

Internal Control Material Weaknesses, CFO Compensation, and the Moderating Effects of Corporate Governance, External Monitoring, and Firm Risk

UDI HOITASH, *Northeastern University*

RANI HOITASH, *Bentley University*

KARLA M. JOHNSTONE, *University of Wisconsin*

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Abstract

We examine how chief financial officer (CFO) compensation relates to internal control material weakness (ICMW) disclosures and consider the roles of compensation-related corporate governance mechanisms (financial expertise of the CEO, financial expertise of compensation committee members, and diligence of the compensation committee), external monitoring by stock analysts, and firm risk (litigation and credit downgrade) in moderating this relationship. While an extensive body of research considers CEO compensation, less is known about factors influencing CFO compensation. Our study is motivated by recent reforms aimed at improving the quality of financial reporting, particularly in terms of requiring CFOs to certify the annual and interim financial reports and to monitor and report on internal controls. Our results reveal that changes in CFO total compensation, bonus compensation, and equity compensation are each negatively associated with ICMW disclosures. Further, this ICMW-related compensation penalty is greater for CFOs at firms in which the CEO and compensation committee have greater financial expertise. The compensation penalty is also greater for firms with more analyst following, and for firms with more litigation and credit downgrade risks compared to other firms.

Keywords: CFO Compensation, Internal Controls, Corporate Governance, Sarbanes-Oxley Act of 2002.

Data Availability: Data used in this study is available from public sources.

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1. Introduction

Recent corporate scandals and subsequent responses by legislators reemphasize the role of chief financial officers (CFOs) as individuals charged with the accuracy of the financial reporting process and increase the financial and legal risks associated with this role.¹ Under the Sarbanes-Oxley Act of 2002 (SOX), CEOs and CFOs are required to establish, maintain, and regularly evaluate the effectiveness of internal controls, and they are also required to report on this evaluation in both quarterly and annual financial statements and provide disclosures about significant changes to internal controls. While CEOs have higher level and more varied responsibilities, CFOs assume the leading role in the oversight of internal control compliance (McConnell and Banks 2003; COSO 2004; Sinnett 2007).² The certification requirement implies that CFOs are in a position to impact the quality of the internal controls. Hence, CFO performance evaluation should logically depend in part on the reported quality (or lack therein) of the internal controls. This line of reasoning is supported by agency theory, which posits that boards and compensation committees should use any low-cost observable performance metric that can be attributed to the agent (CFO) in their overall performance evaluation (Holmstrom 1979).³

Consistent with the regulatory changes that increase CFO responsibilities and risks, recent SEC rule changes (SEC 2006) further emphasize the importance of CFOs and their influence over financial reporting and other corporate outcomes by mandating a detailed disclosure of CFO compensation amounts. Further, recent research and insights from practice illustrate the importance of CFOs in affecting corporate decisions and strategy (Busco et al. 2005; Goodfellow and Willis 2007; Wunsche 2007; Ge et al. 2009), as well as outcomes including corporate leverage decisions and earnings management (Geiger and North 2006; Frank and Goyal 2007). Research also reveals a post-SOX increase in CFO compensation incremental to that of other executives (Wang 2007), further illustrating their increased visibility and responsibilities. Yet, evidence on the association between CFO compensation and CFO enhanced responsibilities is sparse.

The primary purpose of this paper is to examine the association between changes in CFO compensation and internal control material weakness (ICMW) disclosures. In addition, we consider the moderating role of certain compensation-related elements of corporate governance in this relationship, including the financial expertise of the CEO, the financial expertise of compensation committee members, and compensation committee diligence. Finally, we examine the moderating role of external monitoring by stock analysts and the effect of firm-specific risk

(litigation risk and credit rating downgrade risk) in the relationship between changes in CFO compensation and ICMW disclosures. The limited available research relevant to our paper shows that employment penalties are imposed on executives (Desai et al. 2006; Collins et al. 2009) and directors (Srinivasan 2005) of firms that reveal accounting errors. Further, Li et al. (2009) observe increased CFO turnover in firms that report ICMWs, suggesting that dismissal is one penalty that may be imposed on CFOs who are not able to maintain effective internal controls. However, firms might not always resort to dismissals, and penalties may also be imposed on CFOs that retain their positions. For example, compensation committees may react to the disclosure of ICMWs by imposing penalties that reduce performance-based components of compensation. OM Group's 2006 proxy statement illustrates this point, stating that *"The 2006 management incentive plan for Mr. Bloem included two strategic measures, each given equal weight. The first strategic measure was to provide sufficient capital to support Humana's Medicare expansion. Mr. Bloem's second measure required the absence of any material weakness in the design or operation of the Company's internal controls"*. Thus, we predict that changes in CFO compensation will be negatively associated with the disclosure of ICMWs.

Firm disclosures in proxy statements provide information on the process by which CFOs are compensated, including information about penalties associated with ICMW disclosure. Reviewing proxy statements for firms in our sample, the CFO compensation process generally proceeds as follows. Firms set a general compensation philosophy that includes the goal of attracting, retaining, and motivating top-quality, experienced, performance-oriented senior management. The compensation committee considers both short-term and long-term compensation elements. The fixed component of short-term compensation (salary) provides a secure base of cash to executives. The other component of short-term compensation includes cash bonuses, which are assessed at the end of each year and are designed to focus on the achievement of firm annual objectives. Long-term compensation (stock options) provides a mechanism by which senior management is incented to promote sustainable growth in the firm and to align the interests of management with those of shareholders. The compensation committee plays a key role in setting and monitoring compensation of senior management, and CFO performance concerning internal control quality is important in this process. Apton's 2005 proxy statement illustrates this point, *"the Compensation Committee awarded the Chief Financial Officer a cash bonus. After conversations with the outside auditors and the Audit Committee ... the Compensation Committee believed that a bonus of 60% of base salary was warranted based on ... a "clean" 404 opinion from Apton's auditors"*. Since all non-CEO executives report directly to the CEO, the

CEO plays an important role in CFO compensation decisions as well. For example, Coca Cola's 2005 proxy statement reveals that *"the CEO evaluates each executive's performance in light of individual objectives set at the beginning of the year. We rely to a large extent on the CEO's evaluations of each executive's performance"*. Further, Genesco's 2005 proxy statement reveals that *"incentive compensation plan participants are selected by the chief executive officer"*.

This discussion illustrates the important role that both CEOs and compensation committees play in determining CFO compensation. These elements of governance are among others that reflect an overall regulatory shift toward emphasizing governance in the effective functioning of firms and their senior management (e.g., SEC 2003). In fact, past research (e.g. Core et al. 1999, among others) finds that CEO compensation is lower among firms with stronger boards, so we investigate the potential moderating role of compensation-related elements of corporate governance in CFO compensation practices. Our expectation is that there will be stricter compensation penalties tied to the internal control-related elements of CFOs' job performance by CEOs and compensation committees with greater financial expertise because these individuals are better able to understand the deleterious effects of weak internal controls on the quality of financial reporting, compared to those with less financial expertise. We also expect that compensation committees that are more diligent (meet more often) will impose stricter compensation penalties than less diligent compensation committees. Aside from corporate governance representing internal firm monitoring, we expect stricter compensation penalties for CFOs in firms where external monitoring (greater analyst following) is stronger. Finally, we anticipate stricter ICMW-related compensation penalties for CFOs at firms facing greater litigation risk and credit rating downgrade risk.

To conduct our analyses, we use 604 firm observations during 2005 and employ OLS regression models with the following dependent variables concerning changes in the various components of CFO compensation: total compensation, bonuses, equity, and salaries. We first consider the association of these dependent variables with ICMW disclosures, along with substantial supplementary analyses to address endogeneity concerns and to provide robustness tests. In secondary analyses, we consider the moderating roles of CEO financial expertise, compensation committee member financial expertise, compensation committee diligence, analyst following and firm risk in the relationship between changes in CFO compensation and ICMW disclosure.

Turning to empirical results, our primary finding is that changes in CFO total compensation, bonus compensation, and equity compensation, but not base salaries, are each negatively associated with the disclosure of

ICMWs, revealing a performance-based compensation penalty and the importance of internal control quality as a non-financial performance measure in the evaluation of CFOs. These results are economically significant, revealing, for example, that ICMW disclosure is associated with a 14 percent mean decline in CFO bonuses (as a percentage of salary) compared to the prior year. Thus, our first incremental contribution to prior compensation research is that we report on a non-financial performance measure that is useful in monitoring CFOs, whereas most prior research uses financial performance measures and considers monitoring of CEOs almost exclusively. Further, we contribute to the internal control literature by examining an important, yet previously unexplored, consequence of ICMW disclosures, i.e., compensation penalties on the individual most responsible for internal controls (the CFO).

We conduct extensive robustness tests to validate these results. First, we consider issues involving CEO compensation in this context, finding that ICMW disclosure is not associated with changes in any of the elements of CEO compensation. We also control for changes in CEO compensation in our CFO compensation models and find that while changes in CEO compensation are positively associated with changes in CFO total compensation and bonuses, there remains a negative and significant association between changes in CFO compensation and ICMW disclosure. Second, we consider the timing of the compensation penalty (i.e., lag), testing whether a 2004 ICMW disclosure may still be associated with compensation penalties in 2005. We find a negative association between a prior-year ICMW disclosure and changes in total compensation and equity compensation, but not with changes in bonus or salary compensation. Third, we conduct tests to determine the directionality of the association between CFO compensation and ICMW disclosure, with results suggesting that ICMW disclosures appear to influence CFO compensation, rather than the other way around. Fourth, we estimate a two-stage model to alleviate endogeneity concerns, with results continuing to support the negative association between changes in CFO compensation and ICMW disclosure. Fifth, we consider both the number and type of ICMWs. Results show declines in total compensation, bonuses, and equity compensation associated with disclosure of a greater number of ICMWs, and ICMWs that are most directly under the control of CFOs (i.e., specific, account-related ICMWs) compared to those that are less directly under the control of CFOs (i.e., general, company-wide ICMWs).

Our secondary analysis concerning the moderating role of compensation-related elements of corporate governance in the relationship between CFO compensation and ICMW disclosure shows that CEOs and compensation committee members with greater financial expertise impose greater compensation penalties on CFOs disclosing ICMWs compared to those with less financial expertise. This result provides our next incremental

contribution to prior research on compensation and governance, in that we report on the role of individual expertise characteristics of those responsible for setting CFO pay, whereas most prior studies (e.g. Core et al. 1999) report results showing improved compensation structures in general among firms with stronger governance. Our final incremental contribution to prior research is that our results reveal that CFO compensation penalties are more severe when there is greater external monitoring in the form of analyst following compared to when there is less external monitoring. Further, our results show that CFO compensation penalties are more severe in particular types of firms, those with greater litigation risk and those with greater credit rating downgrade risk compared to firms that are less risky on these dimensions; prior research has not considered the role of individual firm differences in compensation penalties of this nature. Of final note is that the compensation penalties that our results reveal are most pronounced within our analyses of changes in CFO bonuses, rather than the other compensation components. It is logical to expect a stronger association with respect to changes in bonuses because this is the only compensation component that is specifically designed to reflect year-end performance targets, which is why bonus compensation is commonly explored in academic research (e.g. Matsunaga and Park 2001; Mergenthaler et al. 2009).

The remainder of this paper is organized as follows. In Section Two, we review prior relevant literature and develop our hypotheses. We discuss methods in Section Three, and document our results in Section Four. We discuss conclusions, limitations and future research in Section Five.

2. Background Literature and Hypotheses

Antecedents and Consequences of Disclosing ICMWs

Following the financial crisis of the early 2000's, Congress passed the Sarbanes-Oxley Act of 2002. One of the objectives of SOX was to increase public confidence in the financial system by improving firm internal controls through public disclosure of ICMWs. Since the implementation of SOX, research has examined issues ranging from the factors associated with the disclosure of ICMWs to the consequences of such disclosures. Prior research finds that the disclosure of ICMWs is associated with firm risk, availability of financial resources, operating complexity, auditor characteristics, and corporate governance (Ashbaugh-Skaife et al. 2007; Doyle et al. 2007; Zhang et al. 2007; Hoitash et al. 2009). ICMW disclosures are used by various stakeholders, both external and internal to firms. For example, market participants react negatively to ICMW disclosures (De Franco et al. 2005; Beneish et al. 2008; Hammersley et al. 2008), and firms disclosing ICMWs have a higher cost of capital (Ashbaugh-Skaife et al. 2009). Auditors charge firms with ICMWs higher audit fees (e.g. Raghunandan and Rama 2006; Hoitash et al. 2008; Hogan

and Wilkins 2008) and resign from such engagements with greater frequency compared to firms without ICMWs (Elder et al. 2009). Further, the disclosure of ICMWs is considered by credit rating agencies (Moody's 2006), and is associated with a decline in bond ratings (Hammersley et al. 2009).

With respect to the use of ICMW disclosures by internal stakeholders, Li et al. (2009) report an increased likelihood of CFO departure following the disclosure of ICMWs, suggesting that boards of directors hold CFOs accountable for their performance concerning internal controls. Such accountability for internal control performance implies that boards may also adopt less extreme disciplinary actions for CFOs, including compensation penalties, upon the disclosure of ICMWs. However, there is little prior research concerning factors associated with CFO compensation, although CEO compensation has obviously received a great deal of research attention. The limited research on CFO compensation examines the impact of supervisor financial expertise (i.e., CEO expertise and financial experts on the audit committee) on CFO pay (Gore et al. 2008), the change in CFO pay over time (Wang 2007), and the relation between earnings and bonus compensation in the post-SOX era (Carter et al. 2009). Further research finds an association between CFO compensation incentives and earnings quality (Jiang et al. 2009), as well as evidence on CFO forecasting behavior (Zamora 2009) and the ability of CFOs to meet or beat quarterly analysts forecasts (Mergenthaler et al. 2009) and its association with incentive pay.

This existing research on CFO compensation has been primarily limited to financial performance measures, but there is a trend away from using such measures in bonus compensation decisions (Indjejikian and Matejka 2009). While firms have found it extremely costly to adhere to the internal control requirements in SOX, one benefit is that internal control information is now readily available and may be potentially informative as a non-financial measure of CFO performance. Our expectation is that ICMW disclosures will therefore be associated with CFO compensation. To provide theoretical background for this expectation, we next review the agency theory literature and consider insights from that literature in terms of the potential use of ICMW disclosures as a non-financial performance measure useful for decisions concerning CFO compensation.

Agency Theory, Monitoring, and ICMWs as a Qualitative CFO-Specific Measure of Performance

Agency theory discusses the conflict that arises from the separation between principals (shareholders) and agents (managers) and the lack of alignment between the interests of the two parties. The essential conflict in this setting is that while the principal engages the agent to take actions on his/her behalf, the agent's interests are sometimes not well-aligned with the principal's interests. One mechanism that can be used to alleviate this conflict is

the use of a contract between the parties. While writing and enforcing contracts between principals and agents is costly (Fama and Jensen 1983), some form of contracting is necessary because agents that lack monitoring are more likely to behave opportunistically and extract greater company resources (Fama 1980). Thus, an important element of agency theory involves the monitoring of agents (Jensen and Meckling 1976).

Monitoring of agents necessitates measurement of outcomes that correspond to agents' performance, which in practice is generally accomplished by oversight from the board of directors, or a committee thereof. In theory, these measurable outcomes could be financial or non-financial in nature. However, information asymmetry and the prohibitive cost of gathering performance measures often necessitates that boards settle for imperfect measures of agents' performance, including financial measures such as market returns or earnings (e.g., Tosi et al. 2000; Devers et al. 2007). These measures are imperfect because stock prices are highly sensitive and often depend on factors beyond the control of agents, and accounting earnings are subject to manipulation by agents.

Given the difficulties associated with financial performance measures, non-financial performance measures can be a useful complement in evaluating agents' performance and can result in improved contracts (e.g., Feltham and Xie 1994). For example, Hauser et al. (1994) and Hemmer (1996) demonstrate that compensation incentives tied to non-financial performance measures can increase the efficiency of managerial contracts. Research has also shown that non-financial performance measures (e.g., customer satisfaction, market share, and productivity rates) are key drivers of firm value (Ittner et al. 1997; Said et al. 2003; Krolick 2005), and when combined with financial performance measures are helpful in contracting and monitoring (e.g., Amir and Lev 1996; Perera et al. 1997; Davila 2000; Bushman and Smith 2001). Holmstrom (1979) recognizes that in most situations perfect monitoring is not practical and therefore only observable performance measures are used. Yet, Holmstrom's "informativeness principle" points out that any performance measure that is costless to obtain and can even marginally contribute to monitoring agents' effort should theoretically be included in the compensation contract.

Prior to SOX, information about internal control quality was not readily available, so internal control disclosures based on Sections 302 and 404 of SOX provide incrementally low-cost information about the agent's (CFO) performance because firms are required to gather internal control data regardless of its potential usefulness in CFO non-financial performance measurement. This internal control information that in the past would have been prohibitively costly to gather may be useful to boards in monitoring CFO performance. While we acknowledge that reporting on internal controls quality is new, and non-financial performance measures are relatively rarely used

(Schiehll and Bellavance 2009), we rely on the insights provided by Holmstrom's informativeness principle and predict that boards and compensation committees will use this incrementally low-cost internal control quality measure as part of their monitoring of CFO performance, thus suggesting the following hypothesis:

HYPOTHESIS 1: Changes in CFO compensation will be negatively associated with the disclosure of ICMWs.

The Moderating Role of Compensation-Related Elements of Corporate Governance

The quality of the board of directors and its ability to monitor and reward CEOs has been the subject of numerous papers (e.g., Core et al. 1999). The literature on CEO compensation provides evidence that more effective corporate governance in general and stronger boards of directors in particular are more effective in monitoring management (Jensen 1993; Brick et al. 2006), thereby minimizing the ability of CEOs to extract excessive compensation (e.g., Grinstein and Hribar 2004). For example, Core et al. (1999) report lower compensation at firms with stronger boards. While the influence of the board over CEO compensation is well explored, less is known about how boards monitor other executives. In our second hypothesis, we consider the moderating role of two key parties who are responsible for monitoring CFO performance, CEOs and compensation committee members, in the association between changes in CFO compensation and ICMW disclosure.

Financial Expertise of the CEO

While Section 302 and 404 of SOX requires that both CEOs and CFOs establish, maintain, evaluate, and report on the effectiveness of internal controls, CFOs assume the leading role in day-to-day operations related to these activities. Still, since CEOs are jointly accountable for internal controls and because the CFO reports directly to the CEO, it is reasonable to assume that CEOs are in a good position to monitor the activities and outcomes of the CFO in this regard. From reading proxy statements of firms in our sample, we find evidence that compensation committees consider the recommendations of CEOs in reviewing and approving the pay of non-CEO executives. Further, CEOs that are more knowledgeable about the specific tasks required of the CFO are likely in a better position than less knowledgeable CEOs to more accurately evaluate and monitor CFO performance given the information asymmetries between the two individuals (Prendergast 1999; 2002). Most directly related to our study, recent prior research shows a negative association between the presence of a CEO with a financial background and CFO equity compensation and pay for performance sensitivity (Gore et al. 2008). Hence, CEOs are in a position to influence the evaluation of other non-CEO executives and sometimes even use them as scapegoats in order to maintain their own reputation (Khanna and Poulsen 1995).

Based on this discussion, we expect that CEOs with financial expertise will be in a better position to evaluate CFOs in terms of the quality of internal controls, or lack thereof. In essence, our argument is that CEOs with financial expertise will be more likely than those without such expertise to penalize their CFO subordinates in the case of an ICMW disclosure. Expert CEOs should have a particularly good understanding of the importance of internal controls, and the very negative potential consequences of ICMWs. Thus, we expect that the negative association between changes in CFO compensation and the disclosure of ICMWs will be greater for CFOs operating in firms with CEOs who possess greater financial expertise compared to less financial expertise.

Financial Expertise and Diligence of Compensation Committee Members

In addition to the financial expertise of the CEO that directly supervises the CFO, the compensation committee also plays an important monitoring role in this context. The compensation committee is usually charged with setting, overseeing and administering executive pay.⁴ Prior research examining the role of the compensation committee generally focuses on its input to CEO compensation decisions. For example, the presence of significant shareholders (outsiders) on the compensation committee is associated with lower CEO pay and higher CEO equity incentives (Conyon and He 2004). Newman and Mozes (1999) show that firms with insiders on the compensation committee bias executive compensation in favor of managers. Thus, the composition of the compensation committee matters in terms of executive performance monitoring. With respect to the compensation committee, we are interested in examining whether compensation committee member expertise, as well as their diligence, moderates the association between CFO compensation and ICMW disclosure.

While prior research does not investigate the association between compensation committee expertise and CFO performance measurement, the available evidence shows that audit committee member expertise is associated with fewer restatements (Agrawal and Chadha 2005), higher earnings quality (Bédard et al. 2004; Carcello et al. 2009; Dhaliwal et al. 2007), fewer adverse SOX 404 opinions (Zhang et al. 2007; Hoitash et al. 2009), and with the remediation of ICMWs (Goh 2009; Johnstone et al. 2009). Further, audit committee member expertise is positively associated with increased weight on earnings in the pay for performance relationship, suggesting that audit committee members with financial expertise are particularly aware of their responsibilities to monitor financial reporting (Gore et al. 2008). Like our argument for CEOs with financial expertise, we expect that compensation committee members with greater financial expertise will be more likely than those without such expertise to penalize CFOs in the case of ICMW disclosure. Our expectation is that those individuals that understand the key

importance of internal controls and the negative consequences of an ICMW should be particularly harsh in their monitoring of CFOs associated with the reporting of an ICMW. Further, board members have reputational capital at stake (Fama and Jensen 1983), and committee members with greater financial expertise likely have even higher levels of reputational capital, and are more likely to lose their board position following restatements (Srinivasan 2005), thus making them particularly concerned with ICMW disclosures. As such, we expect that the negative association between changes in CFO compensation and the disclosure of ICMWs will be more negative for CFOs operating in firms with compensation committee members who possess greater financial expertise compared to less financial expertise.

The diligence of compensation committee members may also affect their performance in monitoring CFOs. For example, with regard to audit committee diligence, prior research shows that firms that report restatements, undergo SEC enforcement, disclose fraud, or report unexpected auditor switches are all associated with less frequent audit committee meetings (McMullen and Raghunandan 1996; Beasley et al. 2000; Archambeault and DeZoort 2001; Farber 2006). At the overall board level, Carcello et al. (2002) find that more diligent boards, i.e., those that meet more frequently, demand higher audit quality as measured by audit fees. In addition, Conger et al. (1998) suggest that board meeting frequency is important to improving board effectiveness. Laksmana (2008) considers the diligence of compensation committees and finds that compensation committee meeting frequency is associated with improved executive compensation disclosure transparency. Similarly, we assume that more diligent compensation committees will be more likely to consider the negative consequences of an ICMW and incorporate this non-financial performance measure into their compensation decisions than less diligent compensation committees. As such, we expect that the negative association between changes in CFO compensation and the disclosure of ICMWs will be more negative for CFOs operating in firms with more diligent compensation committees compared to less diligent compensation committees.

Collectively, we consider the following three compensation-related elements of corporate governance in relation to CFO compensation: financial expertise of the CEO, financial expertise of compensation committee members, and diligence of compensation committee members. Our expectation is that firms with stronger corporate governance on these dimensions will more heavily penalize CFOs for the disclosure of ICMWs compared to firms with weaker corporate governance, leading to the following hypothesis:

HYPOTHESIS 2: The negative association between changes in CFO compensation and the disclosure of ICMWs will be more negative for CFOs operating in firms with stronger compensation-related corporate governance.

The Moderating Role of External Monitoring and Firm Risk

In our third hypothesis, we consider the moderating role of external monitoring by stock analysts and elements of firm risk (litigation risk and credit rating downgrade risk) in the association between CFO compensation and ICMW disclosure.

External Monitoring by Stock Analysts

Analysts collect and assess a wide variety of information on firms they follow and provide published reports that include recommendations as well as earnings forecasts. By performing their assessments, financial analysts serve as external firm monitors, and their coverage can affect board decisions. For example, Wiersema and Zhang (2009) find that firms with lower analyst ratings, analyst ratings downgrades, or more analyst sell recommendations are more likely to experience CEO dismissal by boards of directors compared to firms with more favorable analyst assessments. Prior research finds that the number of analysts following a firm is a good proxy for the total resources spent obtaining and analyzing information about that firm (Bhushan 1989; Brennan and Subrahmanyam 1995). Therefore, greater analyst following is associated with less information asymmetry and greater production and dissemination of information about a given firm.

With respect to internal control quality, greater analyst following may contribute to a more saturated information environment in which the disclosure of an ICMW will receive greater coverage. As a result of this external monitoring, we expect that boards of firms with greater analyst following will be more likely to act on the disclosure of ICMWs and impound these disclosures into their compensation decisions. Board members have incentives to develop and maintain their reputations (Fama and Jensen 1983), so boards that operate in firms having greater coverage might be more inclined to signal that they are taking steps to improve the control environment by penalizing managers that report ICMWs as a way to protect their reputations and the firm's legitimacy compared to firms with less analyst following. As such, we expect that among firms that disclose ICMWs, greater analyst following will be associated with a larger compensation penalty associated with ICMW disclosure compared to firms with less analyst following.

Firm Litigation Risk

The risk of litigation, both at the firm level and at the personal level, provides strong incentives for members of the board of directors to effectively monitor managers. Following the financial irregularities in Enron and WorldCom, directors' personal liability from serving on boards was reinforced. Traditionally, directors and officers (D&O) insurance was used to settle litigation, but in the case of Enron and WorldCom the lead plaintiffs demanded and succeeded in extracting out-of-pocket payments from the firms' directors (Black et al. 2006). Hence, in the current environment, increased regulation and public pressure has increased both the risk for litigation and the likelihood that D&O insurance will not fully cover directors' liability.

Past research shows the legal consequences of accounting irregularities, such as restatements (Palmrose and Scholz 2004). Board members bear some of the costs associated with such financial reporting failures, including labor market penalties and reputation losses (Srinivasan 2005). Since ICMWs are often accompanied by material audit adjustments (Moody 2006), and are related to restatements, potential litigation emanating from the disclosure of an ICMW is likely an important consideration for directors. Beyond personal liability and risks to their reputational capital, directors should also be concerned with the potential consequences of litigation to shareholders since litigation can lead to significant stock price declines. Related to this issue, Laux (2009) theoretically shows that directors can use compensation to manage their liability exposure by reducing CEO incentive pay, and consequently the inclination of CEOs to manage earnings. Based on this discussion, we expect that directors of firms in industries more prone to litigation will impose greater compensation penalties on CFOs disclosing ICMWs compared to firms in less litigation-prone industries.

Firm Credit Rating Downgrade Risk

Credit rating agencies such as Moodys report that they consider internal control quality when formulating credit ratings. For example, Moodys (2006) reports that “... we took rating action, in part because of control problems, in roughly 20 percent of the companies that reported control problems”. Reviewing the Moodys (2006) report, we observe from their sample that many credit rating downgrades resulted in firms being downgraded from “investment grade” debt to “speculative grade” debt, suggesting that firms with higher credit ratings should be particularly concerned with the disclosure of an ICMW because it may result in a downgrade in their credit rating. In fact, academic research provides evidence of credit rating downgrades among firms reporting ICMWs in two consecutive years (Hammersley et al. 2009). Thus, the downside risk associated with credit rating downgrades is felt most strongly at firms with more to lose, i.e., those with higher credit ratings. Given this discussion, we expect that

boards will impose greater compensation penalties associated with ICMW disclosures on CFOs at firms with high credit ratings compared to firms without public debt or with lower credit ratings.

To summarize, our expectation is that directors at firms with greater analyst following and with greater litigation or credit rating downgrade risk will more heavily penalize CFOs for the disclosure of ICMWs compared to firms with less analyst following and less firm-specific risk, leading to the following hypothesis:

HYPOTHESIS 3: The negative association between changes in CFO compensation and the disclosure of ICMWs will be more negative for CFOs operating in firms with greater external monitoring and firm risk.

3. Methods

Sample and Data Collection

We gather our sample from three primary sources: ExecuComp for compensation data, Compustat for firm characteristics, and Audit Analytics for internal control quality and CFO biographical information. To identify CFOs, we search for the phrase “chief financial” in the title field provided by ExecuComp. Our initial sample contains 1,233 firms with complete CFO compensation, internal control reports, and firm characteristics for fiscal year 2005. To avoid extraneous issues concerning CFO turnover (e.g., severance pay or signing bonuses), we eliminate observations for firms in which the CFO joined or left the firm in the preceding or current period ($N = 279$). In addition, similar to other studies, we eliminate financial and utility firms who operate in regulated industries ($N = 217$). Finally, our models employ the change in CFO compensation, so we eliminate firms that do not have complete current or lagged financial and compensation data ($N=133$), resulting in a final sample of 604 firms. See Table 1 Panel A for a summary of the sample derivation, and Table 1 Panel B for data on industry composition.

Insert Table 1 About Here

Dependent Variables

Our dependent variables are the changes in CFO compensation from year $t-1$ to year t . As mentioned, we eliminate firms that experienced CFO turnover to assure that changes in CFO compensation pertain to the same CFO. Therefore, in our sample each firm serves as a control for itself, which alleviates common endogeneity concerns. We follow the approach of Matsunaga and Park (2001) and measure four different dependent variables: (1) the change in total compensation ($\Delta TOTAL_COMP$), (2) the change in annual bonus ($\Delta BONUS$), (3) the change in equity compensation, which is comprised of the change in the Black-Scholes value of the sum of the awarded options and the restricted stock grants ($\Delta EQUITY$), and (4) the change in base salary ($\Delta SALARY$). We scale all

variables by salary in the previous year. Of the four compensation components, we expect that the association between changes in compensation and ICMW disclosures will be most strongly observed with regard to changes in bonuses because they are specifically designed to focus on the achievement of firm annual objectives.

Independent Variables

Test Variables

H1 concerns the association between changes in CFO compensation and ICMW disclosure. We define *ICMW* as an indicator variable equal to one if the firm reports a material weakness in its Section 404 report or in at least one of its section 302 reports, and equal to zero otherwise. We summarize variable definitions and data sources in Table 2.

Insert Table 2 About Here

H2 concerns the moderating role of compensation-related corporate governance in the association between changes in CFO compensation and ICMW disclosure. To test this hypothesis, we first measure the financial expertise of the CEO. We obtained 512 CEO biographies from Audit Analytics and supplemented the remaining 92 biographies by manually searching financial reports, companies' websites, Forbes.com and other sources. We follow the literature that examines audit committee financial expertise (Dhaliwal et al. 2007; Carcello et al. 2009; Hoitash et al. 2009), financial expertise definitions provided by the SEC in their implementation of Section 407 of SOX (SEC Rule 33-8177; 2003) and the Blue Ribbon Committee (Blue Ribbon Committee 1999). We automatically parse each CEO biography and define *CEO_FIN_EXPERT* as an indicator variable equal to one if the biographical information has one of the following characteristics indicating financial expertise: certified public accountant, chief financial officer, chief accounting officer, vice-president of finance, controller, treasurer or experience working at a Big 4/5/6/8 or other national audit firm⁵, and equal to zero otherwise. Second, we measure the financial expertise of compensation committee members. We obtained 1,891 compensation committee member biographies from Audit Analytics, and manually supplemented these data with 162 biographies located via the manual search process described for the CEO financial expertise variable. This process yields data on 2,053 compensation committee members. Similarly to the procedure described above for CEO expertise, we automatically parse each compensation committee member biography. The variable *#CC_FIN_EXPERTS* measures the number of compensation committee members who are financial experts.⁶ Third, we use the number of compensation committee meetings,

COMP_MTGS, as a proxy for the overall diligence of the compensation committee. We make no directional predictions concerning the main effect of the association of these variables with changes in compensation.

H3 concerns the moderating role of external monitoring by stock analysts and elements of firm risk (litigation risk and credit rating downgrade risk) in the association between CFO compensation and ICMW disclosure. To test this hypothesis, we first measure the degree of analyst following using *ANALYST_COVERAGE*, which is an indicator variable that equals one for firms wherein the number of analysts who follow the firm is in the fourth quartile, and that equals zero otherwise. Second, we use an indicator variable equal to one for firms operating in a litigation-prone industry (*LITIGATION*), and equal to zero otherwise.⁷ Third, we measure the risk of credit rating downgrades following a classification scheme from Ashbaugh-Skaife et al. (2006). *INVESTMENT_GRADE* is a categorical variable equal to two for firms with credit rating of BBB- or higher, equal to one for firms with credit rating lower than BBB-, and equal to zero for firms with no public debt.⁸ We make no directional predictions concerning the main effect of the association of these variables with changes in compensation.

Control Variables

We use a variety of control variables in our models. We control for firms' propensity to miss analyst forecasts. Brown et al. (2009) demonstrate that ICMW disclosure is associated with an increase in the likelihood of missing analyst forecasts, and Mergenthaler et al. (2009) show that missing analyst forecasts is associated with CFO compensation penalties. Hence, it is possible that the disclosure of an ICMW simply captures the propensity to miss analyst forecasts and therefore any observed association between ICMW and compensation might be attributed to missing analyst forecasts and not to weak controls. To control for this possibility, we extract data on analysts' forecasts from IBES and follow Mergenthaler et al. (2009) to construct the variable *MISS_ANALYSTS*. This variable equals zero for firms that meet or beat the mean consensus analyst forecast in all four quarters of fiscal year 2005; we assign the value of one, two, three or four for firms that miss one, two, three or four quarterly analyst estimates, respectively.⁹ We expect a negative association between *MISS_ANALYSTS* and changes in compensation. In addition, our sample period spans years in which some firms adopted the revised financial accounting statement No. 123R (FASB 2004). This statement requires firms to expense all equity based awards, and thus may affect our equity-based compensation analyses. We manually searched for the effective FAS123R adoption date in all of our 604 firms' financial reports. We read the text pertaining to FAS123R and coded *FAS123R* as an indicator variable that is equal to one if the firm adopted the rule before or during fiscal year 2005, and equal to zero otherwise. We

use this variable as a control in our equity compensation models, and make no directional prediction for its association with changes in equity compensation.

We also include other control variables common in the CEO compensation literature (e.g., Core et al. 1999), and our expectations for directional associations with compensation are consistent with that literature. All of these variables are measured as a change from year t-1 to year t. We include the percentage change in total assets (ΔTA) to control for company size and expect a positive association with changes in compensation. To control for investment opportunities, we include the percentage change in book to market (ΔBTM), expecting a negative association with changes in compensation. We include the change in annual stock return (ΔRET) to control for market performance and expect a positive association with changes in compensation. To control for accounting performance, we include the percentage change in the return on assets (ΔROA) and expect a positive association with changes in compensation. We control for the change in risk with the percentage changes in the standard deviation of returns (ΔSTD_RET) and the standard deviation of ROA (ΔSTD_ROA) both calculated over a period of no less than three years, and no more than four years. We make no directional prediction for these variables. We use an indicator variable to measure a reported loss in the current year (but not in the previous year) ($\Delta LOSS$) and expect a negative association with changes in compensation. Finally, we control for industry fixed effects using two digit SIC code indicator variables (*Industry*). To control for potential outliers, we winsorize all continuous economic variables at the 1st and 99th percentile.

Hypothesis-Testing Models

To test H1, we consider the association between changes in CFO compensation and ICMW disclosure, along with control variables, as follows:

$$\Delta Compensation = \alpha + \beta_1 ICMW + \beta_2 MISS_ANALYSTS + \beta_3 \Delta TA + \beta_4 \Delta BTM + \beta_5 \Delta RET + \beta_6 \Delta ROA + \beta_7 \Delta STD_RET + \beta_8 \Delta STD_ROA + \beta_9 \Delta LOSS + \beta_{10-61} Industry + e. \quad (1)$$

We test H2 and H3 using models that include compensation-relevant elements of corporate governance, analyst following, and firm risk variables, along with interactions of these variables with ICMW disclosure, and control variables as follows:

$$\begin{aligned} \Delta Compensation = \alpha + \beta_1 ICMW + \beta_2 CEO_FIN_EXPERT + \beta_3 ICMW * CEO_FIN_EXPERT \\ + \beta_4 \#CC_FIN_EXPERTS + \beta_5 ICMW * \#CC_FIN_EXPERTS + \beta_6 COMP_MTGS + \beta_7 ICMW * \\ COMP_MTGS + \beta_8 ANALYST_COVERAGE + \beta_9 ICMW * ANALYST_COVERAGE + \beta_{10} \\ LITIGATION + \beta_{11} ICMW * LITIGATION + \beta_{12} INVESTMENT_GRADE + \beta_{13} ICMW * \\ INVESTMENT_GRADE + \beta_{14} MISS_ANALYSTS + \beta_{15} \Delta TA + \beta_{16} \Delta BTM + \beta_{17} \Delta RET + \\ \beta_{18} \Delta ROA + \beta_{19} \Delta STD_RET + \beta_{20} \Delta STD_ROA + \beta_{21} \Delta LOSS + \beta_{22-73} Industry + e. \end{aligned} \quad (2)$$

4. Results

Descriptive Statistics

Table 3 presents descriptive data for our sample firms, in total and disaggregated by disclosure of ICMWs. The mean CFO total compensation is \$1,716,830, which is an increase of about 15 percent from the prior year. Mean cash bonuses and salary have increased by about 10 and 16 percent, respectively, from the prior year. Finally, mean equity compensation decreased by about 31 percent from the prior year. About 14 percent of firms in our sample disclose an ICMW, which is similar to other contemporary studies (e.g., Hoitash et al. 2009). Univariate comparisons show that CFOs of firms disclosing ICMWs experienced a marginally smaller increase in total compensation ($t = 1.47$, $p < 0.10$), and a marginally larger increase in salary compensation compared to CFOs at firms not disclosing ICMWs ($t = -1.69$, $p < 0.10$). CFOs of firms disclosing ICMWs experienced a significant decrease in bonus compensation, whereas those at firms not disclosing ICMWs show an increase in bonuses ($t = 2.19$, $p < 0.05$). Finally, CFOs of firms disclosing ICMWs experienced a significantly larger decrease in equity compensation compared to those at firms not disclosing ICMWs ($t = 1.97$, $p < 0.05$).

Insert Table 3 About Here

Turning to independent variables, the results show that about 10 percent of CEOs possess our measure of financial expertise, compensation committees on average have 0.7 members who are financial experts, and compensation committees meet about five times during the year; these variables do not show significant differences between firms with or without ICMWs. By construction, about one quarter of firms in our total sample have a relatively high level of analyst following, but firms disclosing an ICMW have significantly less analyst following compared to firms not disclosing ICMWs ($X^2 = 9.03$, $p < 0.01$). About 27 percent of firms in our sample are in a litigation prone industry. The mean value of *INVESTMENT_GRADE* is 0.868, which indicates that the mean firm in our sample either has no public debt or has a relatively low credit rating. In results not tabled, we find that the average credit rating of firms in our sample that issue public debt is 3.8 and 61 percent of these firms have investment grade public debt, which is comparable to the 3.83 mean credit rating and 63 percent investment grade debt reported by Ashbaugh-Skaife et al. (2006). There are no differences between firms with or without ICMWs in terms of litigation-prone industry membership, or credit rating downgrade risk.

Considering control variables with significant differences between firms with or without ICMWs, the results show that firms disclosing ICMWs miss more quarterly analyst consensus forecasts compared to those not

disclosing ICMWs ($t = -2.60$, $p < 0.05$), which is consistent with the results in Brown et al. (2009). ICMW firms show a smaller increase in total assets compared to those not disclosing ICMWs ($t = 1.65$, $p < 0.10$). ICMW firms show a decrease in book-to-market, whereas firms not disclosing ICMWs show an increase in book-to-market, a significant difference ($t = 1.64$, $p < 0.10$). Finally, firms disclosing an ICMW are more likely to report a new *LOSS* compared to firms not disclosing ICMWs ($X^2 = 8.08$, $p < 0.01$).

Table 4 presents a correlation matrix for all dependent and hypothesis-testing variables. Upon calculating the variance inflation factor across all our models, we find that the highest value is 1.15 for $\Delta LOSS$ in our tests using Model (1), and is 1.52 for the interaction term between *COMP_MTGS* and *ICMW* in Model (2). These values are well below the level suggestive of multicollinearity problems (Neter et al. 1996).

Insert Table 4 About Here

Hypothesis Tests

Tests of Hypothesis 1

Table 5 provides tests of H1, which predicts that changes in CFO compensation will be negatively associated with the disclosure of ICMWs. The first column of the table depicts a model examining the association between the change in *total* CFO compensation and ICMW disclosure, while subsequent columns depict models for the change in cash bonus, stock options, and salary, respectively. The results reveal a significant negative association between ICMW disclosure and total compensation ($t = -2.20$, $p < 0.05$), equity compensation ($t = -2.03$, $p < 0.05$), and bonus compensation ($t = -1.84$, $p < 0.05$).¹⁰ The $\Delta BONUS$ model has the greatest explanatory power of the variants of Model (1), and the coefficient on *ICMW* in that model implies that ICMW disclosure is associated with a 14 percent decrease (as a percent of salary) in CFO bonuses. Thus, results are both statistically and economically significant. We do not observe a significant association between the changes in salary compensation and ICMW disclosure, although this may be due to the fact that salary is a fixed component of executive compensation and is therefore relatively “sticky”. Overall, these results provide support for H1 and indicate that the reported quality (or lack therein) of internal controls is used by boards and compensation committees as a non-financial measure of CFO performance. Further, the results concerning total compensation show that performance-based differences are not offset by salary-based differences.¹¹

Notable results with respect to control variables show that, similar to the findings in Mergenthaler et al. (2009), the *MISS_ANALYSTS* variable is negatively associated with changes in bonus compensation ($t = -3.99$, $p <$

0.01).¹² This suggests that although missing analysts' forecasts is associated with compensation penalties, ICMW disclosures are associated with additional compensation penalties. We also observe that increases in stock returns are positively associated with all components of CFO compensation.

Insert Table 5 About Here

Robustness Tests Concerning H1

CEO Compensation. While our primary interest concerns CFO compensation, we acknowledge that CEOs have internal control-related responsibilities under SOX, so it is possible that CEOs also face ICMW disclosure-related compensation penalties. To analyze this possibility, we construct four dependent variables that measure changes in the components of CEO compensation. The results in Table 6 show that ICMW disclosure is not associated with changes in any of the components of CEO compensation. Concerning control variables, most results are similar to those in the CFO models. Of particular interest, the *MISS_ANALYSTS* variable is negatively associated with the changes in CEO bonus compensation ($t = -2.73$, $p < 0.01$), which is the same result as in the CFO compensation results in Table 5.¹³

Insert Table 6 About Here

In addition to these analyses, we note that research on executive compensation shows that the compensation of top executives (including that of the CFO) varies similarly to that of the CEO (e.g., Carpenter and Sanders 2002). Thus, to control for company fixed effects associated with CEO compensation, we perform additional analyses in which we include the change in CEO compensation ($\Delta CEO_Compensation$) as a control variable in our models of CFO compensation.¹⁴ Results for this non-tabled analysis indicate that although changes in CEO compensation are associated with changes in CFO total compensation ($t = 1.46$, $p < 0.10$) and CFO bonuses ($t = 7.40$, $p < 0.01$), ICMW remains negative and significant ($t = -1.83$, $p < 0.05$, $t = -1.35$, $p < 0.10$, and $t = -1.66$, $p < 0.05$ for total compensation, bonus, and equity compensation, respectively), suggesting that changes in CFO compensation are not solely driven by changes in CEO compensation.

Lag Associations and Directionality of Effect. We next address two potential confounding concerns regarding (1) the time between ICMW disclosures and compensation penalties and (2) the direction of the association between ICMW disclosure and CFO compensation. First, compensation penalties could potentially lag ICMW disclosure, i.e., a 2004 ICMW disclosure could be associated with compensation penalties in 2005. To test for this possibility, we substitute the contemporaneous ICMW variable with the lagged value of 2004 ICMW

disclosures (*LAG_ICMW*) and present these results in Table 7. We observe that *LAG_ICMW* is negatively associated with the changes in total compensation ($t = -1.55$, $p < 0.10$), and equity compensation ($t = -1.75$, $p < 0.05$), but not with changes in bonuses ($t = -1.00$, $p > 0.10$) or salary (results not tabled). By construction, bonus compensation decisions are made at year-end when the presence of an ICMW is known to compensation committee members. Hence, the lack of association between *LAG_ICMW* and cash bonus further highlights that ICMW disclosure is probably used as a contemporaneous year-end performance measure. However, equity compensation is granted throughout the year and there is a possibility that at the time of some equity grants (especially for equity grants early in the year) the compensation committee, the board, and even the CFO are not aware of the existence of an ICMW. If this is the case, we should observe a delay between ICMW disclosures and equity grants, which is consistent with the results that we report.

Insert Table 7 About Here

Second, we acknowledge that the goal of designing effective compensation contracts is on the one hand to incentivize executives to improve future firm performance, and on the other to reward/penalize executives for their past performance. Therefore, it could be that the more logical directional association between compensation and ICMW disclosure is that poorly compensated CFOs put less emphasis on maintaining high quality internal controls. In other words, the compensation of CFOs could potentially determine their performance, rather than the other way around. This logic is supported by Carpenter and Sanders (2002), who find that executive compensation drives future firm performance. To consider this possibility, we first replicate the results of Carpenter and Sanders (2002) in our context, and the results (not tabled) show that lagged total compensation is positively associated with Tobin's q and ROA. Next, we estimate a model where the dependent variable is *ICMW* and the independent variables are the lagged value of CFO compensation, as well as additional controls associated with the likelihood of ICMW disclosure (e.g. Ashbaugh-Skaife et al. 2007; Doyle et al. 2007).¹⁵ These (not tabled) models show no significant association between any of the lagged components of compensation and ICMW disclosure. Hence, our data is more consistent with ICMW disclosure influencing CFO compensation, rather than the other way around.

Endogeneity Concerns. Endogeneity is a common concern in executive compensation research. Specifically, the allocation of CFO pay into various components may depend on certain firm characteristics, so firms with ICMWs may have a compensation structure that is fundamentally different from the compensation structures at other firms. For instance, certain boards might prefer to allocate a greater proportion of pay to cash bonuses. Since

all of our models use changes in CFO compensation, each firm serves as a control for itself, which helps us somewhat in addressing this concern. To further address this concern, we also use a two-stage modeling approach to determine whether our results may be due to some unobservable factor that affects both ICMW disclosure and CFO compensation. For example, ICMW disclosure is often associated with firm financial characteristics (e.g., Ashbaugh-Skaife et al. 2007; Doyle et al. 2007), so it could be that firms disclosing ICMWs are financially weaker, and thus grant lower compensation.

The first stage of our modeling approach predicts the likelihood of ICMWs using company size, indicators measuring Big 4 auditors and auditor changes, an indicator variable measuring foreign operations, an indicator variable measuring restructuring, and the number of shares held by institutional investors (see Ashbaugh-Skaife et al. 2007 and Doyle et al. 2007 for similar models). We also control for CFO specific-characteristics that might affect the quality of the internal controls (CFOs who possess a CPA certification, those with auditing experience with the largest audit firms, and those who sit on their own or other corporate boards - for motivation for these variables see Aier et al. 2005). We test for the validity of our instruments by using the Sargan and Basmann overidentification tests and observe that both are statistically insignificant (both $p > 0.89$), which indicates that we cannot reject the null hypothesis and therefore our instruments appear to be valid. In the second stage, we regress *ICMW* (and control variables from model 1) on changes in CFO compensation. These results are similar to our main hypothesis-testing results reported in Table 5. Importantly, the results (not tabled) continue to show a negative association between ICMW disclosure and changes in total compensation, bonuses, and equity compensation ($t = -1.71$, $p < 0.05$; $t = -1.70$, $p < 0.05$; and $t = -1.99$, $p < 0.05$, respectively). Thus, while we acknowledge potential concerns regarding endogeneity, our research design and these robustness tests should allay such concerns.

ICMW Severity and Type. We explore whether the association of changes in CFO compensation and ICMW disclosure varies with the *type* and *severity* of the disclosed internal control problems. To perform this analysis, we extracted all ICMW disclosures from the financial statements and manually read and classified them to create two new variables. The first is a continuous variable representing the number of ICMWs disclosed (*#ICMW*). Among firms disclosing ICMWs in our sample, the mean number of ICMWs is 1.52, with a maximum of five. We then replicate our main hypothesis-testing results reported in Table 5, replacing *ICMW* with *#ICMW*. The first three columns of Table 8 present these results. We observe that total, bonus and equity compensation are all negatively associated with the number of ICMWs ($t = -1.99$, $p < 0.05$, $t = -1.31$, $p < 0.10$, and $t = -2.05$, $p < 0.05$, respectively).

Insert Table 8 About Here

The second variable classifies problems into firm-level controls (*GENERAL*) and account-specific controls (*ACCT_SPECIFIC*). We define *GENERAL* as equal to one if the reported ICMWs include at least one issue that relates to the control environment, company accounting personnel, information technology, segregation of duties, policies and procedures, or the application of GAAP, and equal to zero otherwise. These company-level control weaknesses pertain to problems that can impact the financial reporting quality in multiple business process areas. For instance, *GENERAL* problems pertaining to information technology (e.g., the use of a legacy system that lacks integration or a system that is not properly configured and therefore does not enforce segregation of duties) can potentially impact multiple business process areas such as the order-to-cash-collection process and the purchase-to-pay process. In contrast, we define *ACCT_SPECIFIC* as equal to one if the firm does not disclose any general problems, but does disclose problems in specific financial reporting areas, e.g., taxes or inventory. We observe that of the 85 firms with an ICMW in our sample, 30 report at least one *GENERAL* ICMW, and the remaining firms report only account-specific problems. We expect that both types of problems will be associated with lower CFO compensation, although we note that *GENERAL* problems often reflect issues beyond the direct control of the CFO, whereas *ACCT_SPECIFIC* problems are more reflective of day-to-day operations over which the CFO exercises control.

The last three columns of Table 8 present results for total, bonus and equity compensation in relation to *GENERAL* and *ACCT_SPECIFIC* ICMWs. These results show that *ACCT_SPECIFIC*, but not *GENERAL*, is negatively associated with all three compensation components ($t = -2.09$, $p < 0.05$, $t = -1.89$, $p < 0.05$, and $t = -2.04$, $p < 0.05$, respectively). These results are interesting because past research recognizes the pervasive nature of the more general problems and therefore their greater impact on financial reporting quality (Doyle et al. 2007), remediation likelihood (Goh 2009), audit fees (Hoitash et al. 2008; Hogan and Wilkins 2008), and the perception of market participants (Hammersley et al. 2008). It is possible that the CEO and the compensation committee recognize that, although more severe, many of the general problems are beyond the direct responsibility of the CFO. In contrast, the board likely recognizes that account-specific ICMWs are the direct responsibility of the CFO, and therefore imposes compensation penalties upon the disclosure of such control problems.

Taken together, the robustness checks presented in Tables 6 through 8 provide assurance that the main effect regarding the negative association between CFO compensation and ICMW disclosure holds, even after

considering issues such as CEO compensation, timing of the compensation penalty (i.e., lag), directionality of the association between compensation and ICMW disclosure, endogeneity, and both the severity and type of internal control problems. With that in mind, we now turn to considerations of the potential moderating roles of compensation-related elements of corporate governance and firm risk (litigation risk and credit rating downgrade risk) in the association between CFO compensation and ICMW disclosure.

Tests of Hypothesis 2

H2 predicts that the negative association between changes in CFO compensation and the disclosure of ICMWs will be more negative for CFOs operating in firms with stronger compensation-related corporate governance (CEOs and compensation committees that have greater financial expertise, and compensation committees that meet more frequently). Table 9 presents results of these analyses for changes in total compensation, bonus, and equity compensation, respectively.¹⁶ Across all models, we continue to find a negative association between the main effect of *ICMW* on changes in total compensation ($t = -2.47, p < 0.01$), bonus ($t = -2.24, p < 0.05$), and equity compensation ($t = -2.34, p < 0.01$). Regarding the interactions of *ICMW* with each of the three compensation-related elements of governance, the results show a negative interaction between CEO financial expertise and *ICMW* for total compensation ($t = -1.66, p < 0.05$) and bonus ($t = -1.75, p < 0.05$), but not equity compensation. The results also show a marginally negative interaction between compensation committee financial expertise and *ICMW* for changes in cash bonus ($t = -1.37, p < 0.10$) but not the other elements of compensation. There are no significant interactions between the number of compensation committee meetings and *ICMW*. These results provide some support for H2, with the strongest evidence of corporate governance moderating the association between changes in CFO compensation and the disclosure of ICMWs occurring in settings in which the CEO has financial expertise.

Insert Table 9 About Here

Tests of Hypothesis 3

H3 predicts that the negative association between changes in CFO compensation and the disclosure of ICMWs will be more negative for CFOs operating in firms with greater external monitoring and firm risk. The results show that CFOs disclosing an ICMW in firms with greater analyst following experience a greater compensation penalty in terms of their annual cash bonus compared to CFOs disclosing an ICMW at firms with less analyst following (*ICMW*ANALYST_COVERAGE*: $t = -1.70, p < 0.05$). We also find that CFOs disclosing an

ICMW in firms in industries more prone to litigation experience a greater compensation penalty in terms of both total compensation and bonus compensation ($ICMW * LITIGATION$: $t = -1.55$, $p < 0.10$; $t = -1.67$, $p < 0.05$, respectively) compared to CFOs disclosing an ICMW at firms in industries less prone to litigation. Finally, the results reveal that CFOs disclosing an ICMW in firms with a greater risk of credit rating downgrades (i.e., those with reasonably good credit ratings) experience a greater compensation penalty in terms of both total compensation and bonus compensation ($ICMW * INVESTMENT_GRADE$: $t = -1.82$, $p < 0.05$; $t = -1.70$, $p < 0.05$, respectively) compared to CFOs disclosing an ICMW in firms with less risk of a credit rating downgrade (i.e., those whose credit rating is already low, or do not issue public debt).¹⁷ These results provide overall support for H3 and highlight that the propensity of boards to penalize CFOs for the disclosure of ICMW may vary based on the information environment of firms and the risks that they face.

5. Limitations and Conclusions

Conclusions

SOX mandates disclosure of internal control quality for publicly traded firms, and was intended to increase the confidence of various stakeholders in firms' financial reports. Academic research studying ICMW disclosures finds that they are used by investors, credit rating agencies, and auditors (e.g., Beneish et al. 2008; Hoitash et al. 2008; Hogan and Wilkins 2008; Hammersley et al. 2009). Yet, with the exception of Li et al. (2009), there is little evidence to suggest that these disclosures are used by boards. Anecdotal evidence from compensation committee reports of public companies suggests that internal controls are viewed as a non-financial performance measure for CFOs. This is consistent with agency theory, which posits that any costless metric that could reflect on the performance of an agent should be used as part of that agent's performance evaluation (e.g., Holmstrom 1979). In this study, we investigate whether ICMW disclosure, an incrementally costless measure of CFO performance (costless in terms of performance evaluation, but clearly not costless in terms of the overall information production cost for SOX compliance), is used by boards and is reflected via CFO compensation penalties. We then consider the role of compensation-related elements of governance, as well as the role of analysts' coverage and company risk in moderating the relationship between CFO compensation penalties and ICMW disclosures.

We examine a sample of 604 firms during 2005 and find evidence that CFOs who disclose ineffective internal controls receive monetary penalties that are statistically and economically significant, particularly in terms of bonus compensation penalties. These findings provide an incremental contribution to the literatures on internal

control and executive compensation as they suggest that boards and compensation committees act on behalf of shareholders (and possibly in order to protect their own reputations) and inflict monetary penalties on CFOs who disclose ICMWs. Although the CEO is also responsible for certifying the internal control reports, we observe no significant association between ICMW disclosures and changes in any of our CEO compensation measures. Robustness tests suggest that our results still hold even after controlling for endogeneity and directionality concerns, and that the monetary penalties that we observe seem to emanate from ICMW disclosures that are most related to specific CFO responsibilities rather than to general, company-wide weaknesses in controls. Our lag analyses show that while ICMW disclosure is associated with penalties in terms of total and equity compensation, it is not associated with bonus penalties. These results suggest that bonuses, a component of compensation specifically designed to reflect annual performance, only relate to concurrent (and not lagged) ICMW disclosures.

With respect to compensation-related elements of corporate governance, our results reveal that CEOs and compensation committee members with greater financial expertise impose greater compensation penalties on CFOs disclosing ICMWs compared to those with less financial expertise. Thus, our results suggest that directors with greater expertise are more likely to incorporate information from ICMW disclosures because of their accounting knowledge and/or the potential risk from such disclosures to their reputations and careers, thereby extending the results of Srinivasan (2005). The results also show that CFO compensation penalties are more severe when there is greater external monitoring in the form of analyst following compared to when there is less external monitoring. Also extending the literature on outcomes associated with analyst following, Brown et al. (2009) report that firms with ineffective internal controls are less likely to meet earnings benchmarks, and Mergenthaler et al. (2009) find that CFO compensation is negatively associated with firms' inability to meet earnings benchmarks. We replicate the results in Mergenthaler et al. (2009), and show that even after controlling for failing to meet earnings benchmarks, there continues to exist a negative association between ICMW disclosure and CFO compensation penalties.

Finally, the results reveal that compensation penalties are more severe in firms with greater litigation risk and greater credit rating downgrade risk compared to firms that are less risky on these dimensions. These results shed light on previously unexplored moderators in the association between executive performance and compensation outcomes. Taken together, our results provide new insight concerning the effects of SOX as it relates to changes in the monitoring, reporting, and certification of internal controls. Importantly, the results reveal the accountability implications for CFOs disclosing ICMWs.

Limitations and Future Research

We acknowledge certain limitations of our analyses. There may be potential correlated omitted variables that we have not included in our analysis, and the extent to which one can rely on our results rests on the assumption that such variables do not provide convincing alternative explanations for the results. Although we partially address this concern with our endogeneity tests, without a controlled experiment it is not feasible to completely rule out this possibility. Further, we rely on publicly available disclosures regarding CEO financial expertise, compensation committee expertise, and compensation committee diligence, which likely measure the constructs of interest with error and thus make the effects we seek to examine more difficult to detect.

The increased importance of CFOs among US firms and the limited research on CFOs calls for further investigation of factors associated with CFO specific responsibilities and rewards. We note that our sample period (fiscal year 2005) is a period of heightened managerial sensitivity to the importance of, and requirements associated with, internal control and financial reporting. The recent economic downturn shifted the focus of CFO responsibilities towards cash management and cost control. Future research can investigate whether there is additional information relevant to measuring the performance of CFOs in times of economic uncertainty and whether these measures and their relative importance vary based on the regulatory and economic environment.

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TABLE 1
Sample and industry composition

Panel A: Sample derivation

Description	N
Initial sample from ExecuComp	1,233
Removal of firms with CFO turnover	(279)
Removal of utility and financial firms	(217)
Removal of firms not having two consecutive years of data	(133)
Final Sample	604

Panel B: Industry composition

SIC	Industry Description	N	%
00-09	Agriculture	1	0.17%
10-14	Mining	26	4.30%
15-17	Construction	16	2.65%
20-39	Manufacturing	350	57.95%
40-48	Transportation, communications	27	4.47%
50-51	Wholesale trade	20	3.31%
52-59	Retail trade	56	9.27%
70-89	Service	108	17.88%
	Total	604	100.00%

TABLE 2
Variable definitions

Variable name	Variable definition [source]
<i>ΔTOTAL_COMP</i>	The change in CFO total compensation from year t-1 to year t, which equals the sum of salary, bonus, the Black-Scholes value of stock options and restricted stocks granted during the year, long-term incentive payouts, and other miscellaneous compensation amounts, scaled by salary from year t-1 [<i>ExecuComp</i>]
<i>ΔBONUS</i>	The change in CFO cash bonus from year t-1 to year t, scaled by salary from year t-1 [<i>ExecuComp</i>]
<i>ΔEQUITY</i>	The change from year t-1 to year t of the Black-Scholes value of options and restricted stocks granted to the CFO, scaled by salary from year t-1 [<i>ExecuComp</i>]
<i>ΔSALARY</i>	The change in CFO base salary from year t-1 to year t, scaled by salary from year t-1 [<i>ExecuComp</i>]
<i>ICMW</i>	An indicator variable equal to one if the firm had a material weakness in its Section 404 report or in at least one of its section 302 reports; zero otherwise [<i>Audit Analytics</i>]
<i>CEO_FIN_EXPERT</i>	An indicator variable equal to one if the CEO's biographical information has one of the following characteristics indicating financial expertise: certified public accountant, chief financial officer, chief accounting officer, vice-president of finance, controller, treasurer or experience working at a Big 4/5/6/8 or other national audit firm; zero otherwise. [<i>Audit Analytics</i> + <i>manually collected data</i>]
<i>#CC_FIN_EXPERTS</i>	The number of compensation committee members who are financial experts, where the following characteristics indicate financial expertise: certified public accountant, chief financial officer, chief accounting officer, vice-president of finance, controller, treasurer or experience working at a Big 4/5/6/8 or other national audit firm [<i>Audit Analytics</i> + <i>manually collected data</i>]
<i>COMP_MTGS</i>	The number of compensation committee meetings [<i>Audit Analytics</i> + <i>manually collected data</i>]
<i>ANALYST_COVERAGE</i>	An indicator variable equal to one for firms wherein the number of analysts who follow the firm is in the fourth quartile; zero otherwise [<i>IBES</i>]
<i>LITIGATION</i>	An indicator variable equal to one if a firm is in a litigious industry—SIC codes 2833 to 2836; 3570 to 3577; 3600 to 3674; 5200 to 5961; and 7370; zero otherwise [<i>Compustat</i>]
<i>INVESTMENT_GRADE</i>	A categorical variable equal to two for firms with credit rating of BBB- or higher, equal to one for firms with credit rating lower than BBB- , and equal to zero for firms with no public debt [<i>Compustat</i>]

TABLE 2
Variable definitions (continued)

<i>MISS_ANALYSTS</i>	A categorical variable equal to zero for firms that meet or beat the mean consensus analyst forecast in all four quarters of fiscal year 2005; equal to one, two, three or four for firms that miss one, two, three or four quarterly analysts estimates, respectively [<i>IBES</i>]
<i>FAS123R</i>	An indicator variable equal to one if the firm adopted FAS 123R before or during fiscal year 2005; zero otherwise [<i>manually collected data</i>]
ΔTA	The percentage change in total assets from year t-1 to year t [<i>Compustat</i> data 6]
ΔBTM	The percentage change of book-to-market from year t-1 to year t, where book-to-market is the book value of common equity divided by market value of equity [<i>Compustat</i> Data 60 divided by (data 25 * data 199)]
ΔRET	The change in annual stock return from year t-1 to year t, where annual stock return is the percentage change of this year stock price from last year stock price [<i>Compustat</i> (data 199 divided by (last year data 199)) -1]
ΔROA	The percentage change in return on assets from year t-1 to year t, where return on assets is net income divided by total assets [<i>Compustat</i> data 172 divided by data 6]
ΔSTD_RET	The percentage change in the standard deviation of returns from year t-1 to year t, where the standard deviation of return is calculated over a period of no less than three years and no more than four years [<i>Compustat</i>]
ΔSTD_ROA	The percentage change in the standard deviation of returns on assets from year t-1 to year t, where the standard deviation of ROA is calculated over a period of no less than three years and no more than four years [<i>Compustat</i>]
$\Delta LOSS$	An indicator variable equal to one if the firm experienced a new loss in the current year; zero otherwise [<i>Compustat</i> data 172]

TABLE 3
Descriptive statistics

	<i>Pooled Sample N=604</i>			<i>ICMW Firms N=85</i>			<i>No ICMW Firms N=519</i>			
<i>Variable</i>	<i>Mean</i>	<i>Median</i>	<i>Std Dev</i>	<i>Mean</i>	<i>Median</i>	<i>Std Dev</i>	<i>Mean</i>	<i>Median</i>	<i>Std Dev</i>	<i>t or Chi-squared statistic for differences</i>
<i>TOTAL_COMP</i>	1,716.830	1,169.280	1,670.300	1,110.250	728.680	1,206.940	1,816.170	1,230.150	1,715.000	4.67*
<i>BONUS</i>	361.176	234.992	454.137	217.684	122.481	275.207	384.677	250.000	473.148	4.59*
<i>EQUITY</i>	840.754	418.385	1,545.760	487.605	240.460	881.383	898.591	445.320	1,622.240	3.45*
<i>SALARY</i>	380.797	348.171	153.835	343.096	312.115	137.257	386.972	352.264	155.635	2.68*
Δ <i>TOTAL_COMP</i>	0.154	0.030	0.647	0.064	-0.045	0.598	0.168	0.043	0.654	1.47‡
Δ <i>BONUS</i>	0.098	0.049	0.612	-0.043	0.000	0.645	0.121	0.068	0.604	2.19†
Δ <i>EQUITY</i>	-0.309	0.000	3.649	-1.080	0.000	3.944	-0.183	0.000	3.587	1.97†
Δ <i>SALARY</i>	0.155	0.060	0.676	0.407	0.057	1.603	0.113	0.060	0.321	-1.69‡
<i>ICMW</i>	0.141	0.000	0.348	NA	NA	NA	NA	NA	NA	NA
<i>CEO_FIN_EXPERT</i>	0.098	0.000	0.297	0.118	0.000	0.324	0.094	0.000	0.293	0.39
<i>#CC_FIN_EXPERTS</i>	0.709	1.000	0.749	0.624	0.000	0.740	0.723	1.000	0.751	1.14
<i>COMP_MTGS</i>	5.190	5.000	2.342	4.753	5.000	2.743	5.262	5.000	2.265	1.62
<i>ANALYST_COVERAGE</i>	0.233	0.000	0.423	0.106	0.000	0.310	0.254	0.000	0.436	9.03*
<i>LITIGATION</i>	0.267	0.000	0.443	0.259	0.000	0.441	0.268	0.000	0.443	0.05
<i>INVESTMENT_GRADE</i>	0.868	1.000	0.880	0.659	0.000	0.825	0.902	1.000	0.885	1.71

TABLE 3
Descriptive statistics (continued)

	<i>Pooled Sample N=604</i>			<i>ICMW Firms N=85</i>			<i>No ICMW Firms N=519</i>			
<i>Variable</i>	<i>Mean</i>	<i>Median</i>	<i>Std Dev</i>	<i>Mean</i>	<i>Median</i>	<i>Std Dev</i>	<i>Mean</i>	<i>Median</i>	<i>Std Dev</i>	<i>t or Chi-squared statistic for differences</i>
<i>MISS_ANALYSTS</i>	0.909	1.000	1.045	1.235	1.000	1.288	0.855	1.000	0.990	-2.60†
<i>ΔTA</i>	0.108	0.060	0.239	0.065	0.028	0.268	0.116	0.066	0.234	1.65‡
<i>ΔBTM</i>	0.027	0.006	0.413	-0.047	-0.012	0.451	0.039	0.006	0.406	1.64‡
<i>ΔRET</i>	-0.239	-0.180	0.704	-0.126	-0.117	0.799	-0.257	-0.189	0.687	-1.43
<i>ΔROA</i>	-0.182	0.025	3.861	-0.712	0.021	4.791	-0.095	0.025	3.684	1.13
<i>ΔSTD_RET</i>	0.012	-0.014	0.452	0.087	0.002	0.552	0.000	-0.020	0.432	-1.39
<i>ΔSTD_ROA</i>	0.183	0.013	0.894	0.296	0.026	1.082	0.165	0.010	0.860	-1.06
<i>ΔLOSS</i>	0.061	0.000	0.240	0.129	0.000	0.338	0.050	0.000	0.218	8.08*
<i>FAS123R</i>	0.073	0.000	0.260	0.047	0.000	0.213	0.077	0.000	0.267	0.95

Note: Variable definitions are in Table 2. Compensation variables and total assets are in \$000's. The following symbols indicate significant results: * significant at 1% level; † significant at 5% level; ‡ significant at 10% level. One-tailed tests are used for comparisons of compensation variables across samples of ICMW and no ICMW firms.

TABLE 4
Pearson correlations

		2	3	4	5	6	7	8	9	10	11
1	<i>ΔTOTAL_COMP</i>	0.296*	0.586*	-0.004	-0.056‡	-0.041†	-0.081	0.066	0.023	-0.008	0.061
2	<i>ΔBONUS</i>		0.007	0.146*	-0.093†	-0.100†	0.015	0.029	0.043	0.025	0.020
3	<i>ΔEQUITY</i>			-0.278*	-0.086†	-0.004	-0.096†	-0.006	-0.039	-0.023	0.035
4	<i>ΔSALARY</i>				0.151*	0.031	0.006	0.097†	-0.010	0.034	-0.042
5	<i>ICMW</i>					0.027	-0.046	-0.076‡	-0.122*	-0.007	-0.096†
6	<i>CEO_FIN_EXPERT</i>						0.016	-0.036	-0.010	-0.072‡	-0.052
7	<i>#CC_FIN_EXPERTS</i>							0.085†	-0.020	-0.025	-0.036
8	<i>COMP_MEETINGS</i>								0.120*	0.088†	0.169*
9	<i>ANALYST_COVERAGE</i>									0.234*	0.217*
10	<i>LITIGATION</i>										-0.088†
11	<i>INVESTMENT_GRADE</i>										1.000

Note: Variable definitions are in Table 2. The following symbols indicate significant results: * significant at 1% level; † significant at 5% level; ‡ significant at 10% level.

TABLE 5
CFO total compensation, compensation components, and ICMW disclosure

<i>Dependent Variable:</i>		<i>ΔTOTAL_COMP</i>	<i>ΔBONUS</i>	<i>ΔEQUITY</i>	<i>ΔSALARY</i>
	<i>Predicted Sign</i>	<i>Coefficient (t-statistic)</i>	<i>Coefficient (t-statistic)</i>	<i>Coefficient (t-statistic)</i>	<i>Coefficient (t-statistic)</i>
<i>Variable</i>					
<i>Intercept</i>		2.207 (1.51)	1.819 (1.68‡)	-1.249 (-2.30†)	0.230 (1.94‡)
<i>ICMW (H1)</i>	-	-0.698 (-2.04†)	-0.144 (-1.84†)	-0.847 (-2.03†)	0.298 (1.63)
<i>MISS_ANALYSTS</i>	-	-0.153 (-1.37‡)	-0.103 (-3.99*)	0.054 (0.44)	-0.034 (-0.81)
<i>ΔTA</i>	+	0.357 (0.78)	0.113 (1.56*)	0.166 (0.36)	-0.001 (-0.02)
<i>ΔBTM</i>	-	-0.147 (-0.79)	-0.158 (-3.52*)	-0.044 (-0.23)	0.024 (1.01)
<i>ΔRET</i>	+	0.048 (21.81*)	0.005 (1.61‡)	0.044 (19.43*)	0.001 (2.27†)
<i>ΔROA</i>	+	0.005 (0.86)	0.001 (0.44)	0.001 (0.23)	0.000 (0.50)
<i>ΔSTD_RET</i>	?	-0.065 (-0.52)	0.015 (0.48)	-0.229 (-1.37)	0.081 (1.25)
<i>ΔSTD_ROA</i>	?	0.008 (0.12)	0.040 (2.15†)	0.002 (0.03)	-0.021 (-1.66‡)
<i>ΔLOSS</i>	-	0.135 (0.36)	-0.179 (-1.87†)	0.265 (0.65)	-0.066 (-0.98)
<i>FAS123R</i>	?			0.686 (1.28)	
<i>Industry Controls</i>		Included	Included	Included	Included
<i>N =</i>		604	604	604	604
<i>Adjusted R²</i>		6.64%	9.70%	1.02%	2.31%

Note: Variable definitions are in Table 2. The following symbols indicate significant results: * significant at 1% level; † significant at 5% level; ‡ significant at 10% level. One-tailed tests are used when coefficients have predicted signs.

TABLE 6
CEO total compensation, compensation components, and ICMW disclosure

<i>Dependent Variable:</i>		<i>ΔCEO TOTAL_COMP</i>	<i>ΔCEO BONUS</i>	<i>ΔCEO EQUITY</i>	<i>ΔCEO SALARY</i>
	<i>Predicted Sign</i>	<i>Coefficient (t-statistic)</i>	<i>Coefficient (t-statistic)</i>	<i>Coefficient (t-statistic)</i>	<i>Coefficient (t-statistic)</i>
<i>Variable</i>					
<i>Intercept</i>		-0.296 (-0.30)	-0.864 (-0.90)	0.832 (1.81‡)	0.039 (1.50)
<i>ICMW</i>	-	-0.471 (-0.72)	-0.134 (-0.96)	-0.319 (-0.57)	-0.018 (-0.20)
<i>MISS_ANALYSTS</i>	-	-0.184 (-0.85)	-0.109 (-2.73*)	-0.184 (-0.80)	0.002 (0.18)
<i>ΔTA</i>	+	0.407 (0.46)	0.125 (1.15)	-0.041 (-0.04)	0.029 (1.25)
<i>ΔBTM</i>	-	0.087 (0.21)	-0.265 (-4.11*)	-0.159 (-0.55)	0.057 (2.07†)
<i>ΔRET</i>	+	0.070 (21.79*)	0.002 (3.04*)	0.060 (20.62*)	0.000 (0.33)
<i>ΔROA</i>	+	0.014 (1.09)	0.008 (2.00†)	0.002 (0.17)	0.001 (0.91)
<i>ΔSTD_RET</i>	?	-0.247 (-0.77)	0.014 (0.27)	-0.312 (-0.94)	-0.011 (-0.36)
<i>ΔSTD_ROA</i>	?	-0.223 (-1.09)	-0.003 (-0.13)	-0.223 (-1.48)	-0.007 (-1.04)
<i>ΔLOSS</i>	-	0.562 (0.94)	-0.078 (-0.54)	0.576 (1.05)	-0.019 (-0.56)
<i>FAS123R</i>	?			0.015 (0.02)	
<i>Industry Controls</i>		Included	Included	Not Included	Included
<i>N =</i>		604	604	604	604
<i>Adjusted R²</i>		0.04%	9.58%	0.06%	13.46%

Note: Variable definitions are in Table 2. The following symbols indicate significant results: * significant at 1% level; † significant at 5% level; ‡ significant at 10% level. One-tailed tests are used when coefficients have predicted signs.

TABLE 7
CFO total compensation, compensation components, and prior year ICMW disclosure

<i>Dependent Variable:</i>		<i>ΔTOTAL_COMP</i>	<i>ΔBONUS</i>	<i>ΔEQUITY</i>
	<i>Predicted Sign</i>	<i>Coefficient (t-statistic)</i>	<i>Coefficient (t-statistic)</i>	<i>Coefficient (t-statistic)</i>
<i>Variable</i>				
<i>Intercept</i>		2.243 (1.51)	1.827 (1.68‡)	-1.206 (-2.36†)
<i>LAG_ICMW</i>	-	-0.634 (-1.55‡)	-0.084 (-1.00)	-0.765 (-1.75†)
<i>MISS_ANALYSTS</i>	-	-0.155 (-1.40‡)	-0.105 (-4.11*)	0.051 (0.42)
<i>ΔTA</i>	+	0.355 (0.78)	0.112 (1.49‡)	0.164 (0.36)
<i>ΔBTM</i>	-	-0.135 (-0.72)	-0.153 (-3.41*)	-0.029 (-0.16)
<i>ΔRET</i>	+	0.050 (24.47*)	0.001 (4.12*)	0.046 (22.88*)
<i>ΔROA</i>	+	0.005 (0.72)	0.001 (0.36)	0.000 (0.03)
<i>ΔSTD_RET</i>	?	-0.069 (-0.54)	0.013 (0.41)	-0.234 (-1.34‡)
<i>ΔSTD_ROA</i>	?	-0.007 (-0.10)	0.037 (1.89‡)	-0.017 (-0.26)
<i>ΔLOSS</i>	-	0.063 (0.17)	-0.194 (-2.00†)	0.178 (0.43)
<i>FAS123R</i>	?			0.679 (1.26)
<i>Industry Controls</i>		Included	Included	Included
<i>N =</i>		604	604	604
<i>Adjusted R²</i>		6.44%	9.24%	0.76%

Note: Variable definitions are in Table 2. The following symbols indicate significant results: * significant at 1% level; † significant at 5% level; ‡ significant at 10% level. One-tailed tests are used when coefficients have predicted signs.

TABLE 8
CFO total compensation, compensation components, and number of ICMW and ICMW type

<i>Dependent Variable:</i>		$\Delta TOTAL_COMP$	$\Delta BONUS$	$\Delta EQUITY$	$\Delta TOTAL_COMP$	$\Delta BONUS$	$\Delta EQUITY$
	<i>Predicted Sign</i>	<i>Coefficient (t-statistic)</i>	<i>Coefficient (t-statistic)</i>	<i>Coefficient (t-statistic)</i>	<i>Coefficient (t-statistic)</i>	<i>Coefficient (t-statistic)</i>	<i>Coefficient (t-statistic)</i>
<i>Variable</i>							
<i>Intercept</i>		2.217 (1.51)	1.821 (1.68*)	-1.245 (-2.34†)	2.223 (1.51)	1.819 (1.67‡)	-1.241 (-2.30†)
<i>#ICMW</i>	-	-0.300 (-1.99†)	-0.064 (-1.31‡)	-0.445 (-2.05†)	NA	NA	NA
<i>GENERAL</i>	-	NA	NA	NA	-0.194 (-0.51)	-0.147 (-0.81)	-0.572 (-0.72)
<i>ACCT_SPECIFIC</i>	-	NA	NA	NA	-0.948 (-2.09†)	-0.143 (-1.89†)	-0.984 (-2.04†)
<i>MISS_ANALYSTS</i>	-	-0.154 (-1.38‡)	-0.103 (-3.95*)	0.061 (0.48)	-0.158 (-1.41‡)	-0.103 (-3.94*)	0.052 (0.41)
ΔTA	+	0.378 (0.83)	0.117 (1.66†)	0.196 (0.43)	0.349 (0.76)	0.113 (1.56‡)	0.162 (0.35)
ΔBTM	-	-0.159 (-0.85)	-0.160 (-3.49*)	-0.075 (-0.40)	-0.125 (-0.67)	-0.158 (-3.45*)	-0.032 (-0.17)
ΔRET	+	0.049 (23.40*)	0.001 (2.77*)	0.045 (21.15*)	0.047 (20.55*)	0.000 (1.59‡)	0.044 (18.56*)
ΔROA	+	0.005 (0.79)	0.001 (0.40)	0.001 (0.15)	0.006 (0.86)	0.001 (0.44)	0.001 (0.23)
ΔSTD_RET	?	-0.079 (-0.61)	0.012 (0.40)	-0.244 (-1.42)	-0.064 (-0.52)	0.015 (0.48)	-0.229 (-1.36)
ΔSTD_ROA	?	0.007 (0.10)	0.040 (2.12†)	0.003 (0.05)	-0.001 (-0.01)	0.040 (2.13†)	-0.003 (-0.05)
$\Delta LOSS$	-	0.187 (0.50)	-0.168 (-1.72†)	0.359 (0.86)	0.000 (0.00)	-0.179 (-1.72†)	0.192 (0.42)
<i>FAS123R</i>	?			0.739 (1.38)			0.683 (1.28)
<i>Industry Controls</i>		Included	Included	Included	Included	Included	Included
<i>N =</i>		604	604	604	604	604	604
<i>Adjusted R²</i>		6.45%	9.48%	0.95%	6.60%	9.55%	0.87%

Note: Variable definitions are in Table 2. The following symbols indicate significant results: * significant at 1% level; † significant at 5% level; ‡ significant at 10% level. One-tailed tests are used when coefficients have predicted signs.

TABLE 9

CFO total compensation, compensation components, and tests of H2 and H3

<i>Dependent Variable:</i>		$\Delta TOTAL_COMP$	$\Delta BONUS$	$\Delta EQUITY$
	<i>Predicted Sign</i>	<i>Coefficient (t-statistic)</i>	<i>Coefficient (t-statistic)</i>	<i>Coefficient (t-statistic)</i>
<i>Variable</i>				
<i>Intercept</i>		1.202 (0.79)	1.878 (1.68‡)	-1.977 (-2.53†)
<i>ICMW (H1)</i>	-	-0.920 (-2.47*)	-0.169 (-2.24†)	-1.037 (-2.34*)
<i>CEO_FIN_EXPERT</i>	?	0.198 (0.36)	-0.131 (-1.47)	0.120 (0.22)
<i>ICMW* CEO_FIN_EXPERT(H2)</i>	-	-1.852 (-1.66†)	-0.40 (-1.75†)	-1.312 (-1.02)
<i>#CC_FIN_EXPERTS</i>	?	-0.607 (-1.85‡)	0.015 (0.29)	-0.350 (-0.96)
<i>ICMW* #CC_FIN_EXPERTS (H2)</i>	-	0.263 (0.49)	-0.147 (-1.37‡)	0.047 (0.08)
<i>#COMP_MEETINGS</i>	?	-0.037 (-0.52)	-0.006 (-0.61)	-0.007 (-0.08)
<i>ICMW* #COMP_MEETINGS(H2)</i>	-	0.067 (0.56)	0.064 (1.62)	-0.245 (-1.08)
<i>ANALYST_COVERAGE</i>	?	-0.671 (-1.18)	0.055 (0.63)	-0.408 (-0.68)
<i>ICMW* ANALYST_COVERAGE (H3)</i>	-	-0.294 (-0.24)	-0.355 (-1.70†)	-0.241 (-0.18)
<i>LITIGATION</i>	?	-1.050 (-1.31)	0.098 (0.84)	-0.570 (-0.51)
<i>ICMW* LITIGATION (H3)</i>	-	-1.389 (-1.55‡)	-0.250 (-1.67†)	-0.557 (-0.59)
<i>INVESTMENT_GRADE</i>	?	0.255 (1.63)	-0.009 (-0.28)	0.253 (1.69‡)
<i>ICMW* INVESTMENT_GRADE (H3)</i>	-	-1.021 (-1.82†)	-0.183 (-1.70†)	-0.374 (-0.55)
<i>MISS_ANALYSTS</i>	-	-0.152 (-1.34‡)	-0.108 (-3.99*)	0.076 (0.57)
ΔTA	+	0.348 (0.77)	0.099 (1.24)	0.247 (0.51)
ΔBTM	-	-0.075 (-0.39)	-0.160 (-3.46*)	0.023 (0.12)
ΔRET	+	0.049 (19.71*)	0.000 (0.49)	0.048 (15.57*)
ΔROA	+	0.01 (1.45‡)	0.001 (0.42)	0.004 (0.59)
ΔSTD_RET	?	-0.161 (-1.19)	0.008 (0.31)	-0.260 (-1.62)
ΔSTD_ROA	?	0.022 (0.31)	0.031 (1.35)	0.022 (0.33)
$\Delta LOSS$	-	-0.185 (-0.48)	-0.229 (-2.16†)	0.187 (0.43)
<i>FAS123R</i>	?			0.485 (0.88)
<i>Industry Controls</i>		Included	Included	Included
<i>N =</i>		601	601	601
<i>Adjusted R²</i>		8.05%	11.64%	0.34%

Note: Variable definitions are in Table 2. The following symbols indicate significant results: * significant at 1% level; † significant at 5% level; ‡ significant at 10% level. One-tailed tests are used when coefficients have predicted signs.

ENDNOTES

¹For example, Section 304 of SOX requires that if an issuer restates previously reported financial statements due to material non-compliance as a result of misconduct, the CFO must reimburse bonuses and/or incentives/equity-based compensation received during the 12 months following the filing of the non-compliance report and any profit realized from the sales of securities of the issuer during that period. In addition, Section 906 of SOX details specific penalties for CFOs who knowingly certify inaccurate reports, including fines of up to \$5 million and/or 20 years of jail time.

² While our primary focus is on CFOs, we control for CEO compensation in robustness test of our models, and we conduct sensitivity tests to assess whether our hypotheses concerning CFO compensation also apply to the CEO compensation setting.

³ Internal control information is incrementally low-cost for purposes of performance evaluation because it is already required to be gathered for the purpose of SOX compliance.

⁴ From reading proxy statements, we observe that in virtually every firm the board delegates the responsibility over executive compensation to the compensation committee.

⁵ The Big 8 audit firms include Arthur Andersen, Arthur Young & Company, Coopers & Lybrand, Ernst & Whinney, Deloitte Haskins & Sells, KPMG Peat Marwick, Price Waterhouse, and Touche Ross. The Big 6 include Arthur Andersen, Coopers & Lybrand, Ernst & Young, Deloitte & Touche, KPMG Peat Marwick, and Price Waterhouse. The Big 5 include Arthur Andersen, KPMG, Deloitte, Ernst & Young, and PricewaterhouseCoopers. The Big 4 include KPMG, Deloitte, Ernst & Young, and PricewaterhouseCoopers. The two national audit firms are BDO Seidman and Grant Thornton.

⁶ To verify the validity of our procedure we manually classified 300 (more than 10%) compensation committee members biographies. We then compared our manual classification to our automated one and found a mismatch in classification for only eight (2.7%) of our observations. Two of these mismatches were a result of faulty manual classification and the remaining six were from inaccuracies in our procedure. For example, our procedure failed to classify a vice-president of financial services as a financial expert. The extremely low classification inaccuracies provide a validation to our procedure. Further, any classification inaccuracies only introduce noise that bias against us finding results.

⁷ The following SIC codes are associated with industries more prone to litigation: 2833 to 2836, 3570 to 3577, 3600 to 3674, 5200 to 5961, and 7370 (See Ashbaugh-Skaife et al. 2007).

⁸ We follow Ashbaugh-Skaife et al. (2006) and collapse credit rating into seven mutually exclusive categories: 'AAA'=7; 'AA+'=6; 'AA' =6; 'AA-' =6; 'A+' =5; 'A' =5; 'A-' =5; 'BBB+' =4; 'BBB' =4; 'BBB-' =4; 'BB+' =3; 'BB' =3; 'BB-' =3; 'B+' =2; 'B' =2; 'B-' =2; 'CCC+' =1; 'CCC' =1; 'CCC-' =1; 'CC' =1; 'D' =1; no public debt=0.

⁹ We could not obtain the consensus analyst forecasts from IBES for 28 of our observations. We assign the value of zero to *MISS_ANALYSTS* for such observations. Eliminating these observations from our analyses does not qualitatively alter our results.

¹⁰ To eliminate the concern that our results are driven by firms that do not grant bonus or equity compensation, we perform an additional analysis. Our sample contains 24 (4%) firms and 41 (6.8%) firms that did not grant either bonus or equity compensation in the current and previous year, respectively. Removing these 24 firms from the bonus analysis and these 41 firms from the equity analysis does not alter our results.

¹¹ We also examine base salary as a dependent variable throughout our analyses. However, for the sake of parsimonious presentation and because results with respect to salary are not significant throughout, we do not report them from this point on.

¹² While we do observe a relation between ICMW disclosure and changes in equity compensation, the *MISS_ANALYSTS* variable is not significantly associated with changes in equity compensation. This result is inconsistent with Mergenthaler et al. (2009). A plausible explanation for the lack of association is that Mergenthaler et al. (2009) uses the natural log of the level of equity compensation (rather than the change in equity compensation) with a lagged value of missing the analyst forecast. In a non-tabled analysis, we use their method and are able to replicate their results. Further, we continue to observe a negative and significant association ($p < 0.05$) with the disclosure of ICMW and the level of equity compensation.

¹³ Because of concerns of the statistical validity (very low adjusted R^2) of the change in CEO equity compensation model when industries are included, we exclude them from the tabled results. However, inferences are qualitatively unchanged when these dummies are included.

¹⁴ We include changes in CEO total compensation, bonus compensation and equity compensation to the corresponding components of CFO compensation.

¹⁵ We use the following variables as determinants of ICMW: company size as measured by the natural log of market value, an indicator variable measuring Big 4 audit firm, auditor changes, an indicator variable measuring foreign operations, an indicator variable measuring restructuring, an indicator variable measuring extreme growth, the number of business and geographic segments, an indicator variable measuring current loss, and an indicator variable measuring firms in litigation-prone industries.

¹⁶ Our sample in these analyses is reduced by three observations due to missing governance information.

¹⁷ We obtain similar results when substituting the three-level categorical variable *INVESTMENT_GRADE* with an eight level categorical variable as suggested by Ashbaugh-Skaife et al. (2006) (see endnote 7). Further, when using an indicator variable showing whether the firm issues public debt, we do not observe significant results. This suggests that results are driven by the quality of the issued public debt, rather than by its existence.