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COMPENSATION DISCLOSURE AND INFORMATION TRANSPARENCY:  
EVIDENCE FROM REGULATION S-K 402(B)

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Compensation Disclosure and Information Transparency:

Evidence from Regulation S-K 402(b)

## ABSTRACT

This research investigates the determinants and consequences of compensation disclosure in the context of the SEC compensation regulation of 2006. Specifically, it focuses on the incentive-related compensation disclosure required by Reg. S-K 402(b). I find that compensation disclosure is negatively associated with managerial power and proprietary cost, but is positively associated with external monitoring. These relations are significant in both the pre- and post-regulation periods. With respect to the consequences of disclosure, I find that corporate information is more transparent when compensation disclosure is higher; however, this relation holds only in the post-regulation period. Additional tests further reveal that compensation disclosure may bring negative consequences that reduce corporate information transparency. For example, I show empirically that such disclosure fails to limit CEO excess compensation and may induce earnings management in the post-regulation period.

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## CHAPTER 1: INTRODUCTION

Although a sizable body of research shows that incentive compensation plays an important role in mitigating agency costs (e.g., Holmstrom 1979; Banker and Datar 1989), in practice, incentive compensation could be a source of agency problems if not properly implemented. One reason is that neither incentive schemes nor performance measures are perfect, with inappropriately designed incentives inducing excessive risk taking and earnings management (Murphy and Jensen 2011).<sup>1</sup> In addition, entrenched managers could manipulate such incentive schemes and performance measures to extract rents, creating a more severe agency problem (Bertrand and Mullainathan 2001; Garvey and Milbourn 2006; Morse et al. 2011).<sup>2</sup> The imperfection of incentive compensation and its vulnerability to managerial manipulation are important reasons for the recently issued 2006 SEC Rule 33-8732A: *Executive Compensation and Related Person Disclosure*, which requires public disclosure of contractual incentives (Morse et al. 2011). In addition to providing more information on compensation than was previously required to be disclosed, the new disclosure requirement also provides information on firm

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<sup>1</sup> Inappropriate incentive schemes or performance measures induce excessive risk taking and earnings management, which potentially reduce shareholder value. For example, prior literature has shown that earnings-based incentives induce earnings management (Healy 1985; Holthausen et al. 1995; Dechow and Sloan 1991). Murphy and Jensen (2011) systematically review these issues.

<sup>2</sup> Several studies investigate the manipulation of incentive compensation by corporate insiders. For example, Bertrand and Mullainathan (2001) find that CEOs are often granted bonuses for industry-wide performance rather than for the more relevant measure—firm-specific performance. The authors term this as the “pay-for-luck” phenomenon. Garvey and Milbourn (2006) document an asymmetric nature of incentive compensation in that CEOs are rewarded for good performance but not penalized for bad one. Morse et al. (2011) show that managers may induce boards (especially those compromised boards) to shift performance weights towards better performing measures after they observe the operating results of those measures. Thus, these studies suggest that managers have power to influence the *ex-ante* contract terms and/or the *ex-post* execution of compensation payout.

governance. The purpose of this research is to study the governance and information implications of this new compensation disclosure requirement.

Compensation disclosure provides outsiders much information about the *ex-ante* incentives that boards establish to incentivize managers. The form and magnitude of those compensation incentives are informative to investors in that they help investors evaluate the appropriateness of incentive schemes and performance measures, detect any abuse in the *ex-post* compensation payout, and monitor managerial actions induced by the incentives. In essence, compensation disclosure is regarded as a form of governance disclosure that, together with financial disclosure, contributes to the corporate information system (Bushman et al. 2004).<sup>3</sup> While prior literature has provided abundant research on the informational role of financial disclosure (Healy and Palepu 2001; Beyer et al. 2010), empirical evidence on governance disclosure and compensation disclosure in particular is limited.<sup>4</sup> This study attempts to fill that gap in the literature.

Although firms already provide a variety of compensation related information, the 2006 regulation aims to considerably improve the transparency of compensation disclosure.<sup>5</sup> Order 33-8732A, and in particular, the revised Regulation S-K 402(b)

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<sup>3</sup> Bushman et al. (2004) argue that governance disclosures, such as the identity of major shareholders, range of shareholdings, and remuneration of officers and directors, provide much information used by outside investors to hold managers accountable. Note that Bushman et al. (2004) focus primarily on the country-level analysis because they were able to observe variation in the practice of governance disclosure. Governance disclosure, such as compensation disclosure, may have substantial cross-firm variation as well (Gaver et al. 1995).

<sup>4</sup> Bushman and Smith (2003) call for empirical research on the relation between financial and governance disclosures and their interactions with information dissemination, acquisition, and communication mechanisms.

<sup>5</sup> In 1992, the Securities Exchange Commission (SEC) adopted regulations aimed at increasing the quality and quantity of disclosure on executive compensation by public firms. These regulations required firms to

(hereafter Rule 402(b)), enhances information disclosure about the *ex-ante* incentives and the *ex-post* payout of executive compensation. In this research, I discuss the unique features of the Rule 402(b) disclosure and attempt to shed light on the extent to which this compensation disclosure can either positively or negatively contribute to the corporate information environment.

The 2006 regulation is of particular interest because it requires more comprehensive governance disclosure than any of the previous compensation regulations. Specifically, Rule 402(b) requires compensation discussion and analysis (CD&A) and a detailed report on compensation incentives. These disclosures have to be filed with the SEC and certified by both the CEO and CFO of the filer. In comparison, the 1992 compensation regulation was only provided to the SEC and had no certification requirement. Accordingly, the newly regulated compensation disclosure helps investors see through compensation decisions, and thus better conveys governance information, e.g., about whether executive compensation and firm performance are closely connected and whether the board of directors is diligent in designing and monitoring executive compensation.

I then explore the positive contributions of compensation disclosure enacted by making governance information available, to corporate information transparency. The intuition is straightforward: governance disclosure reduces market uncertainty about firm

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disclose the total amount of executive pay administered and provide explanations accordingly. However, it did not call for sufficiently detailed information regarding why and how top executives were compensated; that is, compensation incentives remained opaque. Investors were concerned that managers may abuse the pay-for-performance relation and expropriate their interests. These concerns forced the SEC to rethink its compensation disclosure rules, which culminated in the SEC adopting sweeping changes in 2006. The new rules were finalized in the SEC Order 33-8732a and are effective for proxy statements filed on or after December 15, 2006. See SEC Release 2006-123 for a complete description of the new regulation.

valuation and improves investors' understanding of financial information, e.g., more accurate forecasts from analysts (e.g., Bhat et al. 2006). It also strengthens board monitoring, which in turn improves information disclosures by managers (e.g., Ajinkya et al. 2005). Therefore, I expect compensation disclosure to be positively associated with corporate information transparency.

Next, I argue that compensation disclosure could exacerbate rather than mitigate agency problems. Although seemingly counter-intuitive, this is possible if the 2006 compensation regulation and its disclosure rules shape managers' contracting and reporting behavior, and thus have unintended consequences. For instance, increased compensation disclosure may induce managers to modify incentive contracts or shift rent seeking to compensation components less regulated by the new rule. As a result, compensation disclosure may fail to reduce CEO overcompensation; even worse, it may intensify the existing overcompensation problem. Another example of unintended consequences is earnings management. Given that managers can manipulate compensation contracts and/or financial reporting to increase their compensation, they may place a greater focus on earnings management to extract rents when contract distortion becomes more costly due to the disclosure regulation. These unintended consequences could adversely affect the corporate information environment.

Finally, I study the determinants of compensation disclosure to facilitate my main investigation of the informational role of compensation disclosure. Note that not all firms have complied with the requirements of Rule 402(b) at the beginning of the regulation period (Robinson et al. 2011). For example, anecdotal evidence suggests that roughly half

of the Fortune 100 firms did not provide adequate disclosure on performance target-related information.<sup>6</sup> The obvious noncompliance of compensation disclosure regulation raises great research interest (Robinson et al. 2011). Of equal interest is the variation in firms' compensation disclosure during unregulated time; that is, during the pre-regulation period, some firms are more likely to voluntarily disclose compensation incentives than others. I build on the existing literature by studying the cross-sectional variation of compensation disclosure in both the regulated and unregulated regimes. In particular, I examine the costs and benefits of compensation disclosure and hypothesize that compensation disclosure is negatively associated with managerial power and proprietary cost and positively associated with external monitoring (Bebchuk and Fried 2004; Laksmana 2008; Robinson et al. 2011; Hope and Thomas 2008).

In this dissertation, I seek to answer these questions by using a panel of 704 S&P 1500 firms (2,806 firm-year observations) examined during the period of 2004 to 2007, which represents two years before and two years after the SEC disclosure regulation. All sample firms reportedly maintained bonus plans for their top executives and had no CEO turnover during the study period. In line with the literature, I read proxies from *Edgar* to construct a compensation disclosure index (Laksmana 2008; Tinaikar 2009). More specifically, for eight individual compensation disclosure items, I examine magnitude of disclosure transparency, assigning a score of one to transparent disclosure, a score of zero

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<sup>6</sup> A recent survey by Equilar shows that among the Fortune 100 companies, 55.8 percent of firms disclosed specific performance targets in 2007 proxy season, and the proportion of disclosers only increased to 66.4 percent in 2008 (Council Governance Alert Vol. 13, No. 18, May 2008, published by the Council of Institutional Investors). The SEC allows nondisclosure of specific performance targets only if a firm convincingly shows that disclosing those targets could harm its competitiveness. However, this proprietary reason alone may not have explained the prevalent nondisclosure phenomenon.

to opaque disclosure, and a score of 0.5 to disclosure that falls between the two. The compensation disclosure index is the sum of the eight individual scores.

To test my hypothesis related to the determinants of compensation disclosure (i.e., that compensation disclosure is negatively associated with managerial power and proprietary cost but positively associated with external monitoring), I use a linear model that regresses the compensation disclosure index on proxies for managerial power, proprietary cost, and external monitoring. Consistent with my predictions, the regression results show that the coefficients on all three proxies are significant and display predicted signs. I then partition the sample into pre- and post-regulation periods, and find that, contrary to our expectations, the SEC's pronouncement did not significantly alter the effects of managerial power and proprietary cost on compensation disclosure. There is, however, preliminary evidence which shows that the effect of monitoring is stronger in the post-regulation period, suggesting that external stakeholders put more effort into eliciting incentive compensation disclosure during this period. These findings are robust when I replace the OLS regression with a Logistic regression or a proxy for compensation disclosure using the individual disclosure score.

To test the informational role of compensation disclosure (i.e., that corporate information transparency is positively associated with compensation disclosure), I use a linear model that regresses three separate measures of corporate information transparency in period  $t+1$ —bid-ask spread, analyst forecast error, and analyst forecast dispersion—on the compensation disclosure index in period  $t$  and several control variables. I also extract a principal component from these three measures and use it as the main proxy for

corporate information transparency. The full sample analysis supports my prediction that more compensation disclosures are associated with better corporate information transparency. I then construct a change model to test whether corporate information transparency varies with changes in compensation disclosure. The results from the change model analysis are generally in line with my full sample findings. Finally, I find that the documented positive association between compensation disclosure and corporate information transparency is only significant for the post-regulation sample, suggesting that on average the SEC's pronouncement facilitates a better corporate information environment. The individual proxies, however, yield weaker results. Of the three change models tested using the post-regulation sample, I find that only the change in bid-ask spread is significantly associated with the change in compensation disclosure. These findings raise some concern that under certain circumstances, the mandated compensation disclosure may have detrimental effects on corporate information transparency.

I therefore investigate whether compensation disclosure has unintended consequences that adversely affect corporate information transparency. First, I investigate rent-seeking behavior related to excessive compensation, finding initially that compensation disclosure fails to deter excess total compensation. Further analysis, however, shows that in the post-regulation period, although compensation disclosure significantly reduces excess cash compensation, CEOs receive excess noncash compensation, which is less regulated under the new regulation. These findings suggest that CEOs may modify their compensation contracts to avoid the disclosure regulation and remain entrenched. Second, I investigate managers' financial reporting discretion.

The results show that although compensation disclosure is negatively associated with earnings management during the pre-regulation period, this association is missed in the post-regulation period, implying that either compensation disclosure may not deter earnings management or some firms may actually perform more earnings management and report lower quality financial information when disclosing more compensation incentives. Collectively, these findings offer preliminary evidence that compensation disclosure may motivate managers to engage in more entrenchment and reporting discretion (or fail to deter such behavior), which may reduce (or fail to improve) corporate information transparency.

This study is closely related to Bushman et al. (2004), who call for research on the relation between financial and governance disclosures, both being important elements in a corporate information system. As mentioned earlier, while a large body of research has studied the informational role of financial disclosure, research on governance disclosure is limited. Moreover, prior literature has mainly studied governance disclosure in a country-level setting. For example, Bhat et al. (2006) document that country-level governance information helps analysts improve forecast accuracy. My research fits into this genre by investigating one specific governance disclosure—compensation disclosure—and its role in the corporate information system. I show that in a firm-level setting, governance disclosure is also informative to investors, and it positively contributes to corporate information transparency.

Another stream of literature related to this study is the debate on the informational role of stewardship and valuation information (Indjejikian 1999). The extant empirical



literature focuses on the one-way informational implication of valuation information on compensation contracts, i.e., how market or accounting information affects compensation contracts (Baber et al. 1998, 1999; Bushman et al. 2006). The informational role of compensation contracts on firm valuation, however, is often neglected. One important inference from this research is that compensation (stewardship) information, especially incentive related information, is potentially useful for firm valuation. This empirical inference is consistent with recent analytical work performed by Bertomeu (2011), which argues compensation contract information should provide information to investors.

This study also extends literature on compensation disclosure decisions (Laksmana 2008; Robinson et al. 2011). The existing research documents that board characteristics, CEO overcompensation, and media scrutiny may influence compensation disclosure. However, the empirical evidence is far from complete. The unique setting created by the new SEC disclosure rule taken together with the self-constructed disclosure measure allows me to investigate compensation disclosure decisions in a richer setting, e.g., using more powerful tests that compare the implications of compensation disclosure in the unregulated period versus the regulated period. In addition, since disclosure under Rule 402(b) focuses on incentive-related compensation, this study could more precisely examine some specific disclosure determinants, e.g., proprietary costs.<sup>7</sup>

Finally, this study adds to the extant managerial entrenchment literature by suggesting two additional entrenchments when managers face more transparent

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<sup>7</sup> Prior studies have failed to definitively associate proprietary costs with compensation disclosure, partially because the definition of compensation disclosure is too broad. My research focuses on incentive related compensation disclosure, which is obviously of a stronger proprietary nature than any other compensation disclosure, and therefore provides a better setting to test the proprietary cost hypothesis.

compensation disclosure (Bebchuk and Fried 2004). On the one hand, managers may use their influence over boards to modify compensation contracts to hide overcompensation, for example by shifting overcompensation towards less transparent components. This corresponds with Morse et al. (2011), who find that managers have power to modify contracts so that they extract rents. On the other hand, managers may resort to earnings management after being required to transparently disclosure compensation contract information, because doing so could increase their final compensation payout, especially when camouflaging the compensation contract becomes no longer feasible. This finding is consistent with the recent theoretical thinking that enhancing disclosure and monitoring may induce managers to distort financial reporting (Singh 2006, Hermalin and Weisbach 2012).

The rest of the study proceeds as follows: Chapter 2 reviews the institutional background of compensation disclosure regulation and the related literature. Chapter 3 develops the hypotheses, and is followed by sample selection and variable measures in Chapter 4 and research design in Chapter 5. Chapter 6 reports the main findings, after which Chapter 7 presents the results from the additional tests. Finally, Chapter 8 concludes the research.

## CHAPTER 2: BACKGROUND

In this chapter, I briefly review the institutional background of SEC compensation disclosure regulation. Specifically, I discuss the 2006 regulation and in particular Rule 402(b). I then review the related literature on compensation disclosure.

### 2.1. Compensation Disclosure and SEC Regulations

Managers are hired and compensated by boards and must be held accountable for the performance of their firms. In an arm's length principal-agent relationship, managers are fairly compensated for their performance. Since shareholders seldom participate directly in the contracting and performance measuring processes, there is widespread concern over the fairness of executive compensation, due to ineffectual monitoring from boards (Bebchuk and Fried 2003). The purpose of compensation disclosure is to inform shareholders how remuneration decisions are made by their delegates—the board of directors—and whether managers deserve the compensation payout. The SEC has been endeavoring to improve the transparency of compensation disclosure from as early as 1938.<sup>8</sup> In this section, I briefly review several major regulations of compensation disclosure and more specifically discuss the recent 2006 regulation.

In 1938, the SEC promulgated its first executive and director compensation disclosure rule for proxy statements.<sup>9</sup> Pursuant to this rule and the amendments thereafter

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<sup>8</sup> The most recent attempt relates to the Dodd-Frank Act of 2010, which requires the SEC to solicit more disclosures and analyses on compensation variables, such as compensation risk analysis, executive-to-employee compensation ratio, and executive hedging activities.

<sup>9</sup> SEC Release No. 34-1823 (August 11, 1938).

(collectively known as Regulation S-K 402), a public company must disclose to shareholders information about its executive compensation in narrative and tabular form.

The 1992 SEC regulation made substantial revisions to the compensation disclosure regulation.<sup>10</sup> First, it changed the structure and format of compensation disclosure. A series of tables was introduced to report individual compensatory element, e.g., compensation summary, stocks, and option grants and exercises. Second, the compensation committee was required to provide a report on compensation practice. Third, disclosers were required to provide a graph comparing shareholder returns against the market index and peer group performance. It was claimed that the 1992 regulation improved corporate governance by increasing compensation transparency.<sup>11</sup>

Although the 1992 regulation was aimed at increasing the quality and quantity of the executive compensation disclosure of public firms, it did not adequately address some key issues that matter in compensation decision making. For example, what kind of performance standards is the board paying for and how is the final payment calculated?<sup>12</sup> Of additional concern was whether the pay-for-performance relation was abused because

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<sup>10</sup> The proposed regulation (Release 33-6940) was released on 24 June, 1992, and approved (Release 33-6962) on 15 October of the same year.

<sup>11</sup> Linda C. Quinn, former director of the SEC's Division of Corporate Finance, made this claim at the University of Cincinnati College of Law's Seventh Annual Corporate Law Symposium on March 18, 1994.

<sup>12</sup> The following is an example of an opaque disclosure: "...for the past year, our financial performance exceeds our goals set at the beginning of the year, therefore, our CEO is awarded the bonus..." It is unclear what those financial performance is, how it is measured, what the preset goals are, and how the bonuses match performance.

of the opaque disclosure.<sup>13</sup> These concerns forced the SEC to rethink its compensation disclosure rules, which resulted in sweeping changes being adopted in 2006. The new regulation was proposed on January 17, 2006 in Order 33-8655. After receiving more than 20,000 comments—a record high—the SEC voted in an open meeting on July 26, 2006, and finalized the rules in Order 33-8732a. The regulation is effective of December 15, 2006.

In essence, the SEC's objective of the 2006 regulation was to provide easy and understandable managerial compensation information to investors. The most prominent change was the requirement for compensation discussion and analysis (CD&A) under Regulation S-K 402(b).<sup>14</sup> The CD&A replaces the board compensation committee report (BCCR) and requires certification from both the CEO and CFO under the Sarbanes-Oxley Act of 2002.<sup>15</sup> The CD&A addresses the following questions: (1) the objectives of the compensation programs; (2) what the compensation program is designed to reward; (3) each element of compensation; (4) why the registrant chooses to pay each element; (5) how the registrant determines the amount and formula for each element to pay; and (6) how items (2) through (5) fit into the registrant's overall compensation objectives. The regulation hoped to provide answers to these questions, which would in turn provide

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<sup>13</sup> See pension fund comments on the proposed new compensation disclosure regulation (e.g., Southwestern Pennsylvania and Western Maryland Area Teamsters & Employers Pension Fund commented on March 17, 2006, available at the SEC website).

<sup>14</sup> In addition to the CD&A, the new rules expand disclosures for pension and other post-retirement benefits, stock option grants and holding values, severance payments and perquisites.

<sup>15</sup> The BCCR is furnished and not deemed to be filed with the SEC, but the CD&A must be filed as part of the proxy statement for securities law liability purposes. The certification provisions substantially enhance the personal exposure of senior executives. Therefore, the corresponding litigious cost will be higher if managers make untruthful statements about their compensations under the new regulation.

investors with a great deal of information about compensation incentives and pay-for-performance relations. In this study, I use the term compensation disclosure to refer to these Rule 402(b) disclosures.

Prior to the SEC's 2006 regulation, firms were not obligated to discuss specific performance targets used in compensation contracts. Although a few firms voluntarily disclosed their performance targets, the majority avoided making transparent disclosures.<sup>16</sup> Under the new regulation, Rule 402(b) explicitly requires all registrants to give a full picture of performance metrics by detailing not only the measures but also the targets. Performance targets are mandatory disclosures unless such information is either immaterial or its disclosure harms the firm's competitiveness.<sup>17</sup>

The disclosure regulation was strongly endorsed by investors. In a comment letter to the SEC, the CFA Institute Centre wrote the following: *"First, the trend toward pay that is tied to performance merits the release of such information. Second, without a reasonable description of such information, it is impossible for shareowners to understand and hold board members accountable for how senior executives are paid."*<sup>18</sup>

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<sup>16</sup> For example, during the 2005 proxy season, one pension fund manager proposed to Abbott Laboratories Company that "...the incentive components of the plan should utilize financial performance criteria that can be benchmarked and compensation plan disclosure should allow shareholders to monitor the correlation between pay and performance established in the Plan". The board of directors, however, recommended that investors vote against this proposal because they believe that "...it is in the best interest of shareholders to preserve the flexibility and discretion of the Compensation Committee to design compensation programs."

<sup>17</sup> The SEC's guidance states "...where it appeared that performance targets were material to a company's policy and decision-making processes and the company did not disclose those targets, we asked it to disclose the targets or demonstrate to us that disclosure of the particular targets could cause it competitive harm."

<sup>18</sup> A similar comment was made by the Teachers Insurance and Annuity Association of America College Retirement Equities Fund on May 17, 2006. The SEC also commented in Staff Observations that the compensation disclosure would help investors understand the basis and the context for granting different types and amounts of executive compensation.

In other words, it was believed that compensation disclosure would help investors see through the pay-for-performance relations and the compensation decision-making processes.

The SEC assumed that firms would behave in good faith and disclose the relevant information accordingly; however, roughly half of the large issuers did not provide adequate disclosure about performance targets.<sup>19</sup> The SEC conducted a review and issued 350 comment letters highlighting a series of deficiencies in compensation disclosure, including the failure to address why and how certain amounts of payment are awarded, and the language and presentation issues that hinder readers from understanding the disclosures (White 2007).

## 2.2. Extant Literature on Compensation Disclosure

Executive compensation reporting is an important governance reporting mechanism that contributes to a firm's information system (Bushman et al. 2004). While a large body of research has attempted to understand the relation between executive compensation and firm performance (Murphy 1999), evidence on the information content of compensation contracts and the subsequent compensation disclosures is limited. I will now briefly review the theoretical and empirical studies relevant to this research.

### 2.2.1. *Compensation disclosure and stewardship information*

According to agency theory, incentive compensation is designed to reduce moral hazard (Holmstrom 1979; Banker and Datar 1989; Feltham and Xie 1994; Lambert 2001;

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<sup>19</sup> See *Corporate Executive* (October 2007).

Lambert and Larcker 1987). An explicit incentive contract typically ties the agent's compensation to certain performance measures prepared by the principal (shareholders). Such performance measures are informative about the agent's actions (Holmstrom 1979). If multiple measures are used, the relative weights these measures receive proportionately reflect their signal-to-noise ratios; that is, the more informative measures will receive relatively higher weights in the contract (Lambert and Larcker 1987; Banker and Datar 1989; Feltham and Xie 1994).

Shareholders delegate decision-making rights to board members and managers, and therefore are not close enough to observe the agent's actions. As a result, shareholders may justifiably demand further information concerning the actions chosen by the agent, so they can better understand the compensation decision-making processes. For example, shareholders could examine what goals the agent has and whether he has accomplished said pre-set goals. If shareholders believe that their interests are not best served by the current compensation plan or the agent's achievement, they have the power to intervene, for example, by proposing better plans, vetoing the board's decisions, or replacing board members and executive officers.

Gjesdal (1981) labels the demand for agent action related information as the stewardship demand for information, and the demand for valuation purposes as the valuation demand for information. Because both systems involve a great deal of financial information, they often lead to confusion when involved with one another in practice (Gjesdal 1981).<sup>20</sup> In fact, the stewardship demand for financial information is very

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<sup>20</sup> For example, both earnings and cash flows, the two most important inputs for valuation, are often used in compensation contracts (Healy 1985; Sloan 1993; Nwaeze et al. 2006).



different from the valuation demand; Gjesdal (1981) summarizes some distinctions between the two systems. For instance, stewardship usage of information prefers “hard information”—less disputable information—and requires some contract enforcement. Moreover, information rankings will not be identical under the both reporting systems. To illustrate this, assuming that both systems rely on accounting earnings, the earnings definitions they employ may differ substantially. For instance, earnings for stewardship purposes usually exclude components that are not under executive control. Even with the same set of measures, the two systems may assign different weights to these measures. Therefore, information used for valuation, i.e., financial statements such as balance sheets and income statements, may not satisfy shareholders’ demand for stewardship. Compensation disclosure fills this gap by providing information about performance measures, weights, and other stewardship related information.

### *2.2.2. Relation between stewardship information and valuation information*

Although valuation and stewardship demand for information are different in many aspects, they are often found to overlap in practice (Indjejikian 1999).<sup>21</sup> For example, both executive compensation and firm valuation rely on accounting measures.<sup>22</sup> It would

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<sup>21</sup> Since accounting information is often used for stewardship and valuation purposes, Indjejikian (1999) speculates that research findings on these two topics are likely to be linked.

<sup>22</sup> Compensation contracts are seldom tied purely to stock prices. One reason to tie these contracts to accounting measures is that by doing so, compensation contracts would be better able to relate managers’ success to a component of firm-level success, especially when stock price fails to do so. Stock price is an aggregate measure of shareholders’ success but does not reflect other stakeholders’ success (e.g., for debt holders, success may depend on firm liquidity and asset safety). Similarly, stock price also does not reflect the success of specific strategies (e.g., increasing sales and reducing inventory). Moreover, stock price often fails to reflect the true picture of the firm, especially in an overly pessimistic or optimistic market.

be interesting to examine how these two information systems learn from each other when designing their own measures.

Prior studies have shown that a firm's stewardship information tends to manifest characteristics of its valuation information, suggesting that contract designers may use valuation information when designing incentive plans (Baber et al. 1998, 1999; Bushman et al. 2006). For example, Baber et al. (1998, 1999) find that the sensitivity of compensation to earnings varies with earnings persistence; that is, firms with higher earnings persistence tend to employ compensation plans with higher pay-for-earnings relations. In a recent study, Bushman et al. (2006) empirically document a positive correlation between earnings weights for valuation and compensation purposes. They find that pay-for-earnings coefficients closely follow market valuation coefficients on earnings, but not vice versa. The authors suggest that contract designers must have incorporated the market valuation coefficients in executive compensation plans, probably because market valuation contains information about agents' future actions, and therefore, using market information in compensation plans improves contract efficiency. Collectively, existing studies generally suggest that executive compensation contracts incorporate valuation information.

On the other hand, whether information flows from compensation contracts back to the market remains an unanswered question. It is quite intuitive to argue that compensation contract information is informative to the market. Gjesdal (1981) suggests that the stewardship information system will eventually affect share price because it affects managers' choice of actions. Therefore, the disclosure of compensation contract

information will make investors revise their expectations of managerial behavior and subsequent cash flows, leading to share price changes. Moreover, if better informed corporate insiders use private knowledge to set compensation contracts, these contracts may reveal insiders' private information to the market.

Kole (1997) argues that the design of compensation contracts reflects the characteristics of the firm. For example, R&D intensive firms are more likely to grant equity awards with longer time to full vesting, use a wider variety of equity awards, and offer more flexibility in contracting. She concludes that compensation arrangements collectively reflect the board's private information about the firm's projects. In other words, if the board of directors is better informed on the quality of projects, they may offer corresponding incentives to their managers. Thus, compensation incentives are informative with respect to the board's private information and compensation disclosures, and in turn convey that information to investors (Bertomeu 2011).<sup>23</sup> To sum up, this line of thought implies that executive compensation contracts are informative to the market. However, there is little empirical evidence that links compensation information to market valuation.

### *2.2.3. Empirical studies on compensation disclosure*

Anecdotal evidence suggests that compensation incentive information (e.g., performance measures, relative weights and targets) is not always available to the public

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<sup>23</sup> Bertomeu (2011) argues that compensation contract disclosure (e.g., chosen level of equity incentives) will send a signal to the market, revealing insiders' private information. He constructs a model showing two-way linkages between compensation incentives and financial reporting. On one hand, information flows from the compensation contract to the market, and investors trade based on this compensation information and other fundamental information; on the other hand, information flows back to the firm because the new price contains the market's updated expectation.

(Healy 1985; Gaver et al. 1995). Healy (1985) studies the accounting incentive effects of earnings based bonus plans. Healy's final sample includes only 94 of the 250 largest U.S. industrial firms due to most firms not disclosing the details of their bonus plans. Gaver et al. (1995) sample 1,588 firms for the 1986 proxy season and find that only 126 firms explicitly stated the earnings definition used to determine the bonus allocation and the formula used to compute the lower bound. Obviously, nondisclosure of compensation incentives was a popular practice at that time. One plausible reason for the lack of compensation disclosure is its opposition by firm managers (Lo 2003).<sup>24</sup> This lack of compensation disclosure continues to persist even after the recent 2006 regulation, as many firms still choose to withhold details of executive compensation incentives.<sup>25</sup>

Several studies investigate why firms avoid compensation disclosure (Laksmana 2008; Tinaikar 2009; Robinson et al. 2011; Laksmana et al. 2011). Laksmana (2008) studies the relation between voluntary compensation disclosures and board characteristics in two separate years. For the 1993 sample, she finds that the extent of executive compensation disclosure is positively associated with proxies for board independence and negatively associated with proxies for CEO power and CEO overcompensation. These results, however, are divergent for the 2002 sample. Tinaikar (2009) studies a group of 210 dual class share firms and finds that these firms disclose less executive compensation

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<sup>24</sup> Lo (2003) surveys comment letters sent from firm managers to the SEC on the proposed compensation regulation of 1992. He concludes that many managers were actually against the idea of compensation disclosure.

<sup>25</sup> A recent survey by Equilar shows that among the Fortune 100 companies, 55.8 percent disclosed specific performance targets in the 2007 proxy season, and 66.4 percent did so in 2008.

information than single class share firms do. He argues that obfuscation of compensation information helps managers to conceal excess compensation.

Two recent studies have referred to the 2006 SEC compensation regulation. Robinson et al. (2011) investigate noncompliance with the new regulation. They identify a group of noncompliance firms and find that poor compensation disclosures are associated with excess compensation and less media attention, but are not related to proprietary cost.<sup>26</sup> Laksmana et al. (2011) find similar results by studying the readability of CD&A disclosures in proxy statements. Again, they find that overcompensation is associated with poor disclosures.

With respect to the consequences of compensation disclosure, prior studies have provided only limited empirical evidence. A few studies have investigated the compensation regulation and its impact on the pay-for-performance relation and shareholder value (Perry and Zenner 2001; Vafeas and Afxentiou 1998; Greenstone et al. 2006; Lo 2003). Perry and Zenner (2001) find that the 1992 SEC compensation regulation, especially its enhanced disclosure of executive compensation, improved the pay-for-performance sensitivity of executive compensation. Vafeas and Afxentiou (1998) document changes in compensation committees of public firms following the 1992 regulation. They find that, after the regulation, these committees tend to contain fewer members, especially those from corporate insiders, and to have more meetings. These improvements, they suggest, led to higher pay-for-performance sensitivity of CEO compensation during the post-regulation period.

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<sup>26</sup> The noncompliance firms are limited to firms that have received the SEC comment letters on certain compensation disclosure deficiencies during 2007.

Market reaction studies provide mixed evidence. From the shareholders' perspective, if compensation regulation, which requires more compensation disclosures, maximizes shareholder value, one would expect the market responds positively to the regulation news. Lo (2003) studies the 1992 compensation regulation and documents positive market reactions around the rule's finalization date for firms that lobbied against the compensation regulation during the proposal stage. The findings suggest that the new compensation regulation benefits shareholders, and especially firms whose managers were extracting rents in executive compensation before the regulation. In a related paper, Greenstone et al. (2006) study the 1964 compensation regulation for OTC firms. They find that OTC firms subject to this rule had substantial excess returns over the period between the rule's proposal date and its finalization date, concluding that the 1964 rule has increased shareholder value.

Opponents claim that compensation disclosure may reduce shareholder value, partly because the disclosure incurs substantial costs (Prevost and Wagster 1999; Johnson et al. 2001). Prevost and Wagster (1999) argue that unlike shareholders, the use of disclosed executive compensation by other parties such as labor unions and political activists may inhibit the maximization of shareholder wealth.<sup>27</sup> They document negative and significant market returns for a sample of 22 firms (i.e., firms on the CalPERS's list during 1991 and 1992) upon announcements of compensation disclosure requirements. Similarly, Johnson et al. (2001) find that the 1992 compensation disclosure regulation is

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<sup>27</sup> The intuition is that increased monitoring from the labor unions, political forces, and media will reduce firm efficiency—mainly through political cost, which is more than likely to offset any monitoring-related benefits (e.g., reduced agency cost). For example, labor unions are more interested in bargaining for member benefits rather than shareholder value.

value decreasing for their sample firms, especially for those firms with high levels of compensation or low pay-for-performance sensitivity.

To summarize, while theoretical studies suggest the importance of compensation disclosure and its information role to firm valuation, empirical evidence on this subject is far from complete. For example, the extant literature provides some but incomprehensive explanations with respect to the determinants of compensation disclosure. As with the disclosure consequences, while prior studies have investigated whether compensation disclosure changes firm value or pay practice, the information role of compensation disclosure—whether and how compensation disclosure impacts the corporate information system—is rarely studied.

One possible reason for the lack of empirical research on compensation disclosure is the lack of a powerful setting in which the variation of compensation disclosure could be explored. The recent SEC compensation regulation provides us with such a setting, where the detailed disclosure required by the regulation enables us to overcome the deficiencies of prior research and to explore those important and interesting questions. My study extends this literature by comprehensively investigating factors affecting the compensation disclosure decision and studying the effect of compensation disclosure on corporate information transparency. Moreover, it explores the unintended consequences of compensation disclosure on pay practice and financial reporting. In this regard, my study adds to the existing compensation disclosure literature and yields insights into the implications of the recent SEC compensation disclosure regulation.

## CHAPTER 3: HYPOTHESIS DEVELOPMENT

In this chapter, I discuss how managerial power, external monitoring and proprietary cost are associated with compensation disclosure and develop hypotheses about these relationships. Next, I elaborate on the relation between compensation disclosure and corporate information transparency and form my hypothesis.

### 3.1. Determinants of Compensation Disclosure

At the core of the compensation disclosure decision is the cost-benefit tradeoff; managers withhold compensation information if the disclosure-related costs are greater than the benefits, and disclose if such disclosure would bring them net benefits (Luez and Wysocki 2008). For the post-regulation period, noncompliance with the disclosure regulation—withholding or insufficiently releasing compensation information—is costly due to possible SEC investigation and enforcement. In addition to these regulatory factors, there are several other important firm- and CEO-related characteristics that matter in the cost-benefit tradeoff of compensation disclosure. In this section, I specifically discuss these characteristics and their effects on the compensation disclosure decision in both the pre- and post-regulation periods.

#### *3.1.1. Managerial power and compensation disclosure*

Literature on managerial power suggests that managers, because of their power over board members, are able to influence their own compensation contracts, which results in weak pay-for-performance sensitivity and overcompensation (Jensen 1993; Bebchuk and Fried 2004; Bertrand and Mullainathan 2001; Grinstein and Hribar 2004;



Morse et al. 2011).<sup>28</sup> I argue that powerful managers would prefer less transparent compensation disclosure to retain the influence over compensation processes.

The intuition of this argument comes from the “information obfuscation” theory, which assumes that investors have limited information-processing ability, and hence processing information is costly (Bloomfield 2002). Opaque information, according to this theory, is less likely to catch investors’ attention. Even if investors receive the information, they may not be able to afford the subsequent information processing costs.<sup>29</sup> As a result, investors are less likely to receive and/or process opaque information, leading to investors’ underreacting to news disclosures (Bloomfield 2002). Knowing that the market tends to underreact to opaque information, managers will strategically manipulate their disclosures—disclosing bad news in a less transparent form to reduce or delay the market penalty (Schrand and Walther 2000; Li 2008).<sup>30</sup> Therefore, the “information obfuscation” theory suggests that obfuscated compensation disclosure may reduce the market’s attention, and thus reduce investors’ reactions to malpractice in executive compensation (e.g., Bloomfield 2002; Bebchuk 2005).

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<sup>28</sup> For example, CEOs have influence over the nomination of new directors and could control the information availability in board meetings (Jensen 1993). As a result, board members are obligated to tolerate CEOs’ entrenchment, e.g., via pay-for-nothing compensation plans (Bertrand and Mullainathan 2001) and excessive M&A bonuses (Grinstein and Hribar 2004). Morse et al. (2011) intuitively show another example of entrenchment in which CEOs induce boards to shift the weight on performance measures towards those measures that bring them the maximum pay.

<sup>29</sup> Psychology literature provides evidence that limited attention causes people to weigh a more readily available stimulus more than a less salient one (Tversky and Kahneman 1973). As a result, people tend to react less to salient stimuli.

<sup>30</sup> Schrand and Walther (2000) find that managers tend to hide superior benchmark performance from the prior period in current earnings announcements to avoid unfavorable comparisons. Li (2008) shows that managers tend to reduce the readability of their annual reports when earnings are low or less persistent.

Prior studies have shown that overcompensated CEOs are less straightforward in describing their compensation processes because obfuscation helps cover up their excessive pay (Lewellen et al. 1996; Robinson et al. 2011; Laksmana 2008; Tinaikar 2009; Laksmana et al. 2011). For example, Lewellen et al. (1996) find that once required to provide stock performance comparisons to support compensation payment, managers tend to select misleading (downward-biased) benchmarks to cover up their unjustified compensation. Likewise, Laksmana (2008), Tinaikar (2009), and Robinson et al. (2011) suggest that managerial overcompensation motivates lower compensation disclosure. My argument is based on managerial power, a broader concept that includes, but is not limited to, overcompensation, and thus is distinct from prior literature.<sup>31</sup>

Transparent compensation disclosures, conversely, help investors better detect managerial entrenchment, thus triggering more shareholder activism and media scrutiny (e.g., more shareholder proposals in favor of compensation reform and more lawsuits against insider entrenchment). These activities potentially deter managerial power and entrenchment (Bebchuk 2005; Del Guercio et al. 2008; Ertimur et al. 2011).<sup>32</sup>

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<sup>31</sup> Note that managerial power is a multi-faceted concept (Adams et al. 2005); therefore, it is not obvious that arguments made in overcompensation studies could subsume my argument. Instead, my research potentially provides greater implications for market participants and regulatory agencies.

<sup>32</sup> Bebchuk (2005) discusses the power allocation issue between managers and shareholders, and concludes that empowered shareholders and their interventions can successfully address many agency problems, e.g., managerial entrenchment. Del Guercio et al. (2008) examine “just-say-no” shareholder activism and find that abnormal CEO turnover has increased after boards receive the “just-say-no” proposal. In a similar vein, Ertimur et al. (2011) find that the “just-say-no” campaign may significantly reduce excess CEO compensation.

Hence, I predict that managers who possess stronger managerial power will tend to disclose less compensation information.<sup>33</sup> My first hypothesis is formally expressed as follows (stated in alternate form):

**H1a: *Ceteris paribus*, compensation disclosure is negatively associated with the level of managerial power.**

### *3.1.2. External monitoring and compensation disclosure*

Firms are monitored by a variety of outsiders including shareholders, outside board members, analysts, and auditors—an oversight that, according to prior literature, is positively correlated with information disclosure (Dechow et al. 1996; Beasley 1996; Bushee and Noe 2000; Healy et al. 1999; Bens 2002). I therefore argue for a positive relation between external monitoring and compensation disclosure.<sup>34</sup>

On the one hand, monitoring leads to more information disclosures because the total amount of information increases with the number of monitors and with the magnitude of stake holdings by those monitors. Healy et al. (1999) and Bushee and Noe (2000) show that, when institutions increase equity stakes, they tend to exert more pressure on managers to release information. On the other hand, transparent information

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<sup>33</sup> A competing view—the contracting hypothesis—suggests that companies with more influential managers will be more transparent in disclosing compensation information, presumably to signal that they do not exploit shareholder value (Muslu 2010).

<sup>34</sup> It is possible that they could be negatively correlated. This competing view posits that strong monitoring substitutes for disclosures. For instance, Core (2001) suggests that informed investors may prefer less public information so that their private information is more valuable. Bushee et al. (2003) provide empirical evidence that the greater the analyst following and the larger the institutional holding, the less likely firms are to conduct open conference calls. Turning to this study, if compensation disclosure increases the amount and precision of public information, it will reduce outsiders' benefit from their private information. As a result, those monitors will prefer less public compensation disclosure, as indicated by a negative association between external monitoring and compensation disclosure.

helps monitors to do a better job in monitoring (Hope and Thomas 2008).<sup>35</sup> Therefore, monitoring and information disclosure are positively interrelated.

In the context of executive compensation, outsiders prefer more disclosures because of the monitoring and valuation benefits they bring (see more discussions in Section 3.2.1). First, compensation disclosure enables outsiders to better understand managerial incentives and detect possible insider expropriation; it thus increases outsiders' ability to monitor effectively. Second, compensation disclosure provides outsiders with corporate governance information that can be used to reduce valuation uncertainty and form accurate expectations about firms' future performance, thus improving outsiders' ability to value their stakes. Therefore, there exists a positive association between external monitoring and compensation disclosure, which is captured by my second hypothesis (stated in alternate form):

**H1b: *Ceteris paribus*, compensation disclosure is positively associated with the level of external monitoring.**

### *3.1.3. Proprietary cost and compensation disclosure*

Compensation disclosure is not without cost; in fact, disclosure of detailed managerial compensation contracts could reduce firm value—a proprietary cost argument regularly used to explain nondisclosures (Verrecchia 1983; Wagenhofer 1990).<sup>36</sup>

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<sup>35</sup> Hope and Thomas (2008) emphasize this phenomenon by showing that monitoring diminishes once the disclosure is gone. More specifically, they show that when firms no longer provide geographic earnings information, managers are no longer monitored effectively, and are therefore more likely to make poor foreign investments.

Compensation information is inherently proprietary. Compensation arrangements are tied to managerial incentives that are otherwise not made publicly available. Compensation disclosure may adversely affect firm value through its impact in both the product and labor markets. First, compensation disclosure may adversely affect firms' competitiveness in the product market. Since compensation contracts contain information about the firm's priorities, emphasis, and projections (e.g., investment plans, future earnings, and financing and dividend policies) (Smith and Watts 1992; Gaver et al. 1995; Hanlon et al. 2003), interested parties like political forces, labor unions, and industry competitors may learn from compensation disclosure at the firm's cost.<sup>37</sup> With respect to the managerial labor market, disclosers are in a disadvantaged position when competing for management resources. For instance, despite the popularity of noncompetitive agreements, it is not uncommon for firms to attract talent from their competitors. Compensation disclosure makes it less costly for competitors to mimic compensation arrangements or even offer better incentives to attract talent.<sup>38</sup>

If the cost of compensation disclosure is sufficiently large, managers will rationally withhold such information. Indeed, Rule 402(b) allows for the nondisclosure of

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<sup>36</sup> Proprietary cost is extensively studied in segment disclosure research. For example, Hayes and Lundholm (1996) argue that firms with varying performance across business segments tend to conceal segment information from competitors. Likewise, Harris (1998) shows that industry segment reporting is negatively associated with profitable operations, a finding echoed by both Berger and Hann (2003) and Leuz et al. (2004).

<sup>37</sup> Competitors may infer disclosers' operating and marketing strategies from reading disclosed managerial compensation incentives. Prior studies have shown that the 1992 compensation disclosure reduces shareholder value, partly because the disclosure incurs substantial proprietary cost, e.g., political cost (Prevost and Wagster 1999; Johnson et al. 2001).

<sup>38</sup> Much of this is magnified by the blossom of private equity firms, which need industry leaders to manage acquisitions and rescue falling companies. These private equity firms, however, are not required to disclose executive compensation and thus have an information advantage when competing with public firms for managerial talent.

performance targets if such disclosure will harm firms' competitiveness. Therefore, my third hypothesis can be expressed as follows (stated in alternate form):

**H1c: *Ceteris paribus*, compensation disclosure is negatively associated with the level of proprietary cost.**

### **3.2. Compensation Disclosure and Corporate Information Transparency**

I now develop a testable hypothesis on the relation between compensation disclosure and corporate information transparency, arguing first that compensation disclosure conveys governance information, thereby improving the corporate information environment.<sup>39</sup> I then discuss some unintended consequences of compensation disclosure that may adversely affect the corporate information environment.

#### *3.2.1. Governance information*

Compensation disclosure conveys governance information used by outside investors to hold officers and directors accountable (Bushman et al. 2004). Since compensation disclosure helps outsiders learn about management remunerations, transparent disclosures empower investors with institutional knowledge about executive compensation, and in turn help investors discover managerial entrenchment (e.g., detecting low pay-for-performance sensitivity or excessive compensation).<sup>40</sup> In this

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<sup>39</sup> Note that compensation disclosure may provide financial information as well. For example, in some CD&As, firms may disclose information about internal budgets and performance expectations, which is potentially useful to mitigate information asymmetry between managers and market participants. However, the amount of financial information disclosed by executive compensation contracts is limited in scope, and therefore, is not formally discussed by this research.

<sup>40</sup> For example, outsiders can use *ex ante* targets and *ex post* payment data to detect whether the board has offered reasonable performance targets and exercised proper discretion in determining the final payment. Moreover, outsiders may use executive compensation as a starting point to spot other governance

regard, compensation disclosure is an important governance mechanism that investors rely on to examine the accountability of managers and board members.<sup>41</sup>

I now discuss the informational role of compensation disclosure and argue that compensation disclosure, through its governance information, positively contributes to the corporate information environment. First, to the extent that the firm's governance information is used in firm valuation, compensation disclosure reduces market uncertainty about the firm's corporate governance and therefore facilitates firm valuation. Prior literature suggests that corporate governance is an important parameter in firm valuation; firms with entrenched management are less valued, while firms offering more shareholder rights or being more democratic are valued at a premium (Bebchuk et al. 2009; Gompers et al. 2003).<sup>42</sup> Compensation information helps investors discern the accountability of the management team and the quality of the governance practices of the

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deficiencies, because any board that can make poor compensation decisions is also likely to make poor decisions elsewhere.

<sup>41</sup> It could be argued that strong governance is not designed for all firms, and in some cases, weak governance may actually maximize shareholder value. For example, in an extremely competitive environment, allowing managerial entrenchment (e.g., excess compensation) may attract more talent, and thus may improve shareholder wealth. This line of thinking does not necessarily conflict with my argument that compensation disclosure conveys governance information. In these rare cases, compensation disclosure allows investors to assess whether the current form of corporate governance suits the overall corporate strategy, and therefore is still informative to investors and hence improves the corporate information environment. In the main text, my arguments are based on the assumption that strong governance generally benefits shareholders, but most of them are applicable to the alternate assumption as well.

<sup>42</sup> Entrenched managers are more likely to shirk, pursue empire building, and extract rents. If shareholder power is also weak, then there will be less disciplinary threat of removing entrenched managers. Prior literature suggests that, because of these reasons, management entrenchment and the lack of shareholder power adversely affect firm value (Gompers et al. 2003; Cremers and Nair 2005; Bebchuk et al. 2009).

firm. Once investors correctly judge the firm's corporate governance, they can value the firm more precisely.<sup>43</sup>

Second, the informational role of compensation disclosure is manifested through its impact on financial information. Specifically, compensation disclosure enables investors to better understand managerial incentives and their subsequent behavior—it helps investors see through managers' eyes. As a result, investors better understand financial results induced by those managerial incentives, and are therefore able to infer the economic implications of the reported financial information and less likely to be disguised by managerial manipulation in financial reporting. For example, investors could detect earnings management incentives from compensation disclosure and use this information to undo earnings management (e.g., Schipper 1989).<sup>44</sup>

In addition, the informational role of compensation disclosure is further strengthened by market intermediaries—financial analysts and credit rating agencies. Financial analysts, for example, draw on compensation policy to better understand firms' underlying economic and governance issues, and therefore improve forecast accuracy

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<sup>43</sup> For example, Andrews et al. (2009) find that investors adjust firm valuation upon CEO perquisites disclosures; firms with excessive CEO perquisites suffer from lower prices. This is because excessive perquisites signal underlying governance deficiencies (e.g., misappropriation of firm resources).

<sup>44</sup> Institutional shareholding is another example where increased governance leads to better understanding of financial information. When the market cannot fully infer the economic implications of financial information, it either over or under reacts to the information, which is known as market anomalies, e.g., post earnings announcement drift (PEAD) and accrual anomaly. Prior literature shows that because institutional investors better monitor and understand firms' financial results, higher institutional holdings are less associated with market anomalies. For instance, institutions tend to trade against the PEAD and eventually cause this anomaly to disappear (Ke and Ramalingegowda 2005; Campbell et al. 2009). Likewise, Collins et al. (2003) find evidence that firms with more institutional investors have a small accrual anomaly, suggesting that these investors better understand the nature of accounting accruals.



(Bhat et al. 2006).<sup>45</sup> In a similar vein, credit rating agencies may also improve their assessment of firm risk by identifying managerial incentives that induces excessive risk taking. For example, compensation incentives which focus exclusively on earnings will tempt managers to ignore cash flows, and will therefore be a warning signal for creditors, whose interests are closely related to a firm's cash flow generation. Moody's Corporation commented on the recent compensation disclosure regulation, claiming that "...well articulated performance targets provide insight into the aggressiveness and risk profile of a company, thus facilitating credit rating service..."<sup>46</sup> Therefore, market intermediaries, through their processing of compensation information, contribute to the corporate information environment.

Finally, compensation disclosure also indirectly improves corporate information transparency through increased board diligence. An important task for the board of directors, especially for those outside directors, is to monitor managerial actions and fulfill the fiduciary duty granted by shareholders—protecting shareholder interests. To qualify themselves for those positions, outside directors invest substantial intellectual capital in the directorships (Fama and Jensen 1983). Compensation disclosure reveals governance information and allows investors to evaluate the fiduciary role of the board of directors. Once outside directors are deemed as incompetent to protect shareholder interests, they may lose their reputation and intellectual capital. Therefore, facing more public scrutiny and with their reputations at risk, outside directors may exert more effort

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<sup>45</sup> Using country-level data and after controlling for financial transparency, Bhat et al. (2006) document a positive association between governance transparency and analyst forecast accuracy.

<sup>46</sup> The full comment is available at <http://ssrn.com/abstract=987914>.

to fulfill their duties in contracting and monitoring managers. The strengthened governance, according to prior literature, will improve corporate financial reporting and voluntary disclosures, positively contributing to corporate information transparency (Karamanou and Vafeas 2005; Ajinkya et al. 2005; Beasley 1996).<sup>47</sup>

Collectively, the above arguments lead to the prediction that compensation disclosure improves corporate information transparency, primarily because of its role in conveying governance information.

### *3.2.2. Unintended consequences*

Having discussed the intended (positive) consequences of compensation disclosure, I now turn to its unintended consequences. Compensation disclosure regulation is designed to make the compensation incentives and processes transparent to the public, therefore lowering the monitoring costs of executive compensation. Like all other disclosure regulations, there are some consequences not anticipated by the regulation designers which have adverse effects on the intended goals (Leuz and Wysocki 2008). In the context of compensation disclosure, the question is: Do managers willingly accept the monitoring and give up rent seeking? If managers have alternative plans to extract rents, how will these options affect corporate information transparency? In this section, I discuss some unintended consequences of compensation disclosure on

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<sup>47</sup> This line of literature suggests a positive association between the effectiveness of corporate governance and the quality of firms' disclosure. For example, Beasley (1996) finds that a large proportion of outside directors helps to deter accounting fraud. Ajinkya et al. (2005) find that governance features such as board independence and institutional holding are associated with more frequent, more specific, more accurate, and less optimistically biased management forecasts. Karamanou and Vafeas (2005) provide similar evidence that managers are more likely to provide high quality forecasts when they are effectively governed by the board.

compensation contracting and financial reporting, and discuss their negative effects on the corporate information environment.

#### *3.2.2.1. Opportunism in compensation contracting*

The first unintended consequences relate to compensation contracting. Since shareholders will be better informed of compensation processes, compensation disclosure intends to deter CEO entrenchment and overcompensation. However, compensation disclosure may fail to achieve this goal and cause even more opportunistic CEO compensation.

This argument seems counter-intuitive on the surface. In fact, several explanations from economic and managerial entrenchment literature support the view that compensation disclosure may not effectively reduce excess compensation. First, managerial entrenchment literature suggests that when CEOs have solid power over boards, they do not feel the need to shrink back from entrenchment, even when facing more challenges from regulatory and market scrutiny (Core et al. 2008; Robinson et al. 2011).<sup>48</sup> Therefore, disclosure requirements alone may not deter excess compensation.

Second, transparent compensation disclosure may realize more compensation for managers (Hermalin and Weisbach 2012; Perry and Zenner 2001; Bebchuk and Fried 2004). Hermalin and Weisbach (2012) intuitively show that from a purely economic perspective, information disclosure—especially governance disclosure—may increase

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<sup>48</sup> Core et al. (2008) fail to document a negative associate between media criticism and the reduction of CEO excess compensation. Robinson et al. (2011) also fail to find evidence that CEOs reduce excess compensation after receiving the SEC comment letters on compensation disclosure deficiencies. Both studies conclude that media attention or public scrutiny does not necessarily mitigate managers' overcompensation.

rather than decrease CEO compensation because managers need to be compensated for bearing increased monitoring.<sup>49</sup> Likewise, the management entrenchment literature posits, as Bebchuk and Fried (2004) suggest, that managers have the power to intervene in compensation processes and could therefore circumvent compensation regulations and remain entrenched. Prior literature has shown some unintended consequences of compensation regulation. For example, Perry and Zenner (2001) study the IRS Section 162(m) regulation and show that compensation committees were able to modify the structure of CEO compensation in response to the regulation. As a result, the cap requirement that IRS put on executive performance compensation, which aimed to curb excessive CEO bonuses, unexpectedly resulted in higher CEO compensation.<sup>50</sup>

Finally, it is possible that compensation disclosure aggravates the already serious entrenchment of management (Faulkender and Yang 2012). Faulkender and Yang (2012) study firms' peer group selections after the 2006 compensation disclosure regulation. They observe more biases in peer group selection after the regulation (which requires clear disclosure of peer group information).<sup>51</sup> The authors suggest that the disclosure of peer group information creates a herding phenomenon in which every firm tries to select highly paid CEOs to be their peers, probably because such a peer group signals the firm's

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<sup>49</sup> They argue that managers with substantial bargaining power will benefit from the improved monitoring (e.g., demanding for higher compensation). The economic explanation posits that, even without such power, managers will demand for higher pay to compensate for the extra monitoring, which is costly to them.

<sup>50</sup> Section 162(m) is promulgated to cap the tax deduction of nonperformance related compensation. The intention is to reduce the amount of nonperformance related pay to CEOs. Perry and Zenner (2001) show that, although some firms reduced salary payment, these firms significantly increased the amount of stock options payment, resulting in higher total compensation during the post-regulation period.

<sup>51</sup> By selecting overpaid CEOs as peer members in compensation decision, firm managers could raise their compensation without exerting additional effort.

quality and therefore attracts talent. However, the biased peer group will lead to CEO overcompensation, eventually hurting shareholder value. In sum, compensation disclosure may encourage firms to join a competition of having more management entrenchment.

The above arguments hold true for the disclosure under Rule 402(b). The incentive disclosure required by the new regulation may lead to contract modification and spread of entrenchment. For example, by staying away from formula-based compensation (e.g., cash incentives) and asking for more equity incentives or other nonformalized compensation, managers could circumvent the disclosure regulation and shift entrenchment towards components less subject to the disclosure regulation. Equally possible is that managers learn from industry peers and mimic their rent extraction practice, thus creating a herding environment in which overcompensation becomes more prevalent. As a result, compensation disclosure may fail to resolve overcompensation and related management entrenchment, and may even aggravate management entrenchment, leading to more overcompensation.

#### *3.2.2.2. Opportunism in financial reporting*

The second channel through which compensation disclosure may bring unintended consequences is financial reporting. Though compensation disclosure may reduce earnings management on the one hand, it may potentially induce it on the other.

The logic underlying a negative association between compensation disclosure and earnings management follows that by helping investors see through managers' incentives (e.g., meeting or beating specific bonus targets), compensation disclosure can strengthen

investors' ability to detect accounting irregularities (Dye 1988; Kim and Schroeder 1990).<sup>52</sup> Once their incentives are spotlighted and their information advantages over investors are reduced, managers are less likely to manipulate earnings (Dye 1988; Schipper 1989; Fields et al. 2001; Hunton et al. 2006).<sup>53</sup>

Alternatively, it could be argued that compensation disclosure in fact induces more earnings management, which is unfavorable to investors and regulators. Because both the compensation contract manipulation and earnings management enable managers

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<sup>52</sup> It assumes that compensation committees are unable or unwilling to fully undo earnings manipulation. In fact, Dye (1988) argues that earnings management could be expected by the board of directors and is part of the optimal contracting mechanism. Under the optimal contracting view, compensation disclosure does not affect earnings management. This study takes a different stand and focuses on outside investors and their perception of earnings management. Specifically, since firms usually withhold details of compensation contracts, outside investors are usually unable to observe managers' compensation incentives and detect earnings management. Compensation disclosure allows outside investors to see through those incentives and related earnings management. For example, Kim and Schroeder (1990) find that analysts anticipate compensation-induced discretionary accruals when issuing forecasts for firms that disclose compensation incentives.

<sup>53</sup> Dye (1988) proposes a model in which current investors sell their shares to prospective investors. In the absence of moral hazard problems, earnings management arises when current investors bolster reported earnings in an attempt to sell their shares at a better price. However, the prospective investors are not fooled and will discount the purchase price. Therefore, earnings management is expected in this equilibrium. Dye then shows that when details of managerial compensation schedules are fully observable, earnings management is no longer feasible in the equilibrium. It follows that the prospective investors could assess the deviation of reported earnings from true earnings when they learn managers' compensation incentives. Prospective investors, in turn, could better interpret earnings numbers or even undo earnings management. As a result, the current investors have little incentives to engage in earnings management because they will gain nothing, but bear the full costs from the earnings management. Schipper (1989) argues that information asymmetry is a necessary condition which gives rise to earnings management; blocked communication and the inability (inefficiency) to undo earnings permit earnings management. Fields et al. (2001) adopt a similar view in which rational managers would not manipulate earnings unless some users of accounting information are unable or unwilling to undo earnings management. Behavioral studies provide supporting evidence from lab experiments. In an experiment with a group of participants choosing to manipulate a specific account to bolster reported earnings, Hunton et al. (2006) show that whether or not earnings management is detectable is a key factor for the participants to make earnings management decisions. They find that the participants are less motivated to manipulate an easily manipulatable account when its reporting becomes transparent (i.e., manipulation becomes obvious under transparent reporting). Instead, they find that the participants would choose to bear higher costs and manipulate the difficult-to-manipulate account that does not have stringent reporting requirements.

to gain undeserved compensation, they could theoretically substitute for each other;<sup>54</sup> in practice, managers always prefer the less costly option when they expropriate control benefits. For example, the “quiet life” hypothesis predicts that entrenched managers are less likely to manipulate earnings because distorting compensation contracts is less costly for them (Zhao and Chen 2008). When contract manipulation becomes more expensive (i.e., compensation disclosure restricts managers’ influence on their own compensation), managers may increase earnings management to extract rents (Singh 2006; Hermalin and Weisbach 2012).<sup>55</sup>

In addition, without the publicity of contract details, corporate boards may have the privilege to contract managers based on implicit or loosely defined performance targets, and use discretion to maintain managers’ performance incentives (Bol et al. 2010). Compensation disclosure, however, exposes contract details to the public, and therefore makes those performance measures and targets rigid, potentially creating more incentives for earnings manipulation (Burgstahler and Dichev 1997; Bartov et al. 2002; Matsunaga and Park 2001; Mergenthaler et al. 2011).<sup>56</sup>

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<sup>54</sup> Compensation payout is based on two components: performance measures and measured performance. The exact measures, targets, and calculation formulas are defined by compensation contracts; the measured performance is often taken from financial reporting, subject to minor adjustments. Manipulation of either component can help managers earn excess compensation.

<sup>55</sup> The intuition is discussed by Singh (2006), who argues that information used to measure managerial performance is not exogenous. Once managers cannot distort the compensation incentive (e.g., a strengthened pay-for-performance relation), they might reduce the reliability of financial measures used to assess their performance. Likewise, Hermalin and Weisbach (2012) argue that enhanced disclosure and monitoring may induce managers to distort financial reporting.

<sup>56</sup> Meeting or beating benchmarks is one of the major motives for earnings management. For example, Burgstahler and Dichev (1997) show convincing evidence that earnings distributions have kinks surrounding a few benchmarks, e.g., market expectation and zero earnings. Prior literature suggests that managers have strong incentives to meet or beat explicit benchmarks because they may benefit from the increased share price (Bartov et al. 2002), avoid reduced compensation (Matsunaga and Park 2001), or save

To summarize the discussion in Section 3.2., compensation disclosure conveys governance information and improves corporate information transparency. However, unintended consequences may harm corporate information transparency through effects on managerial behavior, e.g., increased CEO overcompensation and earnings management. These unintended consequences may induce more agency problems, leading to lower corporate information transparency. The net effect of compensation disclosure on corporate information transparency, therefore, remains an empirical question. This hypothesis is formally expressed as follows (stated in alternate form):

**H2: *Ceteris paribus*, corporate information transparency is positively associated with compensation disclosure.**

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their careers (Mergenthaler et al. 2008). Beating or meeting explicit compensation benchmarks directly improves managers' compensation payouts, and may also help managers build a reputation of goal achieving.



## CHAPTER 4: DATA

### 4.1. Sample Selection

The CEO compensation data used in this study came from *ExecuComp*, a *Compustat* database which provides information on 7,209 CEO-year observations over the 2004 to 2007 period.<sup>57</sup> My selection covers the period from 2004 to 2007, because 2006 is the first year that firms reported compensation information under the new regulation. Therefore, my sample selection constructs a pair of comparable subsamples: a two years of pre-regulation subsample (2004–2005) and a two years of post-regulation subsample (2006–2007).<sup>58</sup> Since CEO turnovers hinder the cross-period comparison, i.e., findings may be attributed to CEO changes rather than compensation regulation, I exclude firms which replaced CEOs (3,617 observations) during the sample period. The next exclusion is 532 observations of financial firms (SIC codes 6000 to 6999), because the interpretation of their financial statements is different from that of industrial firms. I then match the remaining sample to *Compustat*, and drop 204 unmatched firm-year observations. I then manually collect governance and compensation disclosure information from *Edgar* and drop 15 observations that do not provide public filings on executive compensation. Lastly, I exclude 35 observations because they have not

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<sup>57</sup> *ExecuComp* reports components of executive compensation for S&P1500 firms and is the most referred to compensation database in accounting research.

<sup>58</sup> The SEC compensation regulation became effective after December 15, 2006. For the majority of firms whose fiscal year ends on December 31, the new regulation is effective for their 2006 annual reports and proxy statements. Firms may have different fiscal year ends, for example, September 30. Firms with an earlier fiscal year end may have filed the 2006 annual reports and proxy statements before the regulation took effect. For these firms, 2007 will be the first year of the new regulation. I therefore change their sample periods from 2004–2007 to 2005–2008, and adjust their pre- and post-regulation periods accordingly.

established any cash incentive plan for their CEOs.<sup>59</sup> The final sample consists of 2,806 firm-year panel data from 704 unique firms. Panel A of Table 1 summarizes the sample selection process.

[Insert Table 1 about here]

Panel B of Table 1 compares the industry distributions between my sample firms and the populace in *Compustat*. The sample of this study represents all major Fama-French industries except for financial firms in the 12-industry scheme, as is shown in the first two columns.<sup>60</sup> The most heavily represented industry is the business equipment industry (20.24%), which includes such sectors as computers, software, and electronic equipment, followed by the manufacturing industry (14.54%), other industry (13.93), and the wholesale and retail industry (13.11%). The proportion of each industry in the sample is comparable to that in *Compustat*, indicating that the sample selection is not biased towards any specific industry and the test sample is representative of the general population.

## **4.2. Measuring Compensation Disclosure**

A proper measure of the extent of compensation disclosure is fundamental to this study. For the purposes of this study, the term “compensation disclosure” refers to incentive compensation related disclosures, i.e., the design of the compensation incentives and the realization of the final payments, which are requested by Rule 402(b).

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<sup>59</sup> Note that these firms are less likely to be affected by the compensation disclosure regulation (Rule 402(b)). Sensitivity tests suggest that the main findings remain robust when these firms are retained in the sample.

<sup>60</sup> The categories are available at [http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html).

No existing database, however, provides such data; instead, I construct my own measures from reading firm proxy statements or related filings.<sup>61</sup>

First, from the CD&A sections in the proxy statements, I extract eight disclosure items representative of Rule 402(b) disclosures; namely, range of bonuses, performance measures, performance weights, performance targets, computation formula, nonfinancial measures and personal performance measures, discussions of actual payment, and future performance targets (see Appendix Table A for definitions of these items). Except for discussions of actual payment, which mainly release information about *ex-post* payout execution, the other seven measures focus on information about *ex-ante* compensation incentives. Nevertheless, one should consider all eight measures as a whole to gauge compensation disclosure. Note that Rule 402(b) covers all forms of incentive compensation. This study focuses on short-term incentive compensation in particular, not only because short-term incentives are more popular than other forms of compensation incentives among public firms, but also because they tend to be more firm-specific and have more cross-sectional variation in disclosure practices.<sup>62</sup>

Following Laksmana (2008) and Tinaikar (2009), I develop a rating system that evaluates each disclosure item based on the extent to which compensation information is disclosed. For instance, transparent disclosures score one, opaque disclosures score zero,

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<sup>61</sup> I search SEC form DEF 14a for compensation disclosure information. When this form is not available, I obtain information from alternative forms, such as the DEF 14a (contested solicitations) and 10-K filings (annual reports).

<sup>62</sup> Unlike equity-based compensation whose realization is solely contingent on share price, the realization of short-term incentives, such as bonuses, is contingent on a variety of measures. The design and execution of such plans involve substantial management discretion, leading to great variation in compensation disclosure. Indeed, short-term incentives like the annual bonus have already been the focus of extensive research on executive compensation (Murphy 1999).

and any disclosure that falls somewhere between transparent and opaque receives a score of 0.5 (see Appendix Table A for examples of transparent and opaque disclosures). The aggregate measure—the compensation disclosure index (*SUMCD*)—is the sum of the eight individual scores. *SUMCD* ranges from 0 to 8, with 0 being the most opaque disclosure score and 8 the most transparent.

Panel A of Table 2 presents the descriptive statistics for the eight compensation disclosure items (*CD1* to *CD8*) and the compensation disclosure index (*SUMCD*). Full-sample descriptive statistics are presented first, followed by descriptions of the pre- and post-regulation subsamples. Over the four-year sample period, the mean (median) of the compensation disclosure index (*SUMCD*) is 2.81 (2.5), demonstrating the on average low transparency of compensation disclosure. With respect to those individual disclosure items, the most transparent items, scored 0.85, are performance measures (*CD2*), suggesting that over 85% of the sample firms either fully or partially disclose their performance measures of CEO incentive compensation. The second most disclosed items are bonus ranges (*CD1*), followed by performance weights (*CD3*). The least disclosed items are nonfinancial and personal performance measures (*CD6*), discussions of actual payment (*CD7*), and future performance targets (*CD8*), with fewer than 3% of the sample firms reporting performance targets for the coming year.

[Insert Table 2 about here]

Next, I compare the sub-sample statistics. As expected, compensation disclosure improves significantly after the SEC pronouncement, with the *SUMCD* mean (median) increasing from 1.82 (2.0) in the pre-regulation period to 3.79 (4.0) in the post-regulation

period, which is statistically significant at a 1% confidence level. This improvement is evident for all individual compensation disclosure items, and the differences are all significant. The most notable cross-period improvement among the eight individual items is performance target disclosure (*CD4*), with only 25% of the sample firms disclosing specific performance targets before the regulation, and 48% after the regulation, which is consistent with the fact that performance targets receive much attention under the new regulation.

#### **4.3. Validating the Compensation Disclosure Index**

Because constructing the compensation disclosure index requires some subjective assessment, there might be some concern that this index may suffer from subjectivity-related measurement error, and therefore may not map into the underlying disclosure activities. The descriptive statistics from the previous section clearly show a leap in the compensation disclosure index after the SEC regulation, indicating that on average, this index captures the increased compensation disclosures in the post-regulation period. However, those statistics do not show whether the index captures the cross-sectional variation of the underlying disclosure activities.

To further alleviate this concern, I construct an alternative measure of compensation disclosure from SEC comment letters. The SEC publicly releases comments relating to disclosure filings made with deficiencies.<sup>63</sup> Notably, the SEC has

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<sup>63</sup> The SEC issues comment letters after it detects disclosure deficiencies in registrants' filings. Registrants either amend their submitted filings or improve the quality of future filings, whichever is required by the SEC. In 2007, the SEC issued 350 comment letters highlighting compensation disclosure deficiencies. Most of the targeted firms were suggested to improve their disclosures for the next year and were not required to resubmit those filings. Similar letters were issued in 2008 as well.

been focusing on the compensation disclosure deficiencies during the post-regulation period, with Rule 402(b) disclosure being the most frequently covered topic.<sup>64</sup> These comment letters have been used in the literature to proxy for compensation disclosure deficiencies (Robinson et al. 2011). I thus validate my compensation disclosure index by testing its correlation with the SEC comments. If both my index and the SEC comments underscore the same economic issue—compensation disclosure—then the two proxies should be correlated; that is, firms with higher compensation disclosure scores should be less likely to receive SEC comments on compensation disclosure, and vice versa.<sup>65</sup>

After searching the SEC comment letters in *AuditAnalytics* for the post-regulation sample and retaining those letters containing comments on Rule 402(b)—which yielded 324 comment letters—I then group the compensation disclosure indices into nine trenches, from the lowest disclosure quality to the highest. Panel B of Table 2 compares the frequencies of receiving SEC comment letters across the nine trenches of the compensation disclosure index, and gives us an initial univariate look at the data. For the full post-regulation sample, it is evident that the probability of receiving a comment letter decreases with the quality of compensation disclosure; for instance, firms in the full score trench, which represents the highest disclosure quality, did not receive any comment letters from the SEC. To gauge the statistical significance of the difference in those cross-trench frequencies, I reduce the number of trenches and split the sample into low, median,

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<sup>64</sup> Using 339 comment letters that the SEC issued on compensation disclosure topics in 2007, Robinson et al. (2011) show that seven out of ten disclosure deficiencies are related to Rule 402(b), with the top two deficiencies being “not disclosing performance targets” (in 249 comment letters) and “not discussing personnel performance” (in 234 comment letters), both Rule 402(b) topics.

<sup>65</sup> Note that both proxies could be false representations of the true compensation disclosure activities, which would mean that their correlations with each other really say nothing about the validity of my index. However, the chance that both proxies miss the true disclosure activities is extremely low.

and high groups based on their compensation disclosure indices. A similar trend is observed in that only 14% of firms in the high disclosure group (where the *SUMCD* falls between 6 to 8) received comment letters versus 25% of firms in the low disclosure group (where the *SUMCD* falls between 0 to 2).<sup>66</sup> The frequencies of receiving comment letters among the three groups are significantly different (Chi-sq=7.68).

Nonetheless, because the SEC does not explain how it selects its review sample, there may be a concern that the SEC's short list is biased; that is, the SEC only follows a group of firms with substantial market attention; smaller firms, no matter how bad their compensation disclosure, will not receive comment letters. Therefore, the correlation shown in the full sample may be contaminated by the inclusion of small firms. To address this concern, I use analyst following to proxy for market attention and restrict the sample to firms followed by at least six analysts. As a result, the reduced sample only includes firms with substantial market attention. I then repeat the above tests and find similar, yet stronger, results. For instance, there appears to be an approximately monotonic relationship between compensation disclosure index and the frequencies of receiving SEC comment letters. After dividing these firms into low, median, and high groups based on their compensation disclosure indices, I find that all between-group and among-group comparisons suggest that the frequencies of receiving comment letters are different and significant. Overall, these findings show that the compensation disclosure index is negatively associated with the likelihood of receiving SEC comment letters, in turn

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<sup>66</sup> The index assumes integer values in this step, e.g., 2.5 is transformed into 2.

suggesting that my index is a valid measure of the underlying compensation disclosure activities.<sup>67</sup>

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<sup>67</sup> This study does not use the common letter sample in the main tests for the following reasons. First of all, the compensation disclosure data are potentially superior to the SEC comment letter data because the comment letter data are not available in the pre-regulation period; thus, the data do not allow for a cross-period study. In addition, the self-constructed index generates a larger sample so that the results are more generalizable than those from the comment letter sample.



## CHAPTER 5: RESEARCH DESIGN

### 5.1. Test of H1

H1 hypothesizes that compensation disclosure is negatively associated with managerial power (H1a) and proprietary cost (H1c), while positively associated with external monitoring (H1b). I identify these relations by regressing a compensation disclosure index on measures of CEO power, external monitoring, and proprietary cost, and controlling for standard economic determinants of firm disclosure (e.g., Feng et al. 2009). The model specification takes the form:

$$\begin{aligned} SUMCD_{i,t} = & \alpha_0 + \alpha_1 MPOWER_{i,t} + \alpha_2 MONITOR_{i,t} + \alpha_3 PROP_{i,t} + \alpha_4 SIZE_{i,t} + \\ & \alpha_5 LEV_{i,t} + \alpha_6 VOLA_{i,t} + \alpha_7 GROWTH_{i,t} + \alpha_8 COMPLEX_{i,t} + \\ & \alpha_9 FINCHA_{i,t} + \alpha_{10} INDCON_{i,t} + \sum YEAR + \varepsilon_{i,t}, \end{aligned} \quad (1)$$

where indices *i* and *t* denote firm and year, respectively. The dependent variable *SUMCD* is the compensation disclosure index. To capture the multi-faceted nature of managerial power, external monitoring, and proprietary cost, I construct multiple measures for each of them and take the principle component value as the independent variable.<sup>68</sup> *MPOWER* is the principal component of four individual measures of CEO power: CEO/chairperson founder (*FOUNDER*), founding family (*FAMILY*), CEO/chairperson ownership (*CEOOWN*), and independent chairperson (*INDCHAIR*). *MONITOR* is the principal component of four individual measures of external monitoring: percent of independent directors (*INDDIR*), big auditor (*BIG4*), institutional ownership (*IOR*), and analyst

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<sup>68</sup> Principal component analysis is widely used in corporate governance research to reduce both measurement error in individual measures and correlational complexity among the measures (Larcker et al. 2007; Feng et al. 2009). All the principal component variables used in this study are the first principal components, which account for as much of the variability in the data as possible.

following (*NUMAF*). Lastly, *PROP* is the principal component of five individual measures of proprietary cost: firm-level R&D intensity (*RD*), industry-level R&D intensity (*IND\_RD*), firm age (*FIRMAGE*), industry wide price-cost margin (*IND\_MGN*), and high technology industry (*HIGHTECH*). For further details, see Appendix A for a discussion of all these measures and their related literature.

The model controls for other determinants of disclosure decisions. First, I include firm size (*SIZE*) to capture the overall information environment (Lang and Lundholm 1993). Larger firms are more closely followed by analysts, the media, and regulators, who have higher demand for firm disclosures. In addition, larger firms may enjoy lower costs for information dissemination, which induces more disclosures (Lang and Lundholm 1993). Second, I control for firm leverage (*LEV*) because debt holders may solicit corporate information—which includes compensation information—to protect their investment from shareholder appropriation. For example, shareholders may reward managers for transferring wealth from debt holders, which conflicts with debt holders' interests; the higher the firm's leverage, the more intense the conflict between these two parties. Compensation disclosure thus helps debt holders to discern wealth transfer incentives. Third, following Feng et al. (2009) I control for four principal component variables that not only capture the underlying variability and uncertainty faced by the firm, but which may explain the compensation disclosure decision: firm volatility (*VOLA*), firm growth (*GROWTH*), operation complexity (*COMPLEX*), and financial challenges (*FINCHA*).<sup>69</sup> Finally, I control for industry concentration, *INDCON*, using the

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<sup>69</sup> The volatility measure has four components, namely, cash flow volatility (*CFVOLA*), earnings volatility (*ROAVOLA*), sales volatility (*SALEVOLA*), and stock price beta (*BETA*). The growth measure consists of asset growth (*ATGW*), sales growth (*REVGW*), merger and acquisition activity (*MA*), and market-to-book

Herfindahl–Hirschman Index, which measures the market share of the largest four companies within each four-digit SIC industry.

The sensitivity of compensation disclosure to managerial power, external monitoring, and proprietary cost,  $\alpha_1$ ,  $\alpha_2$ , and  $\alpha_3$ , are estimated from Eq. (1). H1a–H1c predict that  $\alpha_1 < 0$ ,  $\alpha_2 > 0$ , and  $\alpha_3 < 0$ , respectively.

## 5.2. Test of H2

H2 predicts that corporate information transparency is positively associated with compensation disclosure. My analysis of corporate information transparency follows the well-established corporate disclosure literature (Leuz and Wysocki 2008). To gauge whether the corporate information environment is transparent, I rely on three measures: bid-ask spread (*BASPREAD*), analyst forecast error (*AFE*), and analyst forecast dispersion (*DISP*).

The first measure, bid-ask spread, is widely used in the extant literature to measure information asymmetry among market participants. Furthermore, prior studies suggest that a lower bid-ask spread is associated with better information disclosure (Welker 1995; Leuz and Verrecchia 2000; Healy et al. 1999). Hence, if a company has a transparent corporate information environment, its trading records should show a relatively small bid-ask spread (Ali et al. 2007). Bid-ask spread is also used to examine the overall information effect of a new standard or regulation such as IFRS (Leuz and

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ratio (*MTB*). The complexity measure covers the number of geographic segments (*NGEO*), the existence of foreign transactions (*FOREIGN*), and the existence of restructuring (*RESTRUCT*). Finally, the financial challenge measure is made up of return on assets (*ROA*), losses (*LOSS*), missing earnings expectation (*MISS*) and reporting special items (*SI*).

Verrecchia 2000), segment disclosure (Greenstein and Sami 1994), and Reg. FD (Eleswarapu et al. 2004). I calculate *BASPREAD* daily as the closing bid-ask spread scaled by the mid-point of the two quotes that define it, and then take the fiscal year average (Glushkov 2010).<sup>70</sup>

The second and third measures of corporate information transparency capture the information environment for financial analysts: analysts are able to learn information about the firm.<sup>71</sup> All else being equal, a relatively transparent corporate environment will be positively associated with analysts' forecast quality; that is, there will be more information available to analysts and less uncertainty among them. In turn, analysts should produce more accurate predictions with smaller forecast dispersion. Hence, I proxy corporate information transparency using analyst forecast error (*AFE*) and analyst forecast dispersion (*DISP*) (Berger and Hann 2003; Bailey et al. 2003; Ali et al. 2007). I measure *AFE* as the absolute value of analyst forecast error deflated by stock price at the last forecast before earnings announcement, and *DISP* as the average analyst dispersion deflated by share price during the fiscal year. Finally, I construct a principal component variable, *TRAN*, to consolidate the three measures into one value of corporate transparency.<sup>72</sup>

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<sup>70</sup> Another way to calculate the bid-ask spread is using the TAQ data. Chung and Zhang (2009) suggest that the CRSP-based spread is highly correlated with the TAQ-based spread.

<sup>71</sup> Because financial analysts act as information intermediaries, many earlier studies measure the level of information transparency using analyst ratings, which is known as the AIMR corporate disclosure score (Lang and Lundholm 1993). This score, however, is no longer updated and does not cover my research period.

<sup>72</sup> *TRAN* is the negative value of the principal component value of *BASPREAD*, *AFE*, and *DISP*. A higher *TRAN* value means that the information environment is more transparent.

Hypothesis H2 is tested by regressing corporate transparency measures on the compensation disclosure index and control variables. The model specification takes the following form:

$$\begin{aligned}
TRAN_{i,t+1} = & \beta_0 + \beta_1 SUMCD_{i,t} + \beta_2 VOLATILITY_{i,t+1} + \beta_3 TURNOVER_{i,t+1} \\
& + \beta_4 NUMAF_{i,t+1} + \beta_5 PRICE_{i,t+1} + \sum \beta_i Control_{i,t} + \sum IND + \sum YEAR \\
& + \varepsilon_{i,t+1},
\end{aligned} \tag{2}$$

where indices  $i$  and  $t$  denote firm and year, respectively. The dependent variable  $TRAN$  is measured at year  $t+1$ . The independent variable, the compensation disclosure index  $SUMCD$ , is measured at year  $t$ . Following Healy et al. (1999) and Leuz and Verrecchia (2000), I control for stock trading activities, due to bid-ask spread being negatively associated with trading activities. The model also includes return volatility ( $VOLATILITY$ ), share turnover ( $TURNOVER$ ), analyst following ( $NUMAF$ ), and share price ( $PRICE$ ), all measured at year  $t+1$  to control for contemporaneous events that affect corporate information transparency.

The concern of endogeneity arises in the above model specification. Unobserved factors may affect both compensation disclosure and corporate information transparency. I address this issue in two ways. First, the lead and lag design—by testing compensation disclosure's effect on the next period's information environment—could mitigate endogeneity to some degree. Second, I include all the determinants of compensation disclosure from Eq. (1) in this model, controlling for the unobserved correlated variables whose absence potentially triggers the problem of endogeneity. I control for year and industry fixed effects to remove their effects from the analysis.  $\beta_1$  depicts the association

between compensating disclosure and corporate information transparency, and H2 predicts  $\beta_1 > 0$ .

## CHAPTER 6: RESULTS

### 6.1. Descriptive Statistics

Panel A of Table 3 summarizes the descriptive statistics for the variables of interest. Each continuous variable is winsorized at its 1st and 99th percentile levels to reduce the effects of extreme values. The panel starts with the independent variables predicted under hypotheses H1a, H1b, and H1c. The mean (median) *POWER*, the first proxy for managerial power, is -0.02 (-0.76), with a higher value representing stronger managerial influence over board members. The mean (median) *MONITOR* is 0.01 (0.18). The higher the *MONITOR* value, the more closely the firm is monitored by outsiders. The proxy for proprietary cost, *PROP*, has a mean (median) of -0.01 (-0.78). A higher *PROP* implies a higher proprietary cost for the sample firm of disclosing compensation-related information. Detailed descriptive statistics of the individual measures and their factor loadings are further discussed in Appendix A.

[Insert Table 3 about here]

The next four rows of the panel give the distributions of the information transparency variables tested in H2. The mean (median) bid-ask spread (*BASPREAD*) of the sample firms is 2.79% (2.66%). This is in line with prior literature, which finds that the average bid-ask spread is within the range of 2.37% to 3.48% during the period from 1993 to 2007 (Chung and Zhang 2009). The mean (median) analyst forecast error (*AFE*) is 0.42% (0.15%) of share price, and the mean (median) analyst forecast dispersion (*DISP*) is 0.52% (0.20%) of share price. For presentation purposes, the reported numbers of these three measures are multiplied by 100. The principal component variable, *TRAN*,

abstracts *BASPREAD*, *AFE*, and *DISP* by loading up 54%, 58.4%, and 60.4% of their variations, respectively.

The rest of the panel describes the distributions of control variables. The average market value of the sample firms is \$2,440 million (or 7.8 in natural logarithm), and the average firm leverage is 22%. The factor loadings of the next four principal component variables representing volatility (*VOLA*), firm growth (*GROWTH*), operating complexity (*COMPLEX*), and financial challenge (*FINCHA*), respectively, are comparable to the prior literature (Feng, et al. 2009).<sup>73</sup> For industry concentration (*INDCON*), the sample firms on average report 0.68 on the Herfindahl–Hirschman index, which is comparable to Karuna’s (2007) finding of 0.62. The final two rows of Panel A report the distributions of return volatility (*VOLATILITY*) and market-adjusted share turnover (*TURNOVER*), all multiplied by 100.

Panel B of Table 3 compares the variable distributions in the pre- and post-regulation periods. In addition to the differences in the compensation disclosure index, which is reported by Panel A of Table 2, the post-regulation period differs from the pre-regulation period in the following sense: post-regulation firms are slightly larger,

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<sup>73</sup> The volatility measure, *VOLA*, loads cash flow volatility (*CFVOLA*) up 62.3%, earnings volatility (*ROAVOLA*) and sales volatility (*SALEVOLA*) up 52.9%, and equity beta (*BETA*) up 22.7%. The growth measure, *GROWTH*, loads up 64.8% of the variation from asset growth (*ATGW*), 60.2% from revenue growth (*REVGW*), 43.6% from mergers and acquisition activity (*MA*), and 16.8% from market-to-book ratio (*MTB*). In terms of operation complexity, the sample firms operate, on average, at 2.66 (or 0.98 in natural logarithm) geographic locations (*LOGNGEO*), 31% have foreign operations (*FOREIGN*), and 35% have experienced restructuring during the sample period (*RESTRUCT*). These three factors load up at 64.6%, 61.4%, and 45.3%, respectively, into their principal component *COMPLEX*, with a higher value meaning more operation complexity. With respect to the financial challenge measure, the *ROA* of the average sample firms is 0.07 and special items (*SI*) account for 1% of total assets. Ten percent of the sample firms reported loss (*LOSS*) during the sample period, and 31% missed the earnings benchmark based on the previous year’s actual earnings (*MISS*). These four measures load into the financial challenge principal component variable, *FINCHA*, at -55.9%, 56.1%, 42%, and 44.3% levels, respectively.



probably due to the rising share prices during that period; further, they on average operate with more complexity, have lower growth, and face more financial challenges. The post period also saw stronger monitoring from outsiders. All these differences are significant at a 5% confidence level or better in both the between-sample *t*-tests and the Wilcoxon rank-sum tests.

Corporate information transparency is also different between the two periods, with the post-regulation subsample showing significantly lower transparency. This finding is worth noting. One may argue that there could be a mechanical relation between compensation disclosure and a firm's information environment; that is, a more transparent environment will see more compensation disclosures. My findings contradict this argument by showing that though the post-regulation period witnesses more compensation disclosure, it actually has deteriorated corporate information transparency. In other words, the corporate information environment could not speak for all findings associated with compensation disclosure in this study.

Panel C of this table reports the Pearson correlation coefficients between the compensation disclosure index and the key variables used in my analysis. Consistent with my conjectures, compensation disclosure (*SUMCD*) is negatively correlated with managerial power (*POWER*) and proprietary cost (*PROP*), but positively correlated with monitoring (*MONITOR*); all these correlations are significant. *SIZE*, *LEV*, and *COMPLEX* are all positively correlated with compensation disclosure, while *GROWTH* and *VOLA* are negatively correlated with compensation disclosure. These findings are consistent with the existing literature that firm disclosures are positively related to firm

size and pressure from debt holders, and that firms tend to reduce disclosures when they experience high growth or operate in a volatile environment (e.g., Feng et al. 2009). Financial challenge and industry concentration, however, are not significantly correlated with compensation disclosure. Note that the correlation relation between *SUMCD* and information transparency (*TRAN*) is inconsistent with my prediction under this univariate setting, probably because *TRAN* is also correlated with variables related to compensation disclosure. Therefore, a multivariate analysis may be necessary to estimate the incremental effects of compensation disclosure on corporate information transparency.<sup>74</sup>

Panel D of Table 3 reports the correlation coefficients between the compensation disclosure index and the determinants—managerial power, external monitoring, and proprietary cost—in their raw measures. Column (1) reveals strikingly consistent findings in that all variables except for Chair Independence (*INDCHAIR*) show the predicted signs with respect to their correlation with compensation disclosure.<sup>75</sup> For instance, the four measures of external monitoring are all positively and significantly correlated with the compensation disclosure index; on the contrary, three out of four measures of managerial power show negative and significant correlations with the index.

Overall, the descriptive statistics provide preliminary evidence that when monitoring is stronger, more compensation disclosure takes place. They further show that when managerial power is higher or proprietary cost larger, the amount of compensation disclosure decreases. Although these findings are consistent with the predictions in H1a,

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<sup>74</sup> The correlation between these two variables is positive in the post-regulation period, which is consistent with my prediction. However, again, this correlation is not significant.

<sup>75</sup> The correlation coefficient on *INDCHAIR* is negative and insignificant.

H1b, and H1c, descriptive statistics are not sufficient to support my prediction in H2. I next turn to a more complete empirical analysis of support this hypothesis.

## **6.2. Multivariate Results**

### *6.2.1. Results of testing H1*

The OLS estimation of compensation disclosure on managerial power, external monitoring, proprietary cost, other determinants of firm disclosure, and year dummy is presented in Table 4. The first column reports the estimations for the whole sample. Consistent with my H1a and H1c predictions, the coefficients on managerial power (*POWER*) and proprietary cost (*PROP*) are negative and significant, indicating that firms with stronger managerial power or higher proprietary cost disclose less incentive-related compensation information. Consistent with my H1b prediction, firms with stronger monitoring mechanisms disclose more compensation information, as evidenced by the significantly positive coefficient on *MONITOR*. These results hold even after other factors affecting compensation disclosure are controlled for.<sup>76</sup> The table also shows that, not surprisingly, large firms and leveraged firms are positively associated with increased compensation disclosures, whereas rapidly growing firms are less so.

[Insert Table 4 about here]

A few points are worth further investigation regarding the relations between compensation disclosure and the aforementioned three determinants. First, it is possible

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<sup>76</sup> Since the proprietary cost measures closely depend on industry attribution, I decided not to control for industry effect in the H1 tests. In a robustness test, I control for industry fixed effect and find similar coefficient estimates on managerial power and external monitoring. The coefficient on proprietary cost is negative, but becomes much less significant.

that these relations differ before and after the SEC's regulation. For example, since compensation disclosure is requested by the SEC after the regulation, any noncompliance may draw SEC comment letters or enforcement, and is therefore costly. It would be interesting to examine the SEC regulation's relation with firms' compensation disclosure decisions. If the regulation has an overwhelming effect on the compensation disclosure decision, then the effects of managerial power, external monitoring, and proprietary cost may fade out during the post-regulation period.

To address this concern, I revisit H1 using the pre- and post-regulation subsamples separately. Columns (2) and (3) of Table 4 report the regressions results for the pre- and post-regulation subsamples, respectively. Interestingly, the subsample analyses show that in both estimations, the coefficients on *POWER*, *MONITOR*, and *PROP* are significant and have the predicted signs, suggesting that the SEC regulation has not fundamentally changed the compensation disclosure decision process. Specifically, Column (4) reports that the coefficient estimates are not significantly different for managerial power and proprietary cost between the two subsamples, which confirms the speculation that powerful managers remain discretionary with respect to compensation disclosure even after the SEC's pronouncement for transparent disclosure. On the positive side, the coefficient estimates on *SIZE*, *LEV*, and *MONITOR* all increase in the post-regulation period, suggesting that since the regulation, market attention and external monitoring have played a greater role in eliciting compensation disclosure.<sup>77</sup>

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<sup>77</sup> An alternative explanation is that larger firms, more levered firms, and more highly monitored firms bear larger enforcement costs. For example, they are more likely to be examined and challenged by the SEC, and are subjected to more severe consequences once convicted. These larger firms, therefore, are more likely to discuss compensation-related information in the post-regulation period.

The OLS estimation of Eq. (1) also needs to be investigated. One may argue that the dependent variable of Eq. (1), the compensation disclosure index, is an ordinal variable, which is different from a continuous variable. For instance, an ordinal variable disregards the distances between adjacent levels. As a result, the OLS estimation may not fit the data or yield the best estimates. To address this concern, I repeat the regression of Eq. (1) using ordered logistic estimation, which better treats ordinal dependent variables. Column (1) of Table 5 reports the regression results, which are qualitatively the same as those of the OLS regressions. This suggests that my previous findings are robust to estimation assumptions. For the next eight columns, I also estimate Eq. (1) using ordered logistic regressions, but replace the dependent variable with eight individual disclosure scores (*CD1 to CD8*) iteratively. Several interesting findings are worth noting. First, these results confirm my earlier findings that compensation disclosure is negatively associated with managerial power and proprietary cost, and positively associated with external monitoring. For instance, seven out of the eight estimated coefficients are significantly negative (positive) for *POWER* (*MONITOR*), and four out of the eight are significantly negative for *PROP*. Second, the model explains performance target disclosure (*CD4*) exceptionally well (with a pseudo  $R^2$  of 28.70%), which makes it evident that the model captures much variation of compensation disclosure decisions.<sup>78</sup> In addition, the coefficient estimate on *PROP* reported in Column (5) is the most salient among all eight estimates, confirming the anecdotal evidence that firms with proprietary information are especially reluctant to disclose performance target information.

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<sup>78</sup> Given that this disclosure variable is the most focused and probably the most controversial disclosure item under Rule 402(b), my finding suggests that the model describes the Rule 402(b) disclosure decision relatively well.

[Insert Table 5 about here]

In sum, the evidence presented in Tables 4 and 5 is consistent with my first prediction, namely that compensation disclosure is negatively associated with managerial power and proprietary cost. Whereas proprietary cost is a legitimate reason for reduced disclosure, managerial power is not. For instance, when managers reduce compensation disclosure in an attempt to remain entrenched, shareholder welfare is impaired. Investors at large, however, are unable to tell whether the nondisclosure (or poor disclosure) is a result of managerial power or due to the firm having high proprietary cost. In this case, outside monitors—for example, outside directors, institutions, analysts, and auditors—play an important role in deterring managerial power and eliciting more disclosures, thus leading to a positive association between the level of monitoring and compensation disclosure.

#### *6.2.2. Results of testing H2*

In this section, I investigate whether compensation disclosure is positively related to corporate information transparency. H2 predicts that the governance information conveyed by compensation disclosure positively contributes to the corporate information environment. To test this prediction, I perform a regression on measures of corporate information transparency in the lagged compensation disclosure index, and examine if the information environment is more transparent among firms which better disclose compensation information. In all regressions, I control for industry and year fixed effects.

Table 6 reports the OLS estimation of Eq. (2). I report regression results in the first two columns with the aggregated measure *TRAN* as the dependent variable, and in

Columns (3) to (5) with the three individual measures of corporate information transparency as the dependent variable iteratively. Column (1) of Table 6 shows that on average, compensation disclosure is positively associated with corporate information transparency (H2), which is evident by the significantly positive coefficient estimate on *SUMCD*. With respect to the contemporaneous control variables, results are generally consistent with the current literature. For instance, information transparency is associated with low return volatility (*VOLATILITY*) and small abnormal trading volume (*TURNOVER*), while it increases with analyst followings (*NUMAF*).<sup>79</sup>

[Insert Table 6 about here]

Next, I examine whether the SEC pronouncement strengthens the relation between compensation disclosure and the corporate information environment. The pre-regulation (post-regulation) compensation disclosure is predicted to possess a weaker (stronger) relation with the corporate information environment for the following reasons. First, since the disclosure of incentive-related information is voluntary in the pre-regulation period, the amount of disclosure is low. The lack of variation in compensation disclosure will be biased against finding a significant relationship between compensation disclosure and corporate information transparency. Moreover, since the disclosure is voluntary, it is possible that compensation disclosure is endogenously determined by other factors in a disclosure equilibrium, in which compensation disclosure alone may not convey anything new to the market, and therefore may not directly affect the information

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<sup>79</sup> I include the rest of the variables to control for compensation disclosure decisions in the lagged period; therefore, I do not predict their signs in associations with corporate information transparency.

environment.<sup>80</sup> The post-regulation period, in contrast, witnesses an exogenous shock in compensation disclosure because of the SEC regulation. Compensation disclosure is in no longer endogenous; rather, it inclines to be exogenous in nature. In other words, the quality and quantity of the information conveyed by compensation disclosure will not be fully captured by other contemporaneous factors. As a result, the information environment in period  $t+1$  will incorporate the new information from compensation disclosure. Therefore, I expect the relation between compensation disclosure and information transparency to be more significant in the post-regulation period.

To test these predictions, I expand Eq. (2) by introducing a period indicator, *POST*, and its interaction with the compensation disclosure index *SUMCD\*POST* in the equation. *POST* is an indicator variable equal to 1 for the post-regulation observation, and 0 for the pre-regulation observation. The regression results are shown in Column (2). The coefficient estimate on *SUMCD*, which captures the pre-regulation compensation disclosure effect, is not significant, indicating that pre-regulation compensation disclosure is not significantly associated with the level of corporate information transparency. In contrast, the coefficient estimate on *SUMCD\*POST*, which captures the marginal effect of compensation disclosure in the post-regulation period relative to that in the pre-regulation period, is significantly positive. The sum of the two coefficients, which captures the total effect of compensation disclosure in the post-regulation period, is also positive and significant, confirming my prediction that the positive relationship between

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<sup>80</sup> To illustrate, compensation disclosure in period  $t$  may be a product of the firm's information environment and managerial incentives in period  $t$ , and therefore will not be directly associated with the information environment in period  $t+1$  after controlling for the information environment and managerial incentives in tests.



compensation disclosure and corporate information transparency is more salient in the post-regulation period. Columns (3) to (5) iteratively replace the dependent variable *TRAN* with bid-ask spread (*BASPREAD*), analyst forecast error (*AFE*), and analyst forecast dispersion (*DISP*). The results are consistent with findings reported in Column (2). Specifically, all three coefficient estimates on *SUMCD\*POST* are negative and significant (bid-ask spread, analyst forecast error, and analyst forecast dispersion all worsen disclosure transparency).

To reinforce my findings from Table 6, I construct a change model to examine how corporate information transparency changes as compensation disclosure changes. The change analysis allows me to control for inherent firm characteristics that remain unchanged over time, which addresses any concerns about correlated omitted variables in testing the H2. I expect that corporate information transparency will improve (deteriorate) as the compensation disclosure increases (decreases). To test this prediction, I consider the changes of all regressors from Eq. (2). Specifically, I define the change in corporate information transparency,  $\Delta TRAN$ , as the difference in *TRAN* between period t+1 and period t, and the change in compensation disclosure,  $\Delta SUMCD$ , as the difference in *SUMCD* between period t and period t-1. I expect the coefficient estimate on  $\Delta SUMCD$  to be positive.

[Insert Table 7 about here]

Column (1) of Table 7 presents the results of the change analysis for the full sample period. As predicted, the coefficient estimate on  $\Delta SUMCD$  is significantly positive, indicating that an increase in compensation disclosure does improve the

corporate information environment in the subsequent period. I then split the full sample into the pre- and post-regulation subsamples and test whether the above finding differs in the two periods. Results reported in Columns (2) and (3) do suggest some differences. For instance, the effect of compensation disclosure on the corporate information environment is only significant in the post-regulation period, with the coefficient estimate on  $\Delta SUMCD$  in Column (3) being positive and significant at a 0.05 level.<sup>81</sup> Together with my findings reported in Table 6, I conclude that following the SEC's pronouncement on compensation disclosure, the corporate information environment did indeed improve, on average. To show variations of information transparency measures, I then run the above regressions using the post-regulation subsample, replacing the dependent variable iteratively with a change in the bid-ask spread ( $\Delta BASPREAD$ ), a change in the analyst forecast error ( $\Delta AFE$ ), and a change in analyst forecast dispersion ( $\Delta DISP$ ). As shown in Columns (4) to (6), all three coefficient estimates on  $\Delta SUMCD$  are negative, but only the coefficient estimate in Column (4) is significant, suggesting that compensation disclosure especially reduces bid-ask spread in the post-regulation period.

Taken together, the cross-sectional and change analyses suggest that compensation disclosure is positively associated with information transparency (H2) and that this effect is stronger after the SEC's implementation of the compensation disclosure regulation. I also find some evidence that compensation disclosure improves corporate information transparency, primarily through its effect on the overall information

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<sup>81</sup> Because of data limitations, once these changes in the variables are made, I have only one year of data for the pre-regulation period. The smaller data sample size may also work against finding a significant result for this period.

environment among market participants, e.g., smaller bid-ask spreads.<sup>82</sup> Finally, these results suggest that the unintended consequences of compensation disclosure, which I discuss in the next chapter, are not strong enough to nullify the positive effect of compensation disclosure on the information environment.

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<sup>82</sup> I thus speculate that compensation disclosure may significantly improve the on-average investors' understanding and information set but not the specialists', which could be tested in future research.

## CHAPTER 7: ADDITIONAL TESTS

In this section, I conduct additional tests to evaluate the unintended consequences of compensation disclosure. First, there might be concern that the discussed compensation disclosure regulation is not fully effective to deter excess compensation, simply because managers could modulate their contracts to minimize the impact of the regulation. Second, compensation disclosure may induce discretionary financial reporting, which is in fact an alternative way of earning excess compensation.

### 7.1. Compensation Disclosure and Excess Compensation

Ideally, compensation disclosure should reduce agency costs and thus improve the corporate information environment. If compensation disclosure fails to reduce excess compensation and the related agency issues, its positive effects on corporate information transparency will be attenuated. Empirically, however, whether compensation disclosure actually reduces excess compensation is not yet clear.<sup>83</sup> I therefore specifically examine whether compensation disclosure reduces excess CEO compensation in the context of Rule 402(b), which is designed to clarify the pay-for-performance relation.

In doing so, I closely follow Core et al. (2008) by measuring excess CEO compensation, *EXCESS*, as the residual compensation unexplained by the CEO characteristics and firm performance in the following equation:

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<sup>83</sup> For example, Robinson et al. (2011) do not find strong evidence that SEC comment letters reduce excess CEO compensation. However, their study does not directly answer the question of whether disclosure reduces excess compensation: first, receiving a comment letter does not necessarily promise better disclosure in the next period; second, most of their proxies for disclosure deficiency are insignificant in explaining changes in excess compensation. This study aims to answer the above question and clearly show whether, and how, CEOs are able to remain entrenched after disclosing compensation-related information.

$$\begin{aligned}
LOG(Comp_{i,t}) = & \gamma_0 + \gamma_1 LOG(TENURE_{i,t}) + \gamma_2 SAP_{i,t} + \\
& \gamma_3 LOG(SALE_{i,t}) + \gamma_4 LAG(BM_{i,t}) + \gamma_5 RET_{i,t} + \\
& \gamma_6 LAG(RET_{i,t}) + \gamma_7 ROA_{i,t} + \gamma_8 LAG(ROA_{i,t}) + IND + YEAR + u_{i,t},
\end{aligned}
\tag{3}$$

where indices  $i$  and  $t$  denote firm and year, respectively.  $LOG(Comp)$  is the natural logarithm of either the total compensation or the total cash compensation for the CEO. Compensation  $Comp$  is estimated in natural logarithms to address the right skew of compensation. The vector of explanatory variables comprises economic determinants of expected compensation, such as CEO tenure, calculated using the natural logarithm of CEO tenure, ( $LOG(TENURE)$ ); an S&P500 firm indicator ( $SAP$ ); sales, calculated using the natural logarithm of sales ( $LOG(SALE)$ ); beginning book-to-market ratio ( $LAG(BM)$ ); current and lagged stock market returns ( $RET$  and  $LAG(RET)$ ); and current and lagged earnings performances ( $ROA$  and  $LAG(ROA)$ ). Industry and year effects are also included. I calculate the unexplained portion of CEO compensation  $u_{it}$  by estimating Eq. (3) for all CEO-year observations in *ExecuComp* during my sample years. For brevity, see Appendix Table B for the regression results.

I then examine whether compensation disclosure mitigates excess CEO compensation by estimating the following OLS regression:

$$\begin{aligned}
EXCESS_{i,t+1} = & \delta_0 + \delta_1 SUMCD_{i,t} + \delta_2 POST_{i,t} + \delta_3 SUMCD_{i,t} * POST_{i,t} + \\
& \sum \delta_j Contorl_{i,t} + \sum IND + \sum YEAR + \epsilon_{i,t+1},
\end{aligned}
\tag{4}$$

where indices  $i$  and  $t$  denote firm and year, respectively. The dependent variable is the regression residual measured in period  $t+1$  from Eq. (3).<sup>84</sup> The independent variable of interest is the compensation disclosure index measured in period  $t$ . To ease the concern that both compensation disclosure and CEO overcompensation are subject to certain unobservable factors (e.g., corporate governance), I incorporate a full set of independent variables from Eq. (1) as control variables. I also include the period indicator variable *POST* to assess whether the SEC regulation has changed the relationship between compensation disclosure and excess CEO compensation. If compensation disclosure deters overcompensation, I expect the coefficient estimate on the compensation disclosure index is negative; that is,  $\delta_1 < 0$ . If the SEC regulation strengthens this effect, I expect the sign of the coefficient estimate on the interaction term to also be negative; that is,  $\delta_3 < 0$ .

Table 8 reports the regression results. Column (1) shows the results for a basic regression of the excess total compensation on the compensation disclosure index. The coefficient estimate on *SUMCD* is significantly positive and that on the interaction term *SUMCD\*POST* is not different from zero. Contrary to the conventional prediction, the regression results indicate that compensation disclosure is positively associated with excess total payment, a relation not anticipated by the SEC. Column (2) controls for all variables from Eq. (4). The outcomes remain the same except that the magnitude of the estimated coefficient on *SUMCD* is weaker, albeit still significant at a 10% confidence

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<sup>84</sup> It is a concern that compensation disclosure and managerial entrenchment (or earnings management) are simultaneously determined. That is, entrenched managers are less likely to discuss compensation details in public. Several empirical settings could mitigate this concern. First, to the extent that the SEC mandates compensation disclosure, albeit with limitations, the post-regulation sample is less likely to be subjected to this simultaneity concern. Second, I measure managerial entrenchment (or earnings management) at year  $t+1$  and compensation disclosure at year  $t$  to mitigate the simultaneity problem.

level. One economic explanation for the positive coefficient  $\delta_1$  is that managers may receive compensation for bearing greater risk associated with compensation disclosure (Hermalin 2005). Nonetheless, an insignificant coefficient  $\delta_3$  is surprising at first glance because it suggests that excess compensation is immune to SEC regulation (Robinson et al. 2011). I therefore go one step further and examine how CEOs extract excess compensation under the new rules.

[Insert Table 8 about here]

Because most of Rule 402(b)'s requirements affect incentive compensation, especially cash bonuses, I expect that the SEC regulation will be more likely to deter excess cash compensation. On the other hand, noncash compensation, such as equity compensation and postretirement compensation, are not directly associated with the enhanced disclosure of performance targets or any pay-for-performance relations, and therefore, are less subject to these disclosure requirements. Hence, under the new regulation, CEOs may strategically change the way they extract excess compensation from cash and noncash components.

Accordingly, the next two columns report the results for two separate regressions on compensation disclosure and related control variables, one based on excess compensation calculated from cash payments and the other based on excess compensation calculated from other noncash payments. In the first regression, reported in Column (3), the coefficient estimate on *SUMCD*,  $\delta_1$ , is significantly positive, consistent with previous findings, indicating that CEOs are compensated for extra compensation disclosures; however, the coefficient estimate on the interaction term,  $\delta_3$ , becomes

negative. Moreover,  $\delta_1 + \delta_3$  is now negative and significant ( $F = 7.42$ ), suggesting that following the SEC regulation, compensation disclosure deters excess pay or even induces underpay with respect to the cash compensation. Given the enormous focus on pay-for-performance in the post-regulation period, a reduced bonus may literally improve such a relation and please investors. My finding is consistent with this explanation.

Column (4) reports the results of regressing noncash excess compensation on the compensation disclosure and related control variables. The coefficient estimate on *SUMCD*,  $\delta_1$ , which captures the pre-regulation relation between compensation disclosure and noncash excess pay, is insignificant, while the coefficient estimate on the interaction term *SUMCD\*POST*,  $\delta_3$ , which captures the post-regulation relation, is significantly positive, indicating that in the post-regulation period, CEOs start to earn excess noncash compensation. This upward shift in excess noncash compensation is offset, however, by the downward shift in excess cash compensation, leaving the net effect on total excess compensation (i.e., estimate  $\delta_3$  in Column (2)) insignificant. From this, it is evident that CEOs remain entrenched after the compensation disclosure regulation.

These findings are consistent with my conjecture that CEOs are influential enough to modify their compensation contracts and hide entrenchment (e.g., Bebchuk and Fried 2003; Morse et al. 2011). My analysis, however, shows that CEOs hide excess compensation in the noncash components after the SEC pronounces for compensation disclosure. Given that equity compensation is a major component of noncash compensation, and that excessive equity incentives are associated with lower financial reporting quality and more reporting irregularities (e.g., Bergstresser and Philippon 2006),



this finding therefore implies that compensation disclosure may have an unintended negative impact on the corporate information environment.

## 7.2. Compensation Disclosure and Earnings Management

There is another stream of unintended consequences of compensation disclosure which relates to financial reporting. As discussed earlier, the disclosure of incentive-related compensation provides managers with motives to camouflage financial reporting and manipulate earnings. To empirically test these effects, I follow Dechow et al. (2011) and use empirical measures of accrual quality to proxy for earnings management.<sup>85</sup> The first measure is discretionary accruals (*DACC*), which is from the modified Jones model, and estimated cross-sectionally using the same two-digit-SIC firms (excluding financial firms) in *Compustat*. The model specification is in the form:

$$ACCR_{i,t} = c_0 + c_1 \frac{1}{TA_{i,t-1}} + c_2 \frac{\Delta SALE_{i,t} - \Delta REC_{i,t}}{TA_{i,t-1}} + c_3 \frac{\Delta PPE_{i,t}}{TA_{i,t-1}} + \varepsilon_{i,t} , \quad (5)$$

where indices *i* and *t* denote firm and year, respectively. *ACCR* is the accounting accruals, calculated as the difference between income before extraordinary items and operating cash flows scaled by beginning total assets.  $\Delta SALE$  is the change in total sales,  $\Delta REC$  is the change in accounts receivables, and  $\Delta PPE$  is the change in PPE assets. *DACC* denotes the regression residuals from Eq. (5). The second measure is the performance matched discretionary accrual (*PMDACC*), which, following Kothari et al. (2005), is calculated as the difference between the *DACC* of firm *i* in year *t* and the *DACC* of the

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<sup>85</sup> Although firms may also manipulate cash flows to achieve certain earnings, accruals are the most frequently used tools for earnings management.

matched firm  $j$  in year  $t$ , where both firms are from the same two-digit-SIC industry and have the closest returns on asset ratios.

The next two measures are based on Dechow-Dichev (DD) residuals (Dechow and Dichev 2002), and are derived from the following model specification (Francis et al. 2005):

$$\Delta WC_{i,t} = e_0 + e_1 * CF_{i,t-1} + e_2 * CF_{i,t} + e_3 * CF_{i,t+1} + \varphi_{i,t} , \quad (6)$$

where indices  $i$  and  $t$  denote firm and year, respectively.  $\Delta WC_{it}$  denotes the change in working capital and is modeled as a function of past, present, and future cash flows ( $CF$ ). Coefficient estimates are obtained for each two-digit-SIC industry. The regression residuals in Eq. (6),  $\varphi_{it}$ , capture the unexplained accruals, which are possible products of accounting manipulation. The third measure of accrual quality is thus the mean-adjusted absolute value of  $\varphi_{it}$  ( $ADJDD$ ), obtained by subtracting the industry mean absolute value of the DD residuals from the absolute value of  $\varphi_{it}$ . The fourth measure is the studentized DD residuals  $\varphi_{it}$  ( $STDDD$ ).<sup>86</sup>

Finally, I calculate a principal component variable,  $EM$ , from the four individual measures to proxy for earnings management; a higher  $EM$  represents lower accrual quality and higher earnings management. The model specification testing the relation between earnings management and compensation disclosure takes the following form:

$$EM_{i,t+1} = \theta_0 + \theta_1 SUMCD_{i,t} + \theta_2 POST_{i,t} + \theta_3 SUMCD_{i,t} * POST_{i,t} + \sum \theta_j Contorl_{i,t} + \sum IND + \sum YEAR + \epsilon_{i,t+1} , \quad (7)$$

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<sup>86</sup> Regression results of Eq. (5) and Eq. (6) are not reported in this study and are available upon request.

where indices  $i$  and  $t$  denote firm and year, respectively. The dependent variable is the earnings management proxy measured in period  $t+1$  and the independent variable is the compensation disclosure index recorded in period  $t$ . I also include the period indicator variable *POST* and its interaction with compensation disclosure in the model. If compensation disclosure improves financial reporting quality and deters earnings management, I would observe a negative coefficient estimate on the compensation disclosure index; that is,  $\theta_1 < 0$ . If the SEC regulation strengthens that effect, the coefficient estimate on the interaction term will also be negative, that is,  $\theta_3 < 0$ . However, I do not make any signed prediction formally, because it is equally possible that compensation disclosure induces more earnings management.

Table 9 outlines the regression results. Column (1) reports the regression results from the basic model without any control variables. The coefficient estimate on *SUMCD*,  $\theta_1$ , is significantly negative, suggesting that in the pre-regulation period, managers are less likely to manipulate earnings after disclosing more incentive-related information. Interestingly, the coefficient estimate on the interaction term *SUMCD\*POST*,  $\theta_3$ , is significantly positive with a slightly higher absolute magnitude than  $\theta_1$ . This finding suggests that, on average, compensation disclosure no longer leads to less earnings management in the post-regulation period, probably because some firms incur more earnings management after disclosing incentive-related information.<sup>87</sup> The results are

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<sup>87</sup> Because compensation disclosure negatively relates to earnings management in the pre-regulation period, there must be two simultaneous changes that cause this relation to disappear in the post-regulation period. On the one hand, firms with previously low compensation disclosure perform less earnings management because of the increased compensation disclosure, which is intended by the regulation. On the other hand, firms with previously high compensation disclosure perform more earnings management, which is unintended by the regulation.

robust after controlling for additional variables (see Column (2)). Using the four individual accrual quality measures iteratively as the dependent variable gives similar results. As Columns (3) to (6) show, all four coefficient estimates on *SUMCD* are negative, and two of them are significant (*PMDACC* and *ADJDD*). With respect to  $\theta_3$ , which captures the earning management in the post-regulation period, three out of the four coefficient estimates (i.e., all except that on *DACC*) are positive and significant at a 10% confidence level or better.

[Insert Table 9 about here]

Collectively, the evidence presented in Table 9 suggests that compensation disclosure is associated with less earnings management during the pre-regulation period; for the post-regulation period, however, compensation disclosure fails to deter earnings management, probably because some firms perform more earnings management because of the increased compensation disclosure. This finding is consistent with the conjecture that some CEOs are motivated to manipulate earnings to influence the bonus payout once the manipulation of the compensation contract becomes more costly (Singh 2006; Hermalin and Weisbach 2012). All other things being constant, earnings management may reduce financial reporting transparency, and in turn reduce corporate information transparency. Therefore, compensation disclosure may bring unintended consequences, such that disclosing more information actually reduces corporate information transparency.

## **CHAPTER 8: CONCLUSION**

In this research, I focus on incentive-related compensation disclosure, which is pronounced by the SEC compensation disclosure regulation of 2006. Specifically, I study the determinants and consequences of compensation disclosure. First, I argue the extent to which firms disclose incentive-related compensation information is determined by several firm- and CEO-related characteristics. More specifically, I make the conjecture that powerful CEOs tend to disclose less compensation information so that they are less likely to be challenged by outsiders, thus remaining entrenched. Proprietary cost is another reason that firms avoid compensation disclosure, because compensation disclosure adversely affects firms' competitiveness in both the product and managerial labor markets. External monitoring, however, will increase compensation disclosure. I formalize these conjectures in my first hypothesis.

My second hypothesis relates to the informational consequences of compensation disclosure. I argue that compensation disclosure is a type of governance disclosure, which helps outside investors evaluate the appropriateness of incentive schemes and performance measures, detect any abuse in the compensation contracts, and monitor managerial actions induced by the incentives. Governance disclosure reduces market uncertainty about a firm's valuation, improves investors' understanding of financial information, and strengthens board monitoring. For that reason, compensation disclosure will positively contribute to corporate information transparency. I then proceed to discuss some unintended consequences of compensation disclosure—managers may manipulate compensation contracts and/or financial reporting. These unintended consequences will not contribute to and may even harm corporate information transparency. Therefore,

empirically, whether compensation disclosure is associated with corporate information transparency remains unanswered.

The sample studied covers a large panel of U.S. firms from 2004 to 2007, including two years before and after the SEC regulation. This allows for a pre- and post-regulation comparison of the determinants and consequences of compensation disclosure. I construct a compensation disclosure index based on eight disclosure items required by Reg. S-K 402(b), which is hand collected from firm proxies. Managerial power, external monitoring, proprietary cost, and corporate information transparency are each proxied by a group of measures.

Using the full four-year sample, I find that compensation disclosure is negatively associated with managerial power and proprietary cost but positively associated with monitoring from external stakeholders. These relations are robust to the SEC regulation and significant in both the pre- and post-regulation periods. With respect to the consequences of disclosure, I find that corporate information is more transparent when compensation disclosure is higher; however, this relation holds only in the post-regulation period. Additional tests further reveal that compensation disclosure may bring negative consequences that reduce corporate information transparency. More specifically, I empirically show that such disclosure failed to reduce CEO excess compensation and earnings management in the post-regulation period, suggesting that compensation disclosure may actually induce managerial discretion in compensation contracting or financial reporting. Despite these unintended consequences, the overall results are

consistent with the prediction that compensation disclosure conveys information to the market and plays an important role in the corporate information system.

This study fits into the genre of the disclosure literature by investigating one specific governance disclosure—compensation disclosure—and its role in the corporate information system. The findings imply that firm-level governance disclosure is informative to investors and associated with corporate information transparency. Moreover, this study illustrates the bilateral interaction between stewardship and valuation information. While prior studies suggest that valuation information is widely used in compensation contracting, inferences from this research are that information of compensation contracting is also useful for firm valuation.

The findings have important policy implications. First, the finding that compensation disclosure improves corporate information transparency supports the regulatory efforts in this regard. The recently promulgated Dodd-Frank Act considers additional requirements for compensation transparency.<sup>88</sup> Second, my analysis raises doubts about the rush for disclosure without proper monitoring, because more transparent disclosure may cause unintended consequences that will eventually harm corporate information transparency. More specifically, my results indicate that managers may adjust their compensation and/or reporting behavior when compensation disclosure regulation moves toward a more transparent regime, leading to unfavorable consequences such as overcompensation and earnings management. Hence, this study calls for future

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<sup>88</sup> On July 21, 2010, President Obama signed into law the Dodd-Frank Wall Street Reform and Consumer Protection Act, which includes such executive compensation reforms as the disclosure to investors of compensation risk, executive compensation, and golden parachutes.

caution in any regulatory requirements that aim to elicit more disclosure. Although disclosure is an important mechanism for reducing agency cost, in the absence of sound governance, disclosure may instead create more agency problems. For example, managers may skim rents and distort financial results under compensation disclosure regulation. Therefore, one implication from this study is that effective monitoring rules should also be implemented along with disclosure rules.

There are several caveats worth noting. First, this study's primary conclusions are based on a dataset of hand-collected data, meaning that despite taking great care in data collection and validity tests, measurement errors and assessment biases are not totally avoidable. Nonetheless, the sample, which covers 704 unique S&P 1500 firms over four years, is large enough to reduce the impact of measurement error in the compensation disclosure index. I also construct a small SEC comment letter sample to verify the usefulness of my index in capturing the compensation disclosure deficiencies. Second, an issue that I do not directly address in this research is why shareholders tolerate managerial discretion in manipulating compensation contracts and financial results. Managerial power is one reason for this occurrence. Another explanation is that although these discretions are significant in the empirical analysis, they are merely average effects documented in the group. In practice, it would be difficult to detect precisely which CEOs actually do this.

With respect to future research, the findings of this study do suggest some promising avenues—the unintended consequences of compensation disclosure. For instance, although it is difficult to pin down those unintended consequences for



individual CEOs, it would be interesting to see which groups of CEOs would be more likely to have unintended consequences because of compensation disclosure. In other words, the extent to which compensation disclosure may incur unintended consequences could be associated with CEO characteristics. In addition, it would also be interesting to study other related unintended consequences, such as changes in voluntary disclosure behavior. A better understanding of the mechanisms underlying these unintended consequences would help regulators better design future governance and financial disclosure rules.

## APPENDIX

### Appendix A: Proxy Construction

#### A.1. Proxy for Managerial Power

To measure managerial power, I employ four measures frequently used in the prior literature to proxy for CEO controls<sup>89</sup>: whether the CEO/chairperson is the founder (*FOUNDER*), whether the CEO/chairperson is not the founder but is from the founding family (*FAMILY*), whether the firm is under CEO/chairperson ownership (*CEOOWN*), and whether the chairperson of the board is independent (*INDCHAIR*) (Adams et al. 2005).<sup>90</sup> As regards the first two measures, prior research shows that founders and their families have a strong influence over a firm's activities, and often enhance their controls through dual-class stock, disproportionate board representation, and voting agreements (La Porta et al. 1999; Claessens et al. 2000; Anderson and Reeb 2003; Villalonga and Amit 2006; Villalonga and Amit 2009). This substantial control enables founders and their families to expropriate minority shareholder wealth through such practices as excessive compensation and related-party transactions (Claessens et al. 2000). I therefore

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<sup>89</sup> If the chairperson receives higher compensation than the CEO, then the chairperson is regarded as the actual decision maker and replaces the CEO in my sample.

<sup>90</sup> CEO power has different dimensions. According to Adams et al. (2005), there are at least three aspects of CEO power: internal organization, managerial characteristics (i.e., gender, education, personality, etc), and environmental factors (i.e., industry, etc). Adams et al. (2005) use variables related to the internal organization of the firm to proxy CEO power: CEO founder, sole insider on board, and title concentration (i.e., CEO is also chair and president of the firm). Measures used in this study also consider CEO power inherited from family members and CEO power related to voting rights. However, whether the CEO is the sole insider on the board is not used as a proxy for CEO power in this study, because the existence of two or more insider board members may actually strengthen the managerial power studied in this paper (i.e., collusion among insiders).

use two separate variables for founder and founding family, respectively, to measure managerial power.<sup>91</sup>

Following Anderson and Reeb (2003), I identify information about founders and their families through several resources. First, I read proxy statements to identify any CEOs or chairpersons whose title includes the word “founder” or “co-founder.” Next, I examine information related to family control—such as equity ownership, special voting agreements, firms with a family name, and the presence of several officers with the same last name—and then examine corporate histories to confirm the above findings. Examining corporate histories also helps me to identify “hidden” family firms, in which the ownership may be dispersed, but the CEO is a descendant of the founder with a different last name (e.g., the son-in-law inherits the CEO position). These procedures, collectively, allow me to create two indicator variables: *FOUNDER*, which equals one if the CEO/chairperson is the founder, and zero otherwise (e.g., Dell, Inc. and Microsoft Corp.); and *FAMILY*, which equals one if the CEO/chairperson is not the founder but is a member of the founding family, and is zero otherwise (e.g., Wal-Mart Stores, Inc. and Ford Motor Company).<sup>92</sup>

To capture managerial power, I include two additional variables, *CEOOWN* and *INDCHAIR*. *CEOOWN*, a categorical variable measuring three levels of ownership, equals two if the CEO/chairperson owns 10% or more of the firm equity, one if the

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<sup>91</sup> The level of CEO control will differ between the two variables because the founder usually retains stronger control (Li and Srinivasan 2011).

<sup>92</sup> There are a few exceptions: some founders or cofounders (or members of the founding family) are on the board but not as CEO or chair. If the CEO/chairperson is not from the founding family, both variables, *FOUNDER* and *FAMILY*, will be zero.

ownership is between 3% and 10%, and zero if the ownership is less than 3%. Managers with larger equity ownership have more votes and thus more power in firm decisions. Since equity compensation is a major source of equity ownership for nonfamily CEOs, and influential nonfamily CEOs usually accumulate substantial equity holdings from compensation (Core et al. 2003), equity holding thus reflects the amount of gained controls. Because an independent chairperson has the incentive and ability to restrict CEO power, I also include it to proxy for managerial power. *INDCHAIR* is an indicator variable equal to one if the board is chaired by an independent director, and zero otherwise.<sup>93</sup>

Panel A of Table 3 reports the descriptive statistics of the above four individual measures and their factor loadings on the principal component variable. The mean values of *FOUNDER* and *FAMILY* indicate that 20% of the sample firms have CEO founders and 12% have CEOs from the founding family. Collectively, these statistics indicate that 32% of the sample firms are under the control of founders or their families, which is comparable to Anderson and Reeb (2003)'s finding of 35%. The amount of equity owned by the CEOs in this sample is moderate, with the majority owning less than 3% of the firm (*CEOOWN*). Only 14% of the sample firms have a truly independent chairperson of the board (*INDCHAIR*). The principal component of the above four variables, *POWER*,

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<sup>93</sup> Other measures of CEO power relate to director nomination process and CEO tenure (Laksmanna 2008); for example, a high percentage of outside directors appointed by the current CEO may suggest strong CEO power. However, since the SOX Act requires nominating committee members to be one hundred percent independent, the influence that CEOs exert on board nomination is not directly observable in the post-SOX period. Nevertheless, the four measures employed in this study, directly and indirectly, capture the implications of those additional measures.

loads up 48.9%, 48.4%, and 67.9% of the effects from *FOUNDER*, *FAMILY*, and *CEOOWN*, respectively, and 25.7% of the opposite effect from *INDCHAIR*.

#### *A.2. Proxy for External Monitoring*

Although theoretically all external stakeholders have the incentive to monitor managers, this study focuses on monitoring from an equity investors' perspective and measures external monitoring using four proxies frequently employed in prior literature: percent of independent directors (*INDDIR*), big auditor (*BIG4*), institutional ownership (*IOR*), and analyst following (*NUMAF*).<sup>94</sup> The first proxy, director independence, is key because directors have incentives to monitor the CEO and replace him when his performance is poor (Hermalin and Weisbach 2003). Hence, according to extant research, independent directors bring monitoring benefits to the firm (e.g., Weisbach 1988; Byrd and Hickman 1992; Beasley 1996; Dechow et al. 1996; Paul 2007). For example, board independence is positively associated with more efficient CEO turnover (Weisbach 1988) and negatively associated with the value-decreasing tender offers (Byrd et al. 1998). The strength of the monitoring also deters discretionary reporting and improves financial disclosure quality, i.e., less accounting fraud (Beasley 1996; Dechow et al. 1996) and more voluntary management earnings forecasts (Ajinkya et al. 2005; Karamanou and Vafeas 2005). Regarding CEO compensation, a recent publication by Chhaochharia and Grinstein (2009) finds that increasing board independence reduces CEO compensation, indicating that independent directors play an important role in restraining CEO

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<sup>94</sup> Here, one reason to focus on equity investors is because I use equity market related measures to proxy for corporate information transparency. I control for monitoring effects from other stakeholders—such as debt holders—in empirical analyses.

entrenchment.<sup>95</sup> Collectively, prior literature suggests that board independence is a superior proxy for external monitoring, expressed here as *INDDIR*, a continuous variable that measures the proportion of independent directors on board.

The second proxy relates to the quality of external auditors, who, by issuing independent opinions about the credibility of financial reports, help stakeholders make capital allocation decisions (Chow 1982). External auditors also monitor contractual relationships, e.g., compensation plans.<sup>96</sup> Larger audit firms have motives to provide stricter external monitoring (e.g., Deangelo 1981; Dye 1993; Teoh and Wong 1993; Lennox 1999). DeAngelo (1981) and Lennox (1999) argue that larger audit firms, because they bear higher reputation risk and litigation costs, tend to provide higher quality of work (e.g., discovering and reporting breaches). In fact, Teoh and Wong (1993) show that investors also believe that large audit firms assure high quality earnings. The authors empirically show that earnings response coefficients of firms audited by Big 8 audit firms are higher than those of firms audited by non-Big 8 audit firms. Francis (2004), in a review of the extensive prior evidence, concludes that the big audit firms provide better services to their clients and assures higher quality of financial reporting. In general, therefore, auditors (especially large auditors) impose strong monitoring

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<sup>95</sup> The SOX Act established new rules for corporate boards, including a majority independent board and straight independent members on compensation, audit, and nominating committees. Some firms were forced to replace inside members with independent members, creating an exogenous shock in the structure of corporate boards. Besides independent boards, Chhaochharia and Grinstein (2009) find that institutional holdings and the presence of block holders also have monitoring effects on CEO compensation. However, these findings have been recently challenged by Guthrie et al. (2012).

<sup>96</sup> For example, auditors are hired by shareholders to assure compensation plans by quantifying the actual performance with financial measures, comparing the actual performance to budgets or competitors' results, analyzing any nonfinancial performance, certifying the final payments, and so forth.

mechanisms on firm activities. *BIG4* is an indicator variable that equals one if the firm is audited by a Big 4 audit firm and zero otherwise.

The third proxy for external monitoring is institutional ownership, based on the observation that institutions serve an effective monitoring role in the market. First, institutional investors have the incentive to collect information and monitor management because they hold a substantial stake in the firm and are willing to assume monitoring costs (Shleifer and Vishny 1997). Small and dispersed investors, on the other hand, may have little incentive to monitor management, either because their voices can never reach the board room or because they can easily divest their investments and care little about any one particular investment. Second, institutional investors are sophisticated enough to collect and process highly complicated data. For example, Collins et al. (2003) find that accrual anomalies are lower for firms with higher institutional ownership, suggesting that institutional investors explore accrual information more thoroughly, which in turn strengthens the institution's monitoring. Increased institutional monitoring impacts many aspects of a firm's activities; for example, it may reduce myopic investment decisions (Bushee 1998), level pay and improve the pay-for-performance sensitivity of executive compensation (Hartzell and Starks 2003), and/or increase the quantity and quality of voluntary disclosures (Ajinkya et al. 2005). I derive this proxy based on year-end institutional holdings data from the *Thompson-Reuters Institutional Holdings* database and express it as *IOR*, a continuous variable that summarizes the institutional ownership as a percentage of shares outstanding at the end of the fiscal year.

The final proxy for external monitoring is analyst following. This proxy is focused particularly on buy-side financial analysts, who by monitoring and disciplining managers through their information searching and reporting activities, effectively reduce the agency cost between the firm and outsiders (Jensen and Meckling 1976; Healy and Palepu 2001). Empirical studies further show that analyst following detects corporate fraud (Dyck et al. 2011), decreases default risk (Cheng and Subramanyam 2008), deters earnings management (Yu 2008), and potentially increases firm value (Chung and Jo 1996). I obtain the analyst following data from *I/B/E/S*, and express it as *NUMAF*, the average number of active analyst followings during the fiscal year.

With respect to the descriptive statistics, Panel A of Table 3 shows that on average, 76% of the sample firms have independent directors on the board (*INDDIR*), 80% of the shares are under institutional ownership (*IOR*), and the sample firms are followed by 6.49 analysts (*NUMAF*). 95% of the sample firms are audited by Big 4 audit firms (*BIG4*). The principal component variable, *MONITOR*, evenly loads up 45.8%, 49.1%, 50.5%, and 51.2%, of the effects from *INDDIR*, *IOR*, *NUMAF*, and *BIG4*, respectively.

### *A.3. Proxy for Proprietary Cost*

Prior research in compensation disclosure tends to use measures of industry competition as proxies for proprietary cost, assuming that disclosures are especially harmful when the product market is competitive (Robinson et al. 2011).<sup>97</sup> Because CEOs are scarce resources transferable in the market, compensation disclosure may also

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<sup>97</sup> Robinson et al. (2011) measure proprietary cost using the three competition measures suggested by Karuna (2007): product differentiation, relative market size, and entering cost. However, Robinson et al. (2001) fail to find a significant relation between compensation disclosure deficiencies and these proxies for proprietary cost.



adversely affect the discloser's competitiveness in retaining or acquiring them. Therefore, I employ a set of measures different from Robinson et al. (2011)'s to better measure proprietary cost in both the product and managerial labor markets.

I measure proprietary cost at both the firm and industry levels. I first measure firm-level R&D intensity (*RD*), which is calculated as R&D expenses scaled by total assets, based on the assumption that modern firms rely more on R&D than on tangible assets to sustain their competitive advantage (Wang 2007). In other words, R&D-intensive companies and their CEOs tend to possess more proprietary information. I also include a second firm-level proxy related to firm age, because start-up companies tend to have new business ideas and strategies, and thus bear a high proprietary cost. This proxy is denoted as *FIRMAGE*, and is calculated as the natural logarithm of number of years since firm inception, which are drawn from proxy statements and various other public resources (e.g., company website and *Wikipedia*).

Next, I include three industry-level measures: an indicator variable for high-tech companies, price-cost margin, and R&D expenditure. I include the first measure because extant research suggests that the high-tech industry is heavily driven by R&D investment (Amir et al. 1999; Barron et al. 2002). Following Amir et al. (1999), I define high-tech firms using three-digit SIC codes: 283 (Drugs), 284 (Chemicals), 357 (Computer and Office Equipment), 366 (Communications Equipment), 367 (Electronics), 371 (Motor Vehicles), 382 (Measurement and Control Devices), 384 (Medical Instruments), and 737 (Software). *HIGHTECH* equals one for firms with one these three-digit SIC codes and zero otherwise. Based on Karuna (2007)'s argument that price-cost margin is an ideal

measure for product differentiation, with a high margin capturing the lower price competition, I also include an industry wide price-cost margin, *IND\_MGN*. Finally, I define industry level R&D expenditure, *IND\_RD*, as the total amount of R&D expense. Following Karuna (2007), I calculate both *IND\_MGN* and *IND\_RD* based on *Compustat Segment* data and four-digit SIC codes.

For these proprietary cost measures, the descriptive statistics show that, on average, sample firms have 3% R&D expenditures to total assets (*RD*) and 39.64 years (or 3.68 in natural logarithm) since the founding year (*FIRMAGE*). In terms of industry-wide measures, the sample firms have a 1.17 price-cost margin (*IND\_MGN*) and \$231.3 million in R&D expenses (*IND\_RD*). Twenty-eight percent of the sample firms are high technology firms (*HIGHTECH*). The principal component of these variables, *PROP*, primarily loads up the effects from *HIGHTECH*, at 56.4%. This is followed by those from *IND\_MGN* and *RD*, at 55.5% and 53.9%, respectively. It loads up 25.7% of the effect from *FIRMAGE*, but in an opposite direction—consistent with the expectation that younger firms put forward more proprietary information. Finally, the least from *IND\_RD* is loaded up at only 13.3%.

## Appendix B: Variable Definitions

Variable Name	Definition
<i>ADJDD</i>	Mean-adjusted absolute value of Dechow-Dichev (2002) regression residuals.
<i>AFE</i>	Absolute value of analyst forecast error (actual earnings minus median forecast) scaled by stock price at the last forecast before earnings announcement.
<i>ATGW</i>	Asset growth from year t-1 to year t, scaled by total assets in year t-1.
<i>BASPREAD</i>	Closing bid-ask spread scaled by the mid-point of the two quotes that define it, averaged daily and annualized.
<i>BETA</i>	The slope coefficient from estimating market model using monthly return data from prior 60 months.
<i>BIG4</i>	Indicator variable equal to one if the firm is audited by a Big 4 audit firms, and zero otherwise.
<i>CD1-CD8</i>	Compensation disclosure items (see Appendix Table A).
<i>CEOOWN</i>	Categorical variable equal to two if the CEO/chairperson owns 10% or more of the firm equity, one if the ownership is 3% or more but less than 10%, and zero if the ownership is less than 3%.
<i>CFVOLA</i>	Standard deviation of quarterly operating cash flows over the prior 3 years. Cash flows are scaled by quarterly total assets.
<i>COMPLEX</i>	Operating complexity. Calculated as the first principal component of <i>LOGNGEO</i> , <i>FOREGIN</i> , and <i>RESTRUCT</i> .
<i>DACC</i>	Discretionary accruals estimated cross-sectionally using the modified Jones model.
<i>DISP</i>	12-month average of standard deviation of analyst forecast scaled by monthly average share price.
<i>EM</i>	Earnings management. Calculated as the first principal component of <i>DACC</i> , <i>PMDACC</i> , <i>ADJDD</i> , and <i>STDD</i> .
<i>FAMILY</i>	Indicator variable equal to one if the CEO/chairperson is not the founder but is from the founding family, and zero otherwise.
<i>FINCHA</i>	Financial challenge. Calculated as the first principal component of <i>ROA</i> , <i>LOSS</i> , <i>MISS</i> , and <i>SI</i> .
<i>FIRMAGE</i>	Natural logarithm of number of years since firm inception.
<i>FOREIGN</i>	Indicator variable equal to one if the firm has foreign transactions ( <i>fca</i> >0), and zero otherwise.
<i>FOUNDER</i>	Indicator variable equal to one if the CEO/chairperson is the founder, and zero otherwise.
<i>GROWTH</i>	Firm growth. Calculated as the first principal component of <i>ATGW</i> , <i>REVGW</i> , <i>MA</i> , and <i>MTB</i> .
<i>HIGHTECH</i>	Indicator variable equal to one if the firm's three-digit SIC code is 283, 284, 357, 366, 367, 371, 382, 384, or 737, and zero otherwise.
<i>IND_MGN</i>	Industry price-cost margin. Calculated as the sum of sales divided by the sum of operating costs from firms in the same four-digit SIC code.
<i>IND_RD</i>	Sum of R&D expense by four-digit SIC codes.
<i>INDCHAIR</i>	Indicator variable equal to one if the chairperson of the board is independent, and zero otherwise.

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Appendix B (continued):

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<i>INDCON</i>	Market share of the largest four companies within each four-digit SIC industry, calculated using the Herfindahl–Hirschman Index method.
<i>INDDIR</i>	Proportion of independent directors on board.
<i>IOR</i>	Institutional ownership as a percentage of shares outstanding at the end of the fiscal year.
<i>LEV</i>	Total debt divided by total assets.
<i>LOGNGEO</i>	Natural logarithm of number of geographic and operating segments.
<i>LOSS</i>	Indicator variable equal to one if earnings before extraordinary items are negative, and zero otherwise.
<i>MA</i>	Indicator variable equal to one if the firm undertook a large merger or acquisition (aqs_fn is non-missing), and zero otherwise.
<i>MISS</i>	Indicator variable equal to one if earnings before extraordinary items miss the previous quarter's actuals, and zero otherwise.
<i>MONITOR</i>	External monitoring. Calculated as the first principal component of <i>INDDIR</i> , <i>IOR</i> , <i>NUMAF</i> , and <i>BIG4</i> .
<i>MTB</i>	Market to book ratio. Calculated as market capitalization divided by the book value of equity.
<i>NUMAF</i>	Number of monthly active analyst followings, averaged across the fiscal year.
<i>PMDACC</i>	Performance matched discretionary accruals.
<i>POWER</i>	Managerial power. Calculated as the first principal component of <i>FOUNDER</i> , <i>FAMILY</i> , <i>CEOOWN</i> , and <i>INDCHAIR</i> .
<i>PRICE</i>	Beginning share price in year t.
<i>PROP</i>	Proprietary cost. Calculated as the first principal component of <i>RD</i> , <i>FIRMAGE</i> , <i>IND_MGN</i> , <i>IND_RD</i> , and <i>HIGHTECH</i> .
<i>RD</i>	R&D expense divided by total assets.
<i>RESTRUCT</i>	Indicator variable equal to one if the firm reported restructuring charge ( fcp>0 ), and zero otherwise.
<i>REVGW</i>	Sales growth from year t-1 to year t, scaled by sales in year t-1.
<i>ROA</i>	Earnings before extraordinary item divided by lagged total assets.
<i>ROAVOLA</i>	Standard deviation of quarterly earnings over the prior 3 years. Earnings are quarterly earnings before extraordinary item scaled by quarterly total asset.
<i>SALEVOLA</i>	Standard deviation of quarterly sales over the prior 3 years. Sales are scaled by quarterly total assets.
<i>SI</i>	Absolute value of special item (spi) divided by lagged total assets.
<i>SIZE</i>	Natural logarithm of market capitalization.
<i>STDDD</i>	Studentized Dechow-Dichev (2002) regression residuals.
<i>SUMCD</i>	Compensation disclosure index. Calculated as the sum of CD1 to CD8.
<i>TRAN</i>	Information transparency. Calculated as the first principal component of <i>BASPREAD</i> , <i>AFE</i> , and <i>DISP</i> (higher value means lower transparency).
<i>TURNOVER</i>	Market-adjusted daily trading volume divided by shares outstanding, averaged across the fiscal year.
<i>VOLA</i>	Volatility. Calculated as the first principal component of <i>CFVOLA</i> , <i>ROAVOLA</i> , <i>SALEVOLA</i> , and <i>BETA</i> .
<i>VOLATILITY</i>	Annualized daily stock return volatility.

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## Appendix Table A: Descriptions and examples of compensation disclosure items

This Table lists the compensation disclosure items used in study. Per Regulation S-K 402(b), firms discuss the following information in “Compensation Discuss and Analyst” (CD&A) sections in proxy statements. A transparent disclosure scores one and an opaque disclosure scores zero (examples illustrated). Any disclosure that falls somewhere between transparent and opaque receives a value of 0.5 (example not shown below).

Disclosure Item	Description	Example of transparent disclosure (score=1)	Example of opaque disclosure (score=0)
CD1: Range of bonuses	Does the firm disclose the range of bonuses as a percentage of certain benchmarks (e.g., executive’s base salary, a fixed amount, or certain financial results)?	“For fiscal year 2005, award targets for executive officers ranged from 45% of salary to 110% of salary (for the Chief Executive Officer). Incentive award payments for the year may range from zero to 200% of target.” –Becton Dickinson & Co 2005 proxy statement	“ Individual base award allocations establish the maximum annual bonus awards for PIP participants as a percentage of consolidated net earnings.” –Abbott Laboratories 2004 proxy statement
CD2: Performance measures	Does the firm disclose any specific performance measures (EPS, CFO, or ROIC)?	“For any one year, the economic value added target is equal to the sum of the prior year’s target economic value added and one-half the amount of the prior year’s economic value added gain or shortfall relative to target.” –Ball Corporation 2006 proxy statement	“Named executive officers with corporate wide responsibility are eligible to receive incentive compensation based on the weighted average of the performance of the company’s 18 business units against five or six specific financial and non-financial goals for each business unit.” –Alcoa Inc 2006 proxy statement
CD3: Performance weights	Does the firm disclose the weight of each performance measure?	“One-third of the target bonus is based on attainment of a specified target level of a quantitative corporate performance measure, net income before interest and special items, one-third is based on attainment of specified business unit metrics and the remaining one-third is based on individual performance and other qualitative factors.” –Hess Corp 2005 proxy statement	“The EPS target and, to a lesser extent, the sales, cash flow and return on investment targets, then become the critical financial indicators used by the Compensation Committee.” –Bard Inc 2004 proxy statement
CD4: Performance targets	Does the firm disclose any specific quantitative targets for financial performance measures?	“The Committee approved the following 2007 corporate performance measures: \$2.28 for adjusted earnings per share, weighted at 50% of the total award.” –Verizon Communication Inc 2007 proxy statement	“For 2004, the corporation achieved or exceeded its predetermined financial goals. As a result, each PIP participant’s final award allocation.” –Abbott Laboratories 2004 proxy statement

Appendix Table A (continued):

CD5: Computation formula applied to financial measures	Does the firm disclose any formula or adjustments applied to financial measures?	“Adjusted earnings per share excludes the following items from income: Merger integration costs; Gain/loss on the disposition of international investments in Puerto Rico and Venezuela; Access line spin-off related charges; Contributions to the Verizon Foundation; Taxes on foreign distributions; and Severance and other related charges.” –Verizon Communication Inc 2007 proxy statement	Not disclosed
CD6: Discussions of nonfinancial and personal performance measures	Does the firm disclose nonfinancial and personal performance measures used in incentive compensation?	“Maintaining the safety of AEP employees, customers and the general public is always a primary consideration, and safety is an AEP core value. Accordingly, the HR Committee tied 25% of the scorecard to reducing accidents and the severity of injuries across the AEP system. In addition, the HR Committee established a fatality circuit-breaker to this component, such that any accidental work related employee fatality in 2007 would have resulted in a 0% score for this component.” –American Electric Power Co 2007 proxy statement	“Actual awards paid to PIP participants varied based on both corporate and individual results.” –Abbott Laboratories 2006 proxy statement
CD7: Discussions of actual payment	Does the firm illustrate how it derives the actual payments (per measure)?	“The annual incentive opportunity for each employee for a given year is calculated by multiplying their base earnings by their annual incentive target and the overall award score for their group. This calculated bonus opportunity, shown in the chart below for each named executive officer...(followed by a table showing calculation details).” –American Electric Power Co 2007 proxy statement	“Since the company financial goals were met in 2007, that portion of each participant's award was paid accordingly.” – Abbott Laboratories 2007 proxy statement
CD8: Future targets	Does the firm disclose specific performance targets for the coming year?	“In December 2008, the Compensation Committee approved the terms of the 2009 Executive Bonus Plan, which were the same as the 2008 Executive Bonus Plan described above. The individual target bonus percentages and OPBT targets remained the same for fiscal 2009 as they were in fiscal 2008.” –Analog Devices 2008 proxy statement	Not disclosed

## Appendix Table B: Regression results for estimating expected and excess compensation

This table presents OLS regression results of CEO compensation determinate model (Core et al. 2008). The sample consists of 8,032 firm-year observations with all data available during the period from 2004 to 2008. Column 1 (2) reports the regression results using CEO total (cash) compensation as the dependent variable. *LOG(TOTAL COMP)* is the logarithm of the CEO's total compensation in period t. *LOG(CASH COMP)* is the logarithm of CEO's salary, bonus, and long-term incentive cash payouts in period t. *LOG(TENURE)* is the logarithm of the CEO's tenure at the end of period t; *SAP* is an indicator variable equal to 1 for firms in the S&P500 index at the end of period t, and 0 otherwise. *LOG(SALE)* is the logarithm of total sales in period t. *LAG(BM)* is the book-to-market ratio in period t-1. *RET* is the firm's buy-and-hold return for period t, and *LAG(RET)* is the buy-and-hold return for period t-1. *ROA* is the firm's return on assets for period t, and *LAG(ROA)* the firm's return on assets for period t-1. Industry and year fixed effects are controlled. t-statistics (in parentheses) are based on robust errors adjusted for heteroskedasticity. \*\*\*, \*\*, \* represent statistical significance at 1 percent, 5 percent, and 10 percent levels (two-tailed).

	<i>LOG(TOTAL COMP)</i>	<i>LOG(CASH COMP)</i>
	(1)	(2)
<i>LOG(TENURE)</i>	-0.0128 (-1.22)	0.0497 *** (6.24)
<i>SAP</i>	0.2626 *** (10.40)	0.0628 *** (2.92)
<i>LOG(SALE)</i>	0.3998 *** (47.47)	0.2638 *** (38.78)
<i>LAG(BM)</i>	-0.4633 *** (-9.90)	0.0803 ** (2.14)
<i>RET</i>	0.1409 *** (6.56)	0.1095 *** (6.71)
<i>LAG(RET)</i>	0.2512 *** (9.96)	0.1068 *** (5.24)
<i>ROA</i>	-0.0284 (-0.26)	0.2041 ** (2.42)
<i>LAG(ROA)</i>	-0.3107 *** (-2.87)	-0.1334 (-1.51)
<i>INTERCEPT</i>	5.3722 *** (32.40)	5.1991 *** (37.68)
INDUSTRY	yes	yes
YEAR	yes	yes
N	8,032	8,032
R <sup>2</sup>	49.21%	43.27%

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**Table 1: Sample Selection and Distribution**

Panel A reports the effects of sample selection criteria on sample size. The final samples include 704 unique firms or 2,806 firm-year observations. Panel B reports the industry distributions of the final samples used in this study and the contemporaneous *Compustat* firms.

Panel A: Sample selection				
Selection criteria				
CEO data available in <i>ExecuComp</i> data file during year 2004 to 2007				7,209
Less:	firms with CEO changes			(3,617)
	financial firms (sic code between 6000-6999)			(532)
	data not available in <i>Compustat</i> data file			(204)
Sample for data collection				2,856
Less:	Missing proxy statement data			(15)
	no incentive plan			(35)
Final sample				2,806
Panel B: Industry distribution				
<i>Fama-French</i> 12-Industry Portfolio	This study		<i>Compustat</i>	
	Freq.	Percent	Freq.	Percent
1. Consumer Non-Durables	193	6.88	1,424	5.88
2. Consumer Durables	106	3.78	649	2.68
3. Manufacturing	408	14.54	2,628	10.85
4. Energy	180	6.41	1,327	5.48
5. Chemicals	88	3.14	675	2.79
6. Business Equipment	568	20.24	5,824	24.04
7. Telephone and Television	60	2.14	1,151	4.75
8. Utilities	184	6.56	1,187	4.9
9. Wholesale, Retail, and Services	368	13.11	2,447	10.1
10. Healthcare, Medical Equipment, and Drugs	260	9.27	3,176	13.11
12. Others	391	13.93	3,740	15.44
Total	2,806	100	24,228	100

**Table 2: The Compensation Disclosure Index**

Panel A presents descriptive statistics of the compensation disclosure index (*SUMCD*). *CD1-8* are individual disclosure scores. *CD1* is for bonus ranges, *CD2* is for performance measures, *CD3* is for performance weights, *CD4* is for performance targets, *CD5* is for formulas, *CD6* is for non-financial and personal performance measures, *CD7* is for discussion of actual payments, and *CD8* is for future performance targets. *SUMCD* is the sum of all eight individual scores. Panel B assesses the differences between frequency distributions with respect to receiving the SEC comment letters on 402(b) disclosure conditioning on *SUMCD*. \*\*\*, \*\*, \* represent statistical significance at 1 percent, 5 percent, and 10 percent levels (two-tailed).

**Panel A: Descriptive statistics of compensation disclosure index and item disclosure scores**

Variable	Full sample			Pre Regulation			Post Regulation			Diff. (Post - Pre)			
	N	Mean	Med	N	Mean	Med	N	Mean	Med	Mean	***	Med	***
<i>SUMCD</i>	2,806	2.81	2.5	1,402	1.82	2	1,404	3.79	4	1.97	***	2	***
<i>CD1</i>	2,806	0.58	1	1,402	0.41	0	1,404	0.75	1	0.34	***	1	***
<i>CD2</i>	2,806	0.85	1	1,402	0.77	1	1,404	0.92	1	0.15	***	0	***
<i>CD3</i>	2,806	0.52	1	1,402	0.37	0	1,404	0.67	1	0.3	***	1	***
<i>CD4</i>	2,806	0.25	0	1,402	0.03	0	1,404	0.48	0	0.45	***	0	***
<i>CD5</i>	2,806	0.26	0	1,402	0.16	0	1,404	0.36	0	0.2	***	0	***
<i>CD6</i>	2,806	0.14	0	1,402	0.04	0	1,404	0.25	0	0.21	***	0	***
<i>CD7</i>	2,806	0.17	0	1,402	0.04	0	1,404	0.3	0	0.26	***	0	***
<i>CD8</i>	2,806	0.03	0	1,402	0	0	1,404	0.06	0	0.06	***	0	***

**Panel B: Probability of receiving SEC comment letters in the post-regulation period**

Comment letter on 402(b) disclosure?	All post-reg firms				Larger post-reg firms			
	NO		YES		NO		YES	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
<i>SUMCD</i>								
0~0.5	53	81.5	12	18.5	20	66.7	10	33
1~1.5	74	70.5	31	29.5	34	69.4	15	31
2~2.5	183	72.9	68	27.1	95	68.8	43	31
3~3.5	207	76.4	64	23.6	107	72.3	41	28
4~4.5	177	73.1	65	26.9	103	71.0	42	29
5~5.5	171	78.1	48	21.9	100	80.0	25	20
6~6.5	144	86.2	23	13.8	82	84.5	15	15
7~7.5	62	82.7	13	17.3	40	85.1	7	15
8	9	100	0	0	6	100	0	0
total	1,080		324		587		198	
Low (0~2)	446	74.6	152	25.4	217	69.8	94	30.2
Med (3~5)	520	77.3	153	22.7	296	76.5	91	23.5
High (6~8)	114	85.7	19	14.3	74	85.1	13	14.9
Low vs. Med Chi		1.25				3.99		**
Med vs. High Chi		4.72	**			3.05		*
Among groups Chi		7.68	**			9.6		***

**Table 3: Descriptive Statistics**

This table presents descriptive statistics for sample observations (Panel A and B) and Pearson correlations between the variables of interest (Panel C and D). All continues variables are winsorized at 1% and 99% levels. Variable definitions are provided in Appendix B.

<b>Panel A: Variable description</b>							
	N	Mean	Std. Dev	Q1	Median	Q3	Factor Loading
<i>POWER</i>	2,806	-0.02	1.25	-0.76	-0.76	0.45	PC
<i>FOUNDER</i>	2,806	0.2	0.4	0	0	0	0.489
<i>FAMILY</i>	2,806	0.12	0.32	0	0	0	0.484
<i>CEOOWN</i>	2,806	0.43	0.69	0	0	1	0.679
<i>INDCHAIR</i>	2,806	0.14	0.34	0	0	0	-0.257
<i>MONITOR</i>	2,801	0.01	1.13	-0.5	0.18	0.73	PC
<i>INDDIR</i>	2,806	0.76	0.12	0.67	0.78	0.88	0.458
<i>IOR</i>	2,806	0.8	0.19	0.7	0.82	0.92	0.491
<i>NUMAF</i>	2,801	6.49	5.33	2.75	5	8.75	0.505
<i>BIG4</i>	2,806	0.95	0.22	1	1	1	0.512
<i>PROP</i>	2,806	-0.01	1.58	-1.12	-0.78	0.8	PC
<i>RD</i>	2,806	0.03	0.06	0	0	0.04	0.539
<i>FIRIMAGE</i>	2,806	3.68	0.86	3.09	3.68	4.41	-0.257
<i>IND_MGN</i>	2,806	1.17	0.21	1.07	1.12	1.19	0.555
<i>IND_RD</i>	2,806	231.3	382.33	0.05	17.13	270.73	0.133
<i>HIGHTECH</i>	2,806	0.28	0.45	0	0	1	0.564
<i>TRAN</i>	2,548	0	1.46	-0.15	0.34	0.67	PC
<i>BASPREAD</i>	2,725	2.79	0.97	2.06	2.66	3.32	0.54
<i>AFE</i>	2,704	0.42	1.28	0.07	0.15	0.31	0.586
<i>DISP</i>	2,584	0.52	1.25	0.11	0.2	0.45	0.604
<i>SIZE</i>	2,805	7.8	1.5	6.76	7.69	8.73	
<i>LEV</i>	2,800	0.22	0.18	0.07	0.21	0.33	
<i>VOLA</i>	2,805	-0.01	1.34	-0.91	-0.39	0.44	PC
<i>CFVOLA</i>	2,805	0.01	0.01	0.01	0.01	0.01	0.623
<i>ROAVOLA</i>	2,805	0.01	0.02	0	0.01	0.01	0.529
<i>SALEVOLA</i>	2,805	0.03	0.03	0.01	0.02	0.04	0.529
<i>BETA</i>	2,806	1.2	0.82	0.63	1.03	1.57	0.227
<i>GROWTH</i>	2,803	0.01	1.33	-0.8	-0.25	0.67	PC
<i>ATGW</i>	2,803	0.09	0.16	0.01	0.07	0.15	0.648
<i>REVGW</i>	2,803	0.14	0.2	0.04	0.11	0.2	0.602
<i>MA</i>	2,806	0.23	0.42	0	0	0	0.436
<i>MTB</i>	2,805	3.09	2.82	1.69	2.45	3.71	0.168
<i>COMPLEX</i>	2,806	0.01	1.26	-1.51	-0.1	0.97	PC
<i>LOGNGEO</i>	2,806	0.98	0.82	0	1.1	1.61	0.646
<i>FOREIGN</i>	2,806	0.31	0.46	0	0	1	0.614
<i>RESTRUCT</i>	2,806	0.35	0.48	0	0	1	0.453
<i>FINCHA</i>	2,799	0	1.48	-0.85	-0.34	0.31	PC
<i>ROA</i>	2,802	0.07	0.08	0.03	0.06	0.11	-0.559
<i>LOSS</i>	2,806	0.1	0.3	0	0	0	0.561
<i>MISS</i>	2,801	0.31	0.31	0	0.25	0.5	0.42
<i>SI</i>	2,806	0.01	0.03	0	0	0.01	0.443
<i>INDCON</i>	2,806	0.68	0.26	0.46	0.67	0.97	
<i>VOLATILITY</i>	2,721	2.14	0.96	1.48	1.9	2.45	
<i>TURNOVER</i>	2,721	-0.01	0.57	-0.38	-0.15	0.24	

Table 3 (continued)

**Panel B: Variable description for pre-regulation and post-regulation periods**

	Pre Regulation			Post Regulation			Diff. (Post – Pre)		
	N	Mean	Median	N	Mean	Median	Mean	Median	
<i>POWER</i>	1,402	0	-0.76	1,404	-0.05	-0.76	-0.05	0	
<i>MONITOR</i>	1,399	-0.16	-0.01	1,402	0.18	0.35	0.34 ***	0.36 ***	
<i>PROP</i>	1,402	-0.05	-0.79	1,404	0.04	-0.77	0.09	0.02	
<i>SIZE</i>	1,402	7.73	7.6	1,403	7.86	7.79	0.13 **	0.19 **	
<i>LEV</i>	1,399	0.21	0.2	1,401	0.22	0.21	0.01 *	0.01 *	
<i>VOLA</i>	1,401	0	-0.39	1,404	-0.03	-0.38	-0.03	0.01	
<i>GROWTH</i>	1,400	0.1	-0.18	1,403	-0.09	-0.3	-0.19 ***	-0.12 ***	
<i>COMPLEX</i>	1,402	-0.06	-0.24	1,404	0.07	-0.02	0.13 ***	0.22 ***	
<i>FINCHA</i>	1,399	-0.08	-0.35	1,400	0.07	-0.32	0.15 ***	0.03 **	
<i>INDCON</i>	1,402	0.68	0.68	1,404	0.68	0.67	0	-0.01	
<i>TRAN</i>	1,267	0.45	0.55	1,281	-0.45	0.05	-0.9 ***	-0.5 ***	

Table 3 (continued)

Panel C: Correlations between the compensation disclosure index and primary independent variables (in PC variables)											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) <i>SUMCD</i>											
(2) <i>TRAN</i>	-0.1465										
(3) <i>SIZE</i>	<b>0.1185</b>	0.2611									
(4) <i>LEV</i>	<b>0.0919</b>	-0.1356	0.0319								
(5) <i>VOLA</i>	<b>-0.0638</b>	-0.2575	-0.2195	-0.0735							
(6) <i>GROWTH</i>	<b>-0.0891</b>	0.1606	0.1236	-0.0593	0.0064						
(7) <i>COMPLEX</i>	<b>0.0535</b>	-0.0097	0.1615	-0.0899	-0.0627	0.0189					
(8) <i>FINCHA</i>	0.0084	-0.3966	-0.275	0.2505	0.1747	-0.2491	0.0701				
(9) <i>PROP</i>	<b>-0.0644</b>	-0.0024	-0.0275	-0.2299	0.0964	0.1495	0.281	0.1731			
(10) <i>INDCON</i>	0.0093	0.0321	-0.0791	0.0529	-0.0134	-0.034	-0.0016	-0.0701	-0.3973		
(11) <i>POWER</i>	<b>-0.1381</b>	-0.0643	-0.1909	-0.1043	0.0793	-0.0112	-0.1315	-0.0357	-0.0341	0.0569	
(12) <i>MONITOR</i>	<b>0.2244</b>	-0.0663	0.4208	0.0575	-0.1033	0.0603	0.1523	-0.0644	0.0814	-0.1672	-0.3476

Panel D: Correlations between the compensation disclosure index and primary independent variables (in original measures)													
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) <i>SUMCD</i>													
(2) <i>INDDIR</i>	<b>0.2614</b>												
(3) <i>IOR</i>	<b>0.1618</b>	0.1054											
(4) <i>BIG4</i>	<b>0.0908</b>	0.1281	0.0914										
(5) <i>NUMAF</i>	<b>0.0573</b>	0.044	0.1134	0.1355									
(6) <i>RD</i>	<b>-0.0616</b>	0.0366	0.0067	-0.0605	0.0909								
(7) <i>IND_MGN</i>	-0.0055	0.027	0.0215	0.0119	0.2771	0.0751							
(8) <i>IND_RD</i>	-0.0021	0.0854	0.0144	-0.0351	0.1207	0.6497	0.1316						
(9) <i>FIRMAGE</i>	<b>0.1338</b>	0.1055	-0.1057	0.0357	-0.0804	-0.2247	-0.1277	-0.1995					
(10) <i>HIGHTECH</i>	<b>-0.0673</b>	-0.0018	0.0031	-0.0405	0.0626	0.6778	0.0953	0.7361	-0.245				
(11) <i>FAMILY</i>	<b>-0.0552</b>	-0.2602	-0.1691	-0.1	-0.1239	-0.1631	-0.0496	-0.1516	0.1375	-0.154			
(12) <i>FOUNDER</i>	<b>-0.1379</b>	-0.2825	-0.042	-0.067	0.0444	0.2099	0.0181	0.1487	-0.2931	0.203	0.03		
(13) <i>CEOOWN</i>	<b>-0.1659</b>	-0.3386	-0.1714	-0.1983	-0.1038	-0.0301	-0.11	-0.0661	-0.0998	-0.0279	0.3735	0.3932	
(14) <i>INDCHAIR</i>	-0.0141	0.1234	0.0197	-0.017	-0.0582	0.1693	0.0346	0.1348	-0.1029	0.1425	-0.085	-0.0462	-0.1336

**Table 4: OLS Regression of the Determinates of Compensation Disclosure**

This table presents OLS regression results of models with the compensation disclosure index as the dependent variable. Columns 1-3 report regression results for the full sample, the pre-regulation subsample, and the post-regulation subsample, respectively. Column 4 reports the difference between the estimated coefficients reported in Column 2 and Column 3. Variable definitions are provided in Appendix B. t-statistics (in parentheses) are based on robust errors adjusted for heteroskedasticity. \*\*\*, \*\*, \* represent statistical significance at 1 percent, 5 percent, and 10 percent levels (two-tailed).

	Full Sample		Pre Reg		Post Reg		Diff. (Post-Pre)
	(1)		(2)		(3)		(4)
<i>POWER</i>	-0.1196 *** (-4.85)		-0.0894 *** (-3.24)		-0.1609 *** (-3.96)		-0.0715
<i>MONITOR</i>	0.1753 *** (5.89)		0.0857 ** (2.43)		0.2447 *** (5.40)		0.1590 **
<i>PROP</i>	-0.0980 *** (-4.18)		-0.1038 *** (-4.07)		-0.0799 ** (-2.20)		0.0239
<i>SIZE</i>	0.0569 ** (2.37)		0.0158 (0.59)		0.0762 ** (2.04)		0.0603 ***
<i>LEV</i>	0.5149 *** (2.84)		0.0627 (0.30)		0.8443 *** (3.05)		0.7817 **
<i>VOLA</i>	-0.0210 (-0.98)		-0.0096 (-0.41)		-0.0444 (-1.24)		-0.0348
<i>GROWTH</i>	-0.0682 *** (-2.82)		-0.0150 (-0.52)		-0.1217 *** (-3.28)		-0.1067 **
<i>COMPLEX</i>	0.0080 (0.32)		0.0118 (0.42)		0.0242 (0.62)		0.0124
<i>FINCHA</i>	-0.0225 (-0.93)		-0.0529 * (-1.95)		0.0044 (0.12)		0.0573
<i>INDCON</i>	-0.1271 (-0.95)		-0.0663 (-0.45)		-0.0930 (-0.44)		-0.0267
<i>INTERCEPT</i>	1.3181 *** (5.94)		1.6658 *** (6.82)		2.6214 *** (7.39)		0.9556
<i>YEAR</i>	yes		yes		yes		
N	2,794		1,396		1,398		
R <sup>2</sup>	31.85%		4.29%		11.89%		

**Table 5: LOGIT Regression of the Determinants of Compensation Disclosure**

This table presents Ordered Logit regression results of models with the compensation disclosure index (Column 1) and individual disclosure scores (Columns 2-9) as the dependent variables. Variable definitions are provided in Appendix B. z-statistics (in parentheses) are based on robust errors adjusted for heteroskedasticity. \*\*\*, \*\*, \* represent statistical significance at 1 percent, 5 percent, and 10 percent levels (two-tailed).

	<i>SUMCD</i>		<i>CD1</i>		<i>CD2</i>		<i>CD3</i>		<i>CD4</i>		<i>CD5</i>		<i>CD6</i>		<i>CD7</i>		<i>CD8</i>	
	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)	
<i>POWER</i>	-0.1217	***	-0.1812	***	-0.0460		-0.0840	**	-0.0986	**	-0.1042	***	-0.1918	***	-0.1183	**	0.0768	
	(-4.14)		(-5.20)		(-1.04)		(-2.48)		(-2.13)		(-2.68)		(-3.58)		(-2.47)		(0.94)	
<i>MONITOR</i>	0.2161	***	0.2472	***	0.2188	***	0.1378	***	0.1824	***	0.1096	**	0.1276	**	0.1134	**	0.1393	
	(5.85)		(5.51)		(4.35)		(3.25)		(3.17)		(2.40)		(2.26)		(2.13)		(1.25)	
<i>PROP</i>	-0.1177	***	-0.0498		-0.0898	**	-0.0870	***	-0.2060	***	-0.0860	***	-0.0496		-0.0358		0.0257	
	(-4.37)		(-1.56)		(-2.16)		(-2.88)		(-5.13)		(-2.74)		(-1.25)		(-0.88)		(0.39)	
<i>SIZE</i>	0.0713	**	-0.1130	***	0.0894	*	-0.0546	*	0.1540	***	0.1516	***	0.2068	***	0.1814	***	-0.1603	**
	(2.54)		(-3.47)		(1.90)		(-1.71)		(3.81)		(4.99)		(5.18)		(4.68)		(-1.97)	
<i>LEV</i>	0.5897	***	0.0637		0.1652		0.6791	***	0.8727	***	0.8002	***	0.0029		0.7523	**	0.2742	
	(2.72)		(0.24)		(0.48)		(2.71)		(2.74)		(3.10)		(0.01)		(2.45)		(0.54)	
<i>VOLA</i>	-0.0325		-0.0151		-0.0785	**	0.0041		-0.0216		-0.0579		-0.0594		-0.0414		-0.0003	
	(-1.32)		(-0.47)		(-2.28)		(0.13)		(-0.51)		(-1.65)		(-1.18)		(-0.97)		(0.00)	
<i>GROWTH</i>	-0.0794	***	-0.0198		-0.1238	***	-0.0253		-0.0758	*	-0.0365		-0.1079	**	-0.1013	**	-0.1666	*
	(-2.78)		(-0.60)		(-3.22)		(-0.82)		(-1.74)		(-1.13)		(-2.45)		(-2.29)		(-1.84)	
<i>COMPLEX</i>	0.0036		-0.0094		0.1225	***	-0.0041		0.0000		-0.1122	***	0.0898	**	-0.0002		0.1249	*
	(0.13)		(-0.27)		(2.70)		(-0.12)		(0.00)		(-3.26)		(1.97)		(0.00)		(1.67)	
<i>FINCHA</i>	-0.0430		-0.0228		-0.0810	**	-0.0673	**	0.0202		0.0574	*	0.1100	**	-0.0883	*	-0.0212	
	(-1.49)		(-0.71)		(-2.10)		(-2.12)		(0.46)		(1.82)		(2.53)		(-1.90)		(-0.29)	
<i>INDCON</i>	-0.0651		-0.3147	*	0.2827		0.2151		-0.2764		-0.3500	**	-0.3236		0.0545		0.0378	
	(-0.43)		(-1.73)		(1.17)		(1.25)		(-1.23)		(-2.07)		(-1.41)		(0.24)		(0.09)	
<i>YEAR</i>	yes		yes		yes		yes		yes		yes		yes		yes		yes	
N	2,794		2,794		2,794		2,794		2,794		2,794		2,794		2,794		2,794	
Pseudo R <sup>2</sup>	7.11%		9.11%		7.24%		6.63%		28.70%		5.92%		13.60%		15.15%		9.92%	



**Table 6: The Relation between Compensation Disclosure and Information Transparency**

This table presents OLS regression results of models with measure of information transparency as the dependent variable and the compensation disclosure index as the independent variable. Variable definitions are provided in Appendix B. t-statistics (in parentheses) are based on robust errors adjusted for heteroskedasticity. \*\*\*, \*\*, \* represent statistical significance at 1 percent, 5 percent, and 10 percent levels (two-tailed).

	<i>TRAN</i>		<i>TRAN</i>		<i>BASPREAD</i>		<i>AFE</i>		<i>DISP</i>	
	(1)		(2)		(3)		(4)		(5)	
<i>SUMCD</i>	0.0377	***	-0.0083		-0.0013		0.0161		0.0070	
	(2.84)		(-0.80)		(-0.22)		(1.47)		(0.64)	
<i>POST</i>			-0.0988		0.1807	***	-0.0016		0.0509	
			(-1.15)		(4.43)		(-0.01)		(0.59)	
<i>SUMCD*POST</i>			0.0658	***	-0.0185	*	-0.0531	**	-0.0690	***
			(2.91)		(-1.87)		(-2.13)		(-2.72)	
<i>VOLATILITY</i>	-1.1565	***	-1.1587	***	1.7115	***	0.5626	***	0.7288	***
	(-14.86)		(-14.81)		(65.28)		(6.18)		(8.30)	
<i>TURNOVER</i>	-0.1622	**	-0.1632	**	0.0490	*	0.1077		0.1988	**
	(-2.30)		(-2.31)		(1.87)		(1.23)		(2.53)	
<i>NUMAF</i>	0.0134	**	0.0136	**	0.0000		-0.0180	***	-0.0088	
	(2.47)		(2.50)		(-0.01)		(-2.89)		(-1.38)	
<i>PRICE</i>	0.0002		0.0002		-0.0005	**	0.0001		-0.0004	
	(0.69)		(0.60)		(-2.25)		(0.35)		(-1.11)	
<i>SIZE</i>	-0.0399	*	-0.0408	*	-0.0634	***	0.0223		0.0933	***
	(-1.84)		(-1.87)		(-6.74)		(0.85)		(3.93)	
<i>LEV</i>	-0.4918	***	-0.5015	***	0.1657	***	0.5841	***	0.4426	***
	(-3.34)		(-3.39)		(2.58)		(3.05)		(2.84)	
<i>VOLA</i>	-0.0821	***	-0.0819	***	0.0386	***	0.0688	***	0.0747	***
	(-4.08)		(-4.07)		(5.12)		(3.05)		(3.39)	
<i>GROWTH</i>	0.0821	***	0.0835	***	-0.0214	***	-0.0767	**	-0.0846	***
	(3.69)		(3.75)		(-3.04)		(-2.46)		(-3.83)	
<i>COMPLEX</i>	0.0053		0.0045		-0.0117		0.0031		-0.0061	
	(0.31)		(0.27)		(-1.57)		(0.16)		(-0.32)	
<i>FINCHA</i>	-0.2100	***	-0.2104	***	0.0582	***	0.1843	***	0.2110	***
	(-8.15)		(-8.17)		(6.36)		(6.62)		(6.91)	
<i>PROP</i>	0.0440	**	0.0428	**	0.0206	**	-0.0499	**	-0.0474	**
	(2.30)		(2.24)		(2.16)		(-2.38)		(-2.06)	
<i>INDCON</i>	0.2002	**	0.1982	*	0.0391		-0.0475		-0.3801	***
	(1.96)		(1.94)		(0.93)		(-0.39)		(-3.58)	
<i>POWER</i>	-0.0509	**	-0.0513	**	0.0005		0.0781	***	0.0254	
	(-2.30)		(-2.32)		(0.06)		(2.73)		(1.16)	
<i>MONITOR</i>	-0.0516	**	-0.0517	**	-0.0011		0.0863	***	0.0268	
	(-2.02)		(-2.03)		(-0.09)		(2.76)		(1.03)	
<i>INTERCEPT</i>	2.3384	***	2.4305	***	0.3458	***	-0.7863	***	-1.2031	***
	(9.97)		(10.00)		(3.61)		(-2.97)		(-4.26)	
<i>INDUSTRY</i>	yes		yes		yes		yes		yes	
<i>YEAR</i>	yes		yes		yes		yes		yes	
N	2,541		2,541		2,688		2,620		2,577	
R <sup>2</sup>	60.48%		60.59%		94.61%		25.99%		37.65%	

**Table 7: The Change of Compensation Disclosure and the Change of Information Transparency**

This table presents OLS regression results of models with the change of information transparency in as the dependent variable and the change of compensation disclosure index as the independent variable. All control variables are in change specification. Column 1 reports regression results of the full sample; Column 2 reports regression results of the pre-regulation subsample; and Columns 3-6 report regression results of the post-regulation subsample. Variable definitions are provided in Appendix B. t-statistics (in parentheses) are based on robust errors adjusted for heteroskedasticity. \*\*\*, \*\*, \* represent statistical significance at 1 percent, 5 percent, and 10 percent levels (two-tailed).

	All		Pre Reg		Post Reg		Post Reg		Post Reg		Post Reg	
	$\Delta TRAN$		$\Delta TRAN$		$\Delta TRAN$		$\Delta BASPREAD$		$\Delta AFE$		$\Delta DISP$	
	(1)		(2)		(3)		(4)		(5)		(6)	
$\Delta SUMCD$	0.0421	***	0.0041		0.0363	**	-0.0204	**	-0.0238		-0.0275	
	(3.08)		(0.38)		(2.32)		(-2.04)		(-1.05)		(-1.12)	
$\Delta VOLATILITY$	-1.1832	***	-0.3477	***	-1.1071	***	1.5786	***	0.6933	***	0.8805	***
	(-14.9)		(-6.38)		(-14.1)		(44.16)		(5.20)		(6.64)	
$\Delta TURNOVER$	0.1394		-0.2618	**	0.1711		0.0793		-0.4049		-0.2527	
	(1.17)		(-2.37)		(1.27)		(1.18)		(-1.91)	*	(-1.13)	
$\Delta NUMAF$	0.0176	*	-0.0015		0.0159		-0.0089		-0.0248		-0.0149	
	(1.88)		(-0.30)		(1.20)		(-1.28)		(-1.45)		(-0.65)	
$\Delta PRICE$	-0.0002		0.0000		-0.0027		0.0017		0.0024		0.0044	
	(-0.34)		(0.10)		(-1.44)		(1.42)		(0.94)		(1.54)	
$\Delta SIZE$	0.0119		-0.0030		0.5050	***	-0.0872		-0.5134	***	-0.7570	***
	(0.89)		(-0.41)		(4.10)		(-1.17)		(-2.63)		(-3.61)	
$\Delta LEV$	-0.1146		0.0068		-0.1193		-0.1129		0.8082		-0.2655	
	(-1.01)		(0.11)		(-0.31)		(-0.55)		(1.34)		(-0.51)	
$\Delta VOLA$	-0.0491	***	0.015	**	-0.2447	***	0.1086	***	0.2559	***	0.3191	***
	(-2.78)		(2.45)		(-4.25)		(4.15)		(2.58)		(3.24)	
$\Delta GROWTH$	0.0126		-0.0038		-0.0042		-0.0032		0.0179		0.0078	
	(1.02)		(-0.60)		(-0.18)		(-0.24)		(0.40)		(0.30)	
$\Delta COMPLEX$	-0.0334	**	-0.0036		-0.0531		-0.0287		0.0270		0.0099	
	(-2.31)		(-0.43)		(-1.02)		(-1.06)		(0.34)		(0.15)	
$\Delta FINCHA$	-0.0587	***	0.0079		-0.0878	***	0.0161		0.1067	***	0.1157	***
	(-3.88)		(0.89)		(-3.49)		(1.30)		(3.11)		(3.00)	
$\Delta PROP$	0.0159	*	-0.0058		0.1235		-0.0161		-0.2458	**	-0.1254	
	(1.46)		(-0.96)		(1.46)		(-0.37)		(-2.40)		(-1.00)	
$\Delta INDCON$	0.0849		-0.0136		1.1584	*	-0.2386		-0.6717		-2.4174	**
	(1.28)		(-0.41)		(1.72)		(-0.79)		(-1.15)		(-2.27)	
$\Delta POWER$	-0.0030		-0.0121		0.1254		-0.0074		-0.1008		-0.1434	
	(-0.21)		(-1.16)		(1.06)		(-0.16)		(-0.55)		(-0.68)	
$\Delta MONITOR$	-0.0044		-0.0044		-0.0509		0.0448		0.0957		0.0547	
	(-0.24)		(-0.43)		(-0.86)		(1.42)		(1.16)		(0.60)	
$INTERCEPT$	-0.0419		-0.0223		-0.2081	*	0.2745	***	0.0773		0.0775	
	(-0.55)		(-0.59)		(-1.78)		(4.67)		(0.47)		(0.46)	
$INDUSTRY$	yes		yes		yes		yes		yes		yes	
$YEAR$	yes		yes		yes		yes		yes		yes	
N	1,872		617		1,255		1,335		1,288		1,276	
R <sup>2</sup>	53.55%		15.90%		55.96%		88.08%		18.89%		31.67%	

**Table 8: The Relation between Compensation Disclosure and Excess CEO Compensation**

This table presents OLS regression results of models with the measure of excess CEO compensation as the dependent variable and compensation disclosure index as the independent variable. Columns 1-2 reports regression results with total excess compensation as the dependent variable; and Column 3 (4) reports regression results with excess cash (non-cash) compensation as the dependent variable. Excess compensation variables are from Appendix Table B. Other variable definitions are provided in Appendix B. t-statistics (in parentheses) are based on robust errors adjusted for heteroskedasticity. \*\*\*, \*\*, \* represent statistical significance at 1 percent, 5 percent, and 10 percent levels (two-tailed).

	<i>Total Comp</i> (1)		<i>Total Comp</i> (2)		<i>Cash Comp</i> (3)		<i>Non-Cash Comp</i> (4)	
<i>SUMCD</i>	0.0413	***	0.0233	*	0.0241	**	-0.0008	
	(2.84)		(1.69)		(2.00)		(-0.06)	
<i>POST</i>	0.1013		0.1057		0.1336	**	-0.0279	
	(1.27)		(1.38)		(2.39)		(-0.41)	
<i>SUMCD*POST</i>	0.0010		-0.0009		-0.0435	***	0.0426	***
	(0.06)		(-0.05)		(-3.14)		(2.59)	
<i>SIZE</i>			0.0002		-0.0116		0.0119	
			(0.02)		(-1.40)		(1.24)	
<i>LEV</i>			0.3787	***	0.2174	***	0.1613	**
			(4.94)		(3.56)		(2.19)	
<i>VOLA</i>			-0.0285	***	-0.0290	***	0.0005	
			(-2.79)		(-3.64)		(0.05)	
<i>GROWTH</i>			0.0270	***	0.0218	***	0.0052	
			(2.70)		(3.02)		(0.53)	
<i>COMPLEX</i>			0.0109		-0.0062		0.0171	
			(0.93)		(-0.69)		(1.49)	
<i>FINCHA</i>			0.0033		0.0082		-0.0049	
			(0.31)		(1.10)		(-0.50)	
<i>PROP</i>			0.0488	***	0.0253	**	0.0234	
			(3.46)		(2.27)		(1.64)	
<i>INDCON</i>			-0.1376	**	0.0069		-0.1446	***
			(-2.35)		(0.15)		(-2.59)	
<i>POWER</i>			-0.0506	***	-0.0338	***	-0.0169	
			(-4.23)		(-3.67)		(-1.55)	
<i>MONITOR</i>			0.0637	***	0.0052		0.0585	***
			(4.83)		(0.50)		(4.76)	
<i>INTERCEPT</i>	-0.1007	*	0.0972		0.1798		-0.0827	
	(-1.71)		(0.84)		(1.98)		(-0.76)	
<i>INDUSTRY</i>	yes		yes		yes		yes	
<i>YEAR</i>	yes		yes		yes		yes	
N	2,704		2,703		2,703		2,703	
R <sup>2</sup>	2.81%		8.69%		4.91%		6.15%	

**Table 9: The Relation between Compensation Disclosure and Accrual Quality**

This table presents OLS regression results of models with the measure of accrual quality as the dependent variable and the compensation disclosure index as the independent variable. Variable definitions are provided in Appendix B. t-statistics (in parentheses) are based on robust errors adjusted for heteroskedasticity. \*\*\*, \*\*, \* represent statistical significance at 1 percent, 5 percent, and 10 percent levels (two-tailed).

	<i>EM</i>		<i>EM</i>		<i>DACC</i>		<i>PMDACC</i>		<i>ADJDD</i>		<i>STDDD</i>	
	(1)		(2)		(3)		(4)		(5)		(6)	
<i>SUMCD</i>	-0.0266	**	-0.0176	*	-0.0005		-0.0049	*	-0.0012	*	-0.0069	
	(-2.39)		(-1.65)		(-0.44)		(-1.90)		(-1.69)		(-0.92)	
<i>POST</i>	-0.0230		-0.0102		0.0082		-0.0022		-0.0019		-0.0047	
	(-0.41)		(-0.19)		(1.25)		(-0.18)		(-0.57)		(-0.12)	
<i>SUMCD*POST</i>	0.0277	**	0.0262	**	-0.0012		0.0050	*	0.0018	**	0.0160	*
	(2.00)		(1.94)		(-0.81)		(1.66)		(2.03)		(1.68)	
<i>SIZE</i>			-0.0223	***	-0.0035	***	-0.0012		-0.0013	***	-0.0126	**
			(-2.94)		(-3.51)		(-0.65)		(-2.67)		(-2.37)	
<i>LEV</i>			-0.0710		-0.0128		-0.0403	***	0.0041		-0.0021	
			(-1.01)		(-1.46)		(-2.66)		(0.92)		(-0.04)	
<i>VOLA</i>			0.07932	***	0.00821	***	0.0097	***	0.0033	***	0.0462	***
			(7.39)		(6.14)		(4.38)		(5.21)		(6.13)	
<i>GROWTH</i>			-0.0128		0.0011		0.0025		-0.0016	***	-0.0167	***
			(-1.48)		(0.95)		(1.29)		(-2.83)		(-2.78)	
<i>COMPLEX</i>			-0.0073		0.0015		0.0012		-0.0010		-0.0089	
			(-0.78)		(1.25)		(0.57)		(-1.57)		(-1.38)	
<i>FINCHA</i>			0.0193	**	0.0005		-0.0001		0.0014	**	0.0121	*
			(2.04)		(0.49)		(-0.07)		(2.42)		(1.81)	
<i>PROP</i>			-0.0107		0.0027		0.0080	***	-0.0028	***	-0.0170	
			(-0.80)		(1.60)		(2.65)		(-3.08)		(-1.90)	
<i>INDCON</i>			0.0557		0.0111	*	0.0188	*	0.0004		0.0118	
			(1.16)		(1.95)		(1.79)		(0.12)		(0.32)	
<i>POWER</i>			0.0122		-0.0010		0.0017		0.0006		0.0131	**
			(1.36)		(-0.87)		(0.81)		(1.10)		(2.16)	
<i>MONITOR</i>			0.0116		-0.0004		-0.0001		0.0009		0.0135	*
			(0.98)		(-0.24)		(-0.06)		(1.25)		(1.70)	
<i>INTERCEPT</i>	-0.4784	***	-0.3746	***	0.0709	***	0.1258	***	-0.0170	***	0.4405	***
	(-9.36)		(-4.29)		(6.50)		(6.32)		(-3.00)		(6.67)	
<i>INDUSTRY</i>	yes		yes		yes		yes		yes		yes	
<i>YEAR</i>	yes		yes		yes		yes		yes		yes	
N	2,262		2,253		2,301		2,300		2,255		2,255	
R <sup>2</sup>	6.20%		12.75%		10.44%		8.03%		21.56%		10.92%	