

Mandated compensation disclosures and CEO pay

John R. Robinson
The University of Texas at Austin

Yanfeng Xue
George Washington University

and

Yong Yu
The University of Texas at Austin

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ABSTRACT: Mandated compensation disclosures provide important information for investors and may play a governance role in reducing excessive compensation and disciplining management. We utilize SEC evaluations of compensation disclosures mandated by rules adopted in 2006 to investigate whether noncompliance with the new regulations is associated with excessive CEO compensation, previous media attention, or proprietary costs. We also test whether subsequent CEO compensation is associated with the level of noncompliance identified by these publicized SEC reviews. We construct several measures of defective disclosures from SEC comment letters and find that disclosure defects are positively associated with excess CEO compensation and media criticism of CEO compensation during the previous year. We find no evidence supporting the contention that compensation disclosure defects are associated with proprietary costs. Furthermore, we present some evidence that the level of defects in pay-for-performance disclosures identified by the SEC is associated with a reduction in excess CEO compensation in the subsequent year.

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I. INTRODUCTION

Amid growing public criticism of executive pay and the options-backdating scandal, the SEC adopted sweeping changes to its executive compensation disclosure rules. These regulations were adopted in July 2006 and mandated new and expanded executive compensation disclosures and, in particular, a new Compensation Discussion and Analysis (CDA) section, effective for all proxy statements filed on or after December 15, 2006. This rule change represented the first comprehensive overhaul of the executive compensation disclosure rules since 1992, and it generated a record number of comment letters (over 20,000). The SEC believed that the newly mandated compensation disclosures “will significantly improve the quality and usefulness of information that investors receive about executive compensation.” More importantly, as SEC Chairman Cox commented, “When all is said and done, all of you will have far more useful tools to exercise your rights and responsibilities as shareholders.”¹ However, investors can only benefit from the new disclosures if management complies with the regulations.

In this paper we focus on the executive compensation disclosures mandated in 2006 as a context for investigating noncompliance with required disclosures. We have three objectives. First, we aim to test whether noncompliance with newly mandated compensation disclosures is associated with excessive CEO compensation. Second, based upon the literature and arguments made for exceptions to the disclosure rules, we investigate two additional economic forces that may influence noncompliance with compensation disclosures, media attention and proprietary costs. Lastly, we evaluate the impact of the public disclosure of defects identified by the SEC on subsequent excess CEO compensation. Our measures of noncompliance are based upon public correspondence between 336 large, publicly-held corporations and the SEC Division of Finance.

¹ See "Speech by SEC Chairman: Remarks Before the Council of Institutional Investors," Christopher Cox, Chairman of the SEC, March 30, 2006, available at <http://www.sec.gov/news/speech/spch033006cc.htm>.

This correspondence contains SEC critiques of specific compensation disclosures made by those firms in their 2007 proxy statements. Based upon these critiques we construct an objective measure of the *overall* level of noncompliance with mandated executive compensation disclosures. To investigate the source of the noncompliance, we construct measures of three *specific* types of disclosure defects. We construct these measures by classifying specific violations noted in the SEC correspondence into categories based upon defects in pay-for-performance (pay-performance) content, readability, and governance disclosures. Finally, we conduct several supplemental tests to address the possibility that our noncompliance measures suffer from selection bias or reverse causality.

We utilize our compliance measures to investigate the extent that noncompliance with mandated disclosures is related to three particular economic constructs. First, we test whether disclosure compliance is associated with variables representing excessive executive compensation. Managers who are paid excessive amounts of compensation have direct incentives to omit or obfuscate disclosures that have the potential of revealing excess compensation or excessive perquisites. This incentive is especially powerful in 2006 because the newly mandated regulations require specific disclosures of incentive payments, methods of benchmarking, and use of discretion. Second, we test whether negative media attention is associated with the extent of noncompliance with the mandated compensation disclosures. Core et al. (2008) report that managers do not find negative media attention sufficiently costly to justify a reduction in management compensation. We investigate whether prior negative media attention attenuates or exacerbates the level of noncompliance with mandated compensation disclosures. Third, we test whether noncompliance can be explained by variables representing proprietary costs associated with disclosing performance information. Because of the possibility of inadvertently revealing important trade secrets, the potential for incurring proprietary costs may be a valid excuse for noncompliance with certain mandated compensation disclosures.

Our empirical tests are based on regressions of noncompliance represented by a measure of overall noncompliance and measures of three different categories of specific disclosure defects. Overall noncompliance is represented by numbered defects identified by the SEC in each critique and the measures of specific defects are based upon the number of defects identified in each SEC critique related to a specific type of disclosure including pay-performance, governance, and readability. To gauge excess compensation of the Chief Executive Officer (CEO) we follow Core et al. (2008) and calculate expected CEO compensation from a cross-sectional regression of CEO total compensation on variables representing the economic determinants of CEO compensation. The difference between the actual compensation and expected compensation represents our proxy for excess CEO compensation. In supplemental analyses, we triangulate our results replicating our regressions after substituting governance variables capturing the level of oversight on CEO compensation for excess CEO compensation. Consistent with Core et al. (2008), we identify negative media attention by collecting and evaluating all the press articles related to a firm's CEO compensation over the entire disclosure year. Negative media attention is represented when a firm has at least one article explicitly criticizing CEO compensation. Following Karuna (2007), we capture the proprietary costs with measures of three important determinants of industry competition, namely product substitutability, market size, and entry costs.

We document substantial numbers of defects in our sample of proxy disclosures for 336 firms, and we observe that the degree and nature of noncompliance vary substantially across firms. The SEC critiques resulted in an average of 12 numbered defects with a minimum of one comment and a maximum of 31 comments. We estimate regressions using both ordered Probit and ordinary least square models for number of defects in the SEC critique after controlling for the complexity of the proxy statement, the author of the SEC critique, and various firm characteristics. Specifically, we find that the number of overall defects in compensation disclosures is positively associated with excess CEO compensation, and this result is

corroborated with our supplemental analysis using CEO oversight in lieu of excess compensation. Furthermore, we find that the number of defects is positively related to previous negative media attention focused on CEO compensation. However, we find no evidence that the number of defects is related to any of our proxies for proprietary costs.

Regarding specific types of disclosure defects, we find consistent evidence that pay-performance defects are associated with excess CEO compensation and negative media attention. However, we can only report weak evidence that defects in governance disclosures and readability are associated with excess CEO compensation and negative media attention. We find no evidence that any specific defect is associated with proprietary costs. In addition, we test for proprietary costs by identifying firms in our sample that refused to make required disclosures by arguing that these disclosures would result in competitive harm. However, we find no evidence that proprietary costs are higher for firms using proprietary costs as an excuse for defective disclosures. In sum, our evidence indicates that the extent of noncompliance with required compensation disclosures mandated in 2006 for our sample of 336 firms is positively associated with excess CEO compensation and negative media attention, but not related to proprietary costs.

Following our analyses of the determinants of noncompliance, we examine whether public disclosure of defects identified by the SEC results in any reduction in excess CEO compensation in the subsequent year. Specifically, we calculate the change in total CEO compensation between fiscal years 2006 and 2007 and decompose this change into the change in expected compensation and excess compensation. We then estimate separate regressions of the change in CEO excess compensation on the overall level of noncompliance and the three specific types of disclosure defects. We find that the change in excess compensation is negatively associated with the number of pay-performance defects. We find no other significant associations between the change in CEO excess compensation and other types of disclosure defects. Thus, our tests provide some support for the contention that the public disclosure by the

SEC of defects in mandated compensation disclosures reduced subsequent excess CEO compensation.

To our knowledge, this study is the first to analyze the economic determinants of why firms fail to comply with mandated compensation disclosures. Previous studies of compensation disclosures have mostly focused on voluntary disclosures (e.g., Lewellen et al. 1996; Byrd et al. 1998; Laksmana 2008). For mandatory disclosures, previous research has concentrated on economic consequences of disclosure regulation changes (e.g., Park et al. 2001; Lo 2003; Craighead et al. 2004). Surprisingly, there is little research on whether firms comply with mandatory compensation disclosures and the underlying reasons for defective disclosures.²

This study also contributes to the fairly limited empirical literature on how the media influences firm decisions. This is an important question because media attention could serve to help police corporate behavior. Prior studies have examined the impact of media attention on corporate governance (Dyck and Zingales 2004; Joe et al. 2009), executive compensation (Core et al. 2008), and voluntary disclosure choices (Byrd et al. 1998; Laksmana 2008). We add to this growing literature by contributing evidence on the influence of negative media attention on compliance with mandatory compensation disclosures. We document a positive association between defects in compensation disclosures and negative media attention, consistent with negative media attention having a detrimental effect on the willingness of managers to reveal details of compensation arrangements. Although this result must be interpreted cautiously, it suggests that managers might respond to public criticism of CEO compensation by withholding mandated compensation information.

Our findings are timely and relevant to policy makers, regulators and investors. First, our findings on the determinants of noncompliance and on the specific types of disclosures firms are

² The absence is likely due to the difficulty of obtaining a relatively objective and comprehensive measure of defective disclosure. Prior research has examined compliance with mandated disclosure of two topics where defective disclosure is relatively clear: auditor changes (e.g., Schwartz and Soo 1996; Ettredge et al. 2008) and the presentation and content of uncertain tax benefits (Robinson and Schmidt 2008).

likely to violate should aid regulators and investors in monitoring firms' mandatory compensation disclosure practice. Second, our finding that mandated disclosures can be compromised by management incentives is directly relevant to policy makers and regulators who seek evidence about whether agency problems create incentives for managers to camouflage excessive pay. Third, our finding that compensation disclosures are not associated with various measures of proprietary costs refutes the only valid excuse for managers who seek to avoid complying with compensation disclosure regulations. In particular, this evidence helps justify the requirement that firms disclose specific qualitative and quantitative performance targets for individual executives. Finally, our test results examining the relation between noncompliance and subsequent CEO compensation are also important to policy makers because this suggests that the release of detailed SEC critiques could play a disciplinary role in CEO compensation.

The remainder of this study is organized as follows. The next section presents the institutional background of our research setting and develops the hypotheses. The third section describes the research method and our sample. The fourth section presents our empirical results and sensitivity analyses. The final section concludes.

II. THEORY

Background

In July 2006, the SEC adopted sweeping changes to its executive compensation disclosure rules which mandate the information companies must disclose about executive pay packages in their annual proxy statements. The new rules, which were proposed in January 2006 and generated over 20,000 comment letters, represent the first comprehensive overhaul of the executive compensation disclosure regulations since 1992. The rule changes were motivated by two important and related forces. First, previous disclosure rules provided investors inadequate and sometimes even misleading information because of the dramatic changes in executive

compensation practices.³ Second, the options-backdating scandal and highly publicized examples of large payouts and exorbitant severance packages increased demand for information about executive compensation practices (see, e.g., Bebchuk 2006; Cox 2006; Scannell 2006; Scannell and Lublin 2006). The objective of the revised disclosure rules is to improve the quality and quantity of information on executive compensation so that shareholders can make more informed decisions.

The revised compensation disclosure rules require a new “Compensation Discussion & Analysis” (CDA) section to be filed with the proxy and certified by the CEO and CFO. The new CDA section is required to provide an explanation and analysis of all material elements of the company's compensation goals, practices and decisions for the CEO, CFO, three other highest-paid executive officers and the directors. The CDA section must address the following specific questions:

- (1) What are the objectives of the company's compensation programs?
- (2) What activities are the compensation programs designed to reward?
- (3) What is each element of compensation?
- (4) Why does the company choose to pay each element?
- (5) How does the company determine the amount (and, where applicable, the formula) for each element?
- (6) How does each element fit into the company's overall compensation objectives and how do the company's decisions regarding that element fit into these objectives and affect decisions regarding other elements?

The CDA disclosures must be sufficiently precise to identify material differences in compensation policies and decisions for the five named individuals. The new rules also require

³ Former SEC chairman Cox (2006) notes: “This is the first time in 14 years that the Commission has undertaken significant revisions of its rules for executive compensation. Simply put, our rules are out of date, and it's high time we updated them... Over the last decade and a half, the compensation packages awarded to directors and top executives have changed substantially. Our disclosure rules haven't kept pace with changes in the marketplace. And in some cases, today's disclosure regime fuzzes up rather than illuminates the true picture of compensation.”

companies to disclose specific quantitative or qualitative performance targets used to determine bonus payout for executives unless such disclosure would cause competitive harm by revealing trade secrets or confidential commercial or financial information. However, if the company withholds the targets, it must then discuss how difficult or likely it will be for executives to achieve the undisclosed targets. The SEC may also require the company to document why the particular performance targets involve trade secrets or confidential commercial and financial information and why disclosure would result in competitive harm.

Besides the CDA, the new rules require an array of new tables showing a variety of compensation related data and significantly expand disclosures for pension and other post-employment benefits, stock option grants, severance payments, perquisites, and change in control benefits. A new column in the summary compensation table must be included to show the total compensation (in dollars) including salary, bonuses, option grants, pension benefits and perks, which should provide “one bottom line number, including all options, for an executive's total compensation, and that number will be comparable from company to company” (Cox 2006). The new rules also tighten the disclosure requirements for perquisites. The threshold for including perquisites and other personal benefits in the summary compensation table has been lowered significantly to half of the level under the old rule. In addition, once the threshold is exceeded, each perquisite and personal benefit must now be identified by specific type. To supplement the summary compensation table, the new rules replace the existing table for grants of options and stock appreciation rights with a redesigned table aimed at providing additional details about a broader range of plan-based awards. The disclosures in this table are meant to supplement the single data point (i.e. dollar value) regarding stock, option and non-stock awards in the summary compensation table, by showing details about timing and pricing.

In addition to the detailed tabular presentations, the new rules require a narrative description of any material factors necessary to an understanding of the information disclosed in the summary compensation table and the plan-based awards table. This additional disclosure is

intended to help reveal how well a company aligns its executive compensation with the performance of its executives and the company as a whole. The new rules significantly expand the disclosure regarding retirement benefits, change-in-control and other termination compensation arrangements, eliminating the “Aha!” moments when shareholders learn the details of the “golden goodbye” (Cox 2006). The new regulations also extend disclosure requirement for corporate governance mechanisms such as: the procedures and processes the compensation committee used to set compensation policies and to determine executive and director compensation; identity of compensation consultants and the role of compensation consultants in determining executive and director compensation; definition of independent directors.

To evaluate compliance with the new compensation disclosure rules, the SEC instituted a review initiative of proxy statements during the summer of 2007. The SEC conducted a comprehensive review of 350 companies' compensation disclosures and sent comment letters to the CEOs of those companies highlighting defects in and required improvements of their executive compensation disclosures.⁴ Although no tabular presentation of results appears in the staff report, two themes emerged from the SEC's review.⁵ First, the CDA often fail to focus on how and why a company arrives at specific executive compensation decisions and policies. As John While, Director of Division of Corporate Finance concludes: "Far too often, meaningful analysis is missing - this is the biggest shortcoming of the first-year disclosures."⁶ The study suggested that disclosures should be short and clear with a focus on helping the reader

⁴ The Sarbanes-Oxley Act requires that the SEC review disclosures of all reporting companies firms at least once every three years. Although the SEC has not indicated how they selected the 350 firms in the study, we do not believe that the selection is related to the quality of their compensation disclosures. In our analyses, we document a large variation in disclosure defects among our sample firms. In the latter part of this paper, we address the potential for selection bias.

⁵ See "Staff Observations in the Review of Executive Compensation Disclosure, Division of Corporation Finance," available at <http://www.sec.gov/divisions/corpfm/guidance/execcompdisclosure.htm>.

⁶ See "Speech by SEC Staff: Where's the Analysis?" John W. White, Director, Division of Corporate Finance, October 9, 2007, available at <http://www.sec.gov/news/speech/2007/spch100907jww.htm>.

understand the basis and the context for granting different types and amounts of executive compensation. Second, the SEC concluded that the companies often did not use plain English or tables and graphs organized in a way to help readers understand the disclosures. The study suggested that techniques such as providing an executive summary or creating tables or charts tailored to a company's particular executive compensation program would make the disclosure more useful and meaningful (White 2007).

Prior research and hypotheses

Prior research on mandatory compensation disclosures has primarily focused on the economic consequences of disclosure regulations. By providing information on managers' compensation contracts, required disclosures can help investors better monitor the board of directors and the managers and hence enhance contracting efficiency and firm value. Mandatory disclosures could also be costly. Disclosure of mandated compensation information could impose political costs on firms with compensation contracts of higher pay-performance sensitivity or reveal proprietary information or trade secrets to firms' competitors (Verrecchia 1983; Jensen and Murphy 1990; Hayes and Schaefer 2000).

Most of the prior economic consequence studies focus on the effect of mandatory disclosures on compensation contracts, especially their pay-performance sensitivities. Ke et al. (1999) find higher pay-performance sensitivity for publicly held insurance firms which are subject to mandatory disclosures of executive compensation information compared to private held insurance firms. Vefas and Afexentiou (1998) find an increase in the pay-performance sensitivity after the SEC's 1992 regulation on executive compensation disclosures. Park et al. (2001) and Craighead et al. (2004) provide Canadian evidence by examining a 1993 regulatory change which requires firms listed on the Toronto Stock Exchange to disclose detailed executive compensation data. The evidence from the two studies is generally consistent with the disclosure regulation resulting in an increase in the pay-performance sensitivity. Overall, to the extent that an increase in the pay-performance sensitivity indicates an improvement in the efficiency of

executive compensation contracts, the prior evidence supports the belief that required compensation disclosures improve corporate governance. However, as those studies do not consider the costs of mandatory disclosures, they provide little evidence on the net benefit of disclosure regulation to the firm.

Lo (2003) provides evidence on the impact of the 1992 SEC regulation on shareholder value. He finds that relative to a sample of control firms, firms which lobbied against the regulation experienced excess stock returns of 6 percent over the 8-month period between the announcement and the adoption of the proposed regulation and had an improvement of 0.5 percent and 3 percent in return-on-assets and return-on-equity, respectively. He also finds that the more aggressively a firm lobbied against the regulation, the higher the excess stock returns it had during events that increased the probability of regulation. His findings suggest that the benefits of expanded mandatory compensation disclosures to shareholders outweigh the potential costs, enhancing shareholder wealth.⁷

While the prior research evidence suggests that mandatory compensation disclosures can bring significant economic benefits to investors, there is little research on firms' compliance with the compensation disclosure requirements.⁸ The anecdotal evidence, however, suggests that certainly not all firms fully comply with the required compensation disclosures. For example, recently the SEC brought enforcement actions against large, well-known companies like General Electric, Walt Disney and Tyson Foods for their inadequate or incomplete disclosure of required

⁷ Lo (2003) does not examine the benefits and costs of the mandatory disclosures to other parties such as creditors and employees. There is no general consensus in the extant literature on whether mandatory disclosures bring net social benefits or costs (Leuz and Wysocki 2008; Schipper 2007). It is important to note that in this paper we do not assume that mandatory disclosures are beneficial nor do we aim to test for whether capital markets find additional disclosures valuable. Our objective is to ascertain if management incentives are associated with defects in mandatory compensation disclosures.

⁸ Prior research has examined firms' voluntary disclosure of certain compensation data (e.g., Lewellen et al. 1996; Byrd et al. 1998; Laksmana 2008). Our study is distinct from those studies as we focus on the firm's decisions to comply with mandatory disclosure requirements. In contrast to voluntary disclosures, the potential repercussions for violating mandatory disclosures are quite severe. In the case of a defective proxy filing, the SEC can initiate a formal investigation and can utilize broad remedial powers granted under The Securities Act of 1933 including the ability to use injunctive relief, civil penalties, and referral for criminal prosecution. Moreover, formal SEC investigations are often accompanied by shareholder lawsuits.

executive and director compensation data (Solomon 2005). The objective of this paper is to examine why firms fail to comply with mandated compensation disclosures. We posit that three powerful economic forces will act to induce noncompliance with the new compensation disclosure regulations. In addition, we also test the impact of public disclosure of disclosure defects on firms' subsequent compensation levels.

Excess Compensation

If the CEO receives excessive compensation, then there is a direct incentive to omit disclosures that reveal the excessive compensation or to obfuscate compensation disclosures to conceal the information from investors, regulators, and the media. This incentive exists because informed shareholders might act to reduce excessive compensation by improving governance mechanisms or by reducing CEO compensation directly. In addition, regulators or policy-makers might act to reduce excessive compensation by requiring additional governance mechanisms or by legislating limits on executive compensation. If the media becomes aware of excessive pay, then negative publicity could force directors to reduce excessive compensation or reduce the ability of the CEO to obtain new offers of employment. Hence, we predict the following (stated in the alternative):

H₁: The level of defects in mandatory compensation disclosures will be positively related to excess CEO compensation.

Media coverage

Negative media coverage can impose significant costs on firm management and directors by inducing negative shareholder reaction, regulatory action against management and directors, and even political intervention. However, it is unclear *a priori* how managers would respond to negative media coverage. The reaction of management depends on whether managers believe that improved disclosures would reduce the likelihood of media criticism or whether additional disclosures would encourage closer media scrutiny. This is an important issue because if managers react to media scrutiny by improving disclosures or reducing excess compensation,

then media attention could help police corporate behavior. On the other hand, if managers respond by reducing disclosures, then media scrutiny could have a detrimental effect. Prior studies have found mixed evidence on the impact of negative media coverage. For example, Byrd et al. (1998) find that firms with more media coverage (i.e., more attention from the press) are less likely to voluntarily disclose compensation peer groups in their proxy statements. In contrast, Laksmana (2008) finds a positive but statistically insignificant relation between prior negative media coverage and the amount of voluntarily disclosed compensation information. Core et al. (2008) find no evidence that media criticism is associated with subsequent reduced excess CEO pay or increased CEO turnover. Hence, we predict the following non-directional hypothesis on the effect of negative media coverage (stated in the alternative):

H₂: The level of defects in mandatory compensation disclosures will be associated with negative media coverage prior to the mandated compensation disclosure.

Proprietary costs

Other things equal, firms with trade secrets related to performance targets are less likely to disclose information on their compensation contracts because of the possibility of revealing trade secrets that will benefit competitors. For example, Coca Cola makes the following argument in its response to the SEC request for additional information on 2006 performance targets:

“Disclosure of the Company’s internal projections and our performance against the business plans would allow competitors to understand our business priorities, areas of emphasis, investment strategies, and expectations for particular geographic regions. Competitors and industry experts may be able to deduce the investment required to deliver certain volume or profit targets. Likewise, if we disclosed these targets after-the-fact, competitors would have access to baseline information for future projected growth. As an example, if competitors discovered that we are aiming for a significant percentage increase in volume or profit in a particular geographic area, this would provide competitors with highly valuable information

that would allow them to focus their competitive efforts against the Company in that area.”⁹

Indeed, proprietary costs are one excuse for nondisclosure that is specifically allowed by the instructions to the revised regulations.¹⁰ Hence, we expect that noncompliance levels will be higher for firms facing higher potential proprietary costs. We test the following hypothesis (stated in the alternative):

H₃: The level of defects in mandatory compensation disclosures will be positively associated with the level of proprietary costs.

Subsequent CEO compensation

Besides facilitating compliance with the revised disclosure rules, the public release of the disclosure defects identified by the SEC could also increase board accountability and lead to subsequent reductions in excess CEO compensation. This positive effect can occur for at least two reasons. First, to address the disclosure defects, firms are forced to disclose information which may reveal excessive compensation and trigger negative reactions from shareholders and the public. Anticipating this outcome, the board and management have an incentive to reduce the existing excess CEO compensation. Second, the public disclosure of defects in the mandatory compensation disclosures may draw more attention to and scrutiny of the firm's compensation practices, putting pressure on the firm to reduce existing excess CEO compensation. In a recent study, Chen and Johnson (2008) examine the public release of SEC comment letters criticizing disclosures in financial reports. They find reduced return volatility and trading volume associated with subsequent earnings announcements and conclude that the public release of SEC reviews reduces information asymmetry. To ascertain if the public disclosure of the SEC critiques affected subsequent CEO compensation, we test the following hypothesis (stated in alternative):

⁹ Page 5 of letter dated October 26, 2007 responding to SEC critique.

¹⁰ Instruction 4 to Regulation S-K, Item 402(b).

H₄: Changes in subsequent excess CEO compensation will be negatively associated with disclosure defects identified in SEC critiques.

III. RESEARCH DESIGN

In this section we describe our research design including the sample selection, the regression models, and the variables representing our constructs. To test our hypotheses we estimate regressions using the following general format:

$$\begin{aligned} Defects = & \beta_0 + \beta_1 Excess\ Compensation + \beta_2 Negative\ Media + \beta_3 Proprietary\ costs \\ & + \beta_k Controls + v \end{aligned} \tag{1}$$

where *Defects* is an objective measure of disclosure defects in the mandated executive compensation disclosures in the proxy statement evaluated by the SEC's Division of Corporate Finance. Our key independent variables include measures of the level of excess CEO compensation, negative media attention, and proprietary costs.

Sample Selection

We measure compliance with the SEC's new compensation disclosure rules based on the comment letters issued by the SEC in 2007, regarding firms' proxy statements published in early to mid 2007. Because virtually all of the firms included in this SEC review have calendar year ends, the 2007 proxy statements report executive compensation for calendar year 2006. The SEC issued comment letters to 350 companies, and after searching the Edgar database, we are able to identify 339 of those companies.¹¹ Three of these firms are dropped from our analyses because of missing compensation or financial data. Our final sample is thus composed of 336 firms.

We obtain CEO compensation and director characteristics data from Standard & Poor's Execucomp database and RiskMetrics' director's database, respectively. We collect these data

¹¹ We do not test the market reaction to the issuance of the letters because we cannot identify a specific date in which the letters were publicly available on EDGAR.

directly from proxy statements for those firms whose director characteristics and CEO compensation data are not available from the above mentioned databases. The financial data are taken from Compustat and the institutional investor's holdings are obtained from the Spectrum database. Appendix A provides variable definitions, including the key variables and control variables. The following sections discuss the construction for the key variables in this study.

Variable measurement

Disclosure defects

To construct an objective measure of overall disclosure defects we first retrieve SEC letters containing the critiques of the specific proxy disclosures made in 2007. We create a variable representing the number of important defects identified by the SEC staff by recording the total of numbered comments in the letter (*NDEFECT*).¹² To assess whether the identification of important defects is consistent across all comment letters and across SEC staff (individuals who were responsible for drafting the critiques), we conduct an independent audit of the SEC letters by randomly selecting three SEC staff and 15 companies reviewed by these staff. We evaluate both the number of comments and the content of each comment in each of the letters. We find no evidence that the scope or quality of the critiques varied across firms. We also note that the classification of defects is also highly consistent across different firms for the same staff member, but may differ significantly across different staff members.¹³ This finding highlights the importance of controlling for the differential styles of organizing comment letters across staff members when using the number of comments (*NDEFECT*) to gauge firms' noncompliance with

¹² As a robustness check, we also use the number of words in each comment letter as a proxy for the overall compliance. The results from using the number of words to represent the overall level of disclosure defects (untabulated) are qualitatively similar to the results presented in the tables.

¹³ For example, one reviewer might put defect "A" and defect "B" in one comment while another reviewer might put these two defects into two separate comments. Because we control for the individual reviewer's impact by using reviewer fixed effects in our regressions, the personal style of each reviewer should not bias our results (as long as each reviewer is consistent across her reviews).

the disclosure rules. Thus, we include an indicator variable for each staff member to control for any staff-specific effects.

To trace the specific sources of the overall defects, we further categorize the SEC critiques into three specific types of disclosure defects: pay-performance, governance, and readability. We first identify defects in the disclosures of the content of compensation contracts from the SEC critiques and refer to these as defects in the pay-performance component of the mandated disclosures. Examples of these defects include failure to identify the benchmarks used to determine bonuses, failure to explain the reasons for material differences in compensation between executives, and failure to disclose specific components of the performance targets used to determine bonuses.¹⁴ Second, we identify defects in the disclosures about the firm's corporate governance mechanisms related to compensation. Examples of these defects include failure to disclose the standards for identifying related party transactions, failure to disclose the CEO's role in determining the pay for other executives, and failure to disclose how "independence" is defined and determined for individual directors. Third, we identify defects in the readability of the compensation disclosures. Examples of this type of defect include failure to limit discussion of compensation tables to information necessary to understand the tables, failure to use proper names for compensation plans to allow readers to track descriptions throughout the proxy, and failure to limit use of legalistic and confusing wording in the discussion. We count the number of comments in each of the three categories and use these three variables, *PDEFECT*, *GDEFECT*, and *RDEFECT*, respectively, to represent for the specific types of noncompliance.

Excess Compensation

We estimate excess CEO compensation by subtracting the expected compensation from the total 2006 compensation paid to the CEO of each sample firm. Following Core et al. (2008)

¹⁴ Note that the regulations do not forbid the use of discretion when granting incremental payments for performance. However, the ability to use discretion as well as the actual exercise must be disclosed. Item 402(b)(2)(vi) of Regulation S-K.

we calculate the expected CEO compensation by estimating a regression of CEO compensation on the economic determinants of CEO compensation as follows:

$$\text{Log}(\text{Compensation}) = a_0 + X_i a + u, \quad (2)$$

where *Compensation* is total compensation tallied in Execucomp for 2006, and X_i consists of $\text{Log}(\text{Tenure}_{2006})$, $\text{Log}(\text{Sales}_{2005})$, S&P500 membership, Book-to-market ratio in 2005, RET_{2005} , RET_{2006} , ROA_{2005} , and ROA_{2006} as well as industry controls. We then separate CEO compensation into two components: the prediction from the estimated CEO compensation regression (expected pay) and a residual (excess pay). Specifically, we compute excess compensation by estimating expected compensation for fiscal year 2006 from equation (2) and subtracting it from actual compensation in 2006 as follows:

$$\text{Excess}(\text{Compensation}) = \text{Compensation}_{2006} - \text{Expected}(\text{Compensation}) \quad (3)$$

The method for calculating excess compensation is described in more detail in Appendix B and Table B1 reports the results for estimating excess compensation for our sample of firms.

Media variable

We identify negative media attention by collecting and evaluating all press articles related to a firm's CEO compensation during 2006. The articles are identified from the Factiva database following the search method described in Core et al (2008). The indicator variable, *NPRESS*, represents firms that received at least one article explicitly criticizing their CEO compensation during 2006. Note that our compliance measure is for proxy statements issued in mid 2007 regarding executive compensation paid during 2006. By measuring negative media coverage during 2006 we identify *NPRESS* prior to decisions about disclosures made in the 2007 proxy statement.

Proprietary costs variables

To test whether the possibility of inadvertently disclosing trade secrets is a reasonable justification for omitting mandated disclosures we first must determine how to measure the proprietary costs related to such a disclosure. Prior studies have generally used measures of industry competition as proxies for proprietary costs. This proxy is based on the premise that disclosures are likely to cause more damage to a firm's competitive advantage when the firm operates in a less competitive industry and enjoys higher profitability (Harris 1998). The traditional way of measuring competition is to use a single aggregate measure to gauge the level of concentration in the industry. Examples of such measures are the four-firm concentration ratio and the Herfindahl index (Harris, 1998). In a recent study, Karuna (2007) draws on recent theoretical studies in economics and argues that because competition is multi-dimensional, the single industry concentration measure could be a poor proxy for competition. He proposes three measures to replace the traditional single concentration measures. We follow his approach and construct the three measures of the competitive environment:¹⁵

DIFF = the extent of product substitutability in a firm's industry (4-digit SIC code), measured as sales divided by operating costs (costs of goods sold, SGA expenses, depreciation, depletion and amortization) for the industry;

INDSZ = market size in a firm's industry (4-digit SIC code), measured as total industry sales, intended to measure the consumer density of a certain market;

ENTRY = entry cost in a firm's industry (4-digit SIC code), measured as weighted average of property, plant and equipment for a firm's industry (the weight is each firm's market share in the industry);

We expect that the competitiveness of a market or industry should increase in *INDSZ* and decrease in *DIFF* and *ENTRY*.

¹⁵ We also conduct tests using the traditional concentration measure – the Herfindahl index – and the results (untabulated) are qualitatively the same as using these three measures. In addition, we test for another type of proprietary costs related to the competition in the CEO labor market (see Section IV).

Controls

An important control is the length of compensation-related disclosures in proxy statements. The concern here is that, all else equal, firms with more complex compensation structures are more prone to potential disclosure problems, and thus, are more likely to have additional disclosure defects. We include the logarithm of the number of words in the proxy statements (*LPRXY*) as the control for the complexity of the compensation contracts, assuming that a more lengthy proxy statement indicates more complex compensation contracts. As previously mentioned, we control for the difference between the individual styles of SEC reviewers by including an indicator variable for each member of the SEC staff who authored comment letters.

As argued by Byrd et al. (1998), additional compensation for management is more defensible for firms with superior performance. We control for superior stock returns and financial performance (profitability) by including in the regression variables representing buy-and-hold stock returns (*RET*) and return on assets (*ROA*) for 2006. Because larger firms have more resources to comply with the disclosure requirements (Schwartz and Soo 1996), we also control for firm size using the logarithm of market capitalization (*LSZ*) at the end of 2006.

Regression models

We test H1-H3 by estimating the following ordered Probit model:

$$\begin{aligned} \text{Probability (Defects)}_i = & \alpha + \beta_1 \text{EXPECTCOMP}_i + \beta_2 \text{EXCESSCOMP}_i \\ & + \beta_3 \text{NPRESS}_i + \beta_4 \text{DIFF}_i + \beta_5 \text{Log(INDSZ)}_i + \beta_6 \text{Log(ENTRY)}_i \\ & + \beta_7 \text{LPRXY}_i + \beta_8 \text{RET}_i + \beta_9 \text{ROA}_i + \beta_{10} \text{LSZ}_i \\ & + \text{Dummies for SEC reviewers} + u_i \end{aligned} \quad (4)$$

where the dependent variable is the number of disclosure defects and is one of the four variables we use to gauge firm's level of noncompliance with the SEC rules. The overall measure of defects (*NDEFECT*) aggregates the total of the numbered defects identified in the SEC comment

letters. We also use three additional measures each of which represents a specific type of the disclosure deficiency. Defects in disclosing the specific pay-performance content of the compensation contracts is represented by *PDEFECT*, whereas *GDEFECT* represents deficiencies in the specific disclosures of the corporate governance mechanisms for determining compensation, and *RDEFECT* represents deficiencies in the readability of the compensation disclosures.

We estimate this regression with our sample of 336 firms whose 2007 proxy statements were reviewed by the SEC. Because all data are drawn from the fiscal year 2006, we omit the time subscript in the variables. As a robustness check, we also estimate our regression using OLS by replacing the dependent variable with logarithm transformations, $\text{Log}(NDEFECT)$, $\text{Log}(PDEFECT+1)$, $\text{Log}(GDEFECT+1)$ and $\text{Log}(RDEFECT+1)$.¹⁶ The signs on the coefficients predicted by the hypotheses are as follows:

$$H1: \beta_2 > 0$$

$$H2: \beta_3 \neq 0$$

$$H3: \beta_4 > 0, \beta_5 < 0, \beta_6 > 0$$

Our last hypothesis (H4) examines whether firms reduce excess CEO compensation after public disclosure of the SEC reviews. To test H4, we estimate the following OLS model:

$$\begin{aligned} \Delta EXCESSCOMP &= \alpha + \beta_1 \text{Log}(NDEFECT)_i + u_i \text{ or} \\ \Delta EXCESSCOMP &= \alpha + \beta_2 \text{Log}(PDEFECT_i + 1) + \beta_3 \text{Log}(GDEFECT_i + 1) + \beta_4 \\ &\quad \text{Log}(RDEFECT + 1)_i + u_i \end{aligned} \tag{5}$$

To calculate the dependent variable, we begin with the change in the CEO's total compensation from 2006 (pre-SEC review) to 2007 (post-SEC review). We then decompose the total change in CEO compensation into its two components, $\Delta EXPECTCOMP$, and $\Delta EXCESSCOMP$. Our

¹⁶ We add one to *PDEFECT*, *GDEFECT* and *RDEFECT* to avoid taking the logarithm of zero.

focus is on the change in CEO's excess compensation: if firms that receive more criticism from the SEC reduce CEO excess compensation, we should expect negative signs on the four measures of defects, $\beta_1 < 0$, $\beta_2 < 0$, $\beta_3 < 0$, and $\beta_4 < 0$.

IV. EMPIRICAL RESULTS

Summary statistics and correlation analysis

Table 1 presents the summary statistics of our sample. The variation among our sample firms in terms of the number of defects raised by the SEC reviewers is sufficiently large for the purpose of our study. An SEC critique, on average, makes 12 criticisms and the standard deviation is close to four. An average SEC critique is composed of eight numbered comments on pay-performance disclosures, three numbered comments on corporate governance disclosures, and one comment on readability. The most common defects identified by the SEC are presented in Appendix C.

Table 2 reports the correlations among key variables. Consistent with H1, the total number of defects (*NDEFECT*) and the number of defects related to pay-performance disclosures (*PDEFECT*) are positively correlated with CEO excess compensation (*EXCESSCOMP*). In contrast, there is little evidence that the number of defects related to governance disclosures (*GDEFECT*) or readability (*RDEFECT*) is correlated with CEO excess compensation (*EXCESSCOMP*). Consistent with H2, we find that negative media coverage of the CEO compensation (*NPRESS*) is positively correlated with the total number of defects (*NDEFECT*) as well as the number of defects related to pay-performance disclosures (*PDEFECT*) and governance disclosures (*GDEFECT*). However, the correlation results provide little support for H3: the measures of proprietary costs (*DIFF*, $\log(\text{INDSZ})$, and $\text{Log}(\text{ENTRY})$) are generally not correlated with any of the four measures of disclosure defects.

[INSERT TABLES 1 AND 2 ABOUT HERE]

Regression results

Table 3 presents the results from estimating regression equation (4) where the dependent variable is the summary measure of firm's overall disclosure noncompliance (*NDEFECT*). Column (1) of the table reports the results from the ordered Probit model and column (2) reports the results from the OLS regression. The results show that excess CEO compensation and negative media coverage are significantly and positively associated with defects in the mandatory compensation disclosures, whereas proprietary costs are not associated with disclosure defects. Consistent with H1, firms with higher excess CEO compensation are more likely to have more disclosure defects ($\beta_2 > 0$). Consistent with H2, firms receiving negative media coverage regarding CEO compensation are likely to have more defects in their compensation disclosures ($\beta_3 > 0$). Inconsistent with H3 and with claims made by firms, the results provide no evidence that proprietary costs are associated with disclosure defects. The estimated coefficients on the three proprietary cost measures are all statistically insignificant.

[INSERT TABLE 3 ABOUT HERE]

The impact of excess compensation and negative media coverage on disclosure defects appears economically significant. Based on the OLS regression results presented in Column (2) of Table 3, we estimate that a one standard deviation increase in excess compensation is associated with 1.1 more defects in the firm's proxy statement. Firms with negative media coverage in the prior year on average have almost 1.4 more defects in their proxy statements than firms without negative media coverage.

Table 4 presents the results from estimating equation (4) using the three measures gauging specific types of the disclosure defects (i.e., *PDEFECT*, *GDEFECT*, and *RDEFECT*). Panel A reports the regression results using ordered Probit and panel B reports the regression results using OLS. The results show that excess compensation is significantly associated with defects related to two aspects of the proxy disclosures, pay-performance and corporate governance. The third type of defect, the readability of the disclosures, is not associated with

excess compensation. The ordered Probit regression results also indicate that negative media coverage is associated with higher level of defects related to pay-performance, but not the corporate governance or readability aspects of the compensation disclosures.

[INSERT TABLE 4 ABOUT HERE]

The final hypothesis (H4) requires testing the relation between the disclosure defects and the change in CEO excess compensation in the year subsequent to the SEC review. Table 5 reports the results from estimating regression equation (5). Although the estimated coefficient on the log *NDEFECT* is not significant, the estimated coefficient on the log of *PDEFECT* (plus one) is significant in the predicted direction. Hence, there is some evidence that the number of defects related to pay-performance is associated with a reduction in subsequent excess CEO compensation, providing some support for H4. We also estimated regressions (untabulated) after alternately substituting the change in total compensation and the change in expected compensation for the change in excess compensation. We found no association between the number of defects identified in the SEC letters (total defects or three specific types of defects) and change in total or expected CEO compensation.

[INSERT TABLE 5 ABOUT HERE]

The SEC review letters do not criticize the magnitude of executive compensation, but rather whether the required compensation information is completely and clearly disclosed. The reduction in excess CEO compensation after being criticized by the SEC about compensation disclosures suggests that publication of SEC critiques of mandated compensation disclosures could play a disciplinary role.

Supplemental tests

Weak governance as an alternative measure of excess CEO compensation

Our analyses of excess CEO compensation depend upon estimates generated by Core et al. (1999) model. Although we do not test the validity of this model, we have no *a priori* reason

to suspect that the estimates of excess compensation generated from the model would be spuriously correlated with defects in compensation disclosures. To the extent that the model adds noise into the excess compensation measure, it is expected to bias against finding our results. However, to ascertain if our estimate of excess CEO compensation actually represents the ability of the CEO to capture excessive compensation, we replicate our regressions after replacing excess CEO compensation with a series of governance variables capturing the level of oversight on CEO compensation. We base this regression on the argument that weak corporate governance can lead to suboptimal compensation contracts for management and excessive management pay (Core et al. 1999).

To begin, an extremely independent board would have a non-CEO chair, more independent directors, fewer outside directors appointed by the CEO, fewer busy outside directors, and fewer gray outside directors. A relatively small board would also likely be more effective in monitoring managers (Jensen 1993). Thus, we construct our measures of corporate governance mechanisms following Core et al. (1999) and Hartzell and Starks (2003) and group them into two categories: the level of board independence and external monitoring. The following six measures capture the level of board independence:

- CHAIR* = dummy equal to 1 if CEO is also the chairman of the board of directors;
- INDIR* = the percentage of the directors who are “independent” defined as a director with “no material relationship” with the listed company, either directly or as a partner, shareholder or officer of an organization that has a relationship with the company;
- DIRCEO* = the percentage of the directors who are outside directors appointed by CEO (directors who were appointed after the CEO took office are considered appointed by CEO);
- DIRBUSY* = the percentage of the directors who are busy outside directors (a director is “busy” if she serves on three or more other boards, and six or more if she is retired);
- DIRGRAY* = the percentage of the directors who are gray outside directors (a director is “gray” if she or her employer receive payments from the company in excess of her board pay);
- LBOARD* = Logarithm of the number of directors on the board.

Finally, better corporate governance could also be achieved by effective external monitoring by powerful institutional investors. Hence, we add the influence of the top institutional investors as a proxy for external monitoring.

INST5 = Percentage of outstanding shares held by top five institutional investors of the firm.

Thus, our supplement test of excess compensation tests H1-H3 by estimating the following ordered Probit model:

$$\begin{aligned}
 \text{Probability (Defects)}_i = & \alpha + \gamma_1 \text{CHAIR}_i + \gamma_2 \text{INDIR}_i + \gamma_3 \text{DIRCEO}_i \\
 & + \gamma_4 \text{DIRGRAY}_i + \gamma_5 \text{DIRBUSY}_i + \gamma_6 \text{LBOARD}_i + \gamma_7 \text{INST5}_i + \gamma_8 \text{NPRESS}_i \\
 & + \gamma_9 \text{DIFF}_i + \gamma_{10} \text{Log(INDSZ}_i) + \gamma_{11} \text{Log(ENTRY}_i) + \gamma_{12} \text{LPRXY}_i \\
 & + \gamma_{13} \text{RET}_i + \gamma_{14} \text{ROA}_i + \gamma_{15} \text{LSZ}_i + \text{Dummies for SEC reviewers} + u_i
 \end{aligned} \tag{6}$$

As in regression equation (4), the dependent variable takes four variations: the summary measure *NDEFECT* and the three aspects of the disclosure defects: *PDEFECT*, *GDEFECT*, and *RDEFECT*. We also re-estimate model (6) using OLS by replacing the probability (dependent variable) with the dependent variables' logarithm transformations $\text{Log}(NDEFECT)$, $\text{Log}(PDEFECT+1)$, $\text{Log}(GDEFECT+1)$ and $\text{Log}(RDEFECT+1)$. We expect firms with a weaker board and less external monitoring (as measured by institutional ownership) to have a higher level of noncompliance. The predicted signs on the coefficients are as follows:

$$\text{H1: } \gamma_1 > 0, \gamma_2 < 0, \gamma_3 > 0, \gamma_4 > 0, \gamma_5 > 0, \gamma_6 > 0, \gamma_7 < 0$$

Table 6 and 7 reports results from estimating regression equation (6) using ordered Probit (left-hand column) and OLS regression. Table 6 presents results from using the summary measure of firms' compliance (*NDEFECT*) and Table 7 presents results using the three specific aspects of the defects as dependent variables (*PDEFECT*, *GDEFECT*, and *RDEFECT*). Both equations use corporate governance variables, rather than excess CEO compensation, as a measure of CEO overcompensation. Similar to results found in Tables 3 and 4 (using excess compensation), we find support for H₁ and H₂ but no support for H₃. In Table 6, two corporate

governance mechanisms stand out: *CHAIR* and *INST5*. Firms' overall disclosure defects are higher when its CEO is the chair of the board and there is less influence from powerful outside institutional investors.

[INSERT TABLES 6 AND 7 ABOUT HERE]

The significant coefficients on *CHAIR* and *INST5* persist in Table 7 where specific disclosure defects are examined. A firm with its CEO as the chair of the board and without enough external monitoring from powerful institutional investors is more likely to show deficiencies in disclosing information about the pay-performance content of its executive compensation contracts and corporate governance mechanisms. In addition, firms with more independent directors (*INDIR*) or fewer outside directors who are appointed by CEO (*DIRCEO*) or gray (*DIRGRAY*) or busy (*DIRBUSY*) are more likely to have higher readability for its compensation disclosures. Firms with more busy outside directors (*DIRBUSY*) are more likely to have noncompliance of mandated disclosures related to the corporate governance mechanisms.

Additional tests of the proprietary cost hypothesis

We conduct two additional sets of tests for the proprietary cost hypothesis (H3). In our first set of test, we test for another type of proprietary cost that a firm may incur by disclosing specific CEO performance information. This type of proprietary cost is related to CEO labor market. If the competition for talented CEOs is high, then a firm may have an incentive not to disclose specific details of its CEO compensation contract because of the risk that other firms will use this information to steal its CEO. Cremers and Grinstein (2009) and Murphy and Zbojnik (2007) suggest that the competition for CEO depends on the component of CEO's skills and ability that are transferable across firms (non-firm-specific) versus skills that are only valuable within the firm (firm-specific). Industries where firms need CEOs with non-firm-specific skills (e.g. industries where outside skills are valuable) will be more competitive than industries where CEOs need only firm-specific skills. Cremers and Grinstein (2009) find that the

transferability of CEO ability at the industry level, as represented by the proportion of CEOs hired from another industry, is an important component in explaining elasticity of compensation. Following this stream of prior research, we use the percentage of new CEOs that were hired from outside industries based upon Table 3, Panel C of Cremers and Grinstein (2009) to measure the competition in the CEO labor market. We then replicate our regressions after including this new variable or substituting it for the three existing proprietary cost variables. The results (untabulated) for H1 and H2 are qualitatively similar to those presented in the tables. Consistent with the reported results for H3, we find no evidence that firms who face higher competition in the CEO labor market are likely to have more defects in their mandated compensation disclosures.¹⁷

In our second set of tests, we identify firms in our sample that refused to disclose specific performance goals and certain compensation information by arguing that these disclosures would result in competitive harm. These firms are identified from the acknowledgment letters sent by the SEC upon closing the SEC review. For these firms, the acknowledgement letters state that SEC has no factual basis to judge whether the information those firms refused to disclose is really proprietary or not. We test whether proprietary costs are higher for these firms than for others in our sample using both univariate comparisons and a logistic multivariate model. The dependent variable in the logistic model is an indicator variable for firms which refused to disclose requested compensation information on the basis of proprietary costs, and the independent variables in the model are the same as those in equation (4). The results of the univariate comparisons and the logistic regression (untabulated) did not provide any evidence that proprietary costs are higher for the firms claiming proprietary costs, again providing no support for the proprietary cost hypothesis.

¹⁷ We also replicate our regressions after adding industry fixed effects to control for any industry-specific proprietary cost factors (including the CEO labor market). The results from these regressions (untabulated) are qualitatively similar to those presented in the paper.

Generalizability

Since our test sample was selected by the SEC, our results may not generalize to the population of all public firms filing with the SEC.¹⁸ To gauge the generalizability of our results, we construct a second sample of firms (the *non-test* sample) with proxy statements that were not included in the SEC review and have the necessary compensation, governance, accounting, and price data for the fiscal year 2006. The non-test sample is comprised of 639 unique firms and we utilize this sample to conduct two supplemental tests. First, to gauge if our regression sample is composed of representative firms, we compare the characteristics of our regression sample with the non-test sample (Graham et al. 2005). The characteristics of our regression sample and the non-test sample are presented in Panel A of Table 8.

[INSERT TABLE 8 ABOUT HERE]

Table 8 indicates that the regression sample is, on average, composed of firms that are significantly larger than those in the non-test sample. The mean (median) logarithm of market capitalization (in millions) for the regression sample is 7.9 (5.5), compared to 2.4 (2.2) for the non-test sample. Possibly due to this size differential, the CEOs of the firms in the regression sample also have significantly higher expected compensation. Interestingly, the two proxies for the proprietary costs, *DIFF* and $\text{Log}(ENTRY)$, are also significantly larger for the regression sample, suggesting that the firms in the regression sample, on average, face higher proprietary costs than the non-test sample. The rest of the firm characteristics, however, do not differ between the two samples. There is no evidence that the SEC was more likely to select firms with high excess CEO compensation, as suggested by insignificant differences in the variables measuring excess CEO compensation, the strength of the board characteristics, and the institutional monitoring. The two samples also have similar return and accounting performances. While we do not collect the press coverage data for the non-test sample, we compare the

¹⁸ There are some suggestions in the press that the SEC selected these firms randomly. However, we have been unable to verify this conjecture.

distribution of *NPRESS* in our sample with the large sample of 12,090 firm-year observations in Core et al. (2008). Core et al. report that in their sample about 10 percent of the CEO-years receiving at least one negative compensation article, which is very similar to the 11 percent in our sample, suggesting that the SEC was unlikely to select firms based on the press criticism of their CEO compensation.¹⁹

Second, we estimate a Heckman (1978) two-stage model to directly control for the potential selection bias. In the first stage, we model the determinants of the SEC's selection choice. As we have little information on how the SEC selected our test sample, we include all the independent variables in the second-stage main models except for *NPRESS* and *LPRXY*. In addition, we use a dummy variable equal to 1 for Calendar (December 31) year-ends as an instrumental variable. While the SEC refused to explain how they selected the firms for their critique, we find that only two firms in our test sample have non-December year-ends. In comparison, 100 (15%) of the second sample have non-December fiscal year-ends. Using this first-stage selection model, we generate the inverse mills ratio and include it in our second-stage estimation of our main regression models.

The results of using the Heckman two-stage procedure to estimate regression equation (4) are presented in Panel B of Table 8. The inverse mills ratio included in the second stage estimation is not statistically significant at conventional confidence levels. More importantly, all of our inferences remain unchanged. In the Heckman regression, the estimated coefficients on *EXCESSCOMP* and *NPRESS* are significantly positive, and the estimated coefficients on the proprietary cost variables are insignificant. Panel C of Table 8 presents the results of using the

¹⁹ It is also possible that SEC reviewers spent more time and effort reviewing "bad" firms (i.e., firms with high CEO excess compensation or firms criticized by the press), and thus their reviews of those "bad" firms are more thorough and complete. This possibility may bias our findings. To address this issue, we first compiled a list of all possible defects from reading the SEC comment letters. We then randomly selected 10 firms and independently evaluated each SEC critique of the compensation disclosures for completeness. We did not document any omissions or inaccurate comments and, on the whole, concluded that the SEC did a thorough good job evaluating each of these proxy disclosures. Hence, our independent evaluation of this random sample did not support the contention that SEC staff allocated more effort to potentially "bad" firms in our sample.

Heckman two-stage procedure to estimate regression equation (5). Again, the evidence from the Heckman regressions suggests that firms having more identified defects relate to pay-performance disclosures are likely to reduce their excess CEO compensation. Overall, our evidence mitigates the concern on the generalizability of our results.

V. CONCLUSION

In this paper we focus on the executive compensation disclosures mandated in 2006 as a context for investigating noncompliance with the mandated disclosures. Using SEC critiques, we measure the extent and type of noncompliance with newly mandated compensation disclosures for a sample of 336 large, publicly-held corporations. We use our measures of defects to investigate three potential economic determinants of noncompliance and the impact of the SEC critiques on subsequent management compensation. We test whether disclosure compliance is associated with variables representing excess compensation, proprietary costs, and media attention. Incentives associated with excess compensation may motivate managers to delete or obfuscate disclosures that have the potential of revealing the level of excess compensation or perquisites. Prior studies have shown that managers may not reduce compensation in response to negative media attention, and we test whether prior negative media attention attenuates or negates the defects in mandated compensation disclosures. Finally, if performance targets inadvertently reveal important trade secrets, then the potential for incurring proprietary costs may be a valid excuse for failure to provide adequate compensation disclosures.

To conduct our tests we regress overall defects in compensation disclosures and measures of three different categories of specific disclosure defects against variables representing CEO's excess compensation, media attention, and proprietary costs. Our regressions include controls for firm-specific characteristics in addition to indicator variables that control for the authorship of the SEC critique. We test whether subsequent CEO compensation changed after public disclosure of the SEC critiques by regressing change in CEO compensation from 2006 through 2007 on our measures of disclosure defects. We find that the number of overall defects as well

as defects in pay-for-performance information is positively associated with CEO's excess compensation and negative media attention. However, we find no evidence that the level of noncompliance is related to any of our measures for potential proprietary costs. Lastly, we find that the change in CEO's excess compensation, but not total compensation or expected compensation, is negatively associated with the number of pay-for-performance defects.

This study expands our knowledge about why firms fail to comply with mandated compensation disclosures. Policy makers, regulators should be interested in the determinants of noncompliance and should find the specific types of disclosure defects helpful in monitoring mandatory compensation disclosure practices. Moreover, the evidence that management incentives can compromise mandated disclosures is relevant for legislators and regulators who formulate policy. In particular, our inability to validate an association between proprietary costs and defective disclosures is inconsistent with one justification for avoiding compensation disclosures. Finally, our test results examining the relation between noncompliance and subsequent CEO compensation are also important to policy makers because this suggests that the release of detailed SEC critiques could help police excessive CEO compensation.

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APPENDIX A VARIABLE DEFINITIONS

NDEFECT = the total number of noncompliance comment items in the SEC's review letter;

PDEFECT = the number of noncompliance comment items in the SEC's review letter that are related to the firm's disclosures on the content of management compensation;

GDEFECT = the number of noncompliance comment items in the SEC's review letter that are related to the firm's disclosures on corporate governance mechanisms;

RDEFECT = the number of noncompliance comment items in the SEC's review letter that are related to the readability of the firm's compensation disclosures;

EXPECTCOMP = the expected compensation for the CEO, estimated using the predicted value from a regression of log-transformed total CEO compensation (in thousands) on the economic determinants following Core et al. (2008) (see Appendix);

EXCESSCOMP = the excess compensation for the CEO, estimated using the residuals from a regression of log-transformed total CEO compensation (in thousands) on the economic determinants following Core et al. (2008) (see Appendix);

DIFF = the extent of product substitutability in a firm's industry (4-digit SIC code), measured as sales divided by operating costs (costs of goods sold, SGA expenses, depreciation, depletion and amortization) for the industry, following Karuna (2007);

Log(INDSZ) = the logarithm of the market size in a firm's industry (4-digit SIC code), measured following Karuna (2007) as total industry sales (in millions);

Log(ENTRY) = the logarithm of entry cost in a firm's industry (4-digit SIC code), measured as weighted average of property, plant and equipment (in millions) for a firm's industry (the weight is each firm's market share in the industry);

NPRESS = dummy equal to 1 for firms with at least one press article criticizing the firms' executive compensation in the year;

LPRXY = the logarithm of the total number of words in a firm's proxy statement for the year;

RET = buy-and-hold stock returns during the year;

ROA = return on assets (income before extraordinary items divided by average total assets) for the year;

LSZ = the logarithm of the market capitalization (in millions) at the year-end.

CHAIR = dummy equal to 1 if CEO is also the chairman of the board of directors;

INDIR = the percentage of the directors who are "independent" defined as a director with "no material relationship" with the listed company, either directly or as a partner, shareholder or officer of an organization that has a relationship with the company;

DIRCEO = the percentage of the directors who are outside directors appointed by CEO;

DIRGRAY = the percentage of the directors who are gray outside directors (a director is "gray" if she or her employer receive payments from the company in excess of her board pay);

DIRBUSY = the percentage of the directors who are busy outside directors (a director is "busy" if she serves on three or more other boards (six or more if she is retired));

LBOARD = the logarithms of the number of directors on the board;

INST5 = the percentage of total shares outstanding held by the top 5 institutional investors;

APPENDIX B

METHODOLOGY FOR ESTIMATING THE EXPECTED AND EXCESS COMPONENTS OF CEO COMPENSATION

This appendix describes the method we use to estimate the amount of CEO compensation in excess of the pay justified by the economic determinants of CEO compensation. We follow Core et al. (2008) and estimate an OLS regression of CEO compensation on the economic determinants of CEO compensation as follows:

$$\text{Log}(\text{Compensation}) = a_0 + X_i a + u, \quad (\text{B1})$$

where $\text{Log}(\text{Compensation})$ is the logarithm of total compensation for CEO (i.e., salary, bonus, long-term incentive plan payouts, the value of restricted stock grants, the value of options granted during the year, and any other annual pay for the CEO) for fiscal year 2006, and X_i consists of the following economic determinants:

Log(Tenure): the logarithm of the CEO's tenure (in years) at the end of 2006.

S&P500: dummy variable equal to one for firms in the S&P500 index at the end of 2006, and zero otherwise.

Log(Sales): the logarithm of the firm's sales in 2005.

BM: the book-to-market ratio measured at the end of 2005.

RET: the firm's buy-and-hold return for 2006.

LagRET: the firm's buy-and-hold return for 2005.

ROA: return on assets (income before extraordinary items divided by average total assets) for 2006.

LagROA is return on assets for 2005.

We also include industry fixed effects (2-digit SIC code) in the regression to control for industry effects.

The results of estimating regression equation (B1) with the sample of firms critiqued by the SEC are reported in Table B1. We find that this determinant model exhibits great explanatory power for the CEO compensation: it explains 60% of the variation in the CEO compensation. Turning to the coefficients of the independent variables, we find that the compensation is negatively associated with firm size, growth opportunity, and stock performance. These results are consistent with prior research (e.g., Core et al. 2008).

We then separate 2006 CEO compensation into two components: the prediction from the estimated CEO compensation regression (expected pay) and a residual (excess pay).

Specifically, we compute excess compensation by estimating expected compensation for fiscal year 2006 from equation (2) and subtracting it from actual compensation in 2006.

TABLE B1
REGRESSION RESULTS FOR DECOMPOSING TOTAL COMPENSATION INTO
EXPECTED COMPENSATION AND EXCESS COMPENSATION

Independent variables	Dependent variable log (total compensation)
Log(CEO Tenure)	0.031 (0.051)
Log(Sales)	0.357*** (0.050)
S&P500	0.317** (0.132)
BM	-0.052 (0.236)
RET	0.650*** (0.187)
LagRET	0.418** (0.176)
ROA	-0.690 (0.978)
LagROA	-0.158 (0.818)
Industry fixed effects	Included
R ²	0.60

This table reports the results of OLS regression of the logarithms of CEO's total compensation on the economic determinants of compensation. The regression model follows Core et al. (2008). The sample consists of 336 firms whose compensation disclosures in the proxy statements of fiscal year 2006 were reviewed by the SEC. Log(Total compensation) is the logarithm of salary, bonus, long-term incentive plan payouts, the value of restricted stock grants, the value of options granted during the year, and any other annual pay for the CEO in 2006. Log(CEO Tenure) is the logarithm of the CEO's tenure (in years) at the end of 2006. S&P500 is a dummy variable equal to one for firms in the S&P500 index at the end of 2006, and zero otherwise. Log(Sales) is the logarithm of the firm's sales in 2005. BM is the book-to-market ratio measured at the end of 2005. RET is the firm's buy-and-hold return for 2006. LagRET is the firm's buy-and-hold return for 2005. ROA is the firm's return on assets (income before extraordinary items divided by average total assets) for 2006. LagROA is the firm's return on assets for 2005. Industry fixed effects are measured using 2-digit SIC codes. *, **, and *** indicate two-tailed statistical significance at 10, 5, and 1 percent levels, respectively.

APPENDIX C
COMMON COMPENSATION DISCLOSURE DEFECTS DETECTED BY THE SEC

	Description of the defect	SEC Rule violated	Number of firms
1	Failure to disclose the performance targets used in determining top executives' bonuses	402(b)(2)(v)	249
2	No explanation of how individual performance is used to determine each officer's compensation	402(b)(2)(vii)	234
3	Failure to identify and explain material differences in compensation between top executives	Section II.B.1 of Release No. 33-8732A	223
4	Did not explain how the payment benefit levels are determined/negotiated for purposes of terminating top executives' employment	402(b)(1)(v), 402(j)	181
5	Failure to explain all the functions played by the compensation consultants hired by the firm, including research, analysis, and recommendations. Also, failed to disclose the identity of the consultants.	407(e)(3)(iii)	166
6	Did not disclose companies used as benchmarks and/or did not disclose the composition of industry groups used as benchmarks and benchmarks used for different elements of compensation.	402(b)(2)(xiv)	143
7	Failure to describe how each element of compensation (e.g., compensation deferral) is determined and how it fits into the overall objectives and affects other elements of compensation	402(b)(1)(v) and (vi)	119
8	Did not explain the standard for determining material transactions and for determining whether a transaction is fair and the procedure for review.	404(b)	106
9	Failure to explain specific factors and criteria considered in determining elements of long-term equity awards and future payout.	402(b)(1)(v)	100
10	Did not disclose where percentile of each compensation element is targeted against benchmark companies and explain how tally sheet information is used.	402(b)(2)(xiv)	93

TABLE 1
Descriptive Statistics

<i>Variable</i>	<i>Mean</i>	<i>25%</i>	<i>median</i>	<i>75%</i>	<i>S.D.</i>
<i>NDEFECT</i>	11.80	9.00	12.00	14.00	3.94
<i>PDEFECT</i>	8.17	6.00	8.00	10.00	2.93
<i>GDEFECT</i>	2.62	1.00	2.00	4.00	1.72
<i>RDEFECT</i>	1.00	0.00	1.00	1.00	1.18
<i>EXPECTCOMP</i>	8.74	8.19	8.77	9.30	0.77
<i>EXCESSCOMP</i>	0.00	-0.30	0.00	0.34	0.64
<i>DIFF</i>	1.31	1.12	1.18	1.32	0.37
<i>Log(INDSZ)</i>	11.18	9.99	10.92	12.38	1.64
<i>Log(ENTRY)</i>	7.86	6.70	8.28	9.08	1.77
<i>NPRESS</i>	0.11	0.00	0.00	0.00	0.31
<i>LPRXY</i>	10.16	9.90	10.18	10.46	0.46
<i>RET</i>	0.13	0.00	0.13	0.26	0.26
<i>ROA</i>	0.05	0.02	0.04	0.09	0.07
<i>LSZ</i>	8.98	7.91	8.61	10.02	1.36

This table reports the descriptive statistics. The sample consists of 336 firms whose compensation disclosures in the proxy statements for 2006 were reviewed by the SEC.

Variable definitions are provided in Appendix A (all variables are measured at 2006).

TABLE 2
Correlation Matrix

	<i>NDEFECT</i>	<i>PDEFECT</i>	<i>GDEFECT</i>	<i>RDEFECT</i>	<i>EXPECT COMP</i>	<i>EXCESS COMP</i>	<i>DIFF</i>	<i>Log(INDSZ)</i>	<i>Log(ENTRY)</i>	<i>NPRESS</i>
<i>NDEFECT</i>		0.85***	0.65***	0.27***	-0.01	0.25***	0.04	0.01	0.01	0.21***
<i>PDEFECT</i>	0.81***		0.27***	-0.05	-0.01	0.27***	0.02	-0.03	-0.01	0.18***
<i>GDEFECT</i>	0.60***	0.22***		0.03	-0.05	0.10*	0.03	0.03	0.00	0.11**
<i>RDEFECT</i>	0.31***	-0.02	0.06		0.06	-0.00	0.03	0.06	0.05	0.10*
<i>EXPECTCOMP</i>	-0.01	-0.02	-0.04	0.02		0.00	-0.10	0.29***	0.34***	0.13*
<i>EXCESSCOMP</i>	0.18***	0.21***	0.07	0.10*	0.01		-0.00	0.02	0.02	0.19***
<i>DIFF</i>	0.06	0.03	0.05	-0.02	-0.02	0.04		0.06	-0.30***	0.01
<i>Log(INDSZ)</i>	-0.02	-0.05	-0.11**	0.01	0.30***	0.04	0.24***		0.69***	0.08
<i>Log(ENTRY)</i>	0.03	0.03	-0.02	0.03	0.31***	0.03	0.13**	0.76***		0.09*
<i>NPRESS</i>	0.22***	0.14**	0.12**	0.07	0.12*	0.21***	0.04	0.10*	0.10*	

This table reports Pearson (top diagonal) and Spearman (bottom diagonal) correlations for the regression variables. The sample consists of 336 firms whose compensation disclosures in the proxy statements for 2006 were reviewed by the SEC. *, **, *** denote two-tailed significance levels of 10%, 5%, and 1%, respectively.

TABLE 3
Regression Results: Determinants of Overall Compensation Disclosure Defects

Independent Variables	Prediction	Ordered Probit	Ordinary Least Squares
		Dependent Variable	
		<i>NDEFECT</i>	Log (<i>NDEFECT</i>)
<u>Test of Excess Compensation</u>			
<i>EXPECTCOMP</i>	?	0.084 (0.134)	0.069 (0.043)
<i>EXCESSCOMP</i>	+	0.361*** (0.009)	0.147*** (0.030)
<u>Test of Media Coverage</u>			
<i>NPRESS</i>	?	0.620*** (0.198)	0.137** (0.064)
<u>Tests of Proprietary Costs</u>			
<i>DIFF</i>	+	0.215 (0.200)	0.022 (0.065)
Log(<i>INDSZ</i>)	-	-0.038 (0.060)	0.003 (0.019)
Log(<i>ENTRY</i>)	+	0.020 (0.056)	-0.005 (0.018)
<u>Controls</u>			
<i>LPRXY</i>		-0.194 (0.134)	-0.027 (0.043)
<i>RET</i>		0.107 (0.244)	-0.003 (0.079)
<i>ROA</i>		1.376 (0.856)	0.320 (0.278)
<i>LSZ</i>		-0.074 (0.074)	-0.040* (0.024)
Reviewer fixed effects		Included	Included
LR χ^2		103.21	NA
Prob>LR χ^2		<0.001	NA
R ²		NA	0.30

This table reports the results of testing the determinants of defects in compliance with the compensation disclosure requirements using regression equation (4). The sample consists of 336 firms whose compensation disclosures in the proxy statements for 2006 were reviewed by the SEC. Fixed effects for SEC reviewers are indicator variables equal to one for each individual SEC staff that reviewed the proxy disclosures. See Appendix A for other variable definitions. The standard errors are reported in the parenthesis. *, **, *** denote significance levels of 10%, 5%, and 1%, respectively, one-tailed for coefficients with predictions and two-tailed otherwise.

TABLE 4
Regression Results: Determinants of Specific Compensation Disclosure Defects

Panel A: Ordered Probit

Independent Variables	Prediction	Dependent Variable		
		<i>PDEFECT</i>	<i>GDEFECT</i>	<i>RDEFECT</i>
<u>Test of Excess Compensation</u>				
<i>EXPECTCOMP</i>	?	0.106 (0.135)	0.003 (0.136)	-0.063 (0.145)
<i>EXCESSCOMP</i>	+	0.407*** (0.095)	0.208** (0.095)	0.042 (0.103)
<u>Test of Media Coverage</u>				
<i>NPRESS</i>	?	0.446** (0.200)	0.287 (0.199)	0.162 (0.210)
<u>Test of Proprietary Costs</u>				
<i>DIFF</i>	+	0.211 (0.201)	0.016 (0.203)	0.099 (0.219)
Log(<i>INDSZ</i>)	-	-0.061 (0.060)	0.001 (0.061)	0.021 (0.066)
Log(<i>ENTRY</i>)	+	0.021 (0.056)	-0.004 (0.057)	0.012 (0.062)
Control variables		Included	Included	Included
Reviewer effects		Included	Included	Included
LR χ^2		99.47	60.06	35.71
Prob>LR χ^2		<0.001	<0.001	<0.001

TABLE 4 (continued)

Panel B: Ordinary Least Squares

Independent Variables	Prediction	Dependent Variable		
		<i>Log</i> (<i>PDEFECT+1</i>)	<i>Log</i> (<i>GDEFECT+1</i>)	<i>Log</i> (<i>RDEFECT+1</i>)
<u>Test of Excess Compensation</u>				
<i>EXPECTCOMP</i>	?	0.068 (0.040)	0.020 (0.064)	-0.031 (0.068)
<i>EXCESSCOMP</i>	+	0.148*** (0.028)	0.092** (0.045)	0.020 (0.047)
<u>Test of Media Coverage</u>				
<i>NPRESS</i>	?	0.088 (0.060)	0.122 (0.095)	0.083 (0.101)
<u>Test of Proprietary Costs</u>				
<i>DIFF</i>	+	0.035 (0.061)	0.015 (0.097)	0.047 (0.103)
Log(<i>INDSZ</i>)	-	-0.007 (0.018)	0.004 (0.029)	0.007 (0.031)
Log(<i>ENTRY</i>)	+	-0.003 (0.017)	-0.001 (0.027)	0.008 (0.029)
Control variables		Included	Included	Included
Reviewer effects		Included	Included	Included
R ²		0.30	0.15	0.09

This table reports the results of testing the determinants of specific disclosure defects using regression equation (4). Panel A reports the results using the ordered Probit model and Panel B the OLS model. The sample consists of 336 firms whose compensation disclosures in the proxy statements for 2006 were reviewed by the SEC. Fixed effects for SEC reviewers are indicator variables equal to one for each individual SEC staff that reviewed the compensation disclosures. See Appendix A for other variable definitions. The control variables (untabulated) include *LPRXY*, *RET*, *ROA* and *LSZ*. The standard errors are reported in the parenthesis. *, **, *** denote significance levels of 10%, 5%, and 1%, respectively, one-tailed for coefficients with predictions and two-tailed otherwise.

TABLE 5
Regression Results: Change in Subsequent Excess CEO Compensation After SEC Critique of Compensation Disclosures

Independent Variables	Prediction	<u>Dependent Variable</u> <i>Δ EXCESSCOMP</i>	
Intercept		0.182 (0.220)	0.317 (0.215)
Log(<i>NDEFECT</i>)	-	-0.076 (0.090)	
Log(<i>PDEFECT</i> +1)	-		-0.205 ** (0.097)
Log(<i>GDEFECT</i> +1)	-		0.085 (0.067)
Log(<i>RDEFECT</i> +1)	-		0.049 (0.065)
R ²		0.00	0.02

This table reports the results of testing the impact of defects in compensation disclosures identified by the SEC review on the change in excess CEO compensation using regression equation (5). The sample consists of 336 firms whose compensation disclosures in the proxy statements for 2006 were reviewed by the SEC. The change in the logarithm of the CEO's total compensation from 2006 to 2007 is decomposed into the change in the CEO's expected compensation from 2006 to 2007 and the change in the CEO's excess compensation (*Δ EXCESSCOMP*) using the model described in Appendix B. See Appendix A for other variable definitions. The standard errors are reported in the parenthesis. *, **, *** denote significance levels of 10%, 5%, and 1%, respectively, one-tailed for coefficients with predictions and two-tailed otherwise.

TABLE 6
Regression Results: Determinants of Overall Compensation Disclosure Defects
Substituting CEO Oversight Variables for Excess CEO Compensation

Independent Variables	Prediction	Ordered Probit	Ordinary Least Squares
		Dependent Variable	
		<i>NDEFECT</i>	Log (<i>NDEFECT</i>)
<u>Test of CEO Oversight</u>			
<i>CHAIR</i>	+	0.276** (0.130)	0.090** (0.043)
<i>INDIR</i>	-	-0.000 (0.275)	0.045 (0.092)
<i>DIRCEO</i>	+	-0.027 (0.217)	-0.015 (0.073)
<i>DIRGRAY</i>	+	-0.359 (0.761)	-0.135 (0.254)
<i>DIRBUSY</i>	+	0.082 (0.367)	0.024 (0.123)
<i>LBOARD</i>	?	0.024 (0.120)	0.004 (0.040)
<i>INST5</i>	-	-1.372** (0.608)	-0.539*** (0.202)
<u>Test of Media Coverage</u>			
<i>NPRESS</i>	?	0.736*** (0.196)	0.191*** (0.065)
<u>Tests of Proprietary Costs</u>			
<i>DIFF</i>	+	0.242 (0.201)	0.029 (0.067)
Log(<i>INDSZ</i>)	-	-0.045 (0.062)	-0.001 (0.021)
Log(<i>ENTRY</i>)	+	0.017 (0.057)	-0.005 (0.019)
Control variables		Included	Included
Reviewer fixed effects		Included	Included
LR χ^2		99.19	NA
Prob>LR χ^2		<0.001	NA
R ²		NA	0.27

This table reports the results of testing the determinants of overall compensation defects using regression equation (6). The sample consists of 336 firms whose compensation disclosures in the proxy statements for 2006 were reviewed by the SEC. Reviewer fixed effects are indicator variables equal to one for each individual SEC staff. See Appendix A for other variable definitions. The standard errors are reported in the parenthesis. *, **, *** denote significance levels of 10%, 5%, and 1%, respectively, one-tailed for coefficients with predictions and two-tailed otherwise.

TABLE 7
Regression Results: Determinants of Specific Compensation Disclosure Defects
Substituting CEO Oversight Variables for Excess CEO Compensation

Panel A: Ordered Probit

Independent Variables	Prediction	Dependent Variable		
		<i>PDEFECT</i>	<i>GDEFECT</i>	<i>RDEFECT</i>
<u>Test of Excess Compensation</u>				
<i>CHAIR</i>	+	0.332*** (0.131)	0.317*** (0.132)	-0.174 (0.143)
<i>INDIR</i>	-	0.206 (0.277)	0.073 (0.280)	-0.509** (0.301)
<i>DIRCEO</i>	+	-0.207 (0.218)	-0.076 (0.222)	0.384* (0.239)
<i>DIRGRAY</i>	+	-0.446 (0.763)	0.251 (0.776)	0.244 (0.811)
<i>DIRBUSY</i>	+	-0.407 (0.369)	0.584* (0.377)	0.592* (0.397)
<i>LBOARD</i>	+	-0.014 (0.121)	0.126 (0.123)	0.086 (0.135)
<i>INST5</i>	-	-1.035** (0.610)	-1.367** (0.623)	-0.397 (0.669)
<u>Test of Media Coverage</u>				
<i>NPRESS</i>	?	0.621*** (0.198)	0.316* (0.197)	0.115 (0.207)
<u>Test of Proprietary Costs</u>				
<i>DIFF</i>	+	0.237 (0.202)	0.037 (0.203)	0.116 (0.219)
Log(<i>INDSZ</i>)	-	-0.071 (0.062)	-0.001 (0.062)	0.032 (0.068)
Log(<i>ENTRY</i>)	+	0.026 (0.057)	-0.018 (0.058)	-0.002 (0.063)
Control variables		Included	Included	Included
Reviewer effects		Included	Included	Included
LR χ^2		94.49	69.00	46.48
Prob>LR χ^2		<0.001	<0.001	<0.037

TABLE 7 (continued)

Panel B: Ordinary Least Squares

Independent Variables	Prediction	Dependent Variable		
		<i>Log</i> (<i>PDEFECT+1</i>)	<i>Log</i> <i>GDEFECT+1</i>	<i>Log</i> <i>RDEFECT+1</i>
<u>Test of Excess Compensation</u>				
<i>CHAIR</i>	+	0.096*** (0.041)	0.135** (0.063)	-0.075 (0.066)
<i>INDIR</i>	-	0.110* (0.086)	0.022 (0.133)	-0.241 (0.140)
<i>DIRCEO</i>	+	-0.067 (0.068)	-0.044 (0.105)	0.166 (0.111)
<i>DIRGRAY</i>	+	-0.137 (0.239)	0.179 (0.369)	0.130 (0.388)
<i>DIRBUSY</i>	+	-0.119 (0.116)	0.286 (0.178)	0.267* (0.188)
<i>LBOARD</i>	?	-0.012 (0.038)	0.062 (0.058)	0.030 (0.061)
<i>INST5</i>	-	-0.375** (0.190)	-0.480* (0.293)	-0.214 (0.308)
<u>Test of Media Coverage</u>				
<i>NPRESS</i>	?	0.156*** (0.061)	0.134* (0.094)	0.058 (0.099)
<u>Test of Proprietary Costs</u>				
<i>DIFF</i>	+	0.039 (0.063)	0.018 (0.097)	0.051 (0.102)
Log(<i>INDSZ</i>)	-	-0.011 (0.019)	0.006 (0.030)	0.012 (0.031)
Log(<i>ENTRY</i>)	+	-0.001 (0.018)	-0.008 (0.028)	0.001 (0.029)
Control variables		Included	Included	Included
Reviewer effects		Included	Included	Included
R ²		0.27	0.17	0.12

This table reports the results of testing the determinants of specific compensation defects using regression equation (6). Panel A reports the results using the ordered Probit model and Panel B the OLS model. The sample consists of 336 firms whose compensation disclosures in the proxy statements for 2006 were reviewed by the SEC. Reviewer fixed effects are indicator variables equal to one for each individual SEC staff. See Appendix A for other variable definitions. The control variables (untabulated) include *LPRXY*, *RET*, *ROA* and *LSZ*. The standard errors are reported in the parenthesis. *, **, *** denote significance levels of 10%, 5%, and 1%, respectively, one-tailed for coefficients with predictions and two-tailed otherwise.

TABLE 8
Tests for Generalizability

Panel A: Descriptive Comparison

Variables	Regression sample	Non-test sample	P-value (ranksum)
<i>EXPECTCOMP</i>	8.74 / (8.77) [0.77]	8.18 / (8.12) [0.73]	< 0.01
<i>EXCESSCOMP</i>	0.00 / (0.00) [0.64]	0.00 / (0.00) [0.58]	0.69
<i>CHAIR</i>	0.61 / (1.00) [0.49]	0.59 / (1.00) [0.49]	0.51
<i>INDIR</i>	0.64 / (1.00) [0.25]	0.68 / (0.71) [0.18]	0.72
<i>DIRCEO</i>	0.32 / (0.32) [0.28]	0.43 / (0.44) [0.26]	0.40
<i>DIRGRAY</i>	0.04 / (0.00) [0.09]	0.03 / (0.00) [0.07]	< 0.01
<i>DIRBUSY</i>	0.14 / (0.12) [0.16]	0.10 / (0.00) [0.13]	< 0.01
<i>LBOARD</i>	2.17 / (2.30) [0.54]	2.17 / (2.20) [0.26]	< 0.01
<i>INST5</i>	0.27 / (0.27) [0.11]	0.27 / (0.27) [0.07]	0.22
<i>DIFF</i>	1.31 / (1.18) [0.37]	1.22 / (1.15) [0.29]	< 0.01
Log(<i>INDSZ</i>)	11.18 / (10.92) [1.64]	10.90 / (10.80) [1.63]	0.22
Log(<i>ENTRY</i>)	7.86 / (8.28) [1.77]	7.54 / (7.51) [1.72]	< 0.01
<i>RET</i>	0.13 / (0.13) [0.26]	0.12 / (0.11) [0.26]	0.16
<i>ROA</i>	0.05 / (0.04) [0.07]	0.05 / (0.05) [0.06]	0.63
<i>LSZ</i>	8.98 / (8.61) [1.36]	7.80 / (7.69) [1.26]	< 0.01

TABLE 8 (continued)

Panel B: Heckman Regression Results for Equation (4)

Independent Variables	Prediction	Log (<i>NDEFECT</i>)
<u>Test of Excess Compensation</u>		
<i>EXPECTCOMP</i>	?	0.065 (0.042)
<i>EXCESSCOMP</i>	+	0.148*** (0.029)
<u>Test of Media Coverage</u>		
<i>NPRESS</i>	?	0.138** (0.061)
<u>Tests of Proprietary Costs</u>		
<i>DIFF</i>	+	0.001 (0.073)
Log(<i>INDSZ</i>)	-	0.007 (0.020)
Log(<i>ENTRY</i>)	+	-0.006 (0.018)
<u>Controls</u>		
<i>LPRXY</i>		-0.028 (0.042)
<i>RET</i>		0.018 (0.085)
<i>ROA</i>		0.408 (0.310)
<i>LSZ</i>		-0.062 (0.045)
<i>Inverse Mills Ratio</i>		-0.084 (0.147)
Reviewer fixed effects		Included

TABLE 8 (continued)**Panel C: Heckman Regression Results for Equation (5)**

Independent Variables	Prediction	<u>Dependent Variable</u> <i>Δ EXCESSCOMP</i>	
Intercept		0.170 (0.229)	0.300 (0.223)
Log(<i>NDEFECT</i>)	-	-0.076 (0.090)	
Log(<i>PDEFECT</i> +1)	-		-0.207 ** (0.097)
Log(<i>GDEFECT</i> +1)	-		0.085 (0.067)
Log(<i>RDEFECT</i> +1)	-		0.049 (0.064)
<i>Inverse Mills Ratio</i>		0.016 (0.089)	0.025 (0.089)

This table reports the results of testing the generalizability of our findings. The test sample consists of 336 firms whose compensation disclosures in the proxy statements for 2006 were reviewed by the SEC. The non-test sample includes 639 firms not critiqued by the SEC with the necessary compensation, governance, accounting and price data for the fiscal year 2006. Panel A compares the characteristics for the test sample and the non-test sample. Panel B and C estimates regression equations (4) and (5), respectively, using the Heckman method to control for the potential selection biases arising from the SEC's selection decisions. Inverse mills ratio is estimated from the first-stage model in which the dependent variable is a dummy equal to 1 for the test sample and 0 for the non-test sample and the independent variables include all the independent variables in regression equation (5) except for *NPRESS* and *LPRXY* and a dummy variable equal to 1 for firms with December year-end. See Appendix A for other variable definitions. The standard errors are reported in the parenthesis. *, **, *** denote significance levels of 10%, 5%, and 1%, respectively, one-tailed for coefficients with predictions and two-tailed otherwise.