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碩士論文

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Master Thesis

Say-on-Pay 制度對 CD&A 可讀性的影響

The effect of Say-on-Pay on CD&A readability

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研究所生涯，最感謝的就是我的指導教授－吳淑鈴老師，不論問出多笨的問題或漏掉很明顯的錯誤，老師總是笑瞇瞇的回答與指正，多虧老師，讓我覺得寫論文沒有想像中那麼難了。因為中文文筆不好，有點不自量力的想說要用英文寫，每次拿到修改檔都有超多修正，老師還很用心幫我改語句，事實證明英文文筆也不好，辛苦老師一一糾正。而且老師超忙，做事還是可以很細心又從容不迫，決定向老師看齊！

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摘要

美國股東對薪酬的諮詢性投票制度(Say-on-Pay)係指股東可針對公司前五大高階經理人的薪酬表示贊成或反對，雖然此投票的結果不具約束性，Say-on-Pay 納入股東的參與可減少企業擁有權與經營權分離而產生資訊不對稱的現象。本研究主要探討 Say-on-Pay 制度對股東會說明書(Proxy Statement)上薪酬討論及分析(Compensation Discussion & Analysis, CD&A)可讀性之影響。本研究以 S&P 500 公司作為樣本，樣本期間分為 2007 至 2009 Say-on-Pay 實施前期與 2012 至 2014 Say-on-Pay 實施後期，觀察前後期的 CD&A 可讀性變化。研究結果顯示 Say-on-Pay 實施後 CD&A 的可讀性降低，且有越來越難讀的趨勢。考量機構投資人具有外部治理的角色，且其對薪酬揭露的要求比一般投資大眾多，本研究將機構投資人加入額外分析，結果顯示機構投資人持股集中度高或是有較高專注機構投資人(Dedicated Institutional Investor)持股之公司，在 Say-on-Pay 實施後，其 CD&A 的可讀性降低之現象更加明顯。

關鍵詞：股東決定薪酬制度、薪酬討論及分析、可讀性、機構投資人、薪酬揭露

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ABSTRACT

The implementation of Say-on-Pay gives shareholders the right to vote and discuss compensation plans of firms' top managements. My study investigates the relationship between Say-on-Pay regulations and CD&A (Compensation Discussion & Analysis) readability. I test the change of CD&A readability before and after Say-on-Pay provisions using the S&P 500 companies through the years 2007 to 2009 (pre-SOP), and the years 2012 to 2014 (post-SOP). The result shows that the CD&A readability decreases after the implementation of Say-on-Pay regulations, and there is an increasing trend in the difficulty of CD&A readability throughout my sample years. Moreover, I investigate how institutional investors affect the changes in CD&A readability from pre-SOP period to post-SOP period due to their important roles in shaping companies' external governance. I find that the decrease in CD&A readability is larger in firms with a higher institutional ownership concentration and more dedicated institutional ownership.

Keywords: Say-on-Pay, CD&A, readability, institutional investors, compensation disclosures

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1. Introduction

In January, 2011, the enactment of Dodd-Frank Wall Street Reform and Consumer Protection Act (the Dodd-Frank Act) implemented the shareholder Say-on-Pay provision, mandating companies to allow shareholders exercising advisory votes on compensation of the top five named executive officers. Although the voting result is not binding, firms must report the result in form 8-K and the reaction of the board in the following year. The compensation information is disclosed in the proxy statement, known as the DEF-14A filing required by the Securities and Exchange Commission (SEC). Shareholders can examine the remuneration information through the Compensation Discussion and Analysis section (CD&A) since it provides sufficient explanation and analysis of all material factors of pay decisions for CEO, CFO, and other top three highly compensated managers. The CD&A section was adopted in 2006 by the SEC who expects shareholders and investors could have a thorough understanding of internal decisions of a firm from the new section.

The objective of the new rules, both Say-on-Pay and the CD&A section, is to make the information of executive compensation more transparent to the investors. The former provision reaches the purpose by giving more controls to owners over executive pay, and the latter rule reaches the goal by requiring companies to disclose compensation related

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information in plain English.

In this study, I focus on the relationship between Say-on-Pay and readability of CD&A. I examine the change of CD&A readability before and after the implementation of Say-on-Pay because the provision draws more attention to compensation disclosures. The samples of this study are taken from S&P 500 companies on ExecuComp. I manually identify the first year of Say-on-Pay for my sample firms, and collect readability measures for each year for each sample firm using the Seven Formulas program from Micro Power & Light Co. I measure CD&A readability using four commonly used readability index, Flesch Reading Ease, Flesch Grade Level, FOG, and SMOG (Courtis, 1998, 2004; Li, 2008). I obtain a single readability factor score from the four index using the principal component analysis (PCA) (Laksmana, Tietz, & Yang, 2012). The result of this study shows that the CD&A readability reduces after the Say-on-Pay implementation. In addition, there is an increasing trend in the difficulty of CD&A readability from sample year 2007 through 2014. The additional compensation-related disclosure requirements after the Dodd-Frank Act might contribute to the decrease in CD&A readability.

Moreover, I find that the decrease in CD&A readability after Say-on-pay regulation is larger in firms with higher concentration of institutional ownership and more dedicated institutional ownership. Prior research finds that institutional investors prefer more public

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disclosures (Bushee & Noe, 2000; Bird & Karolyi, 2016). After the implementation of Say-on-Pay, the sophisticated institutional investors with important voting blocs and long-term investment horizons might demand more information on the CD&A section to facilitate their assessment of the company's executive pay scheme. This could be a factor that contributes to the increasing reading difficulty on the CD&A section.

My study contributes to the stream of research on firm disclosures and corporate governance. Most prior research investigates how compensation disclosure quality affects the Say-on-Pay voting outcomes (e.g., Zhang, Lo, & Yang, 2014; Hemmings, Hodgkinson, & Williams, 2016; Balsam, Boone, Liu, & Yin, 2016). In addition, ample studies show the effect of Say-on-Pay on compensation structure, firms' stock price, and the phenomenon of excess pay (e.g., Ferri & Maber, 2012; Burns & Minnick, 2013; Cai & Walkling, 2011; Brunarski, Campbell, & Harman, 2015; Kimbro & Xu, 2016). My study combines these two streams of research by analyzing how Say-on-Pay affects CD&A readability. The SEC is devoted to improving clarity, effectiveness and readability of financial disclosures in the past decades. My finding of decreased readability of compensation disclosure after Say-on-Pay regulations echoes the SEC's concern on disclosure effectiveness. Finally, institutional investors hold more resources to monitor firms' policies, so they are the major players in the capital market. I find that firms' CD&A

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has become harder to read with the participation of institutional investors. However, this does necessary suggest a negative outcome of institutional investors' monitoring. Institutional investors are actually effective in monitoring companies' compensation policy after SOP, which might complicate the description of CD&A and make it more difficult to read.

The rest of this paper is organized as follows. Section 2 provides some background information about Say-on-Pay, and literature review of Say-on-Pay and readability. Section 3 discusses the hypothesis development. Section 4 explains the research design. Section 5 presents descriptive statistics and the main results of regression model. Section 6 describes some additional analyses, and Section 7 concludes.

2. Literature Review

2.1 Background of Say-on-pay

In July 2010, Section 951 of Dodd-Frank Wall Street Reform and Consumer Protection Act (the Dodd-Frank Act) was signed into law. Half a year later, on January 25, 2011, the SEC issued the final rules to implement the shareholder Say-on-Pay provisions of the Dodd-Frank Act, which mandates companies to allow shareholders exercise three kinds of votes: (1) Shareholder advisory votes on executive compensation

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(Say-on-Pay votes); (2) Shareholder advisory votes on the frequency of conducting Say-on-Pay votes (Frequency votes); and (3) Disclosure requirement of compensation arrangements and shareholder advisory votes on the understanding with those executive compensation in connection with an acquisition or merger (Golden Parachute and Discloses and votes). The Dodd-Frank Act mandates all firms with more than $75 million in publicly-traded stock hold an advisory vote on the compensation of the top five "named executive officers", including CEO, CFO, and at least three highly compensated executive officers. This compensation information is disclosed in the proxy statement pursuant to Item 402 of Regulation S-K, including the Compensation Discussion and Analysis section (CD&A), the compensation tables and the other narrative disclosures regarding executive compensation. The result of Say-on-Pay is not binding for companies. Despite that, the law requires companies to disclose the vote results in form 8-K within four business days after the shareholders' meeting. In addition, firms must report how the board reacts to the vote results in the following year. For the firms with less than $75 million in their market capitalization, they are not affected by the regulations until 2013.

The controversy over the excess pay received by top executives triggers the call for Say-on-Pay regulations. The excess pay of top executives has been a serious concern among investors, employees and the public. Top executives are not punished when the

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company performs bad, whereas they receive a huge amount of compensation when firms have good earnings or stock performance (Bebchuk and Fried, 2003). After Enron and other corporate scandals like WorldCom, government supervision stepped in. Prior to Dodd-Frank Act, the Sarbanes-Oxley Act (2002) addressed accounting and financial reforms to enhance corporate governance. The voice of revolution came to the top after the financial crisis in 2007. With public outrage and pressure, the authorities wanted to set a policy that could bring benefit to both firms and shareholders, which triggered the enactment of Say-on-Pay regulation. In addition to the aforementioned public concerns, earlier in 2003, there has been a new regulation pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 and 19 b-4 thereunder, which requires firms to have shareholder approval of equity- compensation plans and the voting of proxies in U.S. (Securities and Exchange Commission(SEC) Release No. 34-48108). On the same year, U.K. gave shareholders mandatory annual non-binding voting right to say on boardroom pay. Thereafter, Australia follows the trend in 2005. In Europe, binding shareholder approval of equity-compensation plans has been required for some countries, such as Netherland since 2004, Sweden since 2006, and Norway since 2007. Through the trends of revolution, in 2010, the U.S. Congress finally gave shareholders the right to not only vote on but also to discuss equity-compensation plans of the top managements.

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2.2 Say-on-Pay and Corporate Governance

The purpose of Say-on-Pay attempts to give more controls to owners over executive pay and to make the compensation committees more independent and accountable when contracting executive rewards with top managements. However, there are some debates over the effectiveness of Say-on-pay. Opponents of Say-on-Pay argue that the best way to contract pay schemes is through adequate transparency and a no-barrier board, not through a non-binding vote from shareholders (Brunarski, Campbell, & Harman, 2015). Brunarski et al. (2015) find that overpayment to executives still increases after the Say-on-Pay vote. Although the increases in excess pay has become slower in the short-term, Say-on-Pay vote does not effectively decrease the excess pay phenomenon, but instead provides compensation committee incentives to change future compensation plans (Armstrong, Gow, & Larcker, 2013). Many factors could influence the decision of CEO pay, such as the interaction of competitive market, management authorities, and politics (Murphy 2011, 2012). Besides, proxy advisors, who perform detailed analysis and give a recommendation about firms' performance to shareholders, have a great impact on shareholders' voting decisions. Although shareholders would not blindly follow proxy advisors' recommendation, proxy advisors process and organize a substantial amount of pay information for them (Ertimur, Ferri, & Oesch, 2013). Bainbridge (2011) concerns

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that Say-on-Pay may shift the power of executive pay decision from boards of directors to advisory firms instead of to shareholders. Kaplan (2012) finds that shareholders are mostly satisfied with current corporate governance and pay scheme. The study finds that in the first year of Say-on-Pay, roughly 98% of top executive pay policies of S&P500 companies and Russell 3000 companies received majority shareholder support. Conyon (2013) also finds that very few Say-on-Pay resolution fail and approval exceeds 90%. Probably the perceived problems with executive pay scheme are overstated, since not only boards of directors but also shareholders want to retain talented executives.

The need of Say-on-Pay provision stems from the separation of ownership and management. Sometimes board interests are not aligned with shareholder interests, which is the so-called the agency problem. Proponents of Say-on-Pay argue that it would enhance transparency and governance over pay schemes, resulting in more efficient compensation contracts (Bebchuk, Friedman, & Friedman, 2007). Most prior research supports this argument. Ferri and Maber (2012) analyze firms in U.K., the first country to mandate a non-binding vote on pay schemes and find that companies, in respond to negative Say-on-Pay voting result, would remove controversial CEO compensation and increase pay for performance sensitivity. Say-on-pay is regarded as a mechanism to possibly change compensation structure. The overall pay structure has moved from cash

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compensation to more incentive compensation, offsetting the reduction in bonus (Burns & Minnick, 2013).

Shareholders are aware of and acknowledge information pertaining to compensation issue, such as option backdating. Ertimur, Ferri, and Maber (2012) examine the reputation penalties to directors of firms involved in 2002-2007 option backdating scandal. The result shows that shareholders view option backdating as the compensation committee's, not the audit committee's, failure to monitor, suggesting that shareholders are able to distinguish between different degrees of responsibility for past compensation decisions. Therefore, regarding compensation structure, shareholders tend to vote against the pay structure which emphasizes too much stock option compensation relative to restricted stock compensation (Kimbro & Xu, 2016). Shareholders concern about the possibility of the opportunistic timing of executives' option grants and are more sensitive to equity compensation than cash one. Besides, Kimbro and Xu (2016) find CEO excess pay is reduced after implementing Say-on-Pay. Shareholders effectively identify firms with excessive CEO pay and show their dissatisfaction to the board. Regarding the market reaction to Say-on-Pay, Cai and Walkling (2011) find that stock prices of firms with higher abnormal pay and lower pay for performance sensitivity significantly increased after the Say-on-Pay regulation. This finding suggests that the economy-wide regulation

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would reduce rent extraction and enhance shareholder value (Larcker, Ormazabal, & Taylor, 2011).

2.3 Readability of Financial Information Disclosure

The SEC has put much effort into improving clarity and readability of financial disclosures in the past decades. In 1998, the Plain English Rule 421(d), accompanied by a *Plain English Handbook*, passed and required issuers to apply plain English principles when writing their firm prospectus (SEC, 1998). In July, 2006, the SEC approved amendments to the disclosure requirements for executive and director compensation, related party transaction, director independence, security ownership of officers and directors, and other corporate governance matters (SEC, Release No. 33-8765). These amendments apply to many mandatory filings including proxy and information statements, periodic reports, current reports, other filings under the Security Exchange Act of 1934, and registration statements under the Security Exchange Act of 1933. In order to give investors a clear view of these disclosures, firms are required to provide these reports in plain English. The rules went effective on November 7, 2006.

In 2006, SEC adopt a new Compensation Discussion and Analysis (CD&A) section in the proxy statements, which is also required to disclose in plain English pattern. By

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adding the CD&A section, the SEC expects shareholders and investors can evaluate the real circumstances of executives and directors remuneration through more concise and integrated information disclosures. Firms are required to elaborate their aims and whole framework of compensation plan with narrative description, including elements of pay scheme and benchmark. Besides, the CD&A section must provide sufficient explanation and analysis of all material factors of pay decisions for CEO, CFO, and other top three highly compensated mangers. The narrative disclosure must precisely identify the material differences in remuneration practices among these five individuals. The compensation plan refers to not only salary but also bonus, equity-pay, incentive plan, pension, and welfare. The regulations expand the scope of disclosure regarding retirement benefits, change-in-control, and other termination compensation arrangements. Finally, firms must reveal the process and procedures when making pay decision in compensation committees. The new rules about CD&A section try to give shareholders and investors a clear and whole understanding of inner decisions of a firm. The public could evaluate how a company aligns its executive compensation with firm performance.

Prior studies show that disclosure readability has a real effect on users' behavior. For example, Lawrence (2013) finds that individual investors are more willing to invest in firms with more concise and clear financial disclosure. Elliott, Rennekamp, and White

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(2015) also find that investors are more comfort when reading prospectus with concrete language than those with abstract one. The good use of phrases could reduce investors' distant feeling from firms and make them gain more funding. Besides, sophisticated disclosures increase the digesting cost of small investors, which results in the decrease in overall trading activities (Miller, 2010).

The quality of executive pay disclosures also affects Say-on-Pay voting result. Shareholder dissent decreases when firms have good quality of compensation disclosure (Zhang, Lo, & Yang, 2014). Shareholders are skeptical when managers hide bad news with low quality of disclosure. Hemmings, Hodgkinson, and Williams (2016) show that shareholders would tend not to vote against if firms have more readable CD&A given the same level of excess pay. However, Balsam, Boone, Liu, and Yin (2016) find that shareholders' voting decisions are not significantly related to CD&A readability, but they are associated with the tone and prominence of CD&A section. As a result, investors' and shareholders' behavior is affected by writing quality of executive compensation disclosures.

Although the SEC is dedicated to improve clarity of information disclosures, some research raises concern about enhancing readability. Rennekamp (2012) argues that readability evokes the processing fluency heuristic which means that information is

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considered more credible if it is easier to read. Investors are more sensitive to more readable financial disclosures. Therefore, change in their stock valuation judgement is more obvious. In other words, investors react more positively when they observe good news and more negatively when they observe bad news. Therefore, Rennekamp (2012) worries that the enhancement of readability could lead to overreaction to information. Investors may be too quick to react to the information that is presented in an easily processed manner. This result shows that the benefit of increasing readability turns out to be less clear-cut. Hemmings et al. (2016) find that the level of CD&A readability is a very important factor when shareholders are considering whether to pass the proposed pay plan. As discussed above, although improving readability could increase management credibility, inflated trust may cause an undesired effect on Say-on-Pay votes. In addition, investors and other readers are easily affected by psychological factors that can lead to negligence of existing features of the economic environment or the strategic incentives of managers (Hirshleifer & Teoh, 2003).

Moreover, management obfuscation also affects disclosure readability. Managers may use obfuscation to manage reader's impression. Li (2008) looks into annual report readability and its relationship between current earnings and earnings persistence. The result shows that opportunistic top management have incentive to reduce readability of

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annual report if the firm's existing good performance has the chance to change or bad performance is going to persist. However, prior to Li (2008), research on the obfuscation hypothesis has reached contradictory conclusions. Courtis (1998, 2004) find no evidence to prove the relationship between readability and profitability. Although Courtis (2004) conjectures that the variability of annual report readability is attributed to obfuscation hypothesis, his study result cannot indicate that obfuscation is used for malicious purpose to distract readers. From another perspective, Clatworthy and Jones (2001) claim that variability of readability is caused by different underlying thematic structures of statements instead of the hypothesized obfuscation. Using operating and financial review to test this hypothesis, Rutherford (2003) finds that the complexity of operating and financial review is due to the sophisticated transactions of the firm. Firms do not intend to confuse readers by giving difficult content. He argues that obfuscation might be driven by some factors other than textual complexity.

Regarding CD&A disclosures, Laksmana, Tietz, and Yang (2012) find that in the 2007 proxy season, firms with excess pay above benchmark have more complex CD&A section, but the situation improves in the next proxy season, suggesting that regulatory oversight is effective. The results suggest that top management, especially those with compensation above the benchmark pay, would use narrative technique to make

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disclosures more prolix and to confuse readers.

3. Hypothesis Development

Opportunistic management has incentive to maximize their own pay and distort executive pay related disclosures at the same time. Baker (1999) finds that when CEO receives excess compensation which cannot be explained by firm performance, the firm would tend to lower the reported value of stock-option on the grant date. The unexplained pay would increase the likelihood that the firm use methods other than allowable alternative way to report option value on a grant day in its proxy disclosure. In addition, Robinson, Xue, and Yu, (2011) show that defective disclosures are positively associated with excess compensation and negative criticism of CEO remuneration from media coverage during the previous year. Therefore, to reduce information asymmetry and increase monitoring on executive compensation, the SEC implemented the Say-on-Pay regulation in 2011.

Accompanied by the SEC's increased attention to the use of plain English in disclosures, prior studies have focused on linguistic styles and readability of different accounting disclosures, such as CD&A, annual report, operating and financial review, and chairman statement. Lehavy and Merkley (2011) examine the readability of form 10-K report and find that firms with lower readability are associated with greater dispersion,

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lower accuracy, and greater uncertainty in analysts' earnings forecasts. Analysts need more time and efforts to digest reports if it is difficult to read. Pertaining to management obfuscation, Laksmana et al. (2012) show that the level of CD&A readability is negatively related to unexplained CEO compensation above the benchmark pay. The obfuscation hypothesis assumes management is not neutral when facing the decision of disclosure. Prior literature on Say-on-Pay and quality of disclosure focuses on how readability affects vote results. For example, Zhang et al. (2014) and Hemmings et al. (2016) find that firms with more readable compensation disclosures receive fewer dissenting votes.

Different from previous research, my study focuses on changes in the level of CD&A readability before and after Say-on-Pay implementation. The reason for choosing CD&A is that the CD&A section provides all the material factors and sufficient analysis of the pay decisions for the top five compensated managers. It includes most required compensation information in the Dodd-Frank Act, and shareholders' voting decision partly relies on this information. Results in Zhang et al. (2014) and Hemmings et al. (2016) suggest that CD&A readability is positively associated with positive voting outcome. In order to receive favorable voting results, firms would tend to write more readable CD&A after shareholders have the right to vote on executive pays. CD&A readability of firms on average should improve after Say-on-Pay regulation. Based on the above discussion, I

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thus propose the following hypothesis:

H1a. The CD&A readability increases after the implementation of Say-on-Pay provision.

Information overload might reduce disclosure readability, which is also an important concern on 10-K or proxy statement filings. The increasing amount of information in disclosures makes it difficult for investors and shareholders to know what is the most relevant. The SEC Chairman Mary Jo White has claimed that "disclosure effectiveness" is now the priority since she took office in 2013. She once said, "we must continuously consider whether information overload is occurring as rules proliferate and as we contemplate what should and should not be required to be disclosed going forward."[1] Numbers of pages on corporate annual reports (i.e., 10-Ks) have expanded by approximately 40% over just four years from 2010 to 2013, to an average count of 42,000 words, which by comparison, the text of the Sarbanes-Oxley Act of 2002 has 32,000 words (Monga & Chasan, 2015). General Electric Co.'s 2013 annual report was 109,894 words long. G.E. Co.'s chief financial officer, Jeffrey Bornstein, was astonished by the result. He said, "Not a retail investor on planet Earth could get through it, let alone understand it."

[1] White, M.J., Chair of SEC (2013) **The path forward on disclosure.** Speech on National Association of Corporate Directors-Leadership Conference 2013 in National Harbor, Md., available at https://www.sec.gov/news/speech/spch101513mjw#_ftn12

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Rules for disclosures intend to enhance information transparency, but it might make investors easily submerge in a huge volume of information. Regulators and users of financial statement consider that disclosure documents are repetitive and contain too much boilerplate that it is hard for investors to recognize what is relevant and is the most important (Ernst & Young LLP, 2014). Regarding to CD&A in proxy statement, although the section illustrates the practices and discussion of compensation philosophy of a compensation committee, it is criticized that its narrative is dense and filled with technical jargon and immaterial information (U.S. Chamber's Center for Capital Markets Competitiveness (CCMC), 2014). With the increasing number of pages in CD&A, now approximately 20 to 40 pages or above, the CD&A becomes impenetrable even for specialists or sophisticated investors. The difficulty of comprehension might lead to readers' misunderstanding and impair investors' ability of decision making.

Say-on-Pay brings shareholders' attention to the CD&A section. Firms reveal as much remuneration-related information as possible for shareholders to discuss. However, the information overload, or said "avalanche information" in the CD&A section might make shareholders more confused after the Say-on-Pay regulations. Based on the above discussion, I thus propose the following hypothesis:

H1b. The CD&A readability decreases after the implementation of Say-on-Pay provision.

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4. Research Design

4.1 Sample and Data Sources

The initial sample of this study consists of firms listed on the S&P 500. Although firms are required to implement Say-on-Pay starting from 2011, not all firms start their Say-on-Pay vote in year 2011. Therefore, I manually identify S&P 500 companies' first year of Say-on-Pay from the DEF-14A filing required by the SEC. I obtain executive compensation data from the ExecuComp database, and financial data from the Fundamentals Annual database in Compustat. The purpose of this research is to test the CD&A readability before and after Say-on-Pay provision. The compensation disclosure amendment in 2006 adopted the CD&A section so most companies contain the section initially in 2007 proxy statement. Therefore, I obtain CD&A reports from the 2008 to 2015 proxy statements which are retrieved from the SEC Online Edgar database. Sample years for executive compensation and financial data are from fiscal year 2007 to 2014. Finally, I obtain sample firm-year's CD&A readability using the Seven Formulas program from Micro Power & Light Co.

The initial sample size is 4,696. In order to examine the difference in CD&A readability before and after Say-on-Pay, I require 4 years in the pre Say-on-Pay period

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and 4 years in the post Say-on-Pay period, respectively. Therefore, sample years for this study are from fiscal year 2007 to 2014. Some firm-years are deleted from the sample due to incomplete data. The process of sample selection is as follow: (1) I delete 97 firm-years without CD&A reports; (2) I exclude 1,139 firm-years with incomplete executive compensation and financial data. In this stage, I also require all sample firms to have complete data from 2007 to 2014; (3) 612 Firm-years are deleted because their initial year of Say-on-Pay is after 2011; (4) as discussed below, I include SEGMENT in the regression to control for the possibility that complicated operations might increase the readability of a firm's financial disclosures. This further reduces 864 observations; (5) I further exclude 2010 and 2011 data considering that these two years are during transition period of implementing Say-on-Pay, leaving 3 years for pre (2007, 2008, 2009) and post (2012, 2013, 2014), respectively. In this stage, 496 firm-years are deleted; (6) I exclude firm-years who have abnormal disclosure that the market value of equity is negative. This further reduces 36 observations. The final sample size is 1,452. Sample selection procedures are outlined in Table 4-1.

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Table 4-1

Process of sample selection

Process	Samples deleted	Firm-year observations
Initial sample size		4,696
Minus:		
No CD&A reports	(97)	4,599
Incomplete compensation and financial data	(1,139)	3,460
Initial year of Say-on-Pay after 2011	(612)	2848
Missing data of SEGMENT variable	(864)	1,984
Delete sample years 2010, 2011	(496)	1,488
Market value of equity is negative	(36)	1452
Final sample size		1,452

4.2 Regression Model

Laksmana et al. (2012) test the relationship between CD&A readability and management obfuscation through excess pay of executive compensation. Following their study, I further examine the relationship between CD&A readability and the implementation of Say-on-Pay provision using the following regression model:

$$READ_{j,t} = \beta_0 + \beta_1 POST_{j,t} + \beta_2 OVERPAID_{j,t} + \beta_3 UNDERPAID_{j,t} + \beta_4 PPS_{j,t} + \beta_5 SIZE_{j,t} + \beta_6 MTB_{j,t} + \beta_7 SEGMENT_{j,t} + \beta_8 FIRM\_AGE_{j,t} + INDUSTRY\ DUMMY_{j,t} + e_{j,t} \quad (1)$$

The regression is estimated using ordinary least squares and the standard errors are corrected by clustering the observations by firm to account for the time series dependence

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within the same firm. I provide the definitions of variables included in the equation (1) below.

READ

Firstly, I use the Seven Formulas program from Micro Power & Light Co. to calculate four commonly used readability indexes, namely Flesch Reading Ease index, Flesch Grade Level index, Fog index, and Smog index, for the CD&A section on the proxy statements from 2007 to 2014. Flesch Reading Ease index score is positively associated with readability. Higher score means a more readable document. On the other hand, Flesch Grade Level index, Fog index, and Smog index scores are negatively related to readability. Lower score means a more readable document. Table 4-2 shows the descriptive statistic of the four indices. Flesch Reading Ease is denoted as F_EASE. Flesch Grade Level is denoted as F_GRADE. Fog index is denoted as FOG. Smog index is denoted as SMOG. Besides, I report other three readability measures, namely percentage of difficult words (P_DIFF), percentage of monosyllabic words (P_MONO), and percentage of words with three or more syllables (P_3SYL). Panel A and panel B of Table 4-2 present the readability level before and after Say-on-Pay, respectively.

As seen in panel A of Table 4-2, mean and median of F_EASE are 24.482 and 25, respectively, suggesting that readers should have education at college graduate level to

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understand the content. F_GRADE has 16.477 in mean and 16.4 in median, meaning that readers would need more than 16 years of education to understand the CD&As. Mean and median of FOG are 20.273 and 20.2, respectively, indicating that readers above 20 years old would have less difficulty understanding the document. The last index, SMOG, has 17.681 and 17.6 in mean and median, respectively, suggesting that readers require graduate training to comprehend the CD&As. Both mean and median P_DIFF are 24 percent, which means that approximately one-fourth of the CD&As are difficult words. P_MONO has nearly 55 percent in mean and median, indicating that above half of the CD&As are contained with monosyllabic words. In addition, more than one-fourth of the documents have words with three or more syllables because the mean and median P_3SYL are about 27 percent. As for Panel B, it has the similar result as in panel A, and moves slightly to a more difficult level. However, the difference in means and medians are not statistically significant. Overall, these evidence shows that the average CD&As are difficult to read.

Next, because readability indexes are highly correlated, following Laksmana et al. (2012), I use a principal component analysis (PCA) to obtain a single readability factor score for each sample firm in each year. The steps of obtaining PCA are repetitive for each year so I use 2007 as an example to interpret the PCA results. The PCA results in

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one factor with an eigenvalue greater than one, explaining 96.9% of the total variance in the readability indexes for the 2007 CD&As. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is 0.867 for 2007 CD&As. The KMO value for each readability index is at least 0.8. A higher KMO means that the data suits for factor analysis or PCA, and usually, the KMO greater than 0.6 is acceptable (Sharma, 1996, p.116). The sampling in this study is viewed as meritorious or marvelous according to Kaiser's judgement on results. Besides, the factor loadings of F_GRADE, FOG and SMOG are about 0.5 for the 2007 CD&As. On the other hand, F_EASE has factor loading of -0.48, suggesting that as the aforementioned, F_EASE is negatively correlated with the other three indexes.

Finally, the variable *READ* is the factor score derived from the PCA, which is also the dependent variable in my regression model. A greater value of *READ* means a less readable CD&A. In Table 4-2, the mean and median *READ* in the Panel A (Pre-SOP period) are -0.186 and -0.316, respectively, and in the Panel B (Post-SOP period), they are -0.13 and -0.263. From Table 4-2, although the differences in means and medians are not statistically significant, CD&A exhibits slightly lower readability in the post-SOP period relative to pre-SOP period.

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Table 4-2

Descriptive statistic of CD&A readability measures.

Variable	N	Mean	Std. dev.	Min	Q1	Median	Q3	Max	Test of difference	
Panel A: Readability measures before Say-on-Pay (FY 2007~2009)										
F_EASE	726	24.482	5.395	9	21	25	28	40		
F_GRADE	726	16.477	1.589	10	15.4	16.4	17.5	21.8		
FOG	726	20.273	1.705	13.4	19.2	20.2	21.4	25.7		
SMOG	726	17.681	1.187	11.8	17	17.6	18.5	21.2		
READ	726	-0.186	1.955	-4.306	-1.472	-0.316	1.082	4.722		
P_DIFF	726	24%	1.66%	18.73%	22.94%	23.98%	25.13%	28.80%		
P_MONO	726	54.95%	1.63%	47.12%	53.97%	54.88%	56.04%	60.28		
P_3SYL	726	27.42%	9.56%	21.8%	25.92%	27.02%	28.28%	280.30%		
Panel B: Readability measures after Say-on-Pay (FY 2012~2014)									In mean	In median
F_EASE	726	24.291	5.331	5	21	25	28	36	0.191	0
F_GRADE	726	16.576	1.529	13.2	15.5	16.4	17.5	22.4	-0.098	0
FOG	726	20.395	1.669	16.7	19.2	20.2	21.4	27.2	-0.121	0
SMOG	726	17.744	1.142	15.2	17	17.65	18.4	22.3	-0.063	-0.05
READ	726	-0.130	1.987	-4.306	-1.632	-0.263	1.131	4.722	-0.085	-0.053
P_DIFF	726	24.01%	1.63%	19.41%	22.89%	23.91%	25.14%	30.11%	-0.012%	0.07%
P_MONO	726	54.97%	1.62%	49.19%	53.93%	55.06%	56.04%	60.73%	-0.020%	-0.18%
P_3SYL	726	26.97%	1.73%	22.09%	25.83%	26.87%	28.12%	32.89%	0.445%	0.15%

diff = mean(0) - mean(1); diff= median(0)- median(1)

POST

POST is a dummy variable, which equals to one for observations in 2012, 2013, and 2014, and equals to zero for observations in 2007, 2008, and 2009. Note that *READ* is higher for less readable CD&A. Thus, if the coefficient β_1 of *POST* is significantly negative, it supports the H1a that the Say-on-Pay could improve the CD&A readability. On the other hand, if the coefficient is significantly positively related to *READ*, then the

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H1b is supported.

OVERPAID, UNDERPAID

Following Laksmana et al. (2012), the two CEO pay related variables, *OVERPAID* and *UNDERPAID*, are based on the signs of *DIFF*. *DIFF* is calculated as the CEO's actual total compensation derived from the ExecuComp database minus the benchmark pay, divided by the CEO's actual total compensation. The benchmark pay is measured as the predicted value of CEO compensation regressing on a set of economic determinants according to Core, Holthausen, and Larcker (1999). The regression for estimating the benchmark pay is as follow, controlling for year and industry effect:

$$TOTALCOMP_{i,t} = \alpha_1 + \alpha_2 SALES_{i,t} + \alpha_3 MEANMTB_{i,t} + \alpha_4 ROA_{i,t} + \alpha_5 RET_{i,t} + \alpha_6 STDROA_{i,t} + \alpha_7 STDRET_{i,t} + e_{i,t} \quad (2)$$

The economic determinants include sales (*SALES*), investment opportunities (*MEANMTB*), return on assets (*ROA*), stock return (*RET*), standard deviation of ROA (*STDROA*), and standard deviation of RET (*STDRET*). The *MEANMTB* is defined as market-to-book ratio averaged over the five years ended in the year prior to the sample year. *ROA* is the ratio of earnings before interest and taxes to total assets for the prior year. *RET* is the percentage of stock return for the previous year. The *STDROA* and *STDRET* are the standard deviation of return on assets and stock return, respectively, over the prior five years.

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From the calculation described above, *DIFF*, in other words, is the proportion of a CEO's actual total pay that could not be explained by the economic determinants of compensation. After estimating *DIFF*, following Laksmana et al. (2012), I separated *OVERPAID* and *UNDERPAID* according to the signs of *DIFF*. If *DIFF* is positive, *OVERPAID* equals to *DIFF*, and zero otherwise. If *DIFF* is negative, *UNDERPAID* equals to *DIFF*, and zero otherwise. According to the conclusion of Laksmana et al. (2012) that CEO's excess pay reduces the CD&A readability, I expect that the sign of *OVERPAID* is positive. However, prior research does not have a clear indication of the relationship between CD&A readability and CEO's underpayment. Therefore, I do not predict the sign of *UNDERPAID*.

PPS

PPS is pay-performance sensitivity, which is defined as the dollar change in the CEO's wealth associated with the dollar change in the wealth of shareholders (Jensen & Murphy, 1990, p.227). The change in CEO's wealth is the changes in CEO's total actual compensation derived from Execucomp database. Shareholder value is calculated as the common share outstanding multiplied by the stock price in the year end, namely the market value of equity. The variables are in different unit from the database. Therefore, the result of PPS means 1 thousand of shareholders' wealth are associated a dollar changes

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in CEO's total compensation. Higher *PPS* indicates the closer alignments of interests between CEO and shareholders. I predict a negative sign on *PPS*, indicating that higher *PPS* would result in higher CD&A readability.

SIZE

SIZE is the natural logarithm of the total market value of equity at the end of sample years. Larger firms have a more complicated business so they have more sophisticated compensation plans than small firms, which contributes to less readable CD&A. However, according to the theory by Watts, and Zimmerman (1986), politicians can influence corporates by utilizing wealth distribution policies like taxes, guarantees, and insurance. Larger firms are more sensitive to political costs, so they would tend to provide a more readable CD&A. Thus, I have no prediction on the signs of *SIZE*.

MTB

MTB is the market-to-book ratio, which is defined as the market value of equity divided by the common shareholder's equity at the end of sample years. *MTB* is an indication of investment opportunities. A larger *MTB* reflects greater expected future growths. Growth firms have more complicated business, and therefore, have more sophisticated compensation plans and less readable CD&A. Thus, I predict a positive relationship between *MTB* and *READ*.

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SEGMENT

SEGMENT is the natural logarithm of the numbers of reported business segments in sample years. Larger *SEGMENT* indicates a more complicated operating environment, which leads to more complex pay schemes and causes CD&A more difficult to read. However, Li (2008) finds that firms with more business segments have more readable annual reports relative to firms with fewer business segments. Therefore, I have no prediction on the signs of *SEGMENT*.

FIRM_AGE

FIRM_AGE is the number of years since the firm has been founded. Following Laksmana et al. (2012), old firms have less information asymmetry, so they present more readable CD&As. I suggest that there is a negative relationship between *FIRM_AGE* and *READ*.

All the variable definitions are summarized in Table 4-3.

Table 4-3

Variables definition

Variables	Definition
Dependent Variables	
READ	The readability factor score derived from Principal Component Analysis
Independent Variables	
POST	A dummy variable equals to one for observations in 2012, 2013, and 2014, and equals to zero for observations in2007, 2008, and 2009.
OVERPAID	*OVERPAID* is based on the signs of *DIFF*. *DIFF* is calculated as the CEO's actual total compensation derived

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	from the ExecuComp database minus the benchmark pay, divided by the CEO's actual total compensation. The benchmark pay is measured as the predicted value of CEO compensation regressing on a set of economic determinants according to Core et al. (1999). The regression for estimating the benchmark pay is as follow, controlling for year and industry effect: $TOTALCOMP_{i,t} = \alpha_1 + \alpha_2 SALES_{i,t} + \alpha_3 MEANMTB_{i,t} + \alpha_4 ROA_{i,t} + \alpha_5 RET_{i,t} + \alpha_6 STDROA_{i,t} + \alpha_7 STDRET_{i,t} + e_{i,t}$ The economic determinants include sales (*SALES*), investment opportunities (*MEANMTB*), return on assets (*ROA*), stock return (*RET*), standard deviation of ROA (*STDROA*), and standard deviation of RET (*STDRET*). The *MEANMTB* is defined as market-to-book ratio averaged over the five years ended in the year prior to the sample year. *ROA* is the ratio of earnings before interest and taxes to total assets for the prior year. *RET* is the percentage of stock return for the previous year. The *STDROA* and *STDRET* are the standard deviation of return on assets and stock return, respectively, over the prior five years. If *DIFF* is positive, *OVERPAID* equals to *DIFF*, and zero otherwise.
UNDERPAID	*UNDERPAID* is based on the signs of *DIFF*. *DIFF* is calculated as the CEO's actual total compensation derived from the ExecuComp database minus the benchmark pay, divided by the CEO's actual total compensation. The benchmark pay is measured as the predicted value of CEO compensation regressing on a set of economic determinants according to Core et al. (1999). The regression for estimating the benchmark pay is as follow, controlling for year and industry effect: $TOTALCOMP_{i,t} = \alpha_1 + \alpha_2 SALES_{i,t} + \alpha_3 MEANMTB_{i,t} + \alpha_4 ROA_{i,t} + \alpha_5 RET_{i,t} + \alpha_6 STDROA_{i,t} + \alpha_7 STDRET_{i,t} + e_{i,t}$ The economic determinants include sales (*SALES*), investment opportunities (*MEANMTB*), return on assets (*ROA*), stock return (*RET*), standard deviation of ROA (*STDROA*), and standard deviation of RET (*STDRET*). The *MEANMTB* is defined as market-to-book ratio averaged over the five years ended in the year prior to the sample year. *ROA* is the ratio of earnings before interest and taxes to total assets for the prior year. *RET* is the percentage of stock return for the previous year. The *STDROA* and *STDRET* are the standard deviation of return on assets and stock return, respectively, over the prior five years. If *DIFF* is negative, *UNDERPAID* equals to *DIFF*, and zero otherwise.

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PPS	The change in CEO's total compensation (Compustat data item, *TDC1*) divided by the change in shareholders' wealth (Compustat data item, *CSHO*PRCC_F*)
SIZE	The nature log of shareholders' wealth (Compustat data item, *CSHO*PRCC_F*)
MTB	Market value (Compustat data item, *PRCC_F*CSHO*) divided by Common shareholder's equity (Compustat data item, *CEQ*)
SEGMENT	The nature log of the number of reported business segments.
FIRM_AGE	The number of years since the firm has been founded.

To observe whether there is an increasing trend in the difficulty of CD&A readability, I have conducted two additional tests. Note that the sample years of this study include years 2007 through 2009 and years 2012 through 2014; in the first additional test, I exclude the *POST* variable from equation (1) and add year dummies for years 2008 through 2009 and years 2012 through 2014 to the equation to investigate companies' average CD&A readability of these years compared with that of the year 2007.

$$READ_{j,t} = \beta_0 + \Sigma\beta_i YEAR\ DUMMIES_{j,t} + \beta_2 OVERPAID_{j,t} + \beta_3 UNDERPAID_{j,t} + \beta_4 PPS_{j,t} + \beta_5 SIZE_{j,t} + \beta_6 MTB_{j,t} + \beta_7 SEGMENT_{j,t} + \beta_8 FIRM\_AGE_{j,t} + INDUSTRY\ DUMMY_{j,t} + e_{j,t} \quad (3)$$

In the second additional test, I exclude the *POST* variable from equation (1) and add year trend (*FYEAR*) to the equation to investigate the changes in the average CD&A readability over the sample years. If the coefficient, β_1, is significantly positive, it indicates that the readability of CD&A has become more difficult in the later years. On the contrary, if the coefficient is significantly negative, it means that

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the readability of CD&A improves in the later years.

$$READ_{j,t} = \beta_0 + \beta_1 FYEAR_{j,t} + \beta_2 OVERPAID_{j,t} + \beta_3 UNDERPAID_{j,t} + \beta_4 PPS_{j,t} + \beta_5 SIZE_{j,t} + \beta_6 MTB_{j,t} + \beta_7 SEGMENT_{j,t} + \beta_8 FIRM\_AGE_{j,t} + INDUSTRY\ DUMMY_{j,t} + e_{j,t} \quad (4)$$

5. Results

5.1 Descriptive Statistics

To mitigate the influence of extreme observations on the results, I winsorize all continuous variables at the one percent level. Table 5-1 shows the descriptive statistics of the dependent and independent variables in equation (1). The mean and median of *READ* are -0.158 and -0.292, respectively. The mean of *OVERPAID* is 0.106, while the median of *OVERPAID* is 0, suggesting that a smaller portion of CEOs in sample years receive compensation higher than the benchmark pay. The mean of *UNDERPAID* is -0.704, while the median of *UNDERPAID* is -0.089, meaning that more than half of CEOs in sample years receive compensation lower than the benchmark pay. CEOs are more likely to be underpaid than overpaid in my sample periods. The mean of *PPS* is 0.262, suggesting that CEO wealth changes $0.26 for every $1,000 change in shareholder wealth. The average firm size of 9.605 is large because the sample firms are S&P 500 firms. The mean and

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median of market-to-book ratio (*MTB*) is 3.44 and 2.639, respectively.

Table 5-1
Descriptive statistic of dependent and independent variables.

Variable	N	Mean	Std. dev.	Min	Q1	Median	Q3	Max
READ	1452	-0.158	1.970	-4.306	-1.558	-0.292	1.104	4.722
POST	1452	0.5	0.5	0	0	0.5	1	1
OVERPAID	1452	0.106	0.182	0	0	0	0.163	2.320
UNDERPAID	1452	-0.704	3.649	-114.509	-0.543	-0.089	0	0
PPS	1452	0.262	5.657	-26.236	-0.402	0.064	0.620	35.865
SIZE	1452	9.605	1.056	7.463	8.872	9.522	10.257	12.384
MTB	1452	3.440	2.899	0.250	1.735	2.639	4.190	26.455
SEGMENT	1452	1.040	0.714	0	0	1.386	1.609	2.197
FIRM_AGE	1452	38.260	18.023	6	21	40	56	63

5.2 Main Results

My hypothesis H1a and H1b predict that the CD&A readability either increases or decreases after the implementation of the Say-on-Pay provision. The main results of equation (1) is presented in Panel A of Table 5-2. The coefficient on *POST* is positive and significant (Coefficient = 0.288; t-statistics = 2.47), suggesting that the CD&A section of the proxy statements of sample firms on average has become more difficult to read after the Say-on-Pay regulations. This could be due to that companies are required to disclose more detailed information about their compensation policies in recent years to satisfy shareholders' demand when making Say-on-Pay decision. In addition, some companies have voluntarily started disclosing additional compensation information required in

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Dodd-Frank Act, such as an explanation of pay-for-performance, which might create information overload problem and reduce the readability of CD&A sections.

Note that my sample years are years 2007 through 2009 and 2012 through 2014, excluding the transition period of Say-on-Pay, years 2010 and 2011. To test whether the effect remains unchanged, I include transition period in samples using the same equation, and the result is shown in Panel B of Table 5-2. Similar to Panel A of Table 5-2, the coefficient on *POST* is positive and more significant (Coefficient = 0.238; t-statistics = 2.66), indicating that CD&A readability reduces after the implementation of Say-on-Pay. Besides, the coefficient on *OVERPAID* becomes significant, which is consistent with Laksmana et al. (2012) that CEO's overpayment is positively associated with CD&A readability, which is consistent with the management obfuscation explanation on CD&A disclosures. Finally, *FIRM_AGE* is negatively related to *READ* in both Panel A and Panel B, meaning that older firms have less information asymmetry, so they present more readable CD&As than younger firms.

To observe whether there is an increasing trend in the difficulty of CD&A readability, I conduct additional tests using equation (3) and (4), which exclude the *POST* variable from equation (1) and add year dummies or year trend (*FYEAR*) in equation (3) or equation (4), respectively. The estimation results for both equations

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Table 5-2

Regressions (based on equation 1) of CD&A readability factor score on independent variables.

Variable	Exp. sign	**Panel A: Delete transition period**	**Panel B: Include transition period**
		READ	READ
POST	+/-	0.288**	0.238***
		(2.47)	(2.66)
OVERPAID	+	0.634	0.890**
		(1.56)	(2.26)
UNDERPAID	?	0.012	-0.000
		(0.83)	(-1.25)
PPS	-	-0.008	-0.009
		(-1.12)	(-1.62)
SIZE	+/-	-0.164	-0.174
		(-1.40)	(-1.51)
MTB	+	-0.013	-0.024
		(-0.48)	(-0.87)
SEGMENT	+/-	-0.183	-0.182
		(-1.04)	(-1.03)
FIRM_AGE	-	-0.028***	-0.028***
		(-3.78)	(-3.87)
INDUSTRY	?	Y	Y
INTERCEPT	?	1.732	2.011*
		(1.50)	(1.77)
N		1452	1936
adj. R^2		0.273	0.291

t statistics in parentheses. * p<0.1, ** p<0.05, *** p<0.01. See Table 4-3 for variables definition.

are shown in Table 5-3. In equation (3), the coefficients on *YEAR_2008* and *YEAR_2009* are negative but not significant, suggesting that the level of CD&A readability in the year 2008 and 2009 are not significantly different from that in the year 2007. However, after Say-on-Pay implementation, the coefficients on year dummies have flipped. Even though

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the coefficient on *YEAR_2012* dummies are positive but not significant, the coefficients on both *YEAR_2013* and *YEAR_2014* dummies are both positive and significant (Coefficient = 0.226, t-stat. =1.79 for *YEAR_2013*; Coefficient = 0.399, t-stat. = 2.8 for *YEAR_2014*). Furthermore, in equation (4), the coefficient on *FYEAR* is positive and significant (Coefficient = 0.056, t-statistics =2.51), indicating that the readability of CD&A has become more difficult in the later periods of the sample. Overall, these results suggest a clear trend in the difficulty of CD&A readability after Say-on-Pay regulations.

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Table 5-3

Regressions of CD&A readability factor score by year and by trend

Variable	Exp. sign	**Equation (3)**	**Equation (4)**
		READ	READ
YEAR_2008	+/-	-0.036	
		(-0.46)	
YEAR_2009	+/-	-0.085	
		(-1.01)	
YEAR_2012	+/-	0.143	
		(1.28)	
YEAR_2013	+/-	0.226*	
		(1.79)	
YEAR_2014	+/-	0.399***	
		(2.80)	
FYEAR	+/-		0.056**
			(2.51)
OVERPAID	+	0.649	0.633
		(1.59)	(1.56)
UNDERPAID	?	0.012	0.013
		(0.81)	(0.87)
PPS	-	-0.008	-0.008
		(-1.17)	(-1.06)
SIZE	+/-	-0.175	-0.165
		(-1.44)	(-1.41)
MTB	+	-0.016	-0.012
		(-0.61)	(-0.47)
SEGMENT	+/-	-0.181	-0.180
		(-1.02)	(-1.02)
FIRM_AGE	-	-0.028***	-0.028***
		(-3.78)	(-3.79)
INDUSTRY	?	Y	Y
INTERCEPT	?	1.899	-111.280**
		(1.55)	(-2.50)
N		1452	1452
adj. R^2		0.273	0.274

t statistics in parentheses. * p<0.1, ** p<0.05, *** p<0.01. See Table 4-3 for variables definition.

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6. Additional Analyses

Among all the shareholders of listed companies, institutional investors are major monitors of firms' policies, and they play an important role in shaping companies' external governance. Institutional investors in general prefer more public disclosures (Bushee & Noe, 2000; Bird & Karolyi, 2016). After the implementation of Say-on-Pay, institutional investors may require companies to disclose compensation policies in more details to facilitate their assessment of the company's executive pay scheme. In addition, institutional investors are considered as sophisticated investors in prior studies. For example, they are more capable of analyzing the persistence of current accruals for future earnings (Collins, Gong, & Hribar, 2003), and their monitoring is effective in reducing future stock price crash risks (Callen & Fang, 2013). Their demand for more detailed compensation related information combined with their higher sophisticates may contribute to the increasing trend in the difficulty of CD&A readability.

In this section, I investigate whether institutional investors' monitoring is associated with the decreasing CD&A readability after the Say-on-Pay provision. I use the ownership by a firm's top five institutional investors and by a firm's dedicated institutional investors to measure institutional investors' monitoring. I employ the following two models to examine how institutional investors' monitoring affects the

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CD&A readability after the Say-on-Pay implementation:

$$READ_{j,t} = \beta_0 + \beta_1 POST_{j,t} + \beta_2 HIGH\_TOP5_{j,t} + \beta_3 POST*HIGH\_TOP5_{j,t} + \beta_4 OVERPAID_{j,t} + \beta_5 UNDERPAID_{j,t} + \beta_6 PPS_{j,t} + \beta_7 SIZE_{j,t} + \beta_8 MTB_{j,t} + \beta_9 SEGMENT_{j,t} + \beta_{10} FIRM\_AGE_{j,t} + INDUSTRY\ DUMMY_{j,t} + e_{j,t} \quad (5)$$

$$READ_{j,t} = \beta_0 + \beta_1 POST_{j,t} + \beta_2 HIGH\_DED_{j,t} + \beta_3 POST*HIGH\_DED_{j,t} + \beta_4 OVERPAID_{j,t} + \beta_5 UNDERPAID_{j,t} + \beta_6 PPS_{j,t} + \beta_7 SIZE_{j,t} + \beta_8 MTB_{j,t} + \beta_9 SEGMENT_{j,t} + \beta_{10} FIRM\_AGE_{j,t} + INDUSTRY\ DUMMY_{j,t} + e_{j,t} \quad (6)$$

Where the *HIGH_TOP5* in equation (5) is a dummy variable equals to one if the annual average ownership of the firm's top five institutional investors is greater than the sample mean calculated using the average ownership from the year 2011 to 2013, and zero, otherwise. I obtain the ownership of the firm's top five institutional investors from the Thomson Reuters Institutional Holdings databases.

The *HIGH_DED* in equation (6) is a dummy variable equals to one if the annual average ownership of the firm's dedicated institutional investors is greater than the sample mean calculated using average ownership from year 2011 to 2013, and zero otherwise. The definition of dedicated institutional investors is based on Bushee and Noe (2000) and Bushee (2001). Dedicated institutions have large average investments in invested firms and extremely low turnover, consistent with a relationship investing role and a commitment to provide long-term patient capital.

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Other variables in equation (5) and (6) are as defined in equation (1). The coefficient on *HIGH_TOP5* (*HIGH_DED*) measures the incremental CD&A readability of *HIGH_TOP5* (*HIGH_DED*) firms in the pre-SOP period relative to firms with lower top-five (dedicated) institutional ownerships. The coefficient on the interaction term between *HIGH_TOP5* and *POST* in equation (5) measures the incremental change of CD&A readability for *HIGH_TOP5* firms in the post-SOP period. Similarly, the coefficient on the interaction term between *HIGH_DED* and *POST* in equation (6) measures the incremental CD&A readability for *HIGH_DED* firms in the post-SOP period.

The estimation result for equation (5) is shown in Table 6-1. The coefficient on *HIGH_TOP5* is not significant, suggesting that the CD&A readability of *HIGH_TOP5* is not significantly different from that of firms with low top 5 institutional ownership in the pre-SOP period. In addition, the coefficient on *POST* is not significant, indicating that the CD&A readability of firms with low top 5 institutional ownership in the post-SOP period does not deviate from their CD&A readability in the pre-SOP period. However, the coefficient on the interaction between *HIGH_TOP5* and *POST* is positive and significant (Coefficient = 0.511; t-statistics = 1.87), meaning that the CD&A readability of *HIGH_TOP5* firms has reduced after Say-on-Pay implementation.

The estimation result for equation (6) is also shown in Table 6-1. The coefficient on

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HIGH_DED is not significant, suggesting that the CD&A readability of *HIGH_DED* firm is not significantly different from that of firms with low dedicated institutional ownership in the pre-SOP period. The coefficient on *POST* is positive and significant (Coefficient = 0.322; t-statistics = 2.14), indicating that the CD&A readability of firms with low dedicated institutional ownership has reduced in the post-SOP period compared with the pre-SOP period. More interestingly, the coefficient on the interaction between *HIGH_DED* and *POST* is positive and significant (Coefficient = 0.599; t-statistics = 1.98), meaning that the CD&A readability of *HIGH_DED* firms has also decreased after the implementation of Say-on-Pay, and the magnitude of decrease in CD&A readability in high dedicated firms is greater than that of firms with low dedicated institutional ownership.

Taken together, the above results suggest that the sophisticated institutional investors with important voting blocs and long-term investment horizons might demand more information on the CD&A section to facilitate their assessment of firms' compensation policies for voting purpose. This might contribute to the decreasing CD&A readability after the implementation of Say-on-Pay.

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Table 6-1

Regressions of CD&A readability factor score- High versus Low Top 5 and Dedicated Institutional Ownership

Equation (5)		**Equation (6)**	
Variable	READ	Variable	READ
HIGH_TOP5	0.040	HIGH_DED	0.300
	(0.16)		(1.03)
POST	0.128	POST	0.322**
	(0.73)		(2.14)
POST*HIGH_TOP5	0.511*	POST*HIGH_DED	0.599**
	(1.87)		(1.98)
OVERPAID	0.442	OVERPAID	0.486
	(1.00)		(1.08)
UNDERPAID	0.015	UNDERPAID	0.015
	(0.87)		(0.83)
PPS	-0.011	PPS	-0.012
	(-1.35)		(-1.51)
SIZE	-0.141	SIZE	-0.162
	(-1.05)		(-1.19)
MTB	-0.014	MTB	-0.009
	(-0.43)		(-0.29)
SEGMENT	-0.058	SEGMENT	-0.083
	(-0.28)		(-0.41)
FIRM_AGE	-0.036***	FIRM_AGE	-0.036***
	(-4.08)		(-4.12)
INDUSTRY	Y	INDUSTRY	Y
INTERCEPT	2.585**	INTERCEPT	2.807**
	(2.03)		(2.20)
N	1098		1098
adj. R^2	0.299		0.299

t statistics in parentheses. * p<0.1, ** p<0.05, *** p<0.01. See Table 4-3 for variables definition.

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7. Conclusion

My study investigates the relationship between Say-on-Pay implementation and CD&A readability. My results are summarized as follows. First, I find that on average, the CD&A section is difficult to read, requiring readers with at least college degrees to understand. In addition, I find that on average, companies' CD&A section on the proxy statement has become more difficult to read after Say-on-Pay regulations. Moreover, there is an increasing trend in the difficulty of CD&A readability throughout my sample years from 2007 to 2014, excluding 2010 and 2011. In recent years, Dodd-Frank Act requires companies to disclose more information about executive compensation policies, which might create information overload problem and make CD&A more difficult to read. Finally, I find that the decrease in CD&A readability is larger in firms with a higher institutional ownership concentration and more dedicated institutional ownership. After Say-on-Pay, shareholders, especially more sophisticated investors, demand more compensation related information to facilitate their assessment of companies' pay policies for making voting decisions, which might contribute to my findings.

My study is not without limitations. The readability analysis program used in this study could not identify figures and charts, so I only obtain the narrative content of CD&A section when analyzing readability measures. While manually gathering the readability

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results for each firm, I find that firms tend to present more charts and figures in recent years. The empirical results could be more thorough and complete if the readability characteristics of charts and tables are obtainable.

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REFERENCE

Armstrong, C.S., Gow, I.D., & Larcker, D.F. (2013) The efficacy of shareholder voting: Evidence from equity compensation plans. ***Journal of Accounting Research*** 51(5), 909-950

Bainbridge, S.M (2011) Dodd-Frank Quack Federal Corporate Governance Round II. ***Minnesota Law Review*** 95, Law-Econ Research Paper No.10-12, 1779-1820

Baker, T.A. (1999) Options reporting and the political costs of CEO pay. ***Journal of Accounting, Auditing and Finance*** 14(2), 125-145

Balsam, S., Boone, J., Liu, H., & Yin, J. (2016) The impact of say-on-pay on executive compensation. ***Journal of Accounting and Public Policy*** 35(2), 162-191

Bebchuk, L.A., Friedman, A.T., & Friedman, W.J. (2007) In: Empowering Shareholders on Executive Compensation: Hearing on H.R. 1257 before the House Committee on Financial Services, 110th Congress Vol.68

Bebchuk, L.A., & Fried, J.M. (2003) Executive compensation as an agency problem. ***Journal of Economic Perspectives*** 17(3), 71-92

Bird, A., & Karolyi, S.A. (2016) Do institutional investors demand public disclosure? ***Review of Financial Studies*** 29(12), 3245-3277

Brunarski, K.R., Campbell, T.C., & Harman, Y.S. (2015) Evidence on the outcome of Say-On-Pay votes: How managers, directors, and shareholders respond. ***Journal of Corporate Finance*** 30, 132-149

Burns, N., & Minnick, K. (2013) Does say-on-pay matter? Evidence from say-on-pay proposals in the United States. ***The Financial Review*** 48(2), 233-258

Bushee, B.J. (2001) Do institutional investors prefer near-term earnings over long-run value? ***Contemporary Accounting Research*** 18(2), 201-246

Bushee, B.J., & Noe, C.F. (2000) Corporate disclosure practices, institutional investors, and stock return volatility. ***Journal of Accounting Research*** 38(1), 171-202

Cai, J., & Walkling, R.A. (2011) Shareholders' say on pay: Does it create value? ***Journal of Financial and Quantitative Analysis*** 46(2), 299-339

doi:10.6342/NTU201701957

Callen, J.L., & Fang, X. (2013) Institutional investor stability and crash risk: monitoring versus short-termism? ***Journal of Banking and Finance*** 37(8), 3047-3063.

Clatworthy, M., & Jones, M.J. (2001) The effect of thematic structure on the variability of annual report readability**.** ***Accounting, Auditing and Accountability Journal*** 14(3), 311-326

Collins, D.W., Gong, G., & Hribar, P. (2003) Investors sophistication and the mispricing of accruals. ***Review of Accounting Studies*** 8(2), 251-276

Conyon, M.J. (2013) Executive compensation and board governance in US firms. ***The Economic Journal*** 124(574), F60-F89

Core, J.E., Holthausen, R.W., & Larcker, D.F. (1999) Corporate governance, chief executive officer compensation and firm performance. ***Journal of Financial Economics*** 51(3), 371-406

Courtis, J.K. (1998) Annual report readability variability: Tests of the obfuscation hypothesis. ***Accounting, Auditing and Accountability Journal*** 11(4), 459-472

Courtis, J.K. (2004) Corporate report obfuscation: Artefact or phenomenon? ***The British Accounting Review*** 36(3), 291-312

Elliott, W.B., Rennekamp, K.M., & White, B.J. (2015) Does concrete language in disclosures increase willingness to invest? ***Review of Accounting Studies*** 20(2), 839-865

Ernst & Young LLP (2014) Disclosure effectiveness: What companies can do now. available at http://www.ey.com/Publication/vwLUAssets/EY-disclosure-effectiveness-what-companies-can-do-now/$FILE/EY-disclosure-effectiveness-what-companies-can-do-now.pdf

Ertimur, Y., Ferri, F, & Maber, D.A. (2012) Reputation penalties for poor monitoring of executive pay: Evidence from option backdating. ***Journal of Financial Economics*** 104(1), 118-144

Ertimur, Y., Ferri, F., & Oesch, D. (2013) Shareholder votes and proxy advisors: Evidence from say on pay. ***Journal of Accounting Research*** 51(5), 951-996

Ferri, F., & Maber, D.A. (2012) Say on pay votes and CEO compensation: Evidence from UK. ***Review of Finance*** 17(2), 527-563

doi:10.6342/NTU201701957

Hemmings, D., Hodgkinson, L., & Williams, G. (2016) 'Plain English' and Say-on-Pay: Regulatory requirements vs Potential behavioural consequences. available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2825932

Hirshleifer, D., & Teoh, S.H. (2003) Limited attention, information disclosure, and financial reporting**.** ***Journal of Accounting and Economics*** 36(1), 337-386

Jensen, M.C., & Murphy, K.J. (1990) ***The Journal of Political Economy*** 98(2), 225-264

Kaplan, S.N. (2012) Executive compensation and corporate governance in the U.S.: Perceptions, facts and challenges. ***Working paper, University of Chicago***

Kimbro, M.B., & Xu, D. (2016) Shareholders have a say in executive compensation: Evidence from say-on-pay in the United States. ***Journal of Accounting and Public Policy*** 35(1), 19-42

Laksmana, I., Tietz, W., & Yang, Y.W. (2012) Compensation discussion and analysis (CD&A): Readability and management obfuscation. ***Journal of Accounting and Public Policy*** 31(2), 185-203

Larcker, D.F., Ormazabal, G., & Taylor, D.J. (2011) The market reaction to corporate governance regulation. ***Journal of Financial Economics*** 101(2), 431-448

Lawrence, A. (2013) Individual investors and financial disclosure. ***Journal of Accounting and Economics*** 56(1), 130-147

Lehavy, R., Li, F., & Merkley, K. (2011) The effect of annual report readability on analyst following and the properties of their earnings forecasts**.** ***The Accounting Review*** 86(3), 1087-1115

Li, F. (2008) Annual report readability, current earnings, and earnings persistence**.** ***Journal of Accounting and Economics*** 45(2-3), 221-247

Miller, B.P. (2010) The effects of reporting complexity on small and large investor trading. ***The Accounting Review*** 85(6), 2107-2143

Murphy, K.J. (2011) The politics of pay: A legislative history of executive compensation. ***Working paper, University of Southern California***

Murphy, K.J. (2012) Executive compensation: Where we are, and how we got there.

doi:10.6342/NTU201701957

Handbook of the Economics of Finance, in George Constantinides, Milton Harris, and René Stulz, eds.

Rennekamp, K. (2012) Processing fluency and investors' reactions to disclosure readability. ***Journal of Accounting Research*** 50(5), 1319-1354

Robinson, J.R., Xue, Y., & Yu, Y. (2011) Determinants of disclosure noncompliance and the effect of the SEC review: Evidence from the 2006 mandated compensation disclosure regulations. ***The Accounting Review*** 86(4), 1415-1444

Rutherford, B.A. (2003) Obfuscation, textual complexity and the role of regulated narrative accounting disclosure in corporate governance. ***Journal of Management and Governance*** 7(2), 187-210

Say-on-pay and Golden Parachutes Votes (2011) ***Investor Assistance (800) 732-0030*** https://www.sec.gov/investor/alerts/sayonpay.pdf

Securities and Exchange Commission. (1998) A plain English handbook: How to create clear SEC disclosure documents. ***SEC Office of Investor Education and Assistance***, available at https://www.sec.gov/pdf/handbook.pdf

Securities and Exchange Commission. (2003) ***Release No. 34-48108; File Nos. SR-NYSE-2002-46 and SR-NASD-2002-140***. https://www.sec.gov/rules/sro/34-48108.htm

Securities and Exchange Commission. (2006) ***Release No. 33-8765; 34-55009; File No. S7-03-06.*** https://www.sec.gov/rules/final/2006/33-8765.pdf

Sharma, S. (1996) Applied multivariate techniques. ***John Wiley & Sons, Inc, New York.***

Thomas, R.S., & Cotter, J.F. (2007) Shareholder proposals in the new millennium: Shareholder support, board response, and market reaction. ***Journal of Corporate Finance*** 13(2-3), 368-391

U.S. Chamber's Center for Capital Markets Competitiveness (CCMC) (2014) Corporate disclosure effectiveness: Ensuring a balanced system that informs and protects investors and facilitates capital formation. available at http://www.centerforcapitalmarkets.com/wp-content/uploads/2014/07/CCMC_Disclosure_Reform_Final_7-28-20141.pdf

Watts, R.L., & Zimmerman, J.L. (1986) Positive accounting theory. ***Prentice-Hall Inc.***

doi:10.6342/NTU201701957

Zhang, J.L., Lo, K., & Yang, S. (2014) 'Say-on-Pay' votes and compensation practices. available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2377093

doi:10.6342/NTU201701957