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MSc Thesis – Accounting, Auditing & Control

The net effect of disclosure readability on analyst forecast dispersion

ABSTRACT

The purpose of this paper is to examine how managerial incentives and analyst behaviour affect the effectiveness of disclosure readability in reducing information asymmetry. Three hypotheses test the intertwining relation between disclosure readability, equity compensation, and analyst forecast dispersion. The first hypothesis results show that equity compensation does not form an incentive to improve disclosure readability. The second hypothesis establishes that equity compensation is significantly associated to analyst forecast dispersion. However, this relation is later put to question when the third regression shows no significant relation between equity compensation and analyst forecast dispersion. The last hypothesis finds that a significant relation exists between readability and analyst forecast dispersion, but finds no moderating effect of equity compensation on the relation between readability and analyst forecast dispersion. Findings confirm the importance of disclosure readability in reducing information asymmetry and highlight the inefficiency of equity compensation in strengthening this relation.

Keywords: Disclosure Readability, Analyst Forecast Dispersion, Equity Compensation, Agency Theory

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1. Introduction

Many agree that financial reporting needs to expand to serve the changing information needs of the market and provide information that enhances corporate transparency and accountability. This has triggered accounting researchers to focus their efforts on investigating disclosure and now recognize narrative disclosures as a key step for achieving the desired change in the quality of corporate reporting (Core , 2001). Demand for disclosures arises from information asymmetry and agency conflicts between managers, investors, and analysts. As a result, management uses disclosures to inform investors about current and future firm performance. Nonetheless, these disclosures are subject to managements´ discretion seeing managers can choose what information and how much information to disclose. Sell-side analysts play an important role lessening the information asymmetry between firms and other market participants. The skills and insights of analysts ensure a more efficient market that improves market liquidity and investor confidence (Beyer , Cohen , Lys, & Walther , 2010). Nevertheless, analysts' forecasts can be subject to manipulation.

Despite disclosure readability having been shown to be beneficial. There are several reasons why managers may be reluctant to increase readability. Readability can be interchangeably used with transparency. Managers are likely to be less transparent about negative information because negative information can adversely affect their career. Furthermore, managers may consider that the proprietary and informational costs associated with disclosure do not outweigh the benefits of non-disclosure. (Ledoux, Cormier, & Houle, 2014). Managerial obfuscation can occur for all the above-mentioned reasons.

As a result, agency theory proposes equity compensation as an incentive to mitigate managerial interests that do not coincide with shareholder interests (Verecchia, 2001). An alternative view suggests that equity compensation does not provide an efficient incentive, and instead rewards manager´s rent-seeking behavior (Blanchard, Lopez-de-Silanes and Shleifer, 1994; Yermack, 1997; Bertrand and Mullainathan, 2001). However, recent research findings support agency theory´s view on equity compensation and find a positive relation between disclosure activity and stock-price based incentives. Further suggesting that stock price incentives motivate managers to make more informative disclosures (Nagar, Nanda, & Wysocki, 2003; Baik Brockman, Farber, & Lee, 2017). Therefore the first hypothesis is as follows:

H1:CEO stock-based compensation positively affects the readability of 10-K disclosures.

According to agency theory equity compensation is supposed to motivate managers to increase shareholder value by improving market liquidity. Therefore, I examine whether equity compensation is associated to analyst forecast dispersion. Two theoretical views exist on how executive compensation and firm performance are associated. The optimal contracting approach argues that managers have little influence over their pay (Dong, Wang, & Xie, 2010; Borisova Brockman, Salas, & Zagorchev, 2012) and thus argues that managerial compensation effectively aligns managerial interests and shareholder interests (Jensen & Murphy, 1990; Liu, Uchida & Yang, 2012). In this case, equity compensation should be significantly related with forecast dispersion.

H2: CEO stock-price compensation affects analysts forecast dispersion.

Literature argues that more readable disclosures increase the proportion of public to private information by signaling one interpretation that sets a stronger consensus, and thus decrease forecast dispersion. On the other hand, some argue that more readable disclosures drive analysts to conduct extensive research due to lower processing costs which in turn shift dynamic of private and public information. In this scenario, analyst place more emphasis on privately obtained information which results in an increase in forecast dispersion. Therefore, one part of this last regression examines the relation between the main effect readability and analysts forecast dispersion.

The last hypothesis examines the overall efficiency of these intertwining mechanisms against agency problems by looking at whether an interaction effect exists between readability and equity compensation on analyst forecast dispersion.

H3: Equity compensation affects the effectiveness of readability in reducing information asymmetries among analysts.

This study employs OLS regression to tests the hypotheses. Results from the first regression show a significant and negative association between readability and equity compensation. Therefore, I accept H1. Results from the second regression show a significant and positive association between equity compensation and analyst forecast dispersion thus confirming H2. However, results from the third regression show an insignificant association between equity compensation and forecast dispersion. This change in significance may be due to the addition of the residuals from the first regression in the third regression, which would absorb variation explained residuals. This contradicts prior theory which states equity compensation is linked to measures of market liquidity. Lastly, the third regression finds no significant interaction effect of readability and equity compensation on analyst forecast dispersion. Thus, suggesting equity compensation does not provide an incentive for managers to improve readability.

Results highlight an inefficiency in both equity compensation and analyst behavior. On one side, the negative association between equity compensation and readability shows that equity compensation does not improve readability. However, the fact that analysts are affected by readability confirms the importance of readable disclosures. On the other hand, this significant and positive association between analyst forecast dispersion and readability indicates analysts are not perfect information intermediaries. These findings should be of interest to policymakers and regulators aiming to understand the net effectiveness of disclosure readability in mitigating agency conflicts by looking beyond a one-on-one association and examining disclosure readability in conjunction with other mechanisms that fight agency problems.

The remainder of this paper proceeds as follows. Section II provides a literature review and hypothesis development. Section III outlines the methodology. Section V discusses sample selection and summary statistics. Section IV summarizes the empirical results from tests of hypotheses. Section V provides robustness tests. Lastly, Section VI concludes.

2. Literature Review

2.1 Theoretical Background

2.1.1 Agency Theory

Agency theory is one of the oldest theories in management and economics (Daily, Dalton, & Rajagopalan, 2003; Wasserman, 2006). Agency theory discusses the conflicts that arises between shareholders and managers.

Managers are well-aware of a firm´s strengths and weaknesses regarding its internal processes and corporate policy, and the risks associated with current and future projects (Hofer & Oehler, 2013). However, managers may be reluctant to disclose this information to shareholders for several reasons. First, managers may want only to present a certain image of the firm to create positive earnings surprises (Bissessur & Veenman, 2016). Second, managers consider that costs associated with disclosure, such as proprietary costs and informational costs, do not outweigh the benefits (Ledoux, Cormier, & Houle, 2014). Lastly, self-interested managers may obfuscate information to weaken investors' ability to discipline them. Managers tend to disclose less because they do not want investors to see the bets that they are taking (Stewart, 2001). As a result, an agency problem arises known as the disclosure agency problem (Nagar et al., 2003).

There are several ways of solving this agency conflict. One way is by linking managers´ compensation directly to disclosure activity. Unfortunately, the subjective nature of disclosures makes it difficult to specify in a contract. A more effective alternative is equity-based compensation, which ties managerial compensation to stock price. Assuming investors take into account the quality and quantity of the information disclosed, and react immediately to disclosures, stock price impounds disclosed information completely and in time (Nagar et al., 2003). Another approach to mitigate agency conflicts is to assign two expert groups to monitor executives: board of directors and analysts. Agency theory licensed analysts to actively monitor. Hence, analyst's role is to provide information to investors that would help investors reward profit-oriented firms and punish self-dealing executives.

Analysts are viewed as important market participants, whose primary role is to collect, process and disseminate financial information quickly to investors (Barth, Beaver, & Landsman, 1998; Palepu & Khanna, 2010). Additionally, the presence of analysts in the capital market reduces the costs of accessing information and thus stimulate market efficiency (Kim, Lin, & Slovin, 1997;

Womack, 1996). Most prior studies suggest that analyst research stimulates market efficiency by helping investors to better evaluate companies (Schipper, 1991; Brown L. D., 2000).

However, recent evidence has shown analysts do not behave in accordance with agency theory. Schantl (2018) examines whether analyst´s behavior is substitutive or complementary to corporate disclosure. The study finds analyst behavior to be dominated by the information costs associated with acquiring the information. Only when it is cost efficient will an analyst have a substitutive role. Therefore, suggesting that analysts are indeed responsive to managerial incentives and opportunism. Chan et al (2007) assesses whether analyst favorably bias their forecast to meet or surpass managers´ expectation. Results indicate that over time analyst estimates tend to generate positive earnings surprises. This optimistic bias can be traced back to managers who are pressured to meet earnings benchmarks and as a result limit or eliminate information flow to analyst that make unfavorable forecasts.

Analysts´ forecasting accuracy is used as a control mechanism to ensure analysts' monitoring role prevails in the presence of other interests. Inaccurate forecasts means analysts risk losing their job and are less likely to be promoted (Hong & Kubik, 2003; Loh & Mian, 2006). Despite such mechanisms analysts are often compensated for undermining their objectivity. Analyst compensation is based on their ability to bring money in the company which involves publishing favorable recommendations for IPOs (Michaely &Womack, 2005; Dechow & Sloan; 1997; Lin & McNichols, 1998; Reingold & Reingold, 2006). Despite the decrease in commission revenue due to the elimination of fixed commissions, the investing banking revenues have increased by fifty percent in the last twenty-five years (Fisch & Sale, 2003; Groysberg, Healy, & Maber, 2008). This trend raises serious concerns about analyst´s objectivity given that their job security relies on the firm´s financial standing. Matolcsy & Watt (2006) find supporting evidence that analysts follow "good" firms to generate underwriting business for investment bankers. Further observations display analysts' preference for stock with high trading volumes such as growth stock. As previously mentioned, analyst incentives are closely tied to banker´s objectives. Thus, an increase in trading volume results in money for investment bankers and a reward for analysts in the form of compensation (Jegadeesh N. , Kim, Krische, & Lee, 2005). One stream of behavioral finance literature argues that sell-side analysts identify more as "trend chasers" than "trend setters" (Hong, Harrison, & Stein, 1999). The job incentives that analyst currently have weakens analyst´s role as a predicator of subsequent earnings (Jegadeesh et al., 2005).

2.1.2 Contracting Theory

Agency theory depicts stock-based compensation as a double-edged sword. Much of prior research has focused on using executive compensation to alleviate the agency problem in publicly traded companies. This approach recognizes an agency problem and seeks to provide an effective incentive that will maximize shareholder value. However, an alternative view suggests that the compensation scheme itself partly produces this agency problem. Contracting theory argues agency problems cannot be eliminated due to contracting costs (Jensen et al., 1976). Several researchers have acknowledged that some features of the compensation scheme do not provide an efficient incentive, and instead reward manager´s rent-seeking behavior (Blanchard, Lopez-de-Silanes and Shleifer, 1994; Yermack, 1997; Bertrand and Mullainathan, 2001). Nevertheless, Bebchuk and Fried (2003 & 2004) argue that managerial power and rent extraction are key determinants on the design of the compensation package. Both approaches agree that compensation is arranged by market forces that push towards value-maximizing results, and managers´ influence which pushes towards outcomes that deliver more personal gains. However, the latter approach claims that the deviations from the value-maximizing outcomes are substantial (Bebchuk et al., 2003).

Shareholders and regulators have determined that stock price-based compensation provides the desired link between managerial interests and shareholder value. Unfortunately, suboptimal pay structures exist due to unduly managerial influence. These suboptimal pay arrangements allow for deviations from value-maximizing outcomes. Managers are interested in designing compensation schemes that hide the extent of their rent extraction or lessen the pressure to outperform. Similarly, such managers have the incentive to manage earnings and hide bad news. A reduction in shareholder value caused by contractual inefficiencies, rather than excess managerial gain, could be the biggest cost stemming from managerial influence on compensation (Bar-Gill & Bebchuk, 2003).

2.2 Literature Review

2.2.1 Corporate Disclosure

During the 1990s and beginning of 21st century economists, public authorities and media believed that the solution to the high information asymmetry between principals and agents was corporate disclosure (Farvaque et al., 2011). Corporate disclosures is seen as a one-step solution in reducing information asymmetry, establishing good governance, and allowing effective control of managers (Farvaque et al., 2011). Disclosures are meant to inform investors about the share value and how the firm creates value. The real objective is to provide information that is useful for the individual reader in their daily decision making (Fagotto, Fung, Graham, & Weil, 2006). Unfortunately, there are several ways in which disclosures deviate from this objective.

Studies show that high-quality disclosures reduce managers´ ability to profit by manipulating information disclosed (Aboody & Kasznik, 2000; Bartov & Mohanram, 2004). Improved disclosure quality mitigates managers' rent extraction (Hui & Matsunaga, 2015). One stream of literature insists that managers´ private benefits should fluctuate parallel with the firm´s cost of capital (Lambert, Leuz, & Verrecchia, 2007). Yet another stream emphasizes the importance of the board in overseeing managers´ decisions (Hermalin & Weisbach (2007). At the same time the board is also responsible of setting an effective managerial incentive plan.

Empirical studies often resort to proxies or indirect methods to test agency costs. Khurana Pereira, and Martin (2006) find a positive association between the transparency of corporate disclosures and the firm´s growth, which is leads to the conclusion that more transparent firms have easier access to external financing which lowers cost of capital. However, the fall in the costs of capital can also due to increased share liquidity. In other words, disclosure attracts investors to the market. Another mechanism that explains increased liquidity is namely the role played by confidence (Coates, 2007). If disclosure reduces fraud, investors have more confidence in the market and which results in a greater number of market participants. As the market becomes more liquid, the market depth deepens and the bid-ask spread shrinks (Leuz & Verrecchia, 2000; Heflin, Shaw, & Wild, 2005).

The informing nature of disclosures enhances the information in the financial market which allows investors to have more accurate expectations. Firms that make more transparent disclosures reduce investors uncertainty regarding that firms stock and as a result reduce stock price variation.

A reduction in stock price variation is associated with a lower cost of capital (Patel & Dallas, 2002). Ferrel (2007) and Lambert et al. (2007) provide supporting evidence that disclosures lead to less volatility in returns. Akhigbe and Martin (2006) find that a reduction in returns volatility only exists in the long-term, and that actually total risk, firm specific risk and systematic risk, all increases in the short term. Are disclosures as beneficial as they are claim to be?

Corporate disclosures provide analysts with relevant information that leads to fast and precise earnings forecasts (Lang & Lundholm, 1996). Lang and Lundholm (1996) find a negative association disclosure rating and forecast dispersion. Another study finds that higher levels of nonfinancial disclosures are associated with lower dispersion among analyst forecasts (Vanstraelen, Zarzeski, & Robb, 2003). Nevertheless, some studies believe that more disclosure could lead to either an increase or decrease in forecast dispersion (Harris & Raviv, 1993). Chemla and Hennessy (2011) show that disclosure increases the informational asymmetries among analysts as informational costs increase in cases where the firm frequently discloses complex information, and uninformed investors have little interest in understanding the information. The harder a disclosure is to read the higher the informational costs, and the less profitable the informational investment in the disclosure becomes. Poorly informed agents and the heterogeneity in an individual´s ability to process information increase the information asymmetries among users. This argument is weaker when firms release clear and understandable disclosures to a large public.

One type of corporate disclosure which is required by the SEC for publicly traded U.S. firms is the 10-K Form. This is an annual report that communicates the firm´s economic activities and financial condition. About 80% of the disclosure is textual narrative. Therefore, it is crucial that the disclosure is clearly presented as it will impact how well users understand the information being disclosed. In recent years 10-K reports have become longer and more complex (Bloomfield , 2012).The SEC believes that this upward trend in hard-to-read disclosures is attributed to lawyers protecting the issuer from potential liabilities (SEC, 2007). However, the SEC is determined to make 10-K disclosures more readable for users (SEC, 2016). They argue that increased disclosure grants investors better access to information. Fisch et al., (2003) show that with today´s information technology disclosing information should be easy and cost-effective for firms. Considering the increase in regulatory efforts, the complexity of disclosures is likely to be rooted in the issuer (Dyer et al. 2017). Hence this paper looks beyond the legal environment and examines

the lack of clarity in disclosures stemming from managerial incentives (Lo, Ramos, & Rogo, 2017).

2.2.2 CEO Compensation

The use of stock price-based CEO compensation schemes has become extremely popular over the last decade (Murphy, 1999). Although the goal of such compensation schemes is to align managers´ and shareholders´ interests, there is empirical evidence that shows how stock-price compensation can form an incentive for managers to manipulate information at a cost to shareholders. Stock-based incentives can encourage managers to disclose favorable information and obfuscate unfavorable information to increase their firms' stock price and inflate their wealth. For example, Aboody and Kasznik (2000) observe that managers strategically time the release voluntary disclosures to increase their stock options. Richard, Teoh & Wysocki (2001) and Skinner and Sloan (2001) find that indeed managers with higher levels of stock compensation are more likely to manipulate a stock price increase. Meanwhile, Call, Kedia, and Rajgopal (2016) find that firms use stock options to reward employees who are engaged in misreporting with the intention to discourage whistle-blowing. Not surprisingly, Kim, Li and Zhang (2011) find that firms with higher levels of managerial ownership pose a higher risk of future stock price crashes. They argue that stock-priced incentives encourage managers to hide unfavorable news to prevent a stock price decrease. Armstrong, Larcker, Ormazabal, and Taylor (2013) show that manager whose managerial compensation is more closely tied to stock price volatility are more likely to misreport. These studies associate firm disclosure with managers´ rent extraction.

Other research, however, suggests managers engage in more transparent behavior to reduce cost of capital (Botosan 1997 ; Francis, Olsson, & Nanda, 2008 ; Easley & O'Hara 2004). Diamond & Verrecchia (1991) show that increased disclosure in annual reports is linked to a decrease in cost of capital. More recently, Bushman and Smith (2001) and Biddle and Hilary (2006), provide empirical evidence that higher quality disclosures are also associated with increased cash flows due to increased investment efficiency.

This study adds to this literature by examining the association between stock-based managerial compensation and disclosure readability. The following questions arise; Do managers have an incentive to effectively communicate information? Does the complexity of the written document affect their efforts? Are analysts affected by the complexity of the written document?

Do analysts take a complementary or a substitutive role? I attempt to answer these questions by examining whether the incentive exists for CEOs to manipulate the readability of disclosures, and whether this effort affects sell-side analyst behavior.

2.2.3 Disclosure Readability & Analysts Forecasts

Prior research shows that disclosure format can affect the weight put on private information (Maines and McDaniel 2000; Hodge, Kennedy, & Maines 2004; Elliott 2006 ; Elliott, Hodge, Kennedy, & Pronk 2007). Li (2008) provides evidence that increased disclosure readability improves the processing fluency and reduces analysts´ incentive to search for private information. Asay, Elliot, & Rennekamp (2017) provide supporting evidence that analysts rely more on private information when disclosures are less readable. Change in the proportion of private information to public information changes the information asymmetry among analysts. Information asymmetry among analysts is often measured by forecast dispersion. Lehavy, Li and Merkley (2011) measures the readability of 10-K filing using Fog index and finds that less readable disclosures are associated with higher analyst following, and greater analyst forecast dispersion. Authors argue that less readable texts make it harder for investors to process the information themselves causing demand for analysts´ work to rise. This results in a greater collective effort by analysts, and lower forecast dispersion. A more recent study, confirms that less readable disclosures increase the information asymmetry among investors (Lee ,2012). Interestingly, research conducted by Loughran and McDonald in 2014 shows no significant relationship between readability and forecast dispersion when using a longer time frame (Loughran & McDonald, 2014).

3. Hypothesis Development

Prior research assumes that managerial disclosure choices are aligned with investors´ interest, and explains any non-disclosure with proprietary costs (Verrecchia, 2001). Nagar et al., (2003) study how equity compensation can mitigate the agency conflict that may exist in managerial disclosures. They find a positive relation between disclosure activity and stock-price based incentives. Their results suggest that stock price incentives motivate managers to make more informative disclosures. Another study, Baik et al., (2017) finds that indeed more equity compensation leads to improved information environment but only when coupled with superior manager ability. If equity incentives drive managers´ disclosure choices, then I expect a positive relation between CEO stock-based compensation and readability of 10-K.

H1: CEO stock-based compensation positively affects the readability of 10-K disclosures.

Literature approaches executive compensation and firm performance from two theoretical standpoints, the optimal contracting approach and the managerial power approach (Bebchuk et al., 2003). Under the optimal contracting approach, executives are viewed as having less influence over their pay (Dong et al; 2010; Borisova et al, 2012). This results in a compensation package that better aligns managerial incentives with shareholder interests (Jensen and Murphy, 1990; Liu et al, 2012). In contrast, the managerial power approach suggest that executives can significantly influence the design of the compensation package through managerial power. Managerial power is often associated with abuse of power and managerial entrenchment. Managerial autonomy increases the likelihood of optimistically biased disclosures which prior research has found to significantly reduce analysts´ forecast dispersion (Lim, 2001). A differing perspective argues that analysts view more powerful managers as less reliable, and naturally future earnings as more uncertain (Bebchuck et al., 2004; Chen, Liu, and Li, 2010). As previously mentioned, an increase uncertainty equals an increase in forecast dispersion. Therefore, I expect CEO stock-price based compensation to affect analysts forecast dispersion, but cannot determine the directionality of the relation.

H2: CEO stock-price compensation affects analysts forecast dispersion.

The last hypothesis examines whether equity compensation affects the effectiveness of readability in reducing information asymmetries and whether analysts are affected by such efforts. The first two hypotheses test whether an association exists between equity compensation and readability, and whether equity compensation is associated to analyst forecast dispersion.

However, are analysts affected by readability? Some argue that a more readable disclosure can increase the proportion of public to private information, and thus decrease forecast dispersion. Disclosures with higher readability can also decrease forecast dispersion by signaling one interpretation that sets a stronger consensus. Considering this, analysts may take a complementary role and display herding behavior. The efficient market hypothesis supports this view by suggesting analysts' research does not add value to the market because investors already know all publicly available information. The underwriting and bribery hypothesis also supports this accommodating role of analysts. Current studies provide evidence of analysts being optimistically biased displays a conformity with managers´ interests. On the other hand, analysts can take a substitutive role. More readable disclosures can increase the incremental value of analysts' reports. As disclosures become more readable, costs of processing the information lower, and thus analysts´ reports become more profitable reports. This view on analysts suggests analysts´ behavior is dominated by the information costs associated with acquiring the information. Analysts are more likely to conduct extensive research when processing costs are low. As a result, they put more weight on this privately obtained information, changing the proportion of public to private information, and therefore increasing forecast dispersion.

Based on H1, H2, and literature on readability and analyst behavior, I expect equity compensation to affect the relation between readability and analysts forecast dispersion.

H3: Equity compensation affects the effectiveness of readability in reducing information asymmetries among analysts.

4. Methodology

This study employs an OLS regression model. The first regression assesses the potential association between CEO compensation and disclosure readability. The second regression test whether equity compensation affects analysts forecast dispersion. The third regression examines whether readability can be used as a way of manipulating analysts while also determining whether CEOs can manipulate analysts through readability. This regression studies the effect of CEO compensation and readability on the information asymmetry between analysts. This regression includes the residuals from the first regression to control for other correlations that may affect the interaction term. The sample consists of 7,139 US firms during 2006 to 2016. Firms with SIC codes 283 and 384, which are biotech, pharmaceutical, and firms making medical equipment, are excluded from the sample as these firms are subject to stricter regulation (Gu & Wang, 2003).

$$\begin{aligned}\text{LN\_READABILITY\_INDEX} = {} & \beta_1 \text{EQUITY\_COMP} + \beta_2 \text{LAG\_MKVALT} + \beta_3 \text{ ROA} + \\ & \beta_4 \text{ LOSS\_DUMMY} + \beta_5 \text{ EXTRAOR} + \beta_6 \text{CURR\_DUMMY} + \\ & \beta_7 \text{PEN\_DUMMY} + \beta_8 \text{SPECIALI} + \mathcal{E}\end{aligned} \quad (1)$$

$$\begin{aligned}\text{STDEV} = {} & \beta_1 (\text{LN\_READABILITY\_INDEX} * \text{EQUITY\_COMP}) + \beta_2 \text{LAG\_MKVALT} \\ & + \beta_3 \text{LOSS\_DUMMY} + \textit{ANALYST}\text{\_FOLLOWING} + \beta_5 \text{ SURPMEAN} + \beta_6 \text{SD\_ROE} \\ & + \beta_7 \text{ RETURN\_EPS} + \beta_8 \text{NEW\_FORECASTS} + \text{RESID} + \mathcal{E}\end{aligned} \quad (2)$$

4.1 Variables of Interest

4.1.1 CEO compensation

Similar to Nagar et al., 2003, I use stock price-based CEO compensation to capture the managerial incentive created by the firm´s policy. Using Execucomp data I retrieve total CEO compensation which includes bonus, salary, value of restricted stock grants, net value of stock options grants, and all other yearly compensation. Then I subtract all non stock-price based compensation such as salary, bonus, other compensation, and pension benefits, to arrive at EQUITY_COMP.

4.1.2 Forecast Dispersion

This study uses forecast dispersion as a proxy for the information asymmetries among analysts. Two theoretical constructs exist to explain how common and private information influence forecast dispersion and error differently; consensus and uncertainty (Barron et al., 2010). Consensus refers the ratio of common uncertainty to overall uncertainty. Uncertainty, on the other hand, refers to the expected squared error in individual forecasts averaged across analysts. The more uncertainty the greater the forecast dispersion, and the more consensus the lesser the forecast dispersion. Forecast dispersion, STDEV, is measured as standard deviation of forecasts in first quarter of the year following the fiscal year of a 10-K report scaled by beginning stock price of the following year (Hope, 2010). Standard deviation of forecasts and stock price are obtained from IBES database and CRSP respectively. At least two or more analyst forecasts are required from I/B/E/S in the period between the 10-K filing date and the firm's next quarterly earnings announcement.

4.1.2 Readability

Extant research adopts a variety of approaches to analyze the narratives in annual reports. Even though each approach varies in what it measures, the implicit underlying construct across all approaches is quality of disclosure. Disclosure quality will be evaluated by how easy or difficult a text is to read. Examining this aspect of narrative disclosures is more representative of manager´s discretion, given that requirements often determine the content (Guay, Samuels, & Taylor, 2016; Dyer, Lang, & Stice-Lawrence, 2017). One of the best-known readability measures is the Fog index.

This study, however, will use net file length as proxy for readability. Laughron and McDonald, (2014) recommend using file size of 10-K disclosures as measure for readability as it is less prone to measurement error than other traditional measures like the FOG index, it is easily calculated and is strongly correlated to other readability measures. Net file size better fits this study because by nature business related disclosures are prone to contain many highly complex words. As seen in the equation above, the number of complex words forms one of the components of the Fog index. Even when business files use multi-syllable words to describe operations they are easily understood by investors. For example, words like agreement, management, and operations,

which occur regularly in 10-Ks, are categorized as complex words though most investors comprehend them. Furthermore, a very small number of words will lead the word count for complex words. Around 52 complex words will account for 25% or more of the total complex word count. Secondly, results show that the second component of the Fog index, average number of words per sentence, provides a weak estimate of readability in financial documents (Loughran et al., 2014).

Data is extracted from Loughran and McDonald 10X File Summaries. Loughran-McDonald measure net file size as the total number of characters in the filing after the Stage One Parse. The study measures all SEC EDGAR filings by type and year from 1993 until 2017. This study, as previously mentioned, only focuses on 10-K filings.

4.2 Control Variables

The first part of this section discusses the control variables used when studying the relation between CEO stock price-based compensation and disclosure quality. While the second part discusses the variables which are likely to be highly correlated to analyst´ forecasts and disclosure quality.

4.2.1 Control Variables H1

Firm size has been shown to be reflective of proprietary costs which are known to affect disclosure choice (Verrecchia, 1990). Firm size, MKVALT, is measured as the market value of the firm´s equity at the beginning of the fiscal and is obtained from CRSP database. It may be that the degree of complexity in 10-Ks is related to a firm's operation. Therefore, the following control variables control for disclosure complexity. ROA proxies for firm performance and is return on total assets. SPECIALI is special items lagged by total assets. Special items include write-downs, goodwill impairment charges, and other restructuring charges. LOSS_DUMMY indicates whether net income is negative. Doyle, Ge, and McVay (2007) find that international transfers add legal burdens and complexity to financial reporting. Thus, I also control for accounting complexity using foreign currency translation adjustment, CURR_DUMMY, which is 1 if the value is non-zero and zero otherwise. Rees and Shane (2012) show that pension related adjustments increase the informational costs of disclosures. In addition, they find that these pension related adjustments are

of interest to the market. On the other hand, Bebchuk and Fried (2003) document that less transparent firms are associated with executive compensation which is more decoupled from managerial performance. Firms often use pension plans, deferred compensation, postretirement perks and consulting contracts to hide the amount of the compensation and insensitivity of the compensation with performance (Bebchuk at al., 2003). Furthermore, such deferred benefits are often accompanied with additional taxes, which in this case are paid by the firm, instead of the beneficiary (Bebchuk et al., 2003). Another issue is the lack of clarity surrounding the efficiency of postretirement perks and postretirement consulting fees. All in all, such arrangements make CEO pay less lucid. Therefore, such pension benefits are controlled for with PENN_DUMMY, which equals 1 if the value of pension related adjustments is non-zero. EXTRAOR controls additional accounting complexity by scaling extraordinary items and discontinued operations with total assets.

4.2.2 Control Variables H2, H3

The directionality of news content is likely to influence uncertainty. That is good news is more likely to reduce uncertainty due to analysts´ strong incentive to optimistically skew disclosures. While bad news is expected to increase uncertainty because this news is inconsistent with investors' prior beliefs. In other words, favorable disclosures significantly reduce analysts´ forecast dispersion, while unfavorable disclosures significantly increase analysts´ forecast dispersion. LOSS_DUMMY controls for the directionality in disclosure content, which equals 1 if there is a net loss and zero otherwise. This data is obtained from Compustat. SURPMEAN is found in IBES database and it controls for the magnitude in earnings information being disclosed. Consider that information regarding the launch of a new product is disclosed. Such information is likely to increase earnings surprise and lower consensus among analysts. SUPRMEAN will be measured as the absolute value of the difference between the current year´s earnings per share and last year´s earnings per share, divided by the price at the beginning of the fiscal year (Lang et al., 1996). Another control variable is firm size which has been shown to affect analyst following and disclosure quality. Firm size, MKVALT, is measured as the market value of the firm´s equity at the beginning of the fiscal and is obtained from CRSP database. Furthermore, I control for analyst following as higher analyst following enables herding behavior. All these factors affect analysts´ incentive to collect information and consequently their forecasts (Lang et al., 1996). Analyst

following is measured as the count of analyst codes in the first quarter of the year following 10-K fiscal year. I also control for return-earnings correlation which is likely to be positively correlated to analyst following considering that a higher return-earnings correlation makes predicting future earnings easier (King, Pownall, & Waymire, 1990). Return-earnings correlation is calculated as the historical correlation between annual returns and earnings computed over the preceding year. Another factor to consider is standard deviation of ROE, which is measured as the historical standard deviation of return on equity computed over the preceding three years. A higher standard deviation of ROE is likely to make it more difficult for analyst to predict future earnings. Furthermore, I control for analyst following as higher analyst following enables herding behavior. All these factors affect analysts´ incentive to collect information and consequently their forecasts (Lang et al., 1996). Return-earnings correlation, standard deviation of ROE, and analyst following are all extracted from IBES database. Moreover, since IBES database does not recognize stale forecasts including the percent of new forecasts should reduce any systematic variation due to differences in the proportion of recently revised forecasts. Lang and Lundholm (1993) find a strong positive relation between disclosure quality, firm performance, and return variability. Therefore, I control for the level of firm performance using yearly average CRSP stock returns and return variability, RETURN_EPS, which is calculated as the historical correlation between annual and earnings computed over the preceding year. The percent of new forecasts, NEW_FORECASTS, will be measured as the number of forecasts at the month-end minus the number of first-time forecasts issued during the month divided by the number of forecasts at the month-end.

5. Results

5.1 Sample Selection

A sample of 7,139 observations was formed after merging the available data from Compustat, CRSP, I/B/E/S and Laughron & McDonald. Data was merged using the official ticker and year. After merging Compustat and I/B/E/S, 206,573 observations were dropped. Subsequent merging with CRSP, led to 36,087 observations being dropped. Final merger with Laughron & McDonald resulted in 54,271 observations being dropped.

5.2 Empirical Model

The merged data results in an unbalanced panel data. Therefore, the OLS regression command used is areg which accommodates for heteroscedasticity, autocorrelation, as well as varying degrees of freedom. Areg reports robust standard errors that adjust for change in degrees of freedom by lowering the degrees of freedom with the number of fixed effects swept away in within-group variation (Wooldridge, 2010).

5.3 Summary Statistics

The summary statistics are reported in Table 1. LN_ READABILITY_INDEX has a mean and median of 13 and 13 respectively and a standard deviation of 0.45. The mean and median of EQUITY_COMP is 3,611 and 1,952 respectively, with a standard deviation of 13,825. Analyst forecast dispersion, measured by STDEV, has a mean median of 0.2 and 0, with a standard deviation of 16. The sample firms vary in size, with mean and median of LAG_MKVALT of $12204 million and $3045 million. ROA has a mean and median of 0.05 and 0.05 and standard deviation of 0.1. The interquartile range is 0.01 and 0.09. SPECIALI has mean and median, -0.01 and 0, with standard deviation of 0.06. The respective interquartile range is -0.01 and 0. The mean and median for ANALYST_FOLLOWING is 26 and 16, with a standard deviation of 34 and an interquartile range of 9 and 28. SUPRMEAN has mean and median of -3 and 2, with a standard deviation of 989 and an interquartile range of 0.64 and 2.7. While mean and median of SD_ROE is 16 and 4. This variable has a standard deviation of 124 and an interquartile range of 2 and 7. RETURN_EPS, displays a mean and median of 5 and 4 respectively, with a standard deviation of

21 and interquartile range from 0.72 to 3. NEW_FORECASTS has a mean and median of 0.11 and 0.07, standard deviation of 0.5 and interquartile range between -0.15 and 0.25. Considering that spread of normal data is within 3 standard deviations of the mean and the significant difference between mean and median, the observations of some variables are not symmetrically distributed. Hence, I winsorize all variables, excluding dummy variables, at the 1st and 99th percentile.

TABLE 1
Summary Statistics

Variable	n	Mean	S.D.	Min.	0.25	Mdn	0.75	Max
LN_READABILITY_INDEX	7139	13	0.45	11.69	13	13	13	15
LN_LAG_READABILITY_INDEX	7139	13	0	12	12.61	12.87	13.19	15.44
EQUITY_COMP	7139	3611.07	13825.16	-99000	0	1952.34	5715.33	290000
STDEV	7139	0.20	15.85	0	0	0	1338	0.85
LAG_MKVALT	7139	12203.84	33360.7	19.8	1167	3045.19	9220.95	630000
LOSS_DUMMY	7139	0.13	0.33	0	0	0	0	1
ROA	7139	0.05	0.10	-2	0.01	0.05	0.09	0.76
EXTRAOR	7139	0	0.01	-0.89	0	0	0	0.23
CURR_DUMMY	7139	0.67	0.47	0	0	1	1	1
PEN_DUMMY	7139	0.57	0.50	0	0	1	1	1
SPECIALI	7139	-0.01	0.06	-1.54	-0.01	0	0	0.50
ANALYST_FOLLOWING	7139	25.67	34.29	1	9	16	28	548
SURPMEAN	7139	-2.64	988.95	-80000	0.72	1.57	2.86	20694.01
SD_ROE	7139	15.78	123.87	0.08	1.91	3.63	7.27	7118.77
RETURN_EPS	7139	5.49	21.07	-353.09	1.81	3.58	6.86	420.78
NEW_FORECASTS	7139	0.11	0.50	-0.88	-0.15	0.07	0.25	11

5.4 Results

The first hypothesis predicts that there is a positive association between CEO equity compensation and readability of 10-K forms. Table 2 shows a statistically significant negative relation between CEO equity incentives and readability. Even though there is a positive coefficient it should be interpreted as negative because an increase in READABILITY_INDEX translates into a decrease in readability. Findings suggest equity compensation induces obfuscation. Thus, I reject the null hypothesis and partly accept H1. According to agency theory, equity compensation is supposed to better align the interests of managers and shareholders. It may be that less readable disclosures do not always directly impact stock price. However, Dye (1985) finds that investors react negatively to non-disclosure when they suspect management of having information private. Li´s (2008) argue that managers increase the complexity of disclosures to hide bad news. Moffitt and Burns (2009) find empirical evidence that fraudulent 10-K's are less-readable, supporting Li´s claim that managers strategically obfuscates bad news. Another possible explanation for this negative association is that the readability measure used, file length, is reflective of future projects. A more promising future is likely to be linked to long-term compensation such as equity compensation. This would form an incentive for CEOs to follow through with their promises. One more plausible explanation is that as equity compensation increases the file length of 10-Ks increases because more explanation is needed to justify increased CEO compensation. Moreover, the significant and negative correlation between pension benefits and readability provides support that additional benefits increase file length. It may also be stock-price incentives do not form the best incentive to increase disclosure readability (Bushman & Indjejikian, 1993). However, this is highly unlikely because current literature has linked readability to stock price. Regardless of the underlying cause, this relation uncovers an unintended consequence of equity compensation.

TABLE 2
Effect of Equity Compensation on Readability (n= 7139)

Term	Estimate	Std. Error	t-statistic	p-value
EQUITY_COMP	0.000	0.000	3.470	0.001
LAG_MKVALT	0.000	0.000	12.000	0.000
ROA	-1.061	0.094	-11.270	0.000
LOSS_DUMMY	0.03	0.020	1.520	0.121
EXTRAOR	-0.502	1.810	-0.280	0.915
CURR_DUMMY	0.112	0.013	8.340	0.000
PEN_DUMMY	0.098	0.011	8.870	0.000
SPECIALI	0.543	0.203	2.680	0.006
Constant	12.822	0.013	979.630	0.000
Adj-R2				0.261

This table presents the test for H1 for whether equity compensation is linked to readability. The dependent variable is file length of 10-K form in year t. EQUITY_COMP is CEO equity compensation for year t. Industry and year fixed effects are included, but not reported. Robust standard errors are clustered at the firm level. All other variables are defined in Appendix D.

The second hypothesis predicts that CEO equity compensation affects forecast dispersion. Table 3 shows that equity compensation is significantly associated with forecast dispersion. Therefore, I reject null hypothesis and accept H2. This provides supporting evidence that equity compensation is tied to measures of market liquidity.

TABLE 3
Effect of Equity Compensation on Analyst Forecast Dispersion (n= 7139)

Term	Estimate	Std. Error	t-statistic	p-value
EQUITY_COMP	-0.000	0.000	-3.89	0.000
LAG_MKVALT	-0.000	0.000	-4.93	0.000
LOSS_DUMMY	0.005	0.000	13.29	0.000
ANALYST_FOLLOWING	-0.000	0.000	-1.33	0.182
SURPMEAN	0.000	0.000	2.78	0.005
SD_ROE	0.000	0.000	6.33	0.000
RETURN_EPS	0.000	0.000	0.14	0.889
NEW_FORECASTS	-0.000	0.000	-0.39	0.700
Constant	0.001	0.000	10.37	0.000
Adj-R2				0.211

This table provides results that test H2. The dependent variable is STDEV_W which is calculated as the standard deviation of forecasts in the first quarter of year t+1 scaled by stock price at beginning of year t+1. EQUITY_COMP is ratio of equity compensation over total compensation at end of year t. Industry and year fixed effects are included, but not reported. Robust standard errors are clustered at the firm level. All other variables are defined in Appendix D.

The third hypothesis predicts equity compensation influences the relation between readability and analyst forecast dispersion. Results in Table 4, however, show otherwise. As seen from Table 4, the interaction effect of READABILITY_INDEX and EQUITY_COMP is not statistically significant. Figure 1 (See Appendix C) plots readability at different values of equity compensation. The parallel lines depicted show that effect of readability on forecast dispersion does not differ at different values of equity compensation. In addition, it is notable from the main effects that readability is significantly correlated with analyst forecast dispersion confirming prior empirical evidence. As previously mentioned, a positive coefficient for READABILITY_INDEX should be interpreted as a negative coefficient because an increase in READABILITY_INDEX translates into a decrease in readability. However, this is not the case with equity compensation. While the correlation between equity compensation and analyst forecast dispersion proves that equity incentives successfully links managers´ interest with shareholders´ interests, the main effects in this regression show otherwise. Results from Table 4 displays an insignificant relation between equity compensation and analyst forecast dispersion. This change in significance may be due to the addition of residuals from the first regression as control variable. Further suggesting that the significant in H2 exists due to the omission of other correlated variables. In conclusion, equity compensation fails to create an incentive to increase readability. Lastly, the positive coefficient, in this case negative coefficient, between readability and forecast dispersion suggests analysts take an accommodating role. This indicates that analysts do not function as perfect information intermediaries.

TABLE 4

Moderating Effect of Equity Compensation on the Relation Between Readability and Analyst Forecast Dispersion (n= 7139)

Term	Estimate	Std. Error	t-statistic	p-value
LAG_READABILITY_INDEX	0.001	0.000	3.29	0.001
EQUITY_COMP	0.000	0.000	0.52	0.606
LAG_READABILITY_INDEX*EQUITY COMP	-0.000	0.000	-0.65	0.516
LAG_MKVALT	-0.000	0.000	-5.31	0.000
LOSS_DUMMY	0.005	0.000	13.16	0.000
ANALYST_FOLLOWING	-0.000	0.000	-1.64	0.100
SURPMEAN	0.000	0.000	2.73	0.006
SD_ROE	0.000	0.000	6.27	0.000
RETURN_EPS	0.000	0.000	0.13	0.896
NEW_FORECASTS	-0.000	0.000	-0.19	0.852
RESID	0.001	0.000	2.26	0.024
Constant	-0.008	0.003	-2.81	0.005
Adj-R2				0.216

This table displays the results of H3. The dependent variable is STDEV_W which is calculated as the standard deviation of forecasts in the first quarter of year t+1 scaled by stock price at beginning of year t+1. LAG_READABILITY_INDEX#EQUITY_COMP is the interaction term of the file length of 10-K report corresponding to fiscal year t and equity compensation scaled by total compensation at end of year t. Industry and year fixed effects are included, but not reported. Robust standard errors are clustered at the firm level. All other variables are defined in Appendix D.

6. Robustness Check

Table 5 (See appendix A) presents the Pearson/Spearman correlation matrix. Pearson´s bivariate correlation assumes the variables tested are normality distributed. However, as previously mentioned most variables are slightly to moderately skewed. Therefore, in this case, a Spearman correlation, which also tests the null hypothesis of independence between two variables, is most suitable. Results show significant correlation between the variables.

From Table 5 (See appendix A) the following correlations are noteworthy. LOSS_DUMMY and ROA have the largest correlation of -0.58. While ROA and READABILITY_INDEX have a -0.30 correlation. It is expected that READABILITY_INDEX and LAG_MKVALT also be correlated at larger companies are likely to have more projects and business segments compared to smaller companies and therefore require more disclosure. Moreover, PENN_DUMMY and LAG_MKVALT are correlated at 0.29. Lastly, SPECIALI and LOSS_DUMMY are also significantly correlated at -0.30. The extent of other correlations with READABILITY_INDEX are rather small and may be due to the nature of readability. The variation in readability, unlike content, may be less easily explained by firm characteristics (Li, 2008). ANALYST_FOLLOWING and LAG_MKVALT are highly correlated at 0.48 . SURPMEAN and LAG_MKVALT are also strongly correlated at 0.37. LOSS_DUMMY and SUPRMEAN have a negative correlation of 0.25. SURPMEAN and STDEV are also substantially negatively correlated 0.24. In addition, RETURN_EPS and STDEV are significantly correlated at -0.38 and RETURN_EPS and ANALYST_FOLLOWING at -0.32. Lastly, NEW_FORECASTS and ANALYST_FOLLOWING are also correlated at 0.28.

Table 6 (See appendix B) display the multicollinearity of the independent variables. VIFs between 1 and 5 have a moderate correlation, and do not warrant corrective measures. Results show moderate collinearity for all variables. Thus, dismissing the need to take corrective action.

It should be noted that the readability measure used in this study is based on a lesser used method of readability; length of file. This more simplistic approach was introduced by Laughron and McDonald (2014) as a proxy for disclosure complexity. Several studies have found significant results by using file length as readability measure (You & Zhang, 2009; Loughran & McDonald, 2010; Miller 2010). This readability measure is may be representative of more content specific characteristics, such as more promising projects, and not exactly readability (Li et al., 2011).

7. Conclusion

Results from H1 show that there is a significant association between equity compensation and readability. However, this relation does not behave as predicted, instead it shows that equity compensation decreases readability. This would imply that managers profit from less readable 10-K Forms, which contradicts evidence that less readable disclosures decrease stock price/liquidity. It may be that the readability measure used, file length, is reflective of future investments. An increase in investments calls for an explanation and thus an increase in file length. Furthermore, a promising future is likely to be linked to long-term compensation, such as equity compensation, to form an incentive for CEOs to follow through with their promises. Another possible explanation for why equity compensation increases file length is that more explanation is necessary to justify increased CEO compensation. The significant and negative correlation between pension benefits and readability supports the latter argument that additional benefits increase file length. It would be interesting to see if the directionality of this relation changes when another readability measure is used. Findings for H2 show equity compensation is significantly linked to analyst forecast dispersion. Results also show a negative and significant correlation between equity compensation and forecast dispersion which suggests equity compensation creates an incentive to reduce forecast dispersion. This finding leads the way for H3 which predicts that managers use readability to affect analyst forecasts. Results indicate that analysts are significantly affected by readability. Thus, crushing agency theory´s expectation of analysts as perfect information intermediaries. The negative relation between analyst forecast dispersion and readability depicts analyst as biased and as a result highlights the important role of equity compensation in alleviating agency conflicts. Furthermore, the fourth regression results show that equity compensation has no moderating effect on readability when the response variable is analyst forecast dispersion. Why is readability not directly linked to equity compensation? Results from H3 show that equity compensation is ineffective at reducing the information asymmetry among analysts. This finding would explain why equity compensation has no moderating effect on the relation between readability and analyst forecast dispersion. The unconventional negative association between equity compensation and readability, and the insignificant relation between equity compensation and analyst forecast dispersion provide support for the managerial power approach, which suggests managerial power results in a CEO compensation package that is poorly aligned with shareholder interests.

To conclude, equity compensation is ineffective at reducing information asymmetries among analysts and ineffective at incentivizing CEOs to be transparent. This provides support for previous literature which argues that pay-for-performance compensation can itself be a factor of the agency problem. Most importantly, it provides insightful evidence that current executive compensation schemes lack direct linkage to other important measures such as transparency. Maybe alleviating the agency problem in publicly traded companies should start by rewarding more sustainable qualities such as transparency rather than performance.

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APPENDIX A Pearson & Spearman Correlation

TABLE 7

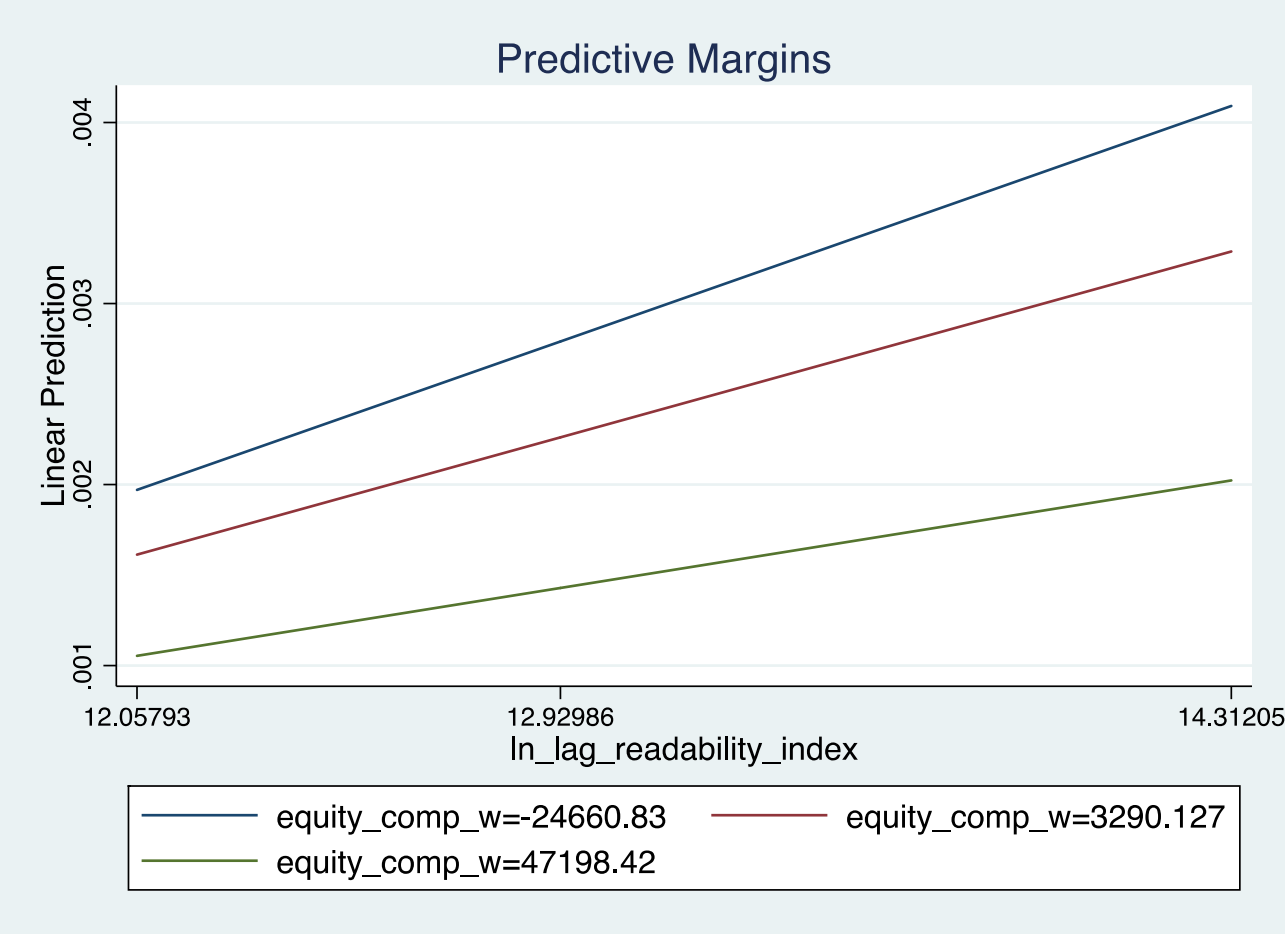
	LN_READABILITY_INDEX	EQUITY_COMP	STDEV	LAG_MKVALT	ROA	LOSS_DUMMY	EXTRAOR	CURR_DUMMY	PEN_DUMMY	SPECIALI	ANALYST_FOLLOWING	SURPMEAN	SD_ROE	RETURN_EPS	NEW_FORECASTS
LN_READABILITY_INDEX	1	-0.0128	**0.2179**	**0.2186**	**-0.2951**	**0.101**	-0.0031	**-0.0227**	**0.1959**	**-0.0652**	**0.1151**	**0.0443**	0.0119	**-0.1035**	0.0125
EQUITY_COMP	**-0.0217**	1	**-0.1575**	**0.1934**	**0.209**	**-0.073**	**-0.0213**	**0.1412**	**-0.1833**	**-0.0497**	**0.1951**	**0.0475**	**0.0855**	**-0.0369**	-0.0087
STDEV	**0.1284**	**-0.0634**	1	**-0.2984**	**-0.3994**	**0.3036**	0.0001	**-0.185**	**0.0328**	**-0.0446**	**-0.0136**	**-0.1302**	**0.2361**	-0.0183	-0.001
LAG_MKVALT	**0.1742**	**0.0717**	**-0.0818**	1	**0.2547**	**-0.2012**	**0.0254**	**0.2338**	**0.2872**	0.0124	**0.4837**	**0.368**	**-0.0513**	**-0.3104**	-0.0152
ROA	**-0.2209**	**0.1317**	**-0.2686**	**0.1325**	1	**-0.5802**	-0.0032	**0.1926**	**-0.0427**	**0.2074**	**0.1447**	**0.2733**	**0.0586**	**-0.0731**	-0.0103
LOSS_DUMMY	**0.0925**	**-0.0588**	**0.3224**	**-0.097**	**-0.6364**	1	**-0.0228**	-0.0057	**-0.0614**	**-0.2956**	**-0.0276**	**-0.2585**	**0.1424**	**-0.1016**	-0.0032
EXTRAOR	0.002	-0.0176	**-0.0432**	**0.0339**	**0.0434**	**-0.0506**	1	**-0.0414**	**-0.0357**	**0.023**	-0.0081	-0.0075	-0.0069	**0.023**	-0.0119
CURR_DUMMY	-0.0139	0.1018	**-0.1007**	**0.17**	**0.1052**	-0.0063	-0.0181	1	**0.158**	**-0.2334**	**0.1415**	**0.097**	**0.0352**	**-0.1009**	0.0103
PEN_DUMMY	**0.1948**	**-0.1572**	-0.0172	**0.1424**	-0.0174	**-0.0629**	0.001	**0.1604**	1	**-0.1011**	**0.1147**	**0.2232**	**-0.0643**	**-0.1889**	**0.0312**
SPECIALI	**-0.038**	0.0075	**-0.0632**	**0.0415**	**0.5085**	**-0.4789**	**0.0356**	**-0.1039**	-0.015	1	**-0.0196**	**0.0235**	**-0.0489**	**0.0311**	**0.0206**
ANALYST_FOLLOWING	**0.0385**	**0.1534**	-0.0077	**0.2442**	**0.062**	-0.0003	0.013	**0.0878**	**0.0719**	-0.0031	1	**0.225**	**0.1227**	**-0.3153**	**0.2837**
SURPMEAN	**0.0221**	-0.0079	**0.0403**	**0.128**	**0.1306**	**-0.1216**	-0.0023	**0.0296**	**0.1277**	**0.0309**	**0.1071**	1	**-0.1121**	**-0.4192**	0.0159
SD_ROE	**0.0209**	0.0077	**0.151**	-0.0126	**0.024**	**0.0584**	0.0027	**0.0203**	-0.0159	0.0025	-0.0122	**-0.0353**	1	**-0.0471**	-0.0046
RETURN_EPS	**-0.0541**	-0.0133	-0.0029	**-0.0828**	0.006	**-0.0539**	**0.0204**	**-0.0413**	**-0.0955**	**0.0282**	**-0.1246**	**-0.0989**	**0.0224**	1	**-0.1013**
NEW_FORECASTS	-0.0135	**-0.0203**	-0.005	**-0.0491**	**-0.0204**	0.0006	-0.0111	-0.0113	0.0049	0	**0.199**	**-0.0195**	**-0.0216**	-0.0082	1

APPENDIX B Multicollinearity

TABLE 8

Variable	VIF	SQRT VIF	Tolerance	R-Squared
LN_READABILITY_INDEX	1.16	1.08	0.8624	0.1376
EQUITY_COMP	1.09	1.05	0.9155	0.0845
STDEV	1.21	1.10	0.8291	0.1709
LAG_MKVALT	1.18	1.09	0.8451	0.1549
ROA	2.13	1.46	0.4704	0.5296
LOSS_DUMMY	1.94	1.39	0.5144	0.4856
EXTRAOR	1.01	1.00	0.9934	0.0066
CURR_DUMMY	1.12	1.06	0.8968	0.1032
PEN_DUMMY	1.15	1.07	0.8727	0.1273
SPECIALI	1.51	1.23	0.6609	0.3391
ANALYST_FOLLOWING	1.17	1.08	0.8518	0.1482
SURPMEAN	1.08	1.04	0.9288	0.0712
SD_ROE	1.04	1.02	0.9639	0.0361
RETURN_EPS	1.04	1.02	0.9622	0.0378
NEW_FORECASTS	1.06	1.03	0.9417	0.0583
Mean VIF	1.26			

APPENDIX C Plot Margin



APPENDIX D Variable List

READABILITY_INDEX	the total number of characters in the filing after the Stage One Parse.
STDEV	measured as standard deviation of forecasts in first quarter of the year following the fiscal year of a 10-K report scaled by beginning stock price of the following
EQUITY_COMP	total CEO compensation minus all non stock-price based compensation such as salary, bonus, other compensation, and pension benefits.
MKVALT	market value of the firm´s equity at the beginning of the fiscal.
ROA	proxies for firm performance and is return on total assets.
SPECIALI	special items lagged by total assets. Special items include write-downs, goodwill impairment charges, and other restructuring charges.
LOSS_DUMMY	which equals 1 if there is a net loss and zero otherwise.
CURR_DUMMY	which is 1 if the value of foreign currency translation adjustment is non-zero and zero otherwise.
PENN_DUMMY	wich equals 1 if the value of pension related adjustments is non-zero
ANALYST_FOLLOWING	measured as the count of analyst codes in the first quarter of the year following 10-K fiscal year.
EXTRAOR	extraordinary items and discontinued operations scaled by total assets.
RETURN_EPS	calculated as the historical correlation between annual returns and earnings computed over the preceding year.
SURPMEAN	measured as the absolute value of the difference between the current year´s earnings per share and last year´s earnings per share, divided by the price at the begi year.
SD_ ROE	measured as the historical standard deviation of return on equity computed over the preceding 3 years.
NEW_FORECASTS	measured as the number of forecasts at the month-end minus the number of first-time forecasts issued during the month divided by the number of forecasts at th