnally, M., A. Srivastava, and C. Weaver. 2008. Executive stock options, missed earnings targets, and earnings management. *The Accounting Review* 83 (1), 185-216.
- Mizik, N. 2010. The theory and practice of myopic management. *Journal of Marketing Research* 47, 594-611.
- Mizik, N., and R. Jacobson. 2008. *Earnings inflation through accruals and real activity manipulation: Its prevalence at the time of an SEO and the financial market consequences*. Working paper, Columbia University and University of Washington.
- Parrino, R. 1997. CEO turnover and outside succession: A cross-sectional analysis. *Journal of Financial Economics* 46, 165-197.
- Parrino, R., R. W. Sias, and L. T. Starks. 2003. Voting with their feet: institutional ownership changes surrounding forced CEO turnover. *Journal of Financial Economics* 68, 3-46.
- Petersen, M. A. 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies* 22, 435-480.



- Roychowdhury, S. 2006. Earnings management through real activities manipulation. *Journal of Accounting and Economics* 42, 335-370.
- Schipper, K. 1989. Commentary: Earnings Management. *Accounting Horizons* 3 (4), 91-102.
- Skinner, D. J., and R. G. Sloan. 2002. Earnings surprises, growth expectations, and stock returns or don't let an earnings torpedo sink your portfolio. *Review of Accounting Studies* 7, 289-312.
- Stock, J. H., J. H. Wright, and M. Yogo. 2002. A Survey of Weak Instruments and Weak Identification in Generalized Method of Moments. *Journal of Business and Economic Statistics* 20, 518-529.
- Weisbach, M. 1988. Outside directors and CEO turnover. *Journal of Financial Economics* 20, 431-460.
- Zang, A. Y. 2012. Evidence on the trade-off between real activities manipulation and accrual-based earnings management. *The Accounting Review* 87 (2), 675-703.
- Zhao, J. D. 2011. *The association between corporate governance and the earnings surprises games*. Working paper, The University of Melbourne.

## APPENDIX Variables Definition

<i>BD_IND</i>	An indicator variable that equals one (zero) if the firm-year observation is above (below) the median percentage of independent director.
<i>B/M</i>	The book to market ratio in the current fiscal year, defined as book value of equity (CEQ) divided by the market value of equity (CSHO*PRCC_F).
<i>Capital_Issue</i>	An indicator variable that equals one if the firm issues debt or equity greater than or equals three percent of market value in the following fiscal year, and zero otherwise.
<i>CEO_Comp</i>	The CEO's logged total compensation in the prior fiscal year.
<i>CEO_Horizon</i>	CEO's decision horizon, defined as retirement age of 65 minus the age of the CEO.
<i>CEO_PPS</i>	The normalized pay-for-performance sensitivity of the CEO's portfolio of equity in the prior fiscal year, measured similarly to Core and Guay (2002).
<i>CID_FIRM</i>	An indicator variable that equals one if the firm has at least one key executive that serves as an independent director on other firms' boards during the sample period, and zero otherwise.
<i>POST_CID_FIRM</i>	An indicator variable that equals one for firm-years after the key executive is appointed as an independent director in other firms, and zero otherwise.
<i>Distress</i>	An indicator variable that equals one if the Z-score of the firm is less than 1.81 and the bond rating of the firm is below investment grade, and zero otherwise.
<i>Exec_Abcomp</i>	Subordinate executives' abnormal compensation, calculated as the logged (1 + abnormal compensation + sample minimum abnormal compensation), where abnormal compensation is the residual from a regression of executives' mean total compensation on known determinants of CEO Pay (logged sales, S&P500 membership, book-to-market, returns and lagged returns, ROA and lagged ROA, and industry and year fixed effects).
<i>Exec_Horizon</i>	Subordinate executives' decision horizon, defined as retirement age of 65 minus the average age of other executives.
<i>Exec_PayRatio</i>	Subordinate executives' pay ratio, calculated as the average total compensation of subordinate executives scaled by the CEO's total compensation, measured in the prior fiscal year.

<i>Firm_Age</i>	The age of the firm, defined as the number of years since the firm's stock returns is first reported in the monthly stock files of CRSP.
<i>Future_Option_Grant</i>	An indicator that equals one if the one-year ahead fixed-date option grant scaled by salary after the earnings announcement is greater than the sample median and the firm misses analyst forecast by a small margin (less than 0.5 percent of stock price) or a large margin (more than 10 percent of stock price), and zero otherwise.
<i>GEO_Complexity</i>	An indicator variable that equals one (zero) if the firm-year observation is above (below) the median first principle component of the following three variables: 1) number of geographical segments; 2) geographical sales concentration and; 3) percentage of foreign sales.
<i>Hab_Beater</i>	An indicator variable that equals one if the firm meets or beats earnings targets at least three out of the last four quarters, and at least six out of the last eight quarters, and zero otherwise.
<i>IND_RD</i>	An indicator variable that equals one (zero) if the average R&D intensity in the industry-year is above (below) the sample median.
<i>Ind-Year-Median_Int_Governance</i>	The industry-year median value of internal governance.
<i>Inst_Own</i>	An indicator variable that equals one (zero) if the firm-year observation is above (below) the median institutional ownership.
<i>Int_Governance</i>	Firm's overall internal governance, measured as the sum of the standardized value of <i>Exec_Horizon</i> and <i>Exec_PayRatio</i> .
<i>Lagged_Int_Governance</i>	The one-year lagged value of internal governance.
<i>Leverage</i>	The leverage ratio in the current fiscal year, defined as total liabilities (AT - CEQ) divided by total assets (AT).
<i>N_Analyst</i>	The number of analysts following the firm in the current fiscal year, obtained from I/B/E/S.
<i>Named_Exec</i>	The number of named executives in the annual proxy statement besides the CEO in the prior fiscal year.
<i>New_OutsideCEO</i>	An indicator equals one if the CEO is recruited from outside and the CEO's tenure is less than three years, zero otherwise.
<i>Other_Director</i>	The number of independent directorships in other firms held by key subordinate executives.
<i>Outside_CEO</i>	An indicator variable that equals one if the current CEO is recruited from outside, and zero otherwise.
<i>Post_SOX</i>	An indicator variable that equals one if fiscal year is 2002 and onward, and zero otherwise.

*RM\_CFO* Negative of the residual from the cash flow from operations (CFO) model:

$$\frac{CFO_{it}}{Assets_{it-1}} = \alpha_1 \frac{1}{Assets_{it-1}} + \alpha_2 \frac{SALES_{it}}{Assets_{it-1}} + \alpha_3 \frac{\Delta SALES_{it}}{Assets_{it-1}} + \varepsilon_{it}$$

The model is estimated by industry (at the Fama-French 48 industry level) and year and requires at least ten observations for each industry-year combination, using firms from the ExecuComp universe.

*RM\_DISX* Negative of the residual from the discretionary expenses (*DISX*) model:

$$\frac{DISX_{it}}{Assets_{it-1}} = \alpha_1 \frac{1}{Assets_{it-1}} + \alpha_2 \frac{SALES_{it}}{Assets_{it-1}} + \alpha_3 \frac{\Delta SALES_{it}}{Assets_{it-1}} + \varepsilon_{it}$$

The model is estimated by industry (at the Fama-French 48 industry level) and year and requires at least ten observations for each industry-year combination, using firms from the ExecuComp universe.

*RM\_PROD* The residual from production Costs (*PROD*) model:

$$\frac{\prod \dot{i}_{it}}{Assets_{it-1}} = \alpha_1 \frac{1}{Assets_{it-1}} + \alpha_2 \frac{SALES_{it}}{Assets_{it-1}} + \alpha_3 \frac{\Delta SALES_{it}}{Assets_{it-1}} + \alpha_4 \frac{\Delta SALES_{it-1}}{Assets_{it-1}} + \varepsilon_{it}$$

*PROD* is defined as the sum of the cost of goods sold (*COGS*) and the change in inventory ( $\Delta INVT$ ). The model is estimated by industry (at the Fama-French 48 industry level) and year and requires at least ten observations for each industry-year combination, using firms from the ExecuComp universe.

*RM1* An aggregate measure of real earnings management, defined as the sum of *RM\_PROD* and *RM\_DISX*.

*RM2* An aggregate measure of real earnings management, defined as the sum of *RM\_CFO* and *RM\_DISX*.

*ROA* Return on assets in the current fiscal year, defined as earnings before extraordinary items (IB), scaled by beginning total assets (AT).

*Self\_Serving\_CEO* An indicator variable that equals one (zero) if the firm-year observation is above (below) the median first principle component of the following two variables: 1) industry homogeneity based on Parrino (1997) and; 2) industry competition based on the inverse of industry sales concentration ratio.

*Size* Firm size, calculated as the logged value of total assets (AT) in the current fiscal year.

*Time* A time trend variable which equals the difference between the current fiscal year and 1993.

**TABLE 1**  
**Sample Selection and Descriptive Statistics**

***Panel A: Sample Selection***

	<b>Obs.</b>
Total number of firm-year observations from 1993-2011 with Compustat, Execucomp and I/B/E/S data	23,647
Less: financials and utilities firms	(5,133)
Less: missing values for variables used in the regressions	(6,520)
Final sample	<u>11,994</u>
Number of unique firms	<u>2,005</u>

***Panel B: Titles of Key Subordinate Executives***

<b>Title</b>	<b>Obs.</b>	<b>%</b>
Chief Financial Officer (CFO)	9,556	19.92
Chief Operating Officer (COO)	5,245	10.93
President	6,888	14.36
Executive Vice President	7,361	15.34
Senior Vice President	7,347	15.31
Vice President	6,543	13.64
Others	<u>5,036</u>	<u>10.50</u>
Total	<u><u>47,976</u></u>	<u><u>100.00</u></u>

**TABLE 1 (Cont'd)****Panel C: Sample and Descriptive Statistics**

<b>Variables</b>	<b>Obs.</b>	<b>Mean</b>	<b>Median</b>	<b>Std. Dev.</b>	<b>Q1</b>	<b>Q3</b>
<i>RM_CFO</i>	11,994	-0.002	-0.002	0.084	-0.047	0.041
<i>RM_PROD</i>	11,994	-0.003	0.002	0.173	-0.092	0.087
<i>RM_DISX</i>	11,994	-0.002	0.009	0.184	-0.083	0.094
<i>RM1</i>	11,994	-0.006	0.010	0.336	-0.162	0.168
<i>RM2</i>	11,994	-0.004	0.005	0.202	-0.101	0.102
<i>Exec_Horizon</i>	11,994	12.697	13.000	6.462	9.000	17.000
<i>Exec_PayRatio</i>	11,994	0.558	0.436	0.514	0.324	0.596
<i>Int_Governance</i>	11,994	0.000	-0.132	1.468	-0.782	0.578
<i>CEO_Horizon</i>	11,994	9.496	10.000	7.800	5.000	15.000
<i>CEO_Comp</i>	11,994	7.867	7.848	1.075	7.095	8.610
<i>CEO_PPS</i>	11,994	0.285	0.211	0.236	0.106	0.393
<i>Firm_Age</i>	11,994	22.941	17.000	18.796	9.000	31.000
<i>N_Analyst</i>	11,994	11.070	9.000	7.833	5.000	15.000
<i>ROA</i>	11,994	0.055	0.061	0.105	0.022	0.105
<i>Size</i>	11,994	7.345	7.180	1.518	6.244	8.324
<i>B/M</i>	11,994	0.505	0.424	0.382	0.261	0.649
<i>Leverage</i>	11,994	0.512	0.514	0.218	0.357	0.645

## Notes to Table 1:

RM\_CFO is a real earnings management proxy that negatively affects cash flow from operations. RM\_PROD is a real earnings management proxy that negatively affects production. RM\_DISX is a real earnings management proxy that negatively affects discretionary expenses. RM1 and RM2 are aggregate measures of real earnings management. Exec\_Horizon is the subordinate executives' decision horizon. Exec\_PayRatio is the subordinate executives' ability to influence the CEO. Int\_Governance is the firm's overall internal governance, measured as the sum of the standardized value of Exec\_Horizon and Exec\_PayRatio. CEO\_Horizon is the CEO's decision horizon. CEO\_Comp is the CEO's logged total compensation. CEO\_PPS is the pay-for-performance sensitivity of the CEO's portfolio of equity. Firm\_Age is the age of the firm. N\_Analyst is the number of analysts following the firm. ROA is the return on assets in the current fiscal year. Size is the logged value of total assets in the current fiscal year. B/M is the book-to-market ratio in the current fiscal year. Leverage is the leverage ratio in the current fiscal year.

**TABLE 2**  
**Pearson Correlation Table**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	1.0																
1 <i>RM_CFO</i>	0																
2 <i>RM_PROD</i>	0.4	1.0															
3 <i>RM_DISX</i>	0.0	0.7	1.0														
4 <i>RM1</i>	0.2	0.9	0.9	1.0													
5 <i>RM2</i>	0.4	0.8	0.9	0.9	1.0												
6 <i>Exec_Horizon</i>	0.0	0.0	0.0	0.0	0.0	1.0											
7 <i>Exec_PayRatio</i>	0.0	0.0	0.0	0.0	0.0	0.0	1.0										
8 <i>Int_Governance</i>	0.0	0.0	0.0	0.0	0.0	0.7	0.7	1.0									
9 <i>CEO_Horizon</i>	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	1.0								
10 <i>CEO_Comp</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.0	1.0							
11 <i>CEO_PPS</i>	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.0	0.0	1.0						
12 <i>Firm_Age</i>	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.1	0.2	0.1	1.0					
13 <i>N_Analyst</i>	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.4	0.2	0.1	1.0				
14 <i>ROA</i>	0.4	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	1.0			
15 <i>Size</i>	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.6	0.1	0.4	0.6	0.0	1.0		

1		0.2	0.2	0.0	0.1	0.1	-	-	-	-	-	-	-	-	-	-	-	-
6	<i>B/M</i>	3	1	9	6	8	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.2	0.3	0.0	1.0	
							-	-	-	-	-	-	-	-	-	-	-	-
1		0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.2	0.1	0.2	0.0	0.2	0.3	0.1	1.0
7	<i>Leverage</i>	0	3	4	9	2	9	7	0	3	1	7	3	2	6	7	1	0

Notes to Table 2:

RM\_CFO is a real earnings management proxy that negatively affects cash flow from operations. RM\_PROD is a real earnings management proxy that negatively affects production. RM\_DISX is a real earnings management proxy that negatively affects discretionary expenses. RM1 and RM2 are aggregate measures of real earnings management. Exec\_Horizon is the subordinate executives' decision horizon. Exec\_PayRatio is the subordinate executives' ability to influence the CEO. Int\_Governance is the firm's overall internal governance, measured as the sum of the standardized value of Exec\_Horizon and Exec\_PayRatio. CEO\_Horizon is the CEO's decision horizon. CEO\_Comp is the CEO's logged total compensation. CEO\_PPS is the pay-for-performance sensitivity of the CEO's portfolio of equity. Firm\_Age is the age of the firm. N\_Analyst is the number of analysts following the firm. ROA is the return on assets in the current fiscal year. Size is the logged value of total assets in the current fiscal year. B/M is the book-to-market ratio in the current fiscal year. Leverage is the leverage ratio in the current fiscal year. All correlations except those in shaded cells are statistically significant at the 0.05 level or better.



**TABLE 3**  
**Internal Governance and Real Earnings Management**

**Panel A: Key Executives' Decision Horizon, Power and Real Earnings Management**

	Pre d. H1	(1)		(2)			(3)			(4)			(5)			
		RM_CFO		RM_PROD			RM_DISX			RM1			RM2			
		Coef.	t- stats	Coef.	t- stats		Coef.	t- stats		Coef.	t- stats	Coef.	t- stats			
<i>Exec_Horizon</i>	—	-0.010	-0.66	-0.108	-2.45	***	0.142	-2.90	***	-0.248	-2.75	***	-0.142	-2.69	***	
<i>Exec_PayRatio</i>	—	-0.308	-1.46	*	-2.283	-3.92	***	2.762	-3.81	***	-5.108	-4.06	***	-3.010	-4.13	***
<i>CEO_Horizon</i>		0.006	0.45		-0.045	-1.19		0.097	-2.04	**	-0.144	-1.74	*	-0.093	-1.98	**
<i>CEO_Comp</i>		-0.351	-2.34	**	-2.120	-4.07	***	2.536	-4.54	***	-4.726	-4.51	***	-2.906	-5.08	***
<i>CEO_PPS</i>		-0.008	-0.02		0.901	0.61		0.212	-0.12		0.808	0.25		-0.241	-0.12	
<i>Firm_Age</i>		0.006	1.13		-0.069	-3.43	***	0.083	-3.67	***	-0.152	-3.65	***	-0.076	-3.19	***
<i>N_Analyst</i>		-0.132	-7.06	***	-0.344	-5.97	***	0.367	-6.01	***	-0.716	-6.26	***	-0.497	-7.67	***
<i>ROA</i>		-33.550	16.20	***	-36.110	-9.49	***	0	5.58	***	-14.840	-2.12	**	-14.610	-3.37	***
<i>Size</i>		0.404	3.11	***	3.169	7.16	***	3.620	7.74	***	6.858	7.82	***	4.000	8.35	***
<i>B/M</i>		2.429	7.11	***	6.357	6.16	***	5.430	6.06	***	11.810	6.27	***	7.486	7.32	***
<i>Leverage</i>		4.724	7.31	***	5.377	2.80	***	4.461	2.16	**	9.788	2.62	***	8.865	4.38	***
Industry and Year FE		YES			YES			YES			YES			YES		
Adjusted R <sup>2</sup>		0.280			0.139			0.060			0.078			0.100		
Observations		11,994			11,994			11,994			11,994			11,994		

**Panel B: Overall Internal Governance and Real Earnings Management**

	Pre d. H1	(1)		(2)			(3)			(4)			(5)			
		RM_CFO		RM_PROD			RM_DISX			RM1			RM2			
		Coef.	t- stats	Coef.	t- stats		Coef.	t- stats		Coef.	t- stats	Coef.	t- stats			
<i>Int_Governance</i>	—	-0.102	-1.36	*	-0.893	-4.26	***	1.124	-4.63	***	-2.021	-4.61	***	-1.174	-4.49	***
<i>CEO_Horizon</i>		0.006	0.45		-0.045	-1.19		0.096	-2.04	**	-0.143	-1.74	*	-0.092	-1.98	**
<i>CEO_Comp</i>		-0.307	-2.06	**	-1.902	-4.22	***	2.306	-4.94	***	-4.256	-4.80	***	-2.616	-5.37	***
<i>CEO_PPS</i>		-0.041	-0.10		0.736	0.49		-	-0.21		0.455	0.14		-0.460	-0.23	

						0.385									
<i>Firm_Age</i>	0.006	1.09		-0.070	-3.52	***	0.085	-3.76	***	-0.155	-3.74	***	-0.077	-3.29	***
<i>N_Analyst</i>	-0.132	-7.03	***	-0.345	-5.98	***	0.368	-6.02	***	-0.718	-6.27	***	-0.498	-7.68	***
<i>ROA</i>	-33.530	16.16	***	-36.010	-9.46	***	21.82								
<i>Size</i>	0.384	3.11	***	3.070	7.09	***	0	5.59	***	-14.610	-2.09	**	-14.470	-3.33	***
<i>B/M</i>	2.438	7.22	***	6.403	6.17	***	3.516	7.79	***	6.646	7.79	***	3.869	8.29	***
<i>Leverage</i>	4.730	7.32	***	5.405	2.81	***	5.479	6.05	***	11.900	6.27	***	7.547	7.32	***
Industry and Year															
FE	YES			YES			YES			YES			YES		
Adjusted R <sup>2</sup>	0.280			0.139			0.060			0.078			0.100		
Observations	11,994			11,994			11,99			11,994			11,994		
							4								

**TABLE 3 (Cont'd)**

Notes to Table 3:

RM\_CFO is a real earnings management proxy that negatively affects cash flow from operations. RM\_PROD is a real earnings management proxy that negatively affects production. RM\_DISX is a real earnings management proxy that negatively affects discretionary expenses. RM1 and RM2 are aggregate measures of real earnings management. All measures of real earnings management are multiplied by 100 for the ease of exposition. Exec\_Horizon is the subordinate executives' decision horizon. Exec\_PayRatio is the subordinate executives' ability to influence the CEO. Int\_Governance is the firm's overall internal governance, measured as the sum of the standardized value of Exec\_Horizon and Exec\_PayRatio. CEO\_Horizon is the CEO's decision horizon. CEO\_Comp is the CEO's logged total compensation. CEO\_PPS is the pay-for-performance sensitivity of the CEO's portfolio of equity. Firm\_Age is the age of the firm. N\_Analyst is the number of analysts following the firm. ROA is the return on assets in the current fiscal year. Size is the logged value of total assets in the current fiscal year. B/M is the book-to-market ratio in the current fiscal year. Leverage is the leverage ratio in the current fiscal year. Standard errors are corrected for cross-sectional and time-series dependence (Petersen 2009; Gow et al. 2010). \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05 and 0.10 level or better, respectively (one-tailed test where there is a prediction, two-tailed test otherwise).

**TABLE 4**  
**Internal Governance and Real Earnings Management - Partitioned**  
**by Suspect and Non-Suspect Firms**

**Panel A: Suspect Firms**

	Pred.	(1)			(2)		
		RM1			RM2		
		Coef.	t-stat		Coef.	t-stat	
<i>Int_Governance</i>	—	1.857	3.83	*	1.229	4.37	*
<i>CEO_Horizon</i>		0.125	1.38		0.086	1.71	*
<i>CEO_Comp</i>		4.725	4.54	*	2.967	5.24	*
<i>CEO_PPS</i>		0.376	0.10		0.781	0.34	
<i>Firm_Age</i>		0.169	3.61	*	0.086	3.28	*
<i>N_Analyst</i>		0.653	5.20	*	0.471	6.55	*
<i>ROA</i>		26.55	-		19.24	-	**
		0	2.44	**	0	3.03	*
<i>Size</i>		6.573	7.05	*	3.892	7.43	*
<i>B/M</i>		18.07	-	**	11.59	-	**
		0	5.58	*	0	6.22	*
<i>Leverage</i>		14.05	-	**	11.16	-	**
		0	2.86	*	0	4.09	*
Industry and Year FE		YES			YES		
Adjusted R <sup>2</sup>		0.095			0.117		
Observations		7,701			7,701		

**Panel B: Non-Suspect Firms**

	Pred.	(1)			(2)		
		RM1			RM2		
		Coef.	t-stat		Coef.	t-stat	
<i>Int_Governance</i>	—	0.994	1.26		0.329	0.81	
<i>CEO_Horizon</i>		0.123	0.83		0.068	0.88	
<i>CEO_Comp</i>		1.677	1.19		1.048	1.35	
<i>CEO_PPS</i>		5.025	0.78		1.712	0.46	
<i>Firm_Age</i>		0.135	2.66	*	0.065	2.32	**
<i>N_Analyst</i>		0.736	3.31	*	0.470	3.88	*
<i>ROA</i>		7.187	0.93		3.661	0.87	
<i>Size</i>		4.481	3.09	*	2.451	3.66	*
<i>B/M</i>		7.076	4.84	*	4.421	4.25	*

	10.43			10.08	**
<i>Leverage</i>	0	1.87	*	0	3.51 *
Industry and Year FE	YES			YES	
Adjusted R <sup>2</sup>	0.051			0.053	
Observations	1,803			1,803	

---

Notes to Table 4:

Suspect firms are firm-years with earnings surprise between 0 and 1 percent of stock price, while Non-Suspect firms are firm-years with earnings surprise less than -0.5 percent of stock price or more than 1 percent of stock price. RM1 and RM2 are aggregate measures of real earnings management. All measures of real earnings management are multiplied by 100 for the ease of exposition. Int\_Governance is the firm's overall internal governance, measured as the sum of the standardized value of Exec\_Horizon and Exec\_PayRatio. CEO\_Horizon is the CEO's decision horizon. CEO\_Comp is the CEO's logged total compensation. CEO\_PPS is the pay-for-performance sensitivity of the CEO's portfolio of equity. Firm\_Age is the age of the firm. N\_Analyst is the number of analysts following the firm. ROA is the return on assets in the current fiscal year. Size is the logged value of total assets in the current fiscal year. B/M is the book-to-market ratio in the current fiscal year. Leverage is the leverage ratio in the current fiscal year. Standard errors are corrected for cross-sectional and time-series dependence (Petersen 2009; Gow et al. 2010). \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05 and 0.10 level or better, respectively (one-tailed test where there is a prediction, two-tailed test otherwise).

**TABLE 5**  
**Alternative Measure of Key Executives' Influence and Real Earnings Management**

**Panel A: Key Executives' Abnormal Compensation**

	Pred.	(1)			(2)			(1)			(2)		
		RM1	RM2	RM2	RM1	RM2	RM2	RM1	RM2	RM2	RM2		
		Coef.	t-stat		Coef.	t-stat		Coef.	t-stat		Coef.	t-stat	
<i>Exec_Horizon</i>	—	-0.219	2.11	**	-0.150	2.50	*						
<i>Exec_AbComp</i>	—	-4.807	1.77	**	-3.781	2.26	**						
<i>Int_Governance</i>	—							-1.268	2.73	*	-0.925	3.29	*
<i>CEO_Horizon</i>		-0.165	1.82	*	-0.109	2.18	**	-0.166	1.83	*	-0.109	2.19	**
<i>CEO_Comp</i>		-2.508	2.76	*	-1.453	2.86	*	-2.433	2.64	*	-1.432	2.77	*
<i>CEO_PPS</i>		-1.326	0.34		-1.305	0.55		-1.317	0.34		-1.302	0.55	
<i>Firm_Age</i>		-0.165	3.49	*	-0.085	3.14	*	-0.165	3.49	*	-0.084	3.13	*
<i>N_Analyst</i>		-0.652	5.09	*	-0.474	6.38	*	-0.652	5.09	*	-0.475	6.38	*
<i>ROA</i>		24.56	-		18.42	-	**	24.62	-		18.43	-	**
		0	2.14	**	0	2.70	*	0	2.15	**	0	2.70	*
<i>Size</i>		5.825	6.12	*	3.397	6.41	*	5.820	6.11	*	3.395	6.40	*
		19.19		**	12.28		**	19.22		**	12.29		**
<i>B/M</i>		0	5.86	*	0	6.49	*	0	5.85	*	0	6.47	*
		15.56		**	11.86		**	15.49		**	11.84		**
<i>Leverage</i>		0	3.22	*	0	4.31	*	0	3.21	*	0	4.30	*
Industry and Year FE		YES			YES			YES			YES		
Adjusted R <sup>2</sup>		0.094			0.118			0.094			0.118		
Observations		7,441			7,441			7,441			7,441		



**TABLE 5 (Cont'd)**

**Panel B: Key Executives' Independent Directorships in Other Firms**

	Pred.	(1) RM1			(2) RM2			(3) RM1			(4) RM2		
		Coef.	t- stat		Coef.	t- stat		Coef.	t- stat		Coef.	t- stat	
<i>Exec_Horizon</i>	—	-0.224	2.16	**	-0.154	2.57	*	-0.207	2.00	**	-0.143	2.39	*
<i>Other_Director</i>	—	-2.059	2.44	*	-1.281	2.55	*	-2.022	2.44	*	-1.258	2.57	*
<i>Exec_PayRatio</i>	—							-5.321	3.86	*	-3.394	4.39	*
<i>CEO_Horizon</i>		-0.143	1.56		-0.097	1.91	*	-0.128	1.40		-0.087	1.74	*
<i>CEO_Comp</i>		-3.371	3.56	*	-2.070	4.00	*	-5.392	4.65	*	-3.359	5.27	*
<i>CEO_PPS</i>		-2.270	0.60		-2.011	0.88		-0.067	0.02		-0.606	0.27	
<i>Firm_Age</i>		-0.158	3.39	*	-0.080	3.03	*	-0.162	3.49	*	-0.083	3.14	*
<i>N_Analyst</i>		-0.674	5.39	*	-0.484	6.76	*	-0.646	5.21	*	-0.466	6.59	*
<i>ROA</i>		25.79			18.74		**	26.74			19.35		**
		0	2.35	**	0	2.93	*	0	2.47	**	0	3.06	*
<i>Size</i>		6.250	6.55	*	3.668	6.72	*	7.012	7.24	*	4.155	7.61	*
		18.33		**	11.76		**	17.77		**	11.41		**
<i>B/M</i>		0	5.61	*	0	6.25	*	0	5.49	*	0	6.08	*
		14.20		**	11.27		**	13.78		**	11.00		**
<i>Leverage</i>		0	2.90	*	0	4.13	*	0	2.81	*	0	4.05	*
Industry and Year FE		YES			YES			YES			YES		
Adjusted R <sup>2</sup>		0.093			0.115			0.097			0.118		
Observations		7,701			7,701			7,701			7,701		

Notes to Table 5:

RM1 and RM2 are aggregate measures of real earnings management. All measures of real earnings management are multiplied by 100 for the ease of exposition. Exec\_Horizon is the subordinate executives' decision horizon. Exec\_AbComp is the logged (1 + abnormal compensation + sample minimum abnormal compensation), where abnormal compensation is defined as the residual from a regression of executives' mean total compensation on known determinants of CEO Pay (logged sales, S&P500 membership, book-to-market, returns and lagged returns, ROA and lagged ROA, and industry and year fixed effects). Int\_Governance is the firm's overall internal governance, measured as the sum of the standardized value of Exec\_Horizon and Exec\_AbComp. Other\_Director is the number of independent directorships in other firms held by key subordinate executives. Exec\_PayRatio is the subordinate executives' ability to influence the CEO. CEO\_Horizon is the CEO's decision horizon. CEO\_Comp is the CEO's logged total compensation. CEO\_PPS is the pay-for-performance sensitivity of the CEO's portfolio of equity. Firm\_Age is the age of the firm. N\_Analyst is the number of analysts following the firm. ROA is the return on assets in the current fiscal year. Size is the logged value of total assets in the current fiscal year. B/M is the book-to-market ratio in the current fiscal year. Leverage is the leverage ratio in the current fiscal year. Standard errors are corrected for cross-sectional and time-series dependence (Petersen 2009; Gow et al. 2010). \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05 and 0.10 level or better, respectively (one-tailed test where there is a prediction, two-tailed test otherwise).



**TABLE 6**  
**Internal Governance and Real Earnings Management -**  
**Instrumental Variables (2SLS) Approach**

	Pre d.	(1)		(2)			(3)					
		Int_Governance		RM1			RM2					
		Coef	t- stats	Coef.	t- stats		Coef.	t- stats				
<i>Predicted_Int_Governance</i>	—			-3.075	-3.35	***	-2.225	-4.32	***			
<i>CEO_Horizon</i>		0.00	0	-0.15	-1.64		-0.080	-1.56				
<i>CEO_Comp</i>		0.47	14.6	**	-5.466	-4.41	***	-3.584	-5.16	***		
<i>CEO_PPS</i>		0.56	6	*	0.325	0.07		0.041	0.02			
<i>Firm_Age</i>		0.00	4	-3.42	*	-0.179	-3.53	***	-0.090	-3.17	***	
<i>N_Analyst</i>		0.00	9	2.70	*	-0.574	-4.03	***	-0.434	-5.24	***	
<i>ROA</i>		0.04	8	-0.19		30.50	0	-2.33	**	22.440	-2.84	***
<i>Size</i>		0.13	7	5.46	*	6.760	6.33	***	4.082	6.93	***	
<i>B/M</i>		0.09	6	-1.22		17.93	0	5.49	***	11.200	5.90	***
<i>Leverage</i>		0.06	2	-0.45		15.25	0	3.00	***	11.710	4.16	***
<i>Lagged_Int_Governance</i>		0.55	9	27.4	**							
<i>Ind-Year-Median_Int_Governance</i>		0.46	4	9.70	*							
<i>Outside_CEO</i>		0.10	3	2.75	*							
<i>Named_Exec</i>		0.01	4	0.90								
Industry and Year FE		YES				YES				YES		
Adjusted R <sup>2</sup>		0.57				0.109				0.136		
Observations		5,611				5,611				5,611		
Kleibergen-Paap rk Wald F statistic (Weak identification test)						303.29		***		303.29		***
Hansen J-statistic (Over-identification test of all instr.)						5.197				5.499		

Notes to Table 6:

RM1 and RM2 are aggregate measures of real earnings management. All measures of real earnings management are multiplied by 100 for the ease of exposition.

Int\_Governance is the firm's overall internal governance, measured as the sum of the standardized value of Exec\_Horizon and Exec\_PayRatio. CEO\_Horizon is the CEO's decision horizon. CEO\_Comp is the CEO's logged total compensation. CEO\_PPS is the pay-for-performance sensitivity of the CEO's portfolio of equity. Firm\_Age is the age of the firm. N\_Analyst is the number of analysts following the firm. ROA is the return on assets

in the current fiscal year. Size is the logged value of total assets in the current fiscal year. B/M is the book-to-market ratio in the current fiscal year. Leverage is the leverage ratio in the current fiscal year. Lagged\_Int\_Governance is the one-year lagged value of internal governance. Ind-Year-Median\_Int\_Governance is the industry-year median value of internal governance. Outside\_CEO is an indicator equals one if the current CEO is recruited from outside, and zero otherwise. Named\_Exec is the number of named executives in the annual proxy statement besides the CEO. Standard errors are corrected for cross-sectional and time-series dependence (Petersen 2009; Gow et al. 2010). \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05 and 0.10 level or better, respectively (one-tailed test where there is a prediction, two-tailed test otherwise).

**TABLE 7**  
**Real Earnings Management surrounding the New External Appointment of Subordinate Executives as Independent Directors**

	Pred	(1)			(2)		
		RM1			RM2		
		Coef.	t-	stats	Coef.	t-	stats
<i>Exec_Horizon</i>	—	-0.272	-2.73	***	-0.178	-3.11	***
<i>CID_Firm</i>		1.925	0.75		1.433	1.01	
<i>Post_CID_Firm</i>	—	-5.079	-2.42	***	-3.243	-2.75	***
<i>CEO_Horizon</i>		-0.100	-1.07		-0.071	-1.36	
<i>CEO_Comp</i>		-3.560	-3.68	***	-2.199	-4.27	***
<i>CEO_PPS</i>		-2.662	-0.68		-2.192	-0.93	
<i>Firm_Age</i>		-0.130	-2.76	***	-0.063	-2.39	**
<i>N_Analyst</i>		-0.759	-5.98	***	-0.534	-7.19	***
<i>ROA</i>		-20.560	-1.77	*	-15.660	-2.34	**
<i>Size</i>		6.648	6.66	***	3.893	6.72	***
<i>B/M</i>		17.680	5.50	***	11.310	6.41	***
<i>Leverage</i>		12.420	2.38	**	10.140	3.54	***
Industry and Year FE		YES			YES		
Adjusted R <sup>2</sup>		0.091			0.111		
Observations		6,675			6,675		

Notes to Table 7:

RM1 and RM2 are aggregate measures of real earnings management. All measures of real earnings management are multiplied by 100 for the ease of exposition. *Exec\_Horizon* is the subordinate executives' decision horizon. *CID\_Firm* is an indicator equals one if the firm has at least one key executive who holds independent directorships in other firms during the sample period, and zero otherwise. *Post\_CID\_Firm* is an indicator equals one for firm-years after the key executive is appointed as an independent director in other firms, and zero otherwise. *CEO\_Horizon* is the CEO's decision horizon. *CEO\_Comp* is the CEO's logged total compensation. *CEO\_PPS* is the pay-for-performance sensitivity of the CEO's portfolio of equity. *Firm\_Age* is the age of the firm. *N\_Analyst* is the number of analysts following the firm. *ROA* is the return on assets in the current fiscal year. *Size* is the logged value of total assets in the current fiscal year. *B/M* is the book-to-market ratio in the current fiscal year. *Leverage* is the leverage ratio in the current fiscal year.

Standard errors are corrected for cross-sectional and time-series dependence (Petersen 2009; Gow et al. 2010). \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05 and 0.10 level or better, respectively (one-tailed test where there is a prediction, two-tailed test otherwise).

**TABLE 8**  
**Internal Governance and Real Earnings Management conditioning**  
**on Key Executives' Contribution**

<b>Panel A: Industry Research and Development Intensity</b>							
	Pred. H2	(1) RM1			(2) RM2		
		Coef.	t- stats		Coef.	t- stats	
<i>Int_Governance</i>		0.44	-		0.39		
<i>IND_RD</i>		9	0.78		5	-1.18	
		-			-		
		2.00	-		1.33		
		5	2.16	**	5	-2.26	**
		-			-		
<i>Int_Governance × IND_RD</i>	—	2.68	-	**	1.59		**
		8	2.58	*	2	-2.90	*
Controls		YES			YES		
Industry and Year FE		YES			YES		
Adjusted R <sup>2</sup>		0.09			0.12		
		8			0		
Observations		7,70			7,70		
		0			0		
<b>Panel B: Factor Analysis of Geographical Operating Complexity</b>							
	Pred. H2	(1) RM1			(2) RM2		
		Coef.	t- stats		Coef.	t- stats	
<i>Int_Governance</i>		1.01	-		0.63		
<i>GEO_Complexy</i>		2	1.79	*	8	-1.95	*
		-			-		
		7.97	-	**	4.65		**
		1	4.11	*	4	-4.08	*
		-			-		
<i>Int_Governance × GEO_Complexy</i>	—	1.59	-		1.14		
		9	1.63	*	2	-2.00	**
Controls		YES			YES		
Industry and Year FE		YES			YES		
Adjusted R <sup>2</sup>		0.10			0.12		
		5			7		
Observations		7,70			7,70		
		1			1		

Notes to Table 8:

RM1 and RM2 are aggregate measures of real earnings management. All measures of real earnings management are multiplied by 100 for the ease of exposition. *Int\_Governance* is the firm's overall internal governance, measured as the sum of the standardized value of *Exec\_Horizon* and *Exec\_PayRatio*. *IND\_RD* is indicator equals one (zero) if the average R&D intensity in the industry year is above (below) the sample median. *GEO\_Complexy* is an indicator equals one (zero) if the firm-year observation is above (below) the median first principle component of the following three variables: 1) number of geographical segments; 2) geographical sales concentration and; 3) percentage of foreign sales. *CEO\_Horizon* is the CEO's decision horizon. *CEO\_Comp* is the CEO's logged total compensation. *CEO\_PPS* is the pay-for-performance sensitivity of the

CEO's portfolio of equity. Firm\_Age is the age of the firm. N\_Analyst is the number of analysts following the firm. ROA is the return on assets in the current fiscal year. Size is the logged value of total assets in the current fiscal year. B/M is the book-to-market ratio in the current fiscal year. Leverage is the leverage ratio in the current fiscal year. Standard errors are corrected for cross-sectional and time-series dependence (Petersen 2009; Gow et al. 2010). \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05 and 0.10 level or better, respectively (one-tailed test where there is a prediction, two-tailed test otherwise).

**TABLE 9**  
**Internal Governance and Real Earnings Management conditioning**  
**on CEO Power**

<b>Panel A: Board Independence</b>							
	Pred. H3	(1) RM1			(2) RM2		
		Coef.	t- stats		Coef.	t- stats	
<i>Int_Governance</i>		1.41	-		0.90		**
<i>BD_IND</i>		9	2.46	**	2	-2.71	*
		-			-		
		5.78	-	**	3.49		**
		2	4.53	*	3	-4.67	*
		-			-		
<i>Int_Governance</i> × <i>BD_IND</i>	—	1.11	-		0.95		**
		1	1.55	*	3	-2.38	*
Controls		YES			YES		
Industry and Year FE		YES			YES		
Adjusted R <sup>2</sup>		0.10			0.13		
		8			2		
Observations		4,79			4,79		
		6			6		
<b>Panel B: Institutional Ownership</b>							
	Pred. H3	(1) RM1			(2) RM2		
		Coef.	t- stats		Coef.	t- stats	
<i>Int_Governance</i>		1.66	-		1.18		**
<i>Inst_Own</i>		9	2.49	**	9	-3.31	*
		1.08			1.08		
		0	0.71		3	1.26	
		-			-		
<i>Int_Governance</i> × <i>Inst_Own</i>	—	1.39	-		0.76		
		8	1.58	*	3	-1.52	*
Controls		YES			YES		
Industry and Year FE		YES			YES		
Adjusted R <sup>2</sup>		0.10			0.12		
		2			7		
Observations		6,73			6,73		
		1			1		
<b>Panel C: New Outside CEO</b>							
	Pred. H3	(1) RM1			(2) RM2		
		Coef.	t- stats		Coef.	t- stats	
<i>Int_Governance</i>		1.21	-		0.87		**
<i>New_OutsideCEO</i>		7	2.36	**	1	-2.98	*
		-			-		
		2.90	-		1.40		
		6	0.99		0	-0.83	
<i>Int_Governance</i> ×	—	-	-	**	-	-2.50	**

<i>New_OutsideCEO</i>	3.70 3	3.21 *	1.85 8	*
Controls	YES		YES	
Industry and Year FE	YES		YES	
Adjusted R <sup>2</sup>	0.09		0.11	
	5		8	
Observations	7,18		7,18	
	1		1	

---

## TABLE 9 (Cont'd)

Notes to Table 9:

RM1 and RM2 are aggregate measures of real earnings management. All measures of real earnings management are multiplied by 100 for the ease of exposition.

Int\_Governance is the firm's overall internal governance, measured as the sum of the standardized value of Exec\_Horizon and Exec\_PayRatio. BD\_IND is an indicator equals one (zero) if the firm-year observation is above (below) the median percentage of independent director. Inst\_Own is an indicator equals one (zero) if the firm-year observation is above (below) the median institutional ownership. New\_OutsideCEO is an indicator equals one if the CEO is recruited from outside and the CEO's tenure is less than three years, zero otherwise. CEO\_Horizon is the CEO's decision horizon. CEO\_Comp is the CEO's logged total compensation. CEO\_PPS is the pay-for-performance sensitivity of the CEO's portfolio of equity. Firm\_Age is the age of the firm. N\_Analyst is the number of analysts following the firm. ROA is the return on assets in the current fiscal year. Size is the logged value of total assets in the current fiscal year. B/M is the book-to-market ratio in the current fiscal year. Leverage is the leverage ratio in the current fiscal year. Standard errors are corrected for cross-sectional and time-series dependence (Petersen 2009; Gow et al. 2010). \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05 and 0.10 level or better, respectively (one-tailed test where there is a prediction, two-tailed test otherwise).



**TABLE 10**  
**Internal Governance and Real Earnings Management conditioning**  
**on the Benefits of Meeting or Beating Earnings Expectations**

<b>Panel A: Financial distress</b>							
	Pred. H4	(1) RM1			(2) RM2		
		Coef.	t- stat		Coef.	t- stat	
<i>Int_Governance</i>		1.840	3.57	***	1.232	4.13	***
<i>Distress</i>		2.166	0.97		0.717	0.51	
<i>Int_Governance</i> × <i>Distress</i>	+	2.747	1.90	**	1.786	2.22	**
Controls		YES			YES		
Industry and Year FE		YES			YES		
Adjusted R <sup>2</sup>		0.092			0.115		
Observations		7,465			7,465		
<b>Panel B: Habitual Beater</b>							
	Pred. H4	(1) RM1			(2) RM2		
		Coef.	t- stat		Coef.	t- stat	
<i>Int_Governance</i>		3.003	3.93	***	1.768	3.98	***
<i>Hab_Beater</i>		2.194	1.82	*	1.218	1.87	*
<i>Int_Governance</i> × <i>Hab_Beater</i>	+	1.519	1.95	**	0.742	1.58	*
Controls		YES			YES		
Industry and Year FE		YES			YES		
Adjusted R <sup>2</sup>		0.097			0.118		
Observations		7,234			7,234		
<b>Panel C: Debt or Equity Issuance</b>							
	Pred. H4	(1) RM1			(2) RM2		
		Coef.	t- stat		Coef.	t- stat	
<i>Int_Governance</i>		2.047	3.82	***	1.374	4.50	***
<i>Capital_Issue</i>		3.784	3.58	***	2.204	3.59	***
<i>Int_Governance</i> × <i>Capital_Issue</i>	+	0.717	1.07		0.561	1.42	*
Controls		YES			YES		
Industry and Year FE		YES			YES		
Adjusted R <sup>2</sup>		0.097			0.119		
Observations		7,701			7,701		

## TABLE 10 (Cont'd)

Notes to Table 10:

RM1 and RM2 are aggregate measures of real earnings management. All measures of real earnings management are multiplied by 100 for the ease of exposition.

Int\_Governance is the firm's overall internal governance, measured as the sum of the standardized value of Exec\_Horizon and Exec\_PayRatio. Distress is an indicator equals one if the Z-score of the firm is less than 1.81 and the bond rating of the firm is below investment grade, and zero otherwise. Hab\_Beater is an indicator equals one if the firm has meet or beat at least three out of the last four quarters, and at least six out of the last eight quarters, and zero otherwise. Capital\_Issue is an indicator equals one if the firm issues debt or equity greater than or equals three percent of market value in the following fiscal year, and zero otherwise. CEO\_Horizon is the CEO's decision horizon. CEO\_Comp is the CEO's logged total compensation. CEO\_PPS is the pay-for-performance sensitivity of the CEO's portfolio of equity. Firm\_Age is the age of the firm. N\_Analyst is the number of analysts following the firm. ROA is the return on assets in the current fiscal year. Size is the logged value of total assets in the current fiscal year. B/M is the book-to-market ratio in the current fiscal year. Leverage is the leverage ratio in the current fiscal year. Standard errors are corrected for cross-sectional and time-series dependence (Petersen 2009; Gow et al. 2010). \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05 and 0.10 level or better, respectively (one-tailed test where there is a prediction, two-tailed test otherwise).

**TABLE 11**  
**Internal Governance and Real Earnings Management conditioning**  
**on the passage of SOX**

	Pre d.	(1)			(2)		
		RM1			RM2		
		<i>Coef.</i>	<i>t-stats</i>		<i>Coef.</i>	<i>t-stats</i>	
<i>Int_Governance</i>		-1.171	-2.38	**	-0.775	-2.91	***
<i>Post_SOX</i>		-2.721	-1.02		-1.519	-0.98	
<i>Int_Governance</i> × <i>Post_SOX</i>	—	-1.547	-2.29	**	-1.114	-2.76	***
<i>CEO_Horizon</i>		-0.126	-1.33		-0.083	-1.61	
<i>CEO_Comp</i>		-4.990	-4.35	***	-3.153	-5.01	***
<i>CEO_PPS</i>		-1.306	-0.32		-1.449	-0.59	
<i>Firm_Age</i>		-0.175	-3.77	***	-0.092	-3.49	***
<i>N_Analyst</i>		-0.657	-5.19	***	-0.470	-6.41	***
<i>ROA</i>		-33.350	-3.49	***	-22.170	-3.74	***
<i>Size</i>		6.748	6.93	***	4.035	7.37	***
<i>B/M</i>		15.830	4.76	***	10.350	5.33	***
<i>Leverage</i>		13.690	2.74	***	10.890	3.91	***
<i>Time</i>		0.062	0.29		0.018	0.14	
Industry FE		YES			YES		
Adjusted R <sup>2</sup>		0.097			0.118		
Observations		6,929			6,929		

Notes to Table 11:

RM1 and RM2 are aggregate measures of real earnings management. All measures of real earnings management are multiplied by 100 for the ease of exposition.

*Int\_Governance* is the firm's overall internal governance, measured as the sum of the standardized value of *Exec\_Horizon* and *Exec\_PayRatio*. *Post\_SOX* is an indicator equals one if fiscal year is on or after 2002, and zero otherwise. *CEO\_Horizon* is the CEO's decision horizon. *CEO\_Comp* is the CEO's logged total compensation. *CEO\_PPS* is the pay-for-performance sensitivity of the CEO's portfolio of equity. *Firm\_Age* is the age of the firm. *N\_Analyst* is the number of analysts following the firm. *ROA* is the return on assets in the current fiscal year. *Size* is the logged value of total assets in the current fiscal year. *B/M* is the book-to-market ratio in the current fiscal year. *Leverage* is the leverage ratio in the current fiscal year. *Time* is a time trend variable which equals to the difference between the current fiscal year and 1993. Standard errors are corrected for cross-sectional and time-series dependence (Petersen 2009; Gow et al. 2010). \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05 and 0.10 level or better, respectively (one-tailed test where there is a prediction, two-tailed test otherwise).

**TABLE 12**  
**Internal Governance and Real Earnings Management conditioning**  
**on Self-serving CEOs**

	Pre d.	(1)		(2)		
		RM1		RM2		
		Coef.	t- stats	Coef.	t- stats	
<i>Int_Governance</i>		0.263	0.41	-0.023	-0.06	
<i>Self_Serving_CEO</i>		3.607	1.05	1.809	0.95	
<i>Int_Governance</i> × <i>Self_Serving_CEO</i>	—	-3.835	-4.09 ***	-2.182	-3.94 ***	
<i>CEO_Horizon</i>		-0.150	-1.63	-0.100	-2.00 **	
<i>CEO_Comp</i>		-4.806	-4.64 ***	-3.021	-5.36 ***	
<i>CEO_PPS</i>		-0.367	-0.10	-0.747	-0.33	
<i>Firm_Age</i>		-0.165	-3.42 ***	-0.084	-3.11 ***	
<i>N_Analyst</i>		-0.689	-5.44 ***	-0.492	-6.74 ***	
<i>ROA</i>		27.800	-2.58 ***	-19.870	-3.14 ***	
<i>Size</i>		6.838	7.31 ***	4.033	7.71 ***	
<i>B/M</i>		17.740	5.57 ***	11.420	6.15 ***	
<i>Leverage</i>		13.560	2.73 ***	11.020	3.97 ***	
Industry and Year FE		YES		YES		
Adjusted R <sup>2</sup>		0.103		0.124		
Observations		7,601		7,601		

Notes to Table 12:

RM1 and RM2 are aggregate measures of real earnings management. All measures of real earnings management are multiplied by 100 for the ease of exposition.

*Int\_Governance* is the firm's overall internal governance, measured as the sum of the standardized value of *Exec\_Horizon* and *Exec\_PayRatio*. *Self\_Serving\_CEO* is an indicator equals one (zero) if the firm-year observation is above (below) the median first principle component of the following two variables: 1) industry homogeneity based on Parrino (1997) and; 2) industry competition based on the inverse of industry sales concentration ratio. *CEO\_Horizon* is the CEO's decision horizon. *CEO\_Comp* is the CEO's logged total compensation. *CEO\_PPS* is the pay-for-performance sensitivity of the CEO's portfolio of equity. *Firm\_Age* is the age of the firm. *N\_Analyst* is the number of analysts following the firm. *ROA* is the return on assets in the current fiscal year. *Size* is the logged value of total assets in the current fiscal year. *B/M* is the book-to-market ratio in the current fiscal year. *Leverage* is the leverage ratio in the current fiscal year. Standard errors are corrected for cross-sectional and time-series dependence (Petersen 2009; Gow et al. 2010). \*\*\*, \*\*, and \* indicate statistical significance at the 0.01, 0.05 and 0.10 level or better, respectively (one-tailed test where there is a prediction, two-tailed test otherwise).

**TABLE 13**  
**Internal Governance and Real Earnings Management conditioning**  
**on Future Option Grants**

	Pre d.	(1)			(2)		
		RM1			RM2		
		Coef.	t- stat		Coef.	t- stat	
<i>Int_Governance</i> ( $\beta_1$ )		-2.081	4.75	*	-1.206	4.61	***
<i>Future_Option_Grant</i>		0.518	0.25		0.270	0.22	
<i>Int_Governance</i> × <i>Future_Option_Grant</i> ( $\beta_2$ )	+	2.939	2.05	**	1.571	2.12	**
<i>CEO_Horizon</i>		-0.141	1.71	*	-0.091	1.95	*
<i>CEO_Comp</i>		-4.275	4.81	*	-2.625	5.38	***
<i>CEO_PPS</i>		0.458	0.14		-0.458	0.23	
<i>Firm_Age</i>		-0.155	3.74	*	-0.077	3.29	***
<i>N_Analyst</i>		-0.716	6.29	*	-0.497	7.72	***
<i>ROA</i>		14.64	0	2.09	14.480	3.33	***
<i>Size</i>		6.662	7.77	*	3.878	8.27	***
<i>B/M</i>		11.89	0	6.25	7.539	7.28	***
<i>Leverage</i>		9.846	2.63	*	8.900	4.39	***
Industry and Year FE		YES			YES		
Adjusted R <sup>2</sup>		0.078			0.100		
Observations		11,994			11,994		
F-test of $\beta_1 + \beta_2 = 0$			0.35			0.23	

Notes to Table 13:

RM1 and RM2 are aggregate measures of real earnings management. All measures of real earnings management are multiplied by 100 for the ease of exposition.

*Int\_Governance* is the firm's overall internal governance, measured as the sum of the standardized value of *Exec\_Horizon* and *Exec\_PayRatio*. *Future\_Option\_Grant* is an indicator variable that equals one if the one-year ahead fixed-date option grant scaled by salary after the earnings announcement is greater than the sample median and the firm misses analyst forecast by a small margin (less than 0.5 percent of stock price) or a large margin (more than 10 percent of stock price), and zero otherwise. *CEO\_Horizon* is the CEO's decision horizon. *CEO\_Comp* is the CEO's logged total compensation. *CEO\_PPS* is the pay-for-performance sensitivity of the CEO's portfolio of equity. *Firm\_Age* is the age of the firm. *N\_Analyst* is the number of analysts following the firm. *ROA* is the return on assets in the current fiscal year. *Size* is the logged value of total assets in the current fiscal year. *B/M* is the book-to-market ratio in the current fiscal year. *Leverage* is the leverage ratio in the current fiscal year. Standard errors are corrected for cross-sectional and time-series dependence (Petersen 2009; Gow et al. 2010). \*\*\*, \*\*, and \* indicate

statistical significance at the 0.01, 0.05 and 0.10 level or better, respectively (one-tailed test where there is a prediction, two-tailed test otherwise).