

**THREE ESSAYS ON CEO CAREER CONCERNS, MANAGEMENT  
FORECASTS, AND REGULATORY SCRUTINY ON DISCLOSURE  
PRACTICES**

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A dissertation submitted to the  
Graduate School-Newark  
Rutgers, The State University of New Jersey  
in partial fulfillment of requirements  
for the degree of  
Doctor of Philosophy  
Graduate Program in Management

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New Brunswick, New Jersey

May 2019

## **ABSTRACT OF THE DISSERTATION**

### **Three essays on CEO career concerns, management forecasts, and regulatory scrutiny on disclosure practices**

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The dissertation consists of three independent and interrelated essays focusing on CEO career concerns, management forecast characteristics, and regulatory scrutiny on disclosure practices.

The first essay argues that CEOs with career concerns may use a forecast precision strategy to highlight or obfuscate information disclosed in management forecasts. This study suggests that new CEOs are more likely to increase forecast precision when the underlying forecast news is more positive and reduce forecast precision when the news is more negative. Further, the findings suggest that CEOs especially use this approach when the career concern problem is more severe and when there are more opportunities for strategic disclosures.

The second essay investigates the changes in firms' voluntary disclosure of forward-looking information after receiving critical comment letters issued by the Securities and Exchange Commission. The study focuses on revenue recognition comment letters and analyzes several management forecast characteristics. I find that firms tend to issue more management forecasts and supplement earnings forecasts with disaggregated forecasts on other line-items, especially the forecasts for revenue account. I also find that the effect is stronger for negative news forecasts and market reactions to the comment letter release are attenuated if managers provide more frequent and transparent forecasts.

The third essay evaluates the impact of Securities and Exchange Commission disclosure scrutiny on corporate hedging activities. I find that firms' risk exposures decrease after receiving derivatives-related comment letters, possibly indicating hedging efficiency improvements. Further, derivatives comment letter receiver firms are more likely to stop or reduce derivatives usage during the post-letter period. The study adds to the research that examines how SEC regulatory scrutiny on disclosure practices may influence firms' real behaviors.

The first and the second essays respond to the call by Hirst et al. (2008) to extend research on the management forecast attributes. The first essay is also related to the literature that examines the impact of career concerns on managerial behaviors. The second and third essays add to the comment letter literature. I extend the growing research that examines the efficacy of the SEC comment letter review process and its impact on the information environment.

## **ACKNOWLEDGEMENTS**

First and foremost, I would like to express my deepest gratitude to my advisor Dr. Bikki Jaggi, who has been a wonderful mentor and given me tremendous support and guidance during the past five years. His consistent trust and immense encouragement have helped me overcome the most struggling days during my Ph.D. study. He has been a role model for me and his enthusiasm for research is a great motivation for my own pursuit of academic achievements. Words cannot describe how grateful I am to him, and I could not imagine having a better advisor for my Ph.D. study. I'm also grateful to Dr. Li Zhang, Dr. Sarath Bharat, and Dr. Picheng Lee for serving on my committee and contributing their time and efforts to help me improve my dissertation essays.

I also want to express my sincere appreciation and thanks to Dr. Miklos A. Vasarhelyi. He always encouraged me to explore my own interests and potentials and has made academic research enjoyable and inspiring. What I have learnt from him is an invaluable asset that I will cherish forever.

I am grateful to the department chair Dr. Dan Palmon for his generous support and consistent encouragement. I would also like to thank Barbara Jensen for her unfailing support and assistance.

This PhD study would not have been possible without the financial support from China Scholarship Council, Southwestern University of Finance and Economics, and Rutgers Continuous Auditing & Reporting Lab.

And finally, last but by no means least, a special thanks to my family for their unconditional love and trust; to my colleagues and friends: Yue Liu, Xuan Peng, Kristyn Calabrese, and Davis Yehuda, for all the happy times we spent together; and to everyone who has been there for me along the way.

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## **Chapter 1: Introduction**

The dissertation contains three essays. In this section, I provide a general introduction of the background, motivation, and research focus of the dissertation essays. The first essay studies how CEOs address career concerns during their early tenure in firms and argues that CEOs use a forecast precision strategy to highlight or obfuscate information in a way that may help them convey favorable signals to the markets. The second essay investigates the impact of comment letters on management forecast practices. The last essay evaluates the effect of the comment letter review process on firms' hedging activities.

Management forecast is a common channel for managers to communicate with investors. It may contain managers' private information that is informative, value relevant, and useful for the evaluation of firms' future performance and making investment decisions (e.g., Healy and Palepu 1993, 2001; Beyer et al. 2010; Hutton et al. 2012). Extant literature has examined managers' motivation to issue forecasts, yet their decision on forecast attributes is less investigated (Hirst et al., 2008). The forecast characteristics that have especially attracted researchers' attention include forecast/guidance timing (e.g., Tse and Tucker, 2010; Doyle and Magilke, 2012), supplementary forward-looking statements (e.g., Hutton et al., 2003; Hirst, Hoonce, and Venkaraman, 2010), and forecast precision (e.g., Hughes and Pae, 2004; Baginski et al., 2007; Cheng, Luo, and Yue, 2013). The essays in the dissertation add to this line of research by evaluating the impact of CEO career concern on management forecasts precision decisions and investigating how managers alter forecast patterns after they receive important SEC comment letters.

Adverse selection problems associated with the appointment of new CEOs encourage market participants to closely observe CEOs' performance during early years of tenure and update their perceptions on the new CEOs' ability (e.g., Fama 1980; Gibbons

and Murphy 1991). Investors and boards' perceptions during the CEOs' early tenure are likely to play an important role in determining CEOs' future compensation benefits and their continued service within the firm (Gibbons and Murphy 1991). Thus, CEOs have significant career concerns during the early years in the position. The effect of career concerns on managerial behaviors is mixed. Holmstrom (1982, 1999) argues that new CEOs' career concerns may motivate them to work harder during early years of service when markets are still assessing their ability, while Swalm (1966) maintains that managers under career concerns may take actions that are not in the best interest of the shareholders'. Ali and Zhang (2015) document that new CEOs may overstate the reported earnings to meet market expectations, whereas some other studies find that CEOs usually take a big bath immediately after taking over office, attributing the loss to predecessors and taking credit for better performance in subsequent years (e.g., Strong and Meyer 1987; Elliott and Shaw 1988; DeAngelo 1988; Pourciau 1993). However, over- or understatement of earnings are expected to be costly for managers when their earnings manipulations are eventually detected. Similarly, managers may as well choose to hide negative news when they are worried about the consequences of such news. Again, this strategy is not without costs as firms may suffer tremendous litigation and reputation loss when the investors believe managers are intentionally withholding material information. Therefore, this study argues that forecast precision may be a "safer" tool used by CEOs face career concerns to influence market perceptions on their ability.

The second and third essays assess the impact of the SEC comment letters on firms' disclosure practices as well as real activities. After the SOX of 2002, the Division of Corporation Finance in the Security Exchange Committee will selectively review corporate filings to monitor and enhance reporting compliance. Every reporting firms must be

reviewed at least once every three years. The primary task of the SEC Corporation Finance Division is to scrutinize public filers' disclosure practices. Once the SEC's review process determines that the registrant's filing conflicts with applicable accounting standards or is deficient in clarity, they will issue a comment letter to the firm under review. The letter receiver firm can choose to either provide additional information and clarification or agree to revise current or future filings. A large literature has examined the relation between SEC comment letters and changes in subsequent corporate reporting practices (e.g., Cassel et al. 2013; Ettredge, Johnstone, Stone, and Wang 2011; Bens, Cheng, and Neamtiu 2016; Bozanic, Dietrich, and Johnson 2017; Brown, Tian, and Tucker 2017; Johnston and Petacchi 2017). The dissertation extends the research and investigates the consequences of the SEC's comment letter review process on firms' management forecast practices and hedging activities.

The second essay examines the impact of comment letters on management forecast practices. The review process is intended to assess registrants' corporate filing compliance. Its impact on firms' voluntary disclosure of forward-looking information is less examined. It is essential to investigate whether the regulatory scrutiny on corporate filing will encourage, discourage, or have no significant impact on management forecast practices. The essay examines several management forecast characteristics changes before and after firms receive the SEC comment letter. The study aims to help readers better understand the potential costs and benefits of the review process. The findings in this study indicate that firms tend to issue more management forecasts and supplement earnings forecasts with disaggregated forecasts on other line-items, especially the forecasts for revenue account. I also document a stronger effect for negative news forecasts and find that market reactions

to the comment letter release are attenuated if managers provide more frequent and transparent forecasts.

Financial derivatives have been widely used by companies to manage and hedge risks that are not directly related to firms' operations (Bartram et al., 2009). Effective hedging enables firms to reduce earnings and cash flow volatility and minimize risk exposures to macroeconomic turbulences (Zhang, 2009). Some firms, on the other hand, may use financial derivatives for speculative purposes and thus their derivatives usage should not be qualified for hedge accounting. To be designated or qualified for SFAS 133 hedge accounting, firms must provide hedge documentation which supports that the hedged item and hedging instrument have a correlation ratio between 80% and 125%. The major issue identified in derivatives comment letters is whether firms present sufficient evidence to support the qualification of hedge instruments. Effective hedging can potentially reduce tax (Smith and Stulz, 1985; Graham and Rogers, 2003), the likelihood of distress, and the agency costs (Smith and Stulz, 1985; Stulz, 1996), while speculative position will increase the earnings and cash flow volatility as well as firm risk (Geczy, Minton, and Schrand, 2007; Zhang, 2009). Importantly, speculation under the guise of hedging can lead to investors' losses due to information asymmetry. The difficulties for market participants to understand and evaluate firms' derivatives activities primarily originate from both economic and reporting complexity of derivatives, especially when firms generally fail to apply accounting rules consistently and correctly (Kawaller 2004). The second essay intends to examine whether the comment letters addressing derivatives usage disclosure will influence firms' real risk-management behaviors. Overall, I find that firms' risk exposures decrease after receiving derivatives-related comment letters. Furthermore,

derivatives-related letter receiver firms are more likely to stop or reduce derivatives usage in the post-letter period.

The remainder of this dissertation is as follows: chapter two to chapter four contain the three essays. Chapter five summarizes the findings and discusses the limitations as well as potential areas for future research.

## **Chapter 2: CEOs' Career Concerns and Management Earnings**

### **Forecast Precision**

#### **INTRODUCTION**

Literature suggests that management earnings forecasts (MEFs) may contain managers' private information that is value-relevant and useful for investors to assess firms' future performance and make investment decisions (e.g., Healy and Palepu 1993, 2001; Beyer et al. 2010; Hutton et al. 2012). MEFs may reduce information asymmetry, improve stock liquidity, lower cost of capital, and thus enhance firm value (e.g., Diamond and Verrecchia, 1991; Kim and Verrecchia, 1994; Coller and Yohn, 1997; Easley and O'Hara, 2004; Beyer et al. 2010). Extant literature has examined managers' motivation to issue forecasts, yet their decision on forecast characteristics is less investigated (Hirst et al., 2008). Some researchers have especially highlighted the importance of forecast characteristics, such as frequency, timing, accuracy and/or precision of forecasts in assessing the usefulness and informativeness of MEFs (e.g., Kim and Verrecchia, 1991;

Baginski et al., 1993; Baginski et al., 2007; Hribar and Yang, 2015; Pae, Song, and Yi, 2016). For example, Tse et al. (2010) document that managers strategically time negative news forecasts according to the timing of industry peers' forecasts to minimize their responsibility for potential earnings shortfalls. Li and Zhang (2015) argue that managers decide on forecast precision in response to the change in the market's sensitivity to bad news. We extend the research on MEF characteristics and focus on one crucial component: forecast precision. This study argues that CEO career concerns may be one factor that influences the decision on the precision level of earnings forecasts.

Adverse selection problems make it difficult for corporate boards and investors to properly evaluate newly appointed CEOs' potentials to manage the firms effectively (e.g., Holmstrom 1982, 1999; Gibbons and Murphy 1991; Ali and Zhang 2015; Jongjaroenkamol and Laux 2017). This uncertainty encourages the board of directors and investors to keep a close and constant watch over CEOs' performance during their early tenure in the firm to obtain necessary information on their abilities, which may be used to make compensation decisions and determine renewal of contracts, etc. (Gibbons and Murphy 1991). If the CEOs' ability to manage the firm effectively is considered questionable, corporate boards may seriously consider replacing the CEO with better candidates (e.g., Zhang 2008). Thus, newly appointed CEOs generally face higher career concerns than CEOs who have held their positions for a relatively long period. CEOs' career concerns have been examined from different perspectives in the literature. Earlier studies suggest that career concerns may motivate CEOs to work harder to generate a positive impression of their ability (i.e., Holmstrom 1982, 1999). However, Swalm (1996) argues that career concerns may also encourage managers to engage in activities that are not in the shareholders' best interests. Ali and Zhang (2015) find that newly appointed CEOs may overstate the reported earnings

during the first three years of tenure to convey a positive signal on their talent. Alternatively, new CEOs may take an accounting big bath in the first year of their tenure to deal with their career concerns and then take credit for better performance in the subsequent years (e.g., Strong and Meyer 1987; Elliott and Shaw 1988; Pourciau 1993). Baginski et al. (2015) provide evidence that suggests pressured managers may delay bad news disclosure. Recently, Pae et al. (2016) document that CEOs use conservative earnings guidance to deal with career concerns.

However, delaying bad news release or providing biased information to investors may subject to significant costs when the actual performance is revealed and investors feel misguided by managers. Thus, this study argues that CEOs facing career concerns in early tenure are likely to adopt the forecast precision strategy. Hirst et al. (2008) conduct a thorough investigation of different MEF attributes to provide a better understanding of the determinants and consequences of forecasts. They present that managers have a considerable amount of discretion in deciding forecast attributes compared to whether to issue forecast in the first place, yet how managerial incentives interact with various forecast characteristics is not well understood (Hutton et al. 2003; Hirst et al. 2008). Managers have considerable discretion in choosing between a qualitative or quantitative forecast and whether it is a range forecast, point forecast, or open-ended forecast. Prior literature has established that, given the news content, management forecast with higher precision is associated with a stronger market reaction (e.g., Kim and Verrecchia 1991; Baginski et al. 1993; Subramanyam 1996; Baginski et al. 2007; Choi et al., 2010; Cheng et al., 2013). Managers may take advantage of this impact of precision and make strategic forecast decisions when they want to enhance or weaken the market reaction: they will highlight the message contained in the MEFs by issuing the forecasts with higher precision; on the

other hand, they may obfuscate the message with less precise forecasts. Built on the argument that forecast precision may be used by managers to achieve personal goals (e.g., Cheng, Luo, and Yue 2013), we propose that CEOs who face career concerns are also likely to use the forecast precision strategy to enhance the positive impression on their ability to perform effectively. We hypothesize that CEOs facing early tenure career concerns will issue more positive (negative) forecasts with higher (lower) precision compared to CEOs who have been in the position for a more extended period. This strategy enables CEOs to highlight more positive forecast news on their effective performance and moderate reactions to more negative news (Choi et al. 2010; Cheng, Luo, and Yue 2013). Consistent with the existing literature, we use three years as the cutoff of early tenure years to proxy for career concerns (e.g., Finkelstein et al. 1988; Shen and Cannella 2002; Ali and Zhang 2015).

We base this study on a sample of 24,891 quantitative MEFs issued during the 2001-2014 period. We exclude forecasts issued during the period before 2001 because the majority of forecasts issued before 2001 are point forecasts and generally lack variation (Choi et al., 2011). The increase in range forecasts is primarily due to the passage of Regulation Fair Disclosure (Reg FD) in 2000 (Tang, Zarowin, and Zhang 2015). We calculate forecast precision as the difference between low- and high-ends of forecasts divided by the absolute value of mid-point estimate for range forecasts, taking negative values (e.g., Cheng, Luo, and Yue 2013). The point estimates are coded as zero, i.e., having the highest precision. We conduct regression tests to evaluate the association between forecast precision and forecast news by including an interaction variable between CEO early tenure and forecast news and controlling for different factors that may influence forecast precision.



The test results confirm that overall there is a positive association between forecast precision and forecast news and this positive association is more pronounced when forecasts are issued by CEOs during their first three years' tenure in the firm compared to forecasts issued by the CEOs with a longer tenure in the firm. These results thus support our conjecture that CEOs facing career concerns in the early years of their tenure tend to choose forecast precision strategically to convey the desired signals on their performance. Additionally, we examine whether the enforceability of non-compete clauses, which restrict the CEOs' ability to look outside the firm for job opportunities, will have an impact on the strategic use of forecast precision. We argue that CEOs will have a stronger motivation to strategically decide on forecast precision if they operate in areas where the non-compete clause is strictly enforced (Garmaise 2011; Bishara, Martin, and Thomas 2013; Ali et al. 2015). Our findings suggest that the impact of career concerns on the strategic decisions of forecast precision is more pronounced when firms are headquartered in the states with stricter enforcement of the non-compete clauses and there is high industry concentration in the state. Furthermore, the evidence shows that institutional shareholders have a strong influence on CEOs' behavior (e.g., Aghion et al. 2013; Yim 2013; Serfling 2014; Ali et al. 2015; Jalal and Prezas 2012; Jongjaroenkamol and Laux 2017). We also examine the impact of CEOs' age and the source of hiring, i.e., promotion from inside the firm versus outside hiring, on CEOs' behaviors. We expect that the association between forecast precision and early tenure will be stronger when CEOs are young and hired from outside the firm because of higher uncertainty about their capability to perform. The results are generally consistent with our predictions. The results remain unchanged when only quarterly MEFs and different early tenure cutoffs are used in the analyses.

This paper makes the following contributions to the existing literature. First, this study responds to the call by Hirst et al. (2008) and extends research on the management forecast attributes. Whereas other studies have primarily focused on the frequency of management forecasts (e.g., Bergman and Roychowdhury 2007; Pae, Song, and Yi 2016), disaggregation of forecasts (e.g., Hutton et al. 2003; Hirst, Koonce, and Venkataraman 2007), and timing of forecasts (e.g., Tse and Tucker 2010), we focus on the use of forecast precision to deal with CEOs' early tenure career concerns. Our findings add to the recent studies on the use of forecasts precision to achieve managers' self-serving goals (e.g., Cheng, Luo, and Yue 2013).

Second, we extend the literature on the techniques used by CEOs to deal with their career concerns during the early years of service in the firm. Earlier studies have argued that new managers are motivated to work harder during the early years of tenure (e.g., Holmstrom 1982, 1999). Additionally, new CEOs may overstate the reported earnings (e.g., Ali and Zhang 2015), delay bad news disclosure (Hutton et al. 2003; Baginski et al. 2015), provide guidance based on the conservative guidance strategy (Pae et al. 2016), etc. Because of potential litigation and reputation costs associated with biasing the disclosure (e.g., Truman 1986; Cheng, Luo, and Yue 2013; Baik et al. 2011), we argue that managers may consider using MEF precision to deal with their early tenure career concerns.

The rest of the paper is organized as follows: Section 2 reviews the related literature and discusses the hypotheses for this study. The process for obtaining data, the definition of variables, and the methodology used to test our hypotheses, are discussed in section 3 and Section 4. The results are presented in section 5 and additional tests are contained in section 6. Section 7 concludes the study.

## LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

### Literature Review on Forecasts

We review important studies dealing with management forecasts and especially forecast precision as well as CEOs' career concerns to provide background for the study. It is well documented in the literature that management earnings forecasts (MEFs) provide valuable information to investors for evaluation of firms' future performance and investment payoffs (e.g., Healy and Palepu 1993, 2001; Beyer et al. 2010; Hutton et al. 2012).<sup>1</sup> Management earnings forecasts can reduce information asymmetry, improve stock liquidity, lower cost of capital, and enhance firm value (e.g., Diamond and Verrecchia 1991; Kim and Verrecchia 1994; Coller and Yohn 1997; Easley and O'Hara 2004). A large number of studies have examined managers' motivation to issue forecasts. Generally speaking, firms may issue forecasts to communicate private information to investors (e.g., Beyer et al. 2010; Baginski and Rakow Jr. 2012), enhance reputation (Beyer and Dye 2012), or/and to influence market expectations on the firm's future performance (Burgstahler and Eames 2006). Management forecasts may also be issued to reduce potential litigation costs (e.g., Skinner 1994).

Most of the earlier studies on MEFs assumed that specific forecast characteristics were given and treat them as exogeneous variables in analyses (Baginski et al. 2004). Recently, it has been argued that managers have a lot of flexibility on forecast characteristics and these characteristics may reveal valuable information on managerial motivation to issue forecasts voluntarily (e.g., Hirst et al. 2008). To get a better insight into the managerial motivation for issuing MEFs, Hirst et al. (2008) have called on researchers to

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<sup>1</sup> Hutton (2012) has recently pointed out that management forecasts are superior to analysts' forecasts when the firms' actions are less synchronous with other industrial peers.

thoroughly and intensively examine the forecast characteristics. The forecast characteristics that have especially attracted researchers' attention include timing to issue forecast/guidance (e.g. Tse and Tucker 2010; Doyle and Magilke 2012), aggregation and disaggregation of forecasts (Hutton et al. 2003; Hirst, Hoonce, and Venkaraman, 2010), and forecast precision (Cheng, Luo, and Yue 2013).

Forecast precision can reflect managers' belief about the future (King et al. 1990). When managers are more certain about their estimate of the future, they issue more precise forecasts (Hughes and Pae 2004). Ajinkya et al. (2005) report that firms with large institutional ownership and a high percentage of outside directors generally provide more precise MEFs. Baginski et al. (2007), who has conducted a comparative examination of U.S. and Canadian firms, have reported that the legal environment also has a significant influence on forecast precision. Firms in a stricter legal environment tend to issue less precise forecasts (also see Bamber and Cheon 1998). The importance of forecast precision to investors is emphasized by Kim and Verrecchia (1991), who present the theoretical argument that market reaction is stronger to more precise information. Their argument is supported by the empirical findings that suggest more precise forecasts are associated with larger market impact (e.g., Baginski, Conrad, and Hassell 1993; Baginski, Hassell, and Wieland 2007; Choi et al., 2010). However, while precise forecasts can potentially trigger strong market reactions and even increase disclosure credibility, they may eventually backfire because precise forecasts, i.e., a narrow forecast range, are more likely to be inaccurate when the actual earnings are realized. Skinner (1994) suggests that managers mainly issue good news in order to convey positive performance signals and disclose bad news to avoid future litigation costs. The argument implies that when the underlying news is positive, the benefits of providing precise forecasts are larger than when the forecast

news is negative, as managers generally prefer to highlight positive information but mitigate negative market reactions. The asymmetric loss function between good and bad news may contribute to different disclosure policies such that overall more positive forecasts are associated with higher precision than negative forecasts (Graham et al. 2007; Choi et al. 2010; Cheng et al., 2013). Furthermore, Li and Zhang (2015) and Cheng et al. (2013) argue that CEOs are generally cognizant of investors' reaction towards different forecast precision levels, and thus they are motivated to make strategic decisions on forecast precision in a way that will influence investors' reaction in the desired direction.

### **Literature Review on CEOs' Early Career Concerns**

It is argued in the literature that adverse selection problems associated with the appointment of new CEOs encourage market participants to observe CEOs' performance to update perceptions on their ability, especially during early years of their tenure (e.g., Fama 1980; Gibbons and Murphy 1991). Zhang (2008) presents that corporate boards and investors can obtain information on new CEOs' ability by observing how they apply their knowledge and skills in developing strategic plans, executing their plans, and dealing with firms' dynamics. Evaluations during the CEOs' early tenure are likely to play an important role in their compensation decisions and CEOs' continued service with the firm (Gibbons and Murphy 1991). If new CEOs are perceived to have a low ability and unable to deal with the firm's problems effectively, they are not likely to stay in the firm for too long. Consistent with this view, Ali and Zhang (2015) find that the median (average) tenure of a CEO is only 6 (8) years. It is critical for CEOs to convey a positive message on their ability to perform during the early years in the position.

Holmstrom (1982, 1999) developed an analytical model to show that new CEOs' career concerns may motivate them to work harder during the early years of their service when markets are still assessing their ability. However, Swalm (1966) argues that managers, under career concerns, may take actions that may cause more agency problems. For example, Ali and Zhang (2015) document that new CEOs may overstate the reported earnings to meet market expectations, whereas some other studies find that CEOs may take a big bath immediately after taking over office and attribute the loss to predecessors, and then take credit for better performance in subsequent years (e.g., Strong and Meyer 1987; Elliott and Shaw 1988; DeAngelo 1988; Pourciau 1993). It can, however, be argued that over- or understatement of earnings are expected to be costly for new managers when their earnings manipulations are detected. Therefore, we argue in this study that career concerns can also motivate new CEOs to use a “safe” strategy to deal with their early career concerns in the firm.

### **Hypotheses Development**

In this study, we present that CEOs who face career concerns will be motivated to make a strategic decision on the degree of precision. They are likely to choose forecast precision strategically to highlight the positive news and obfuscate the negative news. Our argument is built on the literature that CEOs use MEFs to achieve self-serving goals (e.g., Cheng and Lo 2006; Cheng, Luo, and Yue 2013). We present that management forecast precision can be used to achieve CEOs' self-serving goal of addressing career concerns during the early years of their tenure in the firms.

We conjecture that new CEOs' perceptions of the benefits and costs of the forecast precision choice will be influenced by the presence of career concerns. For forecasts with more positive news content, the benefits of providing more precise forecast are larger for

new CEOs if they send favorable signals to the markets, compared to CEOs who have a relatively stable career outlook. In the meanwhile, the costs of more precise forecasts are also lower because, if the true realizations do not turn out as predicted, new CEOs may attribute the inaccurate forecasts to the uncertainty associated with the events that lead to the CEO turnover process. On the other hand, it is more costly for new CEOs to issue more precise negative news forecasts which will lead to a strong negative market reaction. The board and investors who are closely evaluating the new CEOs' ability will immediately take it as a negative signal. Taken together, the net benefits (costs) of providing precise positive (negative) forecasts are higher for new CEOs compared with other CEOs. Therefore, we propose that new CEOs use a forecast precision strategy to impress the board of directors and investors, sending signals about their ability to manage the firm effectively. Specifically, we predict that the positive association between forecast news and forecast precision will be stronger for forecasts issued by CEOs during early tenure in the firms compared to CEOs who have stayed longer in the firm. Following Cheng et al. (2013), we take into account both the sign and magnitude of the news because they may jointly influence managers' forecast precision decisions. We develop the following hypothesis to test the link between CEOs' early career concerns and forecast precision:

**H1:** *The positive association between MEF precision and forecast news is stronger for MEFs issued by CEOs during early tenure years compared to the MEFs issued by CEOs with a longer tenure in the firm.*

Consistent with earlier studies, a period of three years from the start of the service in the CEO position is considered as the threshold for early and longer tenure (Finkelstein et al. 1988; Shen and Cannella 2002; Ali and Zhang 2015).

CEOs' employment contracts generally contain a non-compete clause, which prohibits them from working for a competitor (or establish a start-up) for a stated period after they leave the company (e.g., Gramaise 2011; Bishara, Martin, and Thomas 2013). Even though the non-compete clauses are commonly included in the contracts, their enforceability varies significantly across the states (Gramaise 2011) and only strict enforceability of this clause influences managerial behavior (e.g., Ali et al. 2015). Because new CEOs are under intense scrutiny from the board and investors, they will get fired if they fail to show extraordinary capabilities. Thus, the strict enforcement of non-compete clauses enhances new CEOs' motivations to send positive signals on their abilities so that they can keep the job. It is further argued in the literature that non-compete agreement will be more influential when, in addition to strict enforceability, there is high industry concentration in the state where the CEO is working (e.g., Gramaise 2011; Ali et al. 2015). Because non-compete enforcement is generally enforced within a state or part of a state (Gramaise 2011), managers can avoid triggering the enforcement of clause by finding jobs in another state. However, when the industry concentration is high in the current state and there are few firms in the same industry located outside this state, managers may have difficulties finding a similar job (Ali et al., 2015). In this situation, CEOs are likely to take their career concerns even more seriously and thus their motivation to send a forecast precision strategy to send favorable signals to the board and investors is strong. We expect the new CEOs to be more concerned about job opportunities when the non-compete agreement has high enforceability and the in-state industry concentration is high. We develop the following hypothesis to test this expectation:

**H2:** *The impact of early tenure career concerns on MEF precision is more pronounced when firms are headquartered in the states with stricter*



*enforceability of the non-compete clause and high in-state industry concentration at the same time.*

The impact of large institutional shareholdings of a firm is well recognized in the literature (e.g., Aghion et al. 2013; Yim 2013; Serfling 2014; Ali et al. 2015; Jalal and Prezas 2012; Jongjaroenkamol and Laux 2017). It is argued that large institutional shareholdings generally have a dampening effect on the managerial use of forecasts to portray their ability to manage the company effectively because institutional shareholders have other resources to collect information on managerial skills. Bushee and Noe (2000) and Healy and Palepu (2001) claim that institutional shareholders usually attend conference calls and collect firm-specific information from various sources, which enables them to evaluate managers' performance more effectively. Thus, large institutional shareholdings will mitigate the motivation for CEOs to use the strategic forecast precision strategy to convey information on their ability. In other words, the net benefits of using the forecast precision strategy decrease when there are large institutional shareholdings. Thus, we present the following hypothesis:

**H3:** *The impact of early tenure career concerns on the association between forecast precision and forecast news is more pronounced in firms with low institutional shareholdings compared to firms with high institutional shareholdings.*

CEOs' age is also expected to impact their behavior, including their decision on forecast precision to deal with career concerns. According to Dai et al. (2015), markets are more likely to be uncertain about CEOs' ability when they are young and less experienced, which may expose them to comparatively higher monitoring by corporate boards and investors. Older CEOs, usually more experience, will show some track record which can

be used by the board members and investors to evaluate their potential for working effectively. Consequently, old CEOs are not likely to be watched as intensively as young CEOs (e.g., Dai et al. 2015). In addition, young CEOs generally have “more at stake” because their future benefits will largely depend on their current performance. These arguments thus suggest that younger CEOs are more likely to issue forecasts strategically compared to older CEOs to signal their ability, and we test this expectation on the following hypothesis:

**H4:** *The impact of early tenure career concerns on the association between forecast precision and forecast news is more pronounced when CEOs are young compared to older CEOs.*

The use of forecast precision by CEOs in the early years of service may also depend on whether they are promoted from within the firm or they are hired from outside the firm. We argue that managers promoted from within the firm are less likely to be affected by the adverse selection problems associated with CEO appointment compared to CEOs hired from outside. The ability and the leadership style of inside CEOs are well known to the board members and investors. On the other hand, the board of directors and investors have little knowledge about CEOs’ performance in the firm if they are hired from outside the firm and it will take some time for board members and investors to learn the new CEOs’ philosophy and management style. Consequently, the CEOs promoted from inside the firm will be less motivated to impress investors and board directors, whereas the CEOs hired from outside the firm face higher career concerns and they will have stronger incentives to use forecast precision to signal their capabilities to manage the firm effectively. This argument leads us to develop the following hypothesis:

**H5:** *The impact of early tenure career concerns on the association between forecast precision and forecast news is more pronounced when CEOs are hired from outside the firm compared to those promoted from inside the firm.*

## RESEARCH DESIGN

Consistent with the existing literature, we first use the following regression model to examine the association between precision (*Precision*) and forecast news (*News*) by controlling the effect of other factors that influence forecast precision (e.g., Baginski and Hassell 1997; Skinner 1994; Ajinkya et al. 2005).

$$Precision = \beta_0 + \beta_1 News + \sum_l \beta_{4,l} Control Variable_l + \epsilon \quad (1)$$

We then include *News* and *Early* as well as their interaction term in the above model to evaluate the impact of CEOs' early tenure on the association between precision and forecast news to evaluate the difference in management strategies on forecast precision when CEOs are facing career concerns (Equation 2). The variable *Early* is coded as 1 when the forecast is issued by CEOs during the first three years of their tenure, and 0 otherwise. If the coefficient of the interaction term is positive, it would mean that the positive association between *News* and *Precision* is stronger.

$$Precision = \beta_0 + \beta_1 News + \beta_2 Early + \beta_3 (Early * News) + \sum_l \beta_{4,l} Control Variable_l + \epsilon \quad (2)$$

The forecast precision is represented by the negative value of the difference between the lower and upper ends of forecasts, divided by the absolute value of mid-point estimate. We set the forecast precision as 0 for the point forecasts. The forecast precision measure increases as the forecast range decreases. Forecast news is calculated as the difference between the forecast mid-point and analyst consensus forecast divided by the mid-point estimate, where the analyst consensus is the median value of analyst forecasts

issued during the 90-day window before the announcement of management forecast (e.g., Cheng, Luo, and Yue 2013). We use only the latest forecast for each analyst during this period. As reported in Table 3, the majority of earnings forecasts contain bad news, consistent with the findings of prior studies (e.g., Cheng and Lo 2006; Choi et al. 2010; Cheng, Luo, and Yue 2013). Prior research suggests that three years is a proper cutoff to examine executives' early survival prospects (e.g., Shen and Cannella, 2002; Finkelstein et al., 1988; Ali and Zhang, 2015), which is half of the sample median value of CEOs' stay in their positions is six years. In sensitivity tests, we also apply two years and four years as the cutoff points and find qualitatively similar results.

We include a set of control variables based on the existing literature (e.g., Baginski and Hassell 1997; Skinner 1994; Ajinkya et al. 2005; Cheng, Luo, and Yue 2013). We first control for information uncertainty with *Loss* (an indicator variable), which is equal to 1 if actual earnings are negative and 0 otherwise, research and development expenditure (*R&D*), and analyst dispersion (*Dispersion*). We also control information demand with firm size (*LnSize*), market-to-book (*MTB*), institutional ownership (*InstOwn*), analyst coverage (*LnAnalyst*), and annual forecast indicator (*Annual*). Prior research suggests that information demand is higher for larger firms, firms with more growth opportunities, and firms with higher institutional ownership and analyst following (e.g., Baginski and Hassell 1997; Ajinkya et al. 2005; Cheng, Luo, and Yue 2013). We expect positive coefficients for the variables that capture information demand and negative for the variables capturing information uncertainty (e.g., Rogers and Stocken 2005; Cheng, Luo, and Yue 2013). We also include industry and year fixed effects to control for the inter-temporal variation and industry effects to account for omitted industry characteristics that may affect the results.

## DATA AND DESCRIPTIVE STATISTICS

### Data

We obtain management forecast data from the First Call Management Guidance database, analyst forecast data from I/B/E/S, and institutional ownership data from 13f filings. The CEO data are extracted from Execucomp, financial data from Compustat, and stock return data from CRSP. We focus on forecasts issued on a voluntary basis and exclude forecasts issued after the corresponding fiscal period-end because those pre-announcement forecasts are mandated to be furnished to the SEC (Cheng, Luo, and Yue 2013). If both annual and quarterly forecasts are issued on the same day, we keep only quarterly forecasts because on average quarterly forecasts<sup>2</sup> have a larger effect than concurrent annual forecasts (e.g., Pownall et al. 1993; Baginski et al. 1993; Cheng, Luo, and Yue 2013). Consistent with the forecast precision literature, we focus on the range and point forecasts because the majority of MEFs are issued either regarding points or ranges and their forecast news is well defined (e.g., Cheng, Luo, and Yue 2013; Li and Zhang 2015). We further delete observations without sufficient data on control variables in other databases. The final sample covers the period from 2001 to 2015 and contains 24,891 observations for the primary analyses.

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**Table 2. 1 Sample selection reconciliation**

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	# of observations
First Call data on management earnings forecasts from the 2001-2015 period	120279
Less:	
Earnings Preannouncement and multiple forecasts on the same day	(32182)
Observations without sufficient data from Compustat, CRSP, and Execucomp	(63206)
Final sample of observations	24891

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<sup>2</sup> We also conduct sensitivity tests on quarterly forecasts and do not find any change in the results.

## Descriptive Statistics

In panel A of Table 2, we report descriptive statistics on the test and control variables. The mean (median) of forecast precision is -0.13 (-0.061), with a standard deviation of 0.269, indicating a relatively large variation in management forecast precision. We create an indicator variable *Early* to identify the forecasts issued by CEOs with early tenure; the variable *Early* is coded as 1 when CEOs issuing the forecast are in the first three years of their tenure and 0 otherwise. The period of 3 years, which is half of the mean tenure, for early tenure seems to be reasonable and is consistent with prior research (e.g., Shen and Cannella 2002; Finkelstein et al. 1988; Ali and Zhang 2015). The mean of *Early* variable is 0.386, suggesting that around 39% of observations are associated with CEOs with early tenure.

Descriptive statistics on control variables show that average firm size is 9050.12 (in millions of dollars); the average analyst following is 8.18, average institutional ownership is 78.2%, and average market-to-book value is 3.179. The average analyst dispersion is 0.049 and the sample firms spent 0.8% of the value of assets on research and developments. In panel B, we provide distribution of management forecasts. As reported in the table, forecasts with positive news are 30.58%, whereas forecasts with negative news are 69.42% (neutral news forecasts are excluded from this analysis), consistent prior studies that managers issue negative news more frequently (e.g., Cheng and Lo 2006; Cheng, Luo, and Yue 2013). Panel C of Table 2 presents the correlation results. The results show that overall the variable *Early* is negatively associated with precision. This is not surprising because new CEOs may have less information available compared to those who have served in the position for a longer period. Moreover, executives' succession may also introduce some uncertainty to the information environment.

**Table 2. 2 Descriptive Statistics and Distribution of Management Forecasts**

<b>Panel A: Descriptive statistics</b>						
	Mean	Median	Std. Dev.	Obs		
<b>Main Variables</b>						
Precision	-0.1335	-0.0606	0.2697	24891		
News	-0.3014	-0.0164	0.8505	24891		
Early	0.3860	0	0.4868	24891		
<b>Other Variables</b>						
Size	9070.7350	2332.6670	25897.8900	24891		
M/B	3.1792	2.3053	3.1364	24891		
Loss	0.1138	0	0.3176	24891		
Firm Age	26.1808	19	18.0190	24891		
Return Volatility	0.0245	0.0219	0.0116	24891		
Analyst Dispersion	0.0490	0.0283	0.0631	24891		
Analyst Coverage	9.1857	7	6.2836	24891		
CEO Age	55.3439	55	7.0047	24891		
Forecast Horizon	255.5872	177	240.6968	24891		
R&D	0.0080	0	0.0134	24891		
Institutional Ownership	0.7819	0.7990	0.1794	24891		
AbsError	0.3853	0.0933	0.7191	24891		
<b>Panel B: Distribution of Management Forecasts</b>						
	All Forecasts		Forecasts issued during the first three years of CEO tenure		Forecasts issued after the first three years of CEO tenure	
	n	%	n	%	n	%
Positive News Forecasts	6,897	30.58%	2,805	32.25%	4,092	29.53%
Negative News Forecasts	15,659	69.42%	5,893	67.75%	9,766	70.47%
Total	22,556	100%	8,698	100%	13,858	100%

Panel A in the table provides descriptive statistics on main variables in our analysis. The sample contains 25341 management forecasts issued during 1994-2014. Panel B presents the distribution of the management forecasts according to their news contained.

## RESULTS

### Association between forecast precision, forecast news, and CEOs' early tenure

First, we examine the association between forecast precision and forecast news. The results are presented in Table 4. The results contained in columns 1 & 2 of Table 3 show that the coefficient of forecast news is positive and statistically significant at the 1% level, indicating that forecast precision is high when forecast news is more positive and vice versa. This result is consistent with earlier studies suggesting that on average forecasts containing more positive news are more precise (e.g., Skinner 1994; Choi et al. 2010; Cheng, Luo, and Yue 2013).

In order to test the impact of CEOs' early tenure on the association between forecast precision and forecast news (**H1**), we add an indicator variable *Early* and its interaction with *News* (*News\*Early*) in the equation. If there is a strengthening effect, the coefficient of the interaction term is expected to be positive. The results are reported in columns 3 and 4 of Table 4. The coefficient for *Early* is negative and significant (coefficient = -0.026; p=0.000), indicating that on average new CEOs issue less precise forecasts, presumably due to the uncertainty that follows the CEOs' turnovers and also because some new CEOs may lack experience and knowledge of the new position. The coefficient of the interaction term (*Early\*News*) is positive and statistically significant (coefficient =0.019; p=0.020), and the coefficient of the *News* variable remains significantly positive. These results thus indicate that the positive association between forecast news and forecast precision is stronger when MEFs are issued by CEOs in the early years of their tenure. This finding is consistent with **H1** and provides support to our argument that CEOs in early years of their



tenure in a firm issue more positive (negative) forecasts with higher (lower) precision to enhance market reaction to better news and mitigate the impact of a negative message.

**Table 2. 3 Regression test results on the association between forecast precision, forecast news, and early tenure**

Variable	Pre. Sign	1			2			3			4		
		Coeff	p-value	***	Coeff	p-value	***	Coeff	p-value	***	Coeff	p-value	***
Intercept	?	-0.192	0.002	***	-0.049	0.442							
News	+	0.059	0.000	***	0.052	0.000	***						
Early	-				-0.026	0.000	***						
<b>News*Early</b>	+				<b>0.019</b>	<b>0.020</b>	<b>**</b>						
LnSize	+	0.027	0.000	***	0.027	0.000	***						
LnAge	?	0.017	0.201		-0.017	0.205							
LnFirmAge	?	-0.017	0.000	***	-0.016	0.000	***						
MTB	+	0.005	0.000	***	0.004	0.000	***						
EarnVola	-	-0.556	0.000	***	-0.508	0.001	***						
RetVolatility	-	-3.623	0.000	***	-3.618	0.000	***						
InstOwn	+	0.090	0.000	***	0.091	0.000	***						
LnAnalyst	+	0.003	0.107		0.002	0.197							
Loss	-	-0.143	0.000	***	-0.142	0.000	***						
Annual	+	0.088	0.000	***	0.090	0.000	***						
Dispersion	-	-0.079	0.006	***	-0.077	0.004	***						
R&D	-	-1.012	0.000	***	-1.055	0.000	***						
Horizon	-	-0.011	0.000	***	-0.011	0.000	***						
Ind. Fixed								Yes				Yes	
Year Fixed								Yes				Yes	
Adj. R <sup>2</sup>		22.16%							22.53%				
No. of obs		24891							24891				

This table reports the regression results of the impact of early tenure on the relation between forecast precision and forecast news. We estimate the regression based on 24891 management forecasts issued during 1995-2014; p-values are based on one-sided tests for the coefficients with predicted signs and two-tailed tests for other coefficients. We use robust standard errors to calculate p-values and \*\*\*, \*\*, \* indicate significance at 1%, 5%, and 10% levels, respectively. Variable definitions are in Appendix A.

The regression results are estimated from the following model:

$$Precision = \beta_0 + \beta_1 News + \beta_2 EarlyTenure + \beta_3 EarlyTenure * News + \delta Control Variables + \epsilon$$

In order to test the impact of CEOs' early tenure on the association between forecast precision and forecast news (**H1**), we add an indicator variable *Early* and its interaction with *News* (*News\*Early*) in the equation. If there is a strengthening effect, the coefficient of the interaction term is expected to be positive. The results are reported in columns 3 and 4 in Table 4. The coefficient for *Early* is negative and significant (coefficient = -0.026;  $p=0.000$ ), indicating that on average new CEOs issue less precise forecasts, presumably due to the uncertainty that follows the CEOs' turnovers and also because some new CEOs may lack experience and knowledge of the new position. The coefficient of the interaction term (*Early\*News*) is positive and statistically significant (coefficient = 0.019;  $p=0.020$ ), and the coefficient of the *News* variable remains significantly positive. These results thus indicate that the positive association between forecast news and forecast precision is stronger when MEFs are issued by CEOs in the early years of their tenure. This finding is consistent with **H1** and provides support to our argument that CEOs in early years of their tenure in a firm use the strategy of issuing more positive (negative) forecasts with higher (lower) precision to encourage stronger market reaction to better news and mitigate the impact of a negative message.

The results of the control variables are mostly in the expected direction. *Precision* is positively associated with firm size, market to book value, institutional shareholding, annual forecast indicator, and all coefficients for these variables except CEO age (*LnFirmAge*) are statistically significant. On the other hand, *Precision* is negatively associated with earnings volatility, returns volatility, loss, and dispersion among analysts and all coefficients are statistically significant. The variable of manager age (*LnAge*) is positive when variable *Early* and its interaction *News* are not included in the equation; this variable becomes significantly negative when the *Early* variable and its interaction are

included in the analyses. Firms that are younger, smaller, or have more volatile returns tend to issue less precise forecasts. *Precision* is also low for firms when dispersion among analysts is high or when firms suffer losses. The results on R&D show that firms issue less precise forecasts when R&D expenditures are high. Overall the results on control variables show that forecast precision is low when the information environment is uncertain and high when the demand for information is high.

### **Impact of Enforcement of Non-compete Clause and In-state Industry Concentration**

We next examine the impact of a non-compete clause on the association between forecast precision and forecast news. Following the suggestions in prior literature, we evaluate the joint effect of enforceability of non-compete clause and industry concentration in the state by an index that combines the level of non-compete enforceability and in-state industry concentration (e.g., Ali et al. 2015; Garmaise 2011). A lower industry concentration in the current states reflects availability for similar jobs in other states (Malsberger 2004; Garmaise 2011). For classification of more and less strict compliance, we use the medium of compliance score, which is developed by Garmaise (2011) and used by other studies (e.g., Ali et al. 2015). By the degree of enforcement, Garmaise (2011) assigns scores ranging from 0 to 9 to each state, where higher scores indicate higher enforceability of the non-compete clause and vice versa. The Garmaise index is developed based on data up to the year 2004. As the enforceability of non-compete is sticky throughout years, we assume that these scores are also valid for the period of this study. We define the *ConcernScore* index as the product of non-compete enforceability score and an in-state industry concentration proxy, which is calculated by the number of firms in the state divided by the number of firms in the industry nationwide (e.g., Ali et al. 2015). The high score represents a higher joint effect of non-compete clause enforceability and

industry concentration, and vice versa. Observations with *ConcernScore* higher than the median value are assigned a value of 1 for the variable *Clause* and 0 otherwise. We first divide the samples into two groups by whether the forecasts are issued by early tenure CEOs and investigate the impact of the non-compete clause on new CEOs and other CEOs. Next, we split the sample into the groups of firms with headquarters in the states with stricter compliance of the non-compete clause and firms with headquarters in the states with less strict compliance.

The results reported in Table 2.4 suggest the enforcement of non-compete clause has a negative impact on the forecast precision level in general, as indicated by the negative coefficient of *Clause* in Column 1 and Column 2 in Panel A, presumably because the enforceability of non-compete clause makes it costly to provide very precise forecasts. Interestingly, the interaction term between *Clause* and *News* is positive for new CEOs but negative for CEOs who have stayed in the position for a longer period. This is perhaps because the enforceability of non-compete clause motivates new CEOs to signal their ability so that they can stay in the position for a longer period. On the other hand, senior CEOs, who are less concerned about losing the job, find it hard to “cash out” their performance when the enforceability of non-complete is strict and they reduce the precision of positive forecasts in this case. Consequently, the benefits of using the forecast precision strategy to send favorable signals are smaller than the costs, leading to our findings in Panel A Column 2. We further show in Panel B that the coefficient of the interaction term (*News* × *Early*) is significantly positive for the subsample with high *ConcernScore* (coefficient = 0.047; p-value = 0.000) and it is insignificant for the subsample with low *ConcernScore* (coefficient = -0.015; p-value=0.279). The difference is significant (coefficient = 0.062; p-value = 0.006). Consistent with our prediction, the results indicate

that the impact of CEOs' early tenure on the association between forecast precision and forecast news is stronger when CEOs are working in the states with higher joint effect of enforceability and industry concentration. This finding thus confirms that strong career concerns will encourage the CEOs to convey more positive signals on their performance.

**Table 2. 4 Regression results of the joint impact of non-compete clause enforceability and in-state industry concentration on the association between forecast precision, forecast news, and early tenure**

<b>Panel A</b>									
Management forecasts issued by CEOs during the early tenure				Management forecasts issued by CEOs who stay in the position for a longer period					
		1		2		3		4	
Variable		Coeff	p-value			Coeff	p-value		
Intercept		-0.117	0.000	***		-0.098	0.000	***	
Clause		-0.013	0.037	**		-0.018	0.000	***	
News		0.057	0.000	***		0.070	0.000	***	
<b>News*Clause</b>		0.042	0.014	**		-0.029	0.011	**	
Adjusted R-squared			5.09%				3.64%		
No. of observations			9607				15275		

<b>Panel B</b>									
Higher Non-compete enforceability and greater in-state competition				Lower Non-compete enforceability and greater in-state competition					
		1		2		3		4	
Variable	Pre. Sign	Coeff	p-value			Coeff	p-value		
Intercept	?	0.233	0.003	***		-0.434	0.000	***	
Early	-	-0.027	0.000	***		-0.027	0.000	***	
News	+	0.039	0.000	***		0.067	0.000	***	
<b>News*Early</b>	?	0.047	0.000	***		-0.015	0.279		
LnSize	+	0.027	0.000	***		0.023	0.000	***	
LnAge	?	-0.091	0.000	***		0.08	0.000	***	
LnFirmAge	?	-0.013	0.000	***		-0.018	0.000	***	
MTB	+	0.004	0.000	***		0.006	0.000	***	
EarnVola	-	-0.526	0.010	***		-0.367	0.054	*	
RetVola	-	-4.209	0.000	***		-3.238	0.000	***	

InstOwn	+	0.133	0.000	***	0.046	0.002	***
LnAnalyst	+	-0.004	0.911		0.01	0.997	
Loss	-	-0.145	0.000	***	-0.143	0.000	***
Annual	+	0.096	0.000	***	0.087	0.000	***
Dispersion	-	-0.14	0.000	***	-0.102	0.008	***
R&D	-	-0.895	0.000	***	-1.777	0.000	***
Horizon	-	-0.014	0.000	***	-0.007	0.007	***
Ind. Fixed Effects			Yes			Yes	
Year Fixed Effects			Yes			Yes	
Coeff. Difference					0.062		
p-value					0.002		
Adjusted R-squared			21.26%			21.41%	
No. of observations			14079			10803	

---

This table reports the regression results for the joint impact of non-compete clause enforceability and in-state competition on the association between forecast precision, forecast news, and early tenure. We partition the sample based on the ConcernScore, the product of enforceability score (Garmaise 2011) and the in-state competition. Column 1 to 4 reports the regression results for observations with high ConcernScores and column 5 to 8 reports the observations with lower than median ConcernScores; p-values are based on one-sided tests for coefficients with predicted signs and two-tailed tests for other coefficients. We use robust standard errors to calculate p-values and \*\*\*, \*\*, \* indicate significance at 1%, 5%, and 10% levels, respectively. Variable definitions are in Appendix A.

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## Impact of Institutional Shareholdings

We test the impact of institutional shareholdings by splitting the sample into two groups of high and low institutional shareholdings based on the median value of institutional shareholdings of the total sample. Firms that have institutional shareholdings higher than the median value has *HighInst* equal to 1, and 0 otherwise. We conduct tests on the subsamples separately. The results of these tests are presented in Table 2.5.

In Panel A, we evaluate the effect of large institutional shareholdings on new CEOs and senior CEOs samples. The results show that the large institutional ownership does not encourage new CEOs to adopt the forecast precision strategy, as indicated by the insignificant interaction term between *News* and *HighInst*. This result is consistent with our argument that the existence of large institutional shareholders reduces the benefits of

signaling new CEOs' ability through strategic disclosure. The results also suggest that senior CEOs generally provide more precise forecasts when there is high institutional shareholding, consistent with Ajinkya et al. (2005) that the institutional shareholders' intense monitoring attributes to higher forecast precision. In Panel B, the results on the subsample with higher institutional shareholdings show that the coefficient of the interaction term between *News* and *Early* is positive but insignificant (coefficient = 0.005; p-value = 0.703), whereas it is positive and statistically significant for firms with low institutional shareholdings (coefficient = 0.032; p-value = 0.018). The results thus indicate that the impact of early tenure on the association between forecast news and forecast precision is stronger when firms have comparatively low institutional shareholdings. This finding is consistent with **H3** that CEOs are more likely to choose precision for forecast strategically when institutional shareholdings are low. This evidence provides further supports to the argument that institutional investors, who are sophisticated participants in the financial markets, can obtain information from other sources to better evaluate managerial ability (e.g., Bushee and Noe 2000; Aghion et al. 2013).

**Table 2. 5 Regression results for the impact of institutional ownership on the association between forecast precision, forecast news, and early tenure**

Panel A	Management forecasts issued by CEOs during the early tenure		Management forecasts issued by CEOs who stay in the position for a longer period		
		1	2	3	4
Variable	Coeff	p-value		Coeff	p-value
Intercept	-0.126	0.000 ***		-0.117	0.000 ***
HighInst	0.002	0.732		0.018	0.000 ***
News	0.091	0.000 ***		0.046	0.000 ***
News*HighInst	-0.023	0.184		0.012	0.275
Adjusted R-squared		4.71%			3.45%
No. of observations		9607			15,284

**Panel B**

Variable	Pre. Sign	Subsample of high institutional ownership			Subsample of low institutional ownership		
		1	2		3	4	
		Coeff	p-value		Coeff	p-value	
Intercept	?	-0.17	0.052	*	0.019	0.846	
Early	-	-0.028	0.000	***	-0.024	0.000	***
News	+	0.06	0.000	***	0.047	0.000	***
<b>News*Early</b>	<b>?</b>	0.005	0.703		0.032	0.018	**
LnSize	+	0.035	0.000	***	0.024	0.000	***
LnAge	?	-0.017	0.379		-0.024	0.238	
LnFirmAge	?	-0.015	0.000	***	-0.015	0.000	***
MTB	+	0.003	0.000	***	0.005	0.000	***
EarnVola	-	-0.916	0.000	***	-0.183	0.192	
RetVola	-	-3.441	0.000	***	-3.807	0.000	***
InstOwn	-	0.165	0.000	***	0.064	0.001	***
LnAnalyst	+	-0.002	0.665		0.005	0.079	*
Loss	-	-0.14	0.000	***	-0.144	0.000	***
Annual	+	0.087	0.000	***	0.091	0.000	***
Dispersion	-	-0.11	0.002	***	-0.049	0.146	
Horizon	-	-0.353	0.115		-1.646	0.000	***
R&D	-	-0.013	0.000	***	-0.009	0.002	***
Coeff. Difference				0.027			
p-value				0.1412			
Ind. Fixed Effects			Yes			Yes	
Year Fixed Effects			Yes			Yes	
Adj. R			21.51%			24.19%	
No. of obs			12439			12452	

This table reports the regression results for the impact of institutional ownership on the association between forecast precision, forecast news, and early tenure. We partition the sample based on the institutional ownership. Column 1 to 4 reports the regression results for observations with higher than the median level of institutional ownership in the industry and column 5 to 8 reports the results for observations with lower institutional ownership; p-values are based on one-sided tests for coefficients with predicted signs and two-tailed tests for other coefficients. We use robust standard errors to calculate p-values and \*\*\*, \*\*, \* indicate significance at 1%, 5%, and 10% levels, respectively. Variable definitions are in Appendix A.

## Impact of CEO Age

We examine the impact of CEOs' age by dividing the sample into two subsamples based on the median CEO age when they are hired. The results are presented in Table 2.6.

Our findings suggest that the coefficient of the interaction term between *Early* and *News* for forecasts issued by younger CEOs is positive and statistically significant



(coefficient = 0.032; p = 0.011), whereas this coefficient for the subsample of firms with older CEOs is also positive but insignificant (coefficient = 0.007; p = 0.228). This finding is consistent with **H4** and supports the argument that comparatively old CEOs have fewer career concerns associated with the adverse selection because their longer track record can reflect their ability to manage the firm (e.g., Dai et al., 2015). The younger CEOs, who may suffer more severe information asymmetry problem, are urged to signal their abilities by using strategic forecast precision choice to influence the market perceptions.

**Table 2. 6 Regression results for the impact of age on the association between forecast precision, forecast news, and early tenure**

Variable	Pre. Sign	Subsample of old CEOs			Subsample of young CEOs		
		1	2		3	4	
		Coeff	p-value		Coeff	p-value	
Intercept	?	-0.059	0.647		0.019	0.846	
Early	-	-0.020	0.000	***	-0.024	0.000	***
News	+	0.052	0.000	***	0.047	0.000	***
<b>News*Early</b>	<b>?</b>	<b>0.007</b>	<b>0.559</b>		<b>0.032</b>	<b>0.018</b>	<b>**</b>
LnSize	+	0.022	0.000	***	0.024	0.000	***
LnAge	?	-0.007	0.828		-0.024	0.238	
LnFirmAge	?	-0.010	0.007	***	-0.015	0.000	***
MTB	+	0.004	0.000	***	0.005	0.000	***
EarnVola	-	-0.440	0.014	**	-0.183	0.192	
RetVola	-	-3.505	0.000	***	-3.807	0.000	***
InstOwn	+	0.092	0.000	***	0.064	0.001	***
LnAnalyst	+	-0.003	0.840		0.005	0.921	
Loss	-	-0.137	0.000	***	-0.144	0.000	***
Annual	+	0.082	0.000	***	0.091	0.000	***
Dispersion	-	-0.113	0.001	***	-0.049	0.146	
R&D	-	-1.541	0.000	***	-1.646	0.000	***
Horizon	-	-0.009	0.001	***	-0.009	0.003	***
Coeff. Difference				0.025			
p-value				0.182			
Ind. Fixed Effects			Yes			Yes	
Year Fixed Effects			Yes			Yes	

Adj. R <sup>2</sup>	23.15	24.19%
No. of obs	12447	12452

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This table reports the regression results of the impact of age on the association between forecast precision, forecast news, and early tenure. Column 1 to 4 reports the regression results for observations with higher than the median level of CEO age for the industry and column 5 to 8 reports the regression results for observations with CEOs younger than the median age. P-values are based on one-sided tests for coefficients with predicted signs and two-tailed tests for other coefficients. We use robust standard errors to calculate p-values and \*\*\*, \*\*, \* indicate significance at 1%, 5%, and 10% levels, respectively. Variable definitions are in Appendix A.

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### Internally versus externally Hired CEOs

We examine the impact of internally promoted versus externally hired CEOs on their motivation to use forecast precision to deal with career concerns by splitting the sample into firms with CEOs who are promoted from within the firm and CEOs hired from outside the firm. Consistent with prior literature, we consider CEOs as outsiders if they become CEOs within two years of their joining the firm (e.g., Kale, Reis, and Venkateswaran 2009). We conduct tests separately on these two subsamples, and the results are contained in Table 2.7.

The results show that the coefficient of the interaction variable *Early\*News* is significantly positive for the subsample of firms with CEOs hired from outside the firm (coefficient = 0.035; p-value = 0.001), whereas this coefficient is insignificantly negative for the subsample of firms whose CEOs are promoted from within the firm (coefficient = -0.028; p-value = 0.102). The difference between the two coefficients is significant at 1% level. The results thus indicate that CEOs hired from outside the firm face more serious career concerns and are strongly motivated to send positive signals to the board of directors and investors about their capabilities. On the other hand, CEOs promoted from within the firm are relatively less pressured. Thus, our results support **H5** and are consistent with the argument that uncertainty on the ability of CEOs hired from outside strengthens the adverse

selection problem and aggravates the CEOs' career concerns during early years of their tenure in the firm.

**Table 2. 7 Regression results for the impact of CEO source on the association between forecast precision, forecast news, and early tenure**

	Subsample of outside CEOs				Subsample of inner promoted CEOs		
Variable	Pre. Sign	Coeff	p-value		Coeff	p-value	
Intercept	?	-0.051	0.493		0.015	0.908	
Early	-	-0.030	0.000	***	-0.016	0.006	***
News	+	0.053	0.000	***	0.062	0.000	***
<b>News*Early</b>	<b>?</b>	<b>0.035</b>	<b>0.002</b>	<b>***</b>	<b>-0.028</b>	<b>0.102</b>	
LnSize	+	0.034	0.000	***	0.013	0.000	***
LnAge	?	-0.034	0.035	**	0.009	0.760	
LnFirmAge	?	-0.015	0.000	***	-0.026	0.000	***
MTB	+	0.005	0.000	***	0.002	0.007	***
EarnVola	-	-0.305	0.045	**	-1.151	0.000	***
RetVola	-	-3.070	0.000	***	-5.458	0.000	***
InstOwn	+	0.095	0.000	***	0.050	0.011	**
LnAnalyst	+	0.001	0.354		0.001	0.398	
Loss	-	-0.140	0.000	***	-0.132	0.000	***
Annual	+	0.096	0.000	***	0.071	0.000	***
Dispersion	-	-0.049	0.064	*	-0.178	0.001	***
R&D	-	-1.247	0.000	***	-0.082	0.405	
Horizon	-	-0.013	0.000	***	-0.010	0.002	***
Ind. Fixed Effects			Yes			Yes	
Year Fixed Effects			Yes			Yes	
Coeff. Difference					0.063		
p-value					0.002		
Adjusted R-squared		23.66%			23.60%		
No. of observations		18363			6528		

This table reports the regression results of the impact of CEO source on the association between forecast precision, forecast news, and early tenure. We partition our sample based on whether the CEO is outside hired or inner promoted. Column 1 to 4 presents the regression results for CEOs hired from outside the firm and column 5 to 9 presents the regression results for CEOs promoted from within the firm. P-values are based on one-sided tests for coefficients with predicted signs and are based on two-tailed tests for other coefficients. We use robust standard errors to calculate p-values and \*\*\*, \*\*, \* indicate significance at 1%, 5%, and 10% levels, respectively. Variable definitions are in Appendix A.

### ADDITIONAL TESTS

#### Quarterly management forecasts sample

Managers have significant discretion over quarterly management forecasts because quarterly earnings reports are usually not audited so that quarterly forecasts have fewer constraints than annual forecasts (e.g., Matsumoto 2002; Richardson, Teoh, and Wysocki 2004). We, as a supplement to the main analyses, examine the effect of early tenure career concern on the precision of quarterly forecasts.

The results on quarterly forecasts are reported in Table 2.9. The results show that the coefficient of the interaction term *Early \* News* is positive and statistically significant (coefficient = 0.031; p-value = 0.004).

**Table 2. 8 Regression test results for the association between forecast precision, forecast news, and early tenure (for quarterly forecasts only)**

		1	2	3	4	
Variable	Pre. Sign	Coeff	p-value		Coeff	p-value
Intercept	?	-0.199	0.034	**	-0.008	0.937
News	+	0.071	0.000	***	0.062	0.000 ***
Early	-			***	-0.034	0.000 ***
<b>News*Early</b>	+			***	<b>0.031</b>	<b>0.004</b> ***
LnSize	+	0.039	0.000	***	0.040	0.000 ***
LnAge	?	0.023	0.222		-0.025	0.200
LnFirmAge	?	-0.023	0.000	***	-0.021	0.000 ***
MTB	+	0.006	0.000	***	0.006	0.000 ***
EarnVola	-	-0.668	0.001	***	-0.596	0.003 ***
RetVolatility	-	-3.894	0.000	***	-3.849	0.000 ***
InstOwn	+	0.102	0.000	***	0.103	0.000 ***
LnAnalyst	+	-0.004	0.846		-0.005	0.086 *
Loss	-	-0.164	0.000	***	-0.162	0.000 ***
Dispersion	-	-0.112	0.063	*	-0.101	0.085 *
R&D	+	-0.929	0.000	***	-0.980	0.000 ***
Horizon		-0.012	0.001	***	-0.013	0.000 ***
Ind. Fixed		Yes			Yes	
Year Fixed		Yes			Yes	
Adj. R <sup>2</sup>		21.48%			22.07%	
No. of obs		15587			15587	

This table reports the regression results of the impact of early tenure on the relation between forecast precision and forecast news. We estimate the regression based on 26341 management forecasts issued during 1995-2014; p-values are based on one-sided tests for the coefficients with predicted signs and two-tailed tests for other coefficients. We use robust standard errors to calculate p-values and \*\*\*, \*\*, \* indicate significance at 1%, 5%, and 10% levels, respectively. Variable definitions are in Appendix A.

### Alternative early tenure cutoffs

In our main tests, we consider the first three years in the firm as CEOs' early tenure cutoff. We also conduct tests using alternative early tenure cutoffs, i.e., two years and four years. The results are reported in Table 2.10. The results show that the tests based on different cut-off points are statistically significant and are similar to the main results. Thus, our results are robust when early tenure cutoff varies between two and four years in the firm.

**Table 2.9 Regression test results for the association between forecast precision, forecast news, and early tenure for different early tenure cutoffs**

Variable	Pre. Sign	First 2 years as the early cutoff			First 4 years as the early cutoff		
		1	2	3	3	4	4
		Coeff	p-value		Coeff	p-value	
Intercept	?	-0.088	0.166		-0.027	0.673	
News	+	0.052	0.000	***	0.046	0.000	***
Early	-	-0.021	0.000	***	-0.025	0.000	***
<b>News*Early</b>	+	0.025	0.010	***	0.031	0.000	***
LnSize	+	0.027	0.000	***	0.028	0.000	***
LnAge	?	-0.008	0.539		-0.024	0.083	*
LnFirmAge	?	-0.016	0.000	***	-0.015	0.000	***
MTB	+	0.004	0.000	***	0.004	0.000	***
EarnVola	-	-0.511	0.001	***	-0.508	0.001	***
RetVolatility	-	-3.606	0.000	***	-3.629	0.000	***
InstOwn	+	0.090	0.000	***	0.092	0.000	***
LnAnalyst	+	0.002	0.161		0.002	0.224	
Loss	-	-0.142	0.000	***	-0.141	0.000	***
Annual	+	0.089	0.000	***	0.091	0.000	***
Dispersion	-	-0.078	0.003	***	-0.077	0.004	***
R&D	-	-1.045	0.000	***	-1.049	0.000	***
Horizon	-	-0.011	0.000	***	-0.011	0.000	***

Ind. Fixed	Yes	Yes
Year Fixed	Yes	Yes
Adj. R <sup>2</sup>	22.47%	22.76%
No. of obs	24891	24891

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This table reports the regression results of the impact of early tenure on the relation between forecast precision and forecast news, where we choose different early tenure cutoffs (2 years and 4 years). We estimate the regression based on 26390 management forecasts issued during 1995-2014; p-values are based on one-sided tests for the coefficients with predicted signs and two-tailed tests for other coefficients. We use robust standard errors to calculate p-values and \*\*\*, \*\*, \* indicate significance at 1%, 5%, and 10% levels, respectively. Variable definitions are in Appendix A.

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## CONCLUSIONS

It is presented in the literature that forecast precision may be strategically decided by CEOs to achieve self-serving goals (Cheng, Luo, and Yue 2013). In this study, we extend this line of research and investigate whether new CEOs' career concerns encourage managers to adopt a forecast precision strategy to highlight favorable signals and obfuscate unfavorable news. Our results suggest that new CEOs are motivated to increase the precision of more positive forecasts and reduce precision when forecast news is more negative to highlight positive signals and obfuscate negative signals. Additionally, we document that the effect of CEOs' early tenure on forecast precision is particularly strong when firms are headquartered in the states with stricter enforcement of the non-compete clause and higher in-state industry concentration. The association between forecast precision and forecast news is also very significant when institutional ownership is small, new CEOs are young, and new CEOs are hired from outside the firm. Our results remain unchanged when we use only forecasts or choose different early tenure cutoffs.

Our findings add to the career concerns literature (e.g. Gibbons and Murphy 1991; Kothari et al. 2009; Ali and Zhang 2015; Ali et al. 2015) and management forecast literature (e.g. Bergman and Roychowdhury 2007; Beyer et al. 2010; Hutton et al. 2012) by documenting that CEOs may use forecast precision strategically to meet career concerns

during their early tenure as CEO. The study also responds to the call by Hirst et al. (2008) for further research in the area of forecast characteristics to better understand managerial incentives to issue forecasts and evaluate the usefulness of the forecasts. We find that managers' career concerns may be a factor that influences earning forecast precision choices. Our findings will be useful to investors, who need better insight into the incentives of firms' disclosures and evaluation of managers' performance, especially in the early years of their tenure in the firm.

## **Chapter 3: The Effect of SEC Comment Letters on Management Earnings Forecasts**

### **INTRODUCTION**

An essential mission of the Security and Exchange Commission (SEC) is to protect investors and ensure the provision of material information. In order to achieve the stated goal, the SEC has been continually making efforts to enforce the regulation on corporate reporting and disclosure to reduce information asymmetry. As part of the efforts, the Division of Corporation Finance is required to review the registrants' filings at least once every three years. The SEC staff will evaluate filers' disclosure from the perspective of potential investors and ask questions that investors may ask when they are reading the filings; once they "believe a company can improve its disclosure or enhance its compliance with the applicable disclosure requirements", the SEC will send out a comment letter to the registrant requesting further explanations or amendments (SEC 2012). In response to the SEC comment letters, firms either provide additional information to explain their current disclosure practices or agree to amend the current or future filings according to the suggestions in the comment letters. In some rare cases, firms may also choose to ignore the issues if they believe that the disclosure deficiencies are not likely to trigger future SEC enforcement action (Bozanic, Dietrich, and Johnson 2015). After all the comment letter issues are resolved, the SEC will issue a "Completion of Review" letter that indicates the end of this review process.

The SEC has dedicated substantial resources to the review process, but its consequences of this process are not well examined. In their survey paper, Healy and Palepu (2001) call for more empirical research on the efficacy of disclosure regulation. There is growing academic interest in investigating the efficacy of the review process and



how it can potentially improve the information environment in the financial markets (e.g., Boone et al., 2013; Brown et al., 2015; Bozanic et al., 2017; Johnston and Petacchi, 2017; Dechow et al., 2016; Duro, Heese, and Ormazabal, 2018). Prior to 2004, comment letter correspondences can only be requested under the Freedom of Information Act ("FOIA"), which has significant response delays due to a massive backlog of FOIA request. On June 24, 2004, the SEC decided to release the comment letter dialog and provides details on the timing, content, and results of the review to enhance the transparency of the review process, enabling researchers to conduct comprehensive examinations on the SEC comment letters. Extant evidence suggests that comment letter review improves corporate disclosure compliance and helps reduce information asymmetry (e.g., Cassell, Dreher, and Myers, 2013; Bozanic, Dietrich, and Johnson, 2017; Brown, Tian, and Tucker, 2018). Recent studies also indicate that market participants generally believe that comment letters reveal relevant information regarding firm disclosure quality (Dechow et al., 2016; Johnston and Petacchi 2017; Duro, Heese, and Ormazabal 2018).

Since the review process is intended to assess registrants' corporate filings, the impact of this *ex-ante* regulatory scrutiny procedure on firms' voluntary disclosure practices is less investigated. Several forces may encourage managers to enhance voluntary disclosure practices after the receipt of the SEC comment letters. All companies are under the SEC's review, but not all of them receive comment letters after the review. The issuance of comment letter suggests at least some inappropriateness in corporate filings, which may raise doubts about managerial ability and integrity (Johnston and Petacchi, 2017). Particularly, some comment letters targeting critical accounting issues may be indicative of potential accounting manipulation (Dechow et al., 2016). Therefore, critical comment letters could adversely affect investors' perception of corporate disclosure integrity, which

will increase firms' litigation and reputation risks. Thus, managers may enhance the overall disclosure intensity to address investors' concerns and avoid subsequent negative impact after the comment letters are released to the public. Alternatively, because comment letters focus on corporate filings, I may fail to find any association between comment letters and future voluntary disclosure practices if managers are reluctant to alter voluntary disclosure practices as long as the expected costs to change disclosure patterns outweigh the benefits. It is also possible that the receipt of comment letters actually reduces voluntary disclosure. This happens when the mandatory corporate disclosure enhancement substitutes the provision of voluntary disclosure on forward-looking information (Verrecchia 1990; Li and Yang 2015; Guay et al. 2016; Heinle et al. 2018). Also, if the SEC comment letters cause interruptions in next period's financial statement preparation when they require tremendous changes in reporting practices, the increased prediction difficulties and disclosure costs may discourage the provision of voluntary disclosure. Therefore, how comment letters impact firms' voluntary disclosure practice remains an empirical question.

This study focuses on a subset of comment letters that are considered more serious by managers (Dechow et al., 2016). The SEC comment letters can raise a wide variety of issues, from trivial questions to serious problems that may be related to accounting misstatement. Specifically, I choose to examine comment letters related to revenue recognition issues. Revenue recognition is the most critical issues discussed in comment letters and most frequently used by managers to conduct opportunistic activities (Dechow et al., 2011). Thus, I evaluate this type of comment letters and investigate its impact on management forecast practices. In addition to the main findings, I document a stronger effect of comment letters on the issuance of negative news forecasts compared to positive news forecast. Furthermore, managers tend to provide more forecasts on revenue

account after they receive revenue recognition comment letters. I further assess the consequences of firms voluntarily providing more forward-looking information. The results imply that the market reaction to the release of comment letters are attenuated for firms that issue forecasts more frequently and provide more supplementary forecasts.

The study contributes to the current literature in the following ways. First, I add to the expanding research on the comment letter review process. Despite the vast resources devoted to the SEC review process, its actual impact has been constantly questioned by related parties. One line of research has focused on the determinants of receiving comment letters and find that less profitable, more complex firms with smaller audit firms and have weaker internal controls are more likely to receive comment letters (Ettredge, Johnstone, Stone, and Wang, 2011; Cassell, Dreher, and Myers 2013). Another strand of literature assesses the consequences of the review process and documents that comment letter review generally improves the financial reporting quality of firms that receive the letters (e.g., Robinson, Xue, and Yu, 2011; Bozanic, Dietrich, and Johnson, 2015; Brown, Tian, and Tucker 2015; Johnston and Petacchi, 2015). I add to this existing line of research by examining how the comment letter review process, a regulatory procedure mainly focusing on mandatory filings, can influence voluntary disclosure practices.

The study is also related to the voluntary disclosure research. The supplementary tests in the recent work by Johnston and Petacchi (2018) implies that comment letter firms tend not to adjust their voluntary disclosure patterns during the post-letter period. However, they investigate a relatively short period from 2004 to 2006, right after the comment letters are made publicly available by the SEC. Considering the short period after the implementation of the new practice, management may not fully recognize the market impact of comment letters releases. I extend the test period to include a longer time horizon

and utilize a series of forecast characteristics to provide a more thorough evaluation of voluntary disclosure practices.

Third, this paper sheds light on the interaction between mandatory disclosure and voluntary provision of forward-looking information (e.g., Verrecchia 1990; Li and Yang 2015; Guay et al. 2016; Heinle et al. 2018). Prior studies have yielded limited and mixed evidence in the interdependencies between firms' disclosure environment (Beyer et al. 2010). This study suggests that managers tend to increase voluntary disclosure of forward-looking information to complement enhanced mandatory disclosure when the investors have higher uncertainty regarding the firms' financial reporting.

This study adds to the heated debate on the effectiveness of the SEC review process. Regulators, while their primary interest lies in enforcing corporate filing compliance, will be interested in seeing whether the comment letter review process will have any unintended impact on firms' voluntary disclosure patterns.

The paper is organized as follows. Section 2 reviews the background and related literature. Section 3 described the research design and Section 4 discusses the data construction steps. The empirical results are presented in Section 5 and Section 6. Section 7 concludes.

## **HYPOTHESES DEVELOPMENT**

Since the Sarbanes-Oxley Act of 2002, all public companies' quarterly (10-Q) and annual (10-K) financial reports are subject to review by the staff members of Division Corporate Finance at least once every three years. The SEC does not reveal whether or when an entity is under review and may review some firms more frequently than required. Companies only become aware of the review when they receive the comment letter. Upon receipt of comment letters, companies can submit a response letter, amend the reviewed

filings, or take no actions. In most cases, the SEC's comment will be resolved once the firm provides additional clarification or agrees to amend previous filings to address the raised issue. If an agreement cannot be reached, The Division of Corporation Finance staff can refer the firm under review to Division of Enforcement for further actions. In Feroz et al. (1991), they cite an SEC official who claims that half of the enforcement leads come from the review process. The Division of Corporation Finance is instructed to evaluate the corporate disclosure from "a potential investor's perspective" and raise "questions an investor might ask when reading the document" (SEC, 2013). They will issue a comment letter when they believe there is incompliance with current rules/standards or deficiency in explanation or clarity. Either case, the issuance of comment letters indicates potential flaws in previous financial statement and may even raise investors' concerns on managers' ability and integrity (Johnston and Petacchi 2017). Consistent with this argument, Gietzmann, Marra, and Pettinicchio (2015) find that the issuance of SEC comment letter increases the likelihood of future CFO dismissal. Evidence also suggests that comment letter review process provides valuable information on the firms' disclosure practice and is generally considered relevant to multiple stakeholders. For instance, Gietzmann and Pettinicchio (2014) document that auditors charge the clients higher fees upon receipt of a comment letter. Cunningham, Schmardebeck, and Wang (2016) find that lenders increase the interest rate after the borrower receives comment letters from the SEC. Collectively, the evidence points to the view that the issuance of comment letter results in increased doubts in previous filings.

However, the SEC comment letter may discuss a wide variety of issues including simple clarification questions as well as possible material disclosure deficiencies. If the comment letters mainly address trivial matters, investors are not likely to associate these

letters with serious accounting problems. In that case, managers have little incentives to take actions after they receive such comment letters except for answering the SEC's questions in a correspondence letter. Some letters, on the other hand, are more critical and reveal more crucial issues that may alter the market perception of the firms' financial reporting practice and overall performance. Specifically, Dechow et al. (2016) argue that comment letters related to revenue recognition are generally considered the most serious type of comment letters. Because revenue account is frequently manipulated by management to achieve opportunistic objectives (Also see the SEC, 2013), once the SEC expresses doubts on firms' revenue-recognition policies, investors will be concerned about the overall financial reporting quality or even integrity of the firm and re-evaluate the investment decisions. Investors may suffer great investment loss if the revenue recognition method is questionable. In their study, Dechow et al., (2016) use revenue recognition comment letters as a proxy for more important comment letters. This argument is also supported by their analysis that suggests revenue recognition letter is associated with a stronger market reaction when the comment letters are released to the public. This study is based on their conclusions and focuses on revenue recognition comment letters to proxy for more important comment letters.

In addition to merely replying to the SEC's letter, managers take measures to prevent any potential negative effect triggered by the comment letters. In other words, managers are not only obligated to respond to the SEC staff by submitting response letters and make requested changes, but they should also mitigate any potential negative impact when the comment letter dialog is disseminated to the public. Bozanic, Dietrich, and Johnson (2017) compare the annual financial reports before and after the firms receive the comment letter and find that the disclosure quality significantly improves during the post-

event window. They further document that the improvements result in better information environment as well as litigation environment (also see Johnston and Petacchi 2017). Similarly, Bens et al. (2016) show that the uncertainty about fair value estimates reduces after receiving comment letters and Brown et al. (2018) document a spillover effect from comment letters to its peers on the disclosures related to risk factors. The majority of studies evaluating the impact of comment letters have focused on financial reporting. It is equally important to evaluate managers' reaction towards comment letters in other types of disclosure, particularly the provision of forward-looking information. This study aims to investigate the change in the voluntary provision of forward-looking information in the form of management forecasts. Management forecast is a critical channel through which managers convey their projections for firms' future performance to financial markets. Unlike periodic financial reports which are subject to more standardized rules and are prepared using standard formats, management forecasts are under greater managerial discretion. Managers make their own decisions as to whether, when, and how to issue forecasts, which make it a good candidate to evaluate changes in voluntary disclosure practice. Furthermore, the study focuses on comment letters related to revenue recognition issues, which is also closely linked to the information disclosed in management earnings forecast.

I argue that several factors may influence management forecast practice after the firm receives comment letters addressing critical issues. Potential flaws in previous reporting cycles pointed out by the SEC may raise investors' doubts about managerial ability and integrity in corporate filings and are even indicative of accounting misconduct (Dechow et al. 2016; Johnston and Petacchi 2017). Besides, firms may be asked to alter current accounting treatment, which will influence future reports. Thus, the comment letter

review process will also increase uncertainty about the next period's financial reporting. Investors require more information provided by the managers to form their projections about the future. I posit in this paper that in addition to improving the reporting quality (e.g., Johnston and Petacchi, 2017; Duro et al., 2018), managers may also issue forecasts to convey information about the future and mitigate investors' concern of reporting uncertainty. Second, investors may take legal actions if they believe managers are giving misleading information (Rogers and Stocken 2005). Dechow et al., (2016) reveals that corporate executives are particularly concerned about how investors perceive the receipt of comment letters. When that happens, the SEC comment letters may be used as a supporting proof of misleading disclosure. Hence, after the firm receives critical comment letters, the expected litigation risks will increase. Since transparent disclosure can alleviate future litigation concerns (e.g., Skinner 1994; Filed et al., 2005; Rogers et al., 2011; Bozanic et al., 2017), I propose that firms are motivated to enhance management forecast practices after they receive revenue recognition comment letters.

Alternatively, it is likely that the comment letter review process has a restraining effect on management forecast practice. Comment letters hint the existence of potential incompleteness or inappropriateness in firms' periodic filings. Since firms tend to maintain the same approach in prior reports to prepare current year's financial reports, significant modification may cause interruptions in preparing next period's financial reports, especially when firms need to spend resources correcting previous filings and eliminating its impact on future reporting. If comment letter review also increases reporting uncertainty within the firm, managers may refrain from providing unnecessary disclosure to avoid incorrect predictions. Second, comment letters may increase the supply of information in the financial reports, and the increase will substitute other voluntary disclosure channels.



Under this argument, firms might be less likely to issue forecasts after receiving the SEC comment letters, knowing that they will provide enhanced disclosure in future filings. Taken together, the effect of comment letters on firms' forecasting behavior remains an empirical question. Hence, I propose the following hypotheses in the null form.

I first investigate the relationship between comment letters and management forecast frequency. If managers are prone to voluntarily provide more forward-looking information, they are likely to increase the frequency of management forecasts and vice versa. My first hypothesis is thus stated as follows:

**H1:** *The issuance of SEC comment letters related to revenue recognition issuance has no impact on the frequency of management forecasts.*

Lansford et al. (2013) document that a large number of firms issue forecasts along with key line item forecasts. Hutton et al. (2003) argue that supplementary forecasts, especially those can be verified in the future, can increase the credibility of earnings forecasts (also see Waymire 1984, Han and Wild 1991). Outsiders are better able to project the firms' performance and credibility when more line-items are provided in management forecasts (Hutton et al. 2003). This is particularly true when investors are faced with higher reporting uncertainty following the issuance of critical comment letters. On the other hand, verifiable forward-looking forecasts on earnings components might be costly for managers to provide when they have difficulties meeting them when the actual financial statement comes out. Therefore, the second hypothesis is formally presented below:

**H2:** *The issuance of SEC comment letters related to revenue recognition issues has no impact on the provision of disaggregated earnings forecasts.*

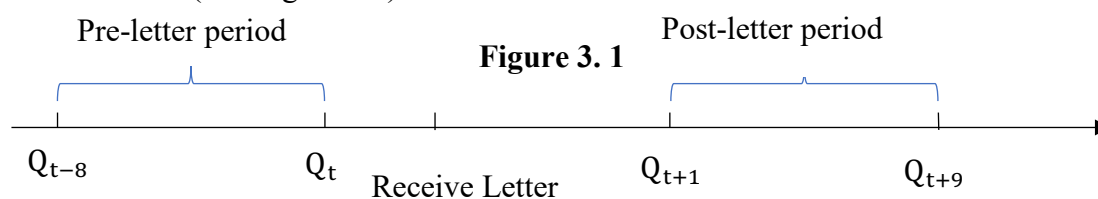
As part of the forecasting procedure, managers need to determine the precision of the forecasts. That is, whether the forecast is a point forecast, a range forecast, or in other

vaguer forms (e.g., Patell 1976; Penman 1980; Lev and Penman 1990, Choi et al. 2010; Cheng et al. 2013). It is presented in the literature that managers can increase the disclosure credibility and informativeness via more precise forecasts (Verrecchia 1983). Forecasts with low credibility generally have minimal impact on investors' perceptions and even further harm the management disclosure reputation. After receiving serious comment letters, managers can increase the forecast precision level to signal their confidence in next period's financial performance and mitigate investors' doubt in financial reporting. However, the receipt of comment letters does not improve managers' private information set about firms' future performance. Because forecast precision is not solely determined by managers' wiliness but also their ability to provide more specific information, we may not find any increase in forecast precision. In addition, addressing issues related to revenue recognition can introduce uncertainty in preparing financial reports, making precise management forecasts unattainable. This argument leads to our third hypothesis, stated in the null form:

**H3:** *The issuance of SEC comment letters related to revenue recognition issues has no impact on the precision level of management forecast.*

### RESEARCH DESIGN

I examine the change in management forecast behaviors before and after firms receive a revenue recognition comment letter issued by the SEC. I define the pre-letter period as the two years (eight quarters) before receiving the first comment letter in a review conversation and post-letter period as the two years (eight quarters) following the receipt of the first letter (See Figure 3.1).



I use the following OLS regression model to evaluate the impact of comment letters on management forecast behavior:

$$ForecastChar_{it} = \alpha_1 Post_{it} + \beta Controls_{it} + \epsilon_{it}$$

where *Post* is a dummy variable that equals one if the observation is taken from the post-letter period and 0 otherwise. In all the tests, I cluster standard errors by the firm to mitigate the concern of correlations across observations of the same firm (Rogers 1993; Petersen 2009). The independent variable is a set of management forecast characteristics (*Frequency*, *Precision*, *Disaggregate*) for the pre- and post- letter period. The definitions of the variables are provided in the Appendix.

Similar to other studies that examine comment letters (e.g., Bens et al., 2016; Bozanic et al., 2017; Johnston and Petacchi, 2017; Kubick et al., 2016), I employ a difference-in-difference research design to avoid the impact of the common trend that is not related to comment letters. Using propensity matching score design can mitigate the concern that some unobserved general time trend unrelated to comment letters may drive the results. The propensity score is calculated as the probability of it receiving comment letters conditional on its observable characteristics. I select a group of match firms that do not receive comment letters but have the closest propensity score to a corresponding letter receiver firm. I also require the test and match firm to have the same fiscal period end date but. The research design can capture the relative change of letter firms in contrast to match firms and filter out influencing factors beyond the research interest of this study. Following

Johnston and Petacchi (2017), I assign a hypothetical letter period on the match firms. The difference-in-difference regression is specified as follows:

$$ForecastChar_{it} = \alpha_1 Post_{it} + \alpha_2 CL + \alpha_3 CL \times Post + \beta Controls_{it} + \epsilon_{it}$$

where  $CL$  is a dummy variable that equals 1 if the firm receives revenue recognition-related comment letters in year  $t$  and 0 otherwise. The coefficient of interest is  $\alpha_3$ , the coefficient of the interaction term  $CL \times Post$ . A positive value of  $\alpha_3$  suggests a positive differential change in the analyzed characteristic after firms receive comment letter relative to no-letter firms and vice versa.

<b>Table 3. 1 Sample description</b>		
Panel A: Sample selection process		
	Number of letters	
10-K & 10-Q comment letters on Audit Analytics from 2005 to 2015	29,703	
Less: letters unrelated to revenue-recognition issues	(26809)	
Less: not the first-time revenue-recognition letter	(552)	
Less: Firms without COMPUSTAT GVKEY	(256)	
Less: Firms without sufficient variables	(772)	
Final Sample	1,314	
Panel B: Frequency of the comment letter cases by year/firm		
Issue year	Number of cases	Percentage
2005	158	12.02
2006	195	14.84
2007	163	12.4
2008	126	9.59
2009	91	6.93
2010	129	9.82
2011	117	8.9
2012	108	8.22
2013	87	6.62
2014	76	5.78
2015	64	4.87
Total	1,314	100

## DATA

I collect comment letter samples from Audit Analytics Database. The comment letter review process has a dialog form that may take several rounds between the SEC staff members and the firms to complete one process. I identify the first occurrence of each review case with the conversation identifier provided by Audit Analytics Database (CL\_CON\_ID). Only 10-K/10-Q related comment letters are included in the sample (FORM\_TYPE contains "10-"). I select comment letters related to revenue recognitions, which are also tagged in the Audit Analytics database (LIST\_CL\_ISSUE\_PHRASE contains "revenue"). The tests focus on firms' first SEC revenue recognition comment letters issued during the period from 2005 to 2015. I remove letters without Compustat GVKEY or CRSP PERMNO. The process yields 1,314 letters. Table 3.1 presents the detailed distribution of comment letters, and the summary statistics are presented in Table 3.2. I extract annual management guidance data from the IBES database.

<b>Table 3. 2 Summary statistics</b>							
Variable Name	25%	50%	75%	Mean	Std	Obs	
Frequency	0	0	4		1.729	2.632	168,972
Disaggregation	0	0	2		1.965	5.724	168,972
Precision	-0.435	-0.190	-0.074		-0.567	1.377	24,961
LnSize	4	6	7		5.648	2.480	168,972
Restatement	0	0	0		0.146	0.353	168,972
Loss	0	0	1		0.382	0.486	168,972
EP	-0.021	0.008	0.018		-0.044	0.220	168,972
LnAge	2.303	2.773	3.258		2.790	0.679	168,972
Big4	0	0	1		0.456	0.498	168,972
IPO	0	0	0		0.007	0.007	168,972
EarnVola	0	0	0.039	0.1677439		0.806	168,972
CashVola	0.020	0.039	0.072	0.139	0.4587768		168,972

## RESULTS

The univariate analysis results in Table 3.3 suggest an increase in *Frequency* and *Disaggregation* after the firms receive revenue recognition comment letters. This univariate comparison provides some preliminary evidence that firms increase the management forecast frequency and provide more disaggregated forecasts.

**Table 3.3 Comparison of critical comment letter receivers and companies without critical comment letters during the pre- and post- letter period**

Variables	Test Group					P-value	
	Pre-Letter period		Post-Letter period				
	N	Mean	N	Mean			
Forecast Frequency	1314	2.158	1099	2.517	0.026	**	
Disaggregation	1314	2.990	1099	3.948	0.001	***	
Precision	458	-0.096	398	-0.110	0.143		
Size	1314	6.425	1099	6.462	0.683		
Loss	1314	0.324	1099	0.328	0.861		
EarningVola	1314	0.039	1099	0.040	0.809		
CashVloa	1314	0.069	1099	0.070	0.862		
FirmAge	1314	2.882	1099	3.025	0.000	***	
Control Group							
	Pre-Letter period		Post-Letter period		P-value		
	N	Mean	N	Mean			
Forecast Frequency	1118	1.634	968	1.576	0.668		
Disaggregation	1118	1.716	968	1.784	0.726		
Precision	319	-0.118	271	-0.132	0.232		
Size	1118	6.530	968	6.630	0.384		
Loss	1118	0.213	968	0.281	0.000	***	
EarningVola	1118	0.035	968	0.035	0.933		
CashVloa	1118	0.065	968	0.062	0.503		
FirmAge	1118	3.511	968	3.592	0.000		

Table 3.4 compares the forecast characteristics for the comment letter receiver firms before and after receiving the letter. Table 3.4 column (1) and (2) show that forecast

frequency increases significantly after receiving the comment letter (coefficient = 0.281, p-value = 0.001). In the difference-in-difference analysis, the coefficient of the interaction term  $CL \times Post$  is positive and significant (coefficient = 0.416; p-value = 0.001), suggesting that, compared to firms that do not receive critical comment letters related to revenue recognition issues, receiver firms tend to provide more frequent management forecasts during the post-letter period. In Table 3.5, the dependent variable is the number of disaggregated forecasts before and after the receipt of revenue recognition comment letters. The coefficient for the interaction term  $CL \times Post$  is also positive and highly significant (coefficient = 0.851; p-value = 0.000). However, when the dependent variable is the management forecast precision level, the coefficient on the interaction term  $CL \times Post$  is not significant (see Table 3.6), which may be due to several reasons. Although more precise forecasts reduce investors' information uncertainty when they are accurate, it may backfire if the forecasts are inaccurate. Receiving comment letters will not improve managers' information quality nor their certainty about the future earnings realization. Thus, it is difficult for managers to increase forecast precision while ensuring forecast accuracy. If the forecast turns out to be wrong, investors may consider it another piece of misleading information and firms will actually be worse off.

Collectively, the difference-in-difference regression results indicate that revenue recognition comment letter receiver firms tend to increase the frequency of management forecast. They are also more likely to supplement forecasts with forward-looking verifiable statements.

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**Table 3. 4 Change in forecast frequency before and after receiving the comment letter**

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	(1)			(2)			(3)			(4)		
Intercept	-1.768	0.004	***	-1.690	0.008	***	-2.303	0.000	***	-2.449	0.000	***
<b>Post</b>	0.278	0.002	***	0.281	0.001	***	-0.116	0.231		-0.122	0.21	
CL							1.053	0.000	***	1.072	0	***
<b>CL*Post</b>							0.374	0.003	***	0.377	0.003	***
Size	0.393	0	***	0.400	0.000	***	0.240	0.000	***	0.245	0	***
Loss	-0.804	0	***	-0.814	0.000	***	-0.784	0.000	***	-0.779	0	***
EarningVola	-0.778	0.17		-0.854	0.154		-1.060	0.037	**	-0.971	0.053	*
CashVloa	0.920	0.177		0.963	0.163		0.947	0.107		0.939	0.111	
FirmAge	0.342	0.059	*	0.347	0.053	*	0.547	0.001	***	0.587	0	***
Analyst	0.633	0	***	0.623	0.000	***	0.514	0.000	***	0.506	0	***
Year Effects	No			Yes			No			Yes		
Obs	2413			2413			4516			4516		
R2	19.74%			20.11%			16.42%			16.59%		

**Table 3. 5 Change in forecasts disaggregation before and after receiving the comment letter**

	(1)			(2)			(3)			(4)		
Intercept	-0.540	0.587		-0.379	0.715		-1.214	0.195		-1.203	0.209	
<b>Post</b>	0.951	0	***	0.955	0.000	***	0.040	0.731		0.043	0.712	
CL							1.541	0.000	***	1.501	0	***
<b>CL*Post</b>							0.882	0.000	***	0.883	0	***
Size	0.570	0	***	0.537	0.000	***	0.329	0.000	***	0.313	0	***
Loss	-1.014	0.001	***	-1.076	0.000	***	-0.945	0.000	***	-0.964	0	***
EarningVola	-2.625	0.02	**	-3.192	0.009	***	-1.878	0.055	*	-2.072	0.045	**
CashVloa	2.453	0.089	*	2.616	0.077	*	1.496	0.194		1.578	0.184	
FirmAge	-0.258	0.391		-0.320	0.284		0.045	0.859		-0.019	0.942	
Analyst	0.863	0	***	0.873	0.000	***	0.686	0.000	***	0.686	0	***
Year Effects	No			Yes			No			Yes		
Obs	2413			2413			4516			4516		
R2	12.13%			12.97%			11.03%			11.27%		

**Table 3. 6 Change in forecasts precision before and after receiving the comment letter**

	(1)			(2)			(3)			(4)		
Intercept	-0.003	0.925		-0.001	0.975		-0.032	0.384		-0.033	0.332	
<b>Post</b>	-0.010	0.086	*	-0.009	0.123		-0.010	0.214		-0.010	0.226	
CL							0.011	0.428		0.015	0.263	
<b>CL*Post</b>							-0.002	0.878		-0.001	0.929	
Size	-0.001	0.782		0.001	0.805		0.001	0.880		0.001	0.868	
Loss	-0.034	0.101		-0.033	0.111		-0.038	0.037	**	-0.038	0.04	**



EarningVola	-0.205	0.316		-0.193	0.354		-0.214	0.267		-0.210	0.308	
CashVloa	-0.008	0.974		-0.019	0.935		-0.052	0.828		-0.058	0.804	
FirmAge	-0.028	0.004	***	-0.022	0.022	**	-0.023	0.009	***	-0.017	0.049	**
Analyst	0.004	0.526		0.004	0.530		0.001	0.843		0.002	0.746	
Year Effects												
Obs		856			856			1446			1446	
R2		2.59%			5.74%			2.82%			4.48%	

### ADDITIONAL ANALYSIS

#### Management forecasts on revenue account

This study focuses on the revenue recognition comment letters, which is directly investors affecting the projection of revenues. Hence, this section investigates the changes in managers' forecasts on revenue account. Since the most uncertainty originates from the revenue recognition related issues, managers concerned about the impact of revenue recognition comment letters are likely to provide more guidance to investors on the future realization of revenues. I replace the dependent variable in Equation (1) and (2) with *RevFrequency*, defined as the number of revenue forecasts issued during the pre- and post-letter period. The results on management revenue forecasts are presented in Table 3.7. The coefficient on the interaction term between *CL* and *Post* is positive and highly significant, suggesting that revenue recognition comment letter firms significantly increase the frequency of revenue forecasts after receiving the letters.

**Table 3. 7 Change in the frequency of providing revenue forecasts before and after receiving the comment letter**

	(1)			(2)			(3)			(4)		
Intercept	2.455	0.001	**	2.654	0.001	**	1.790	0.008	**	1.717	0.015	**
<b>Post</b>	0.357	0.002	*	0.361	0.002	*	-0.011	0.875		-0.013	0.854	
CL							1.445	0.000	*	1.470	0	*
<b>CL*Post</b>							0.354	0.008	*	0.350	0.009	*
Size	0.327	0	**	0.337	0.000	**	0.154	0.001	**	0.157	0	**

Loss	-0.394	0.08	*	-0.399	0.078	*	-0.491	0.002	**	-0.477	0.002	**
EarningVola	-0.011	0	**	-0.012	0.007	**	-0.008	0.260		-0.006	0.416	
CashVloa	0.003	0.027	**	0.005	0.141	**	-0.003	0.448	**	-0.003	0.57	**
FirmAge	-0.849	0	*	-0.852	0.000	*	-0.650	0.000	*	-0.594	0.001	*
Analyst	0.803	0	**	0.786	0.000	**	0.602	0.000	**	0.600	0	**
Year Effects	No			Yes			No			Yes		
Obs	2413			2413			4516			4516		
R2	10.30%			10.66%			11.30%			11.61%		

### Investor reactions to the release of comment letters

I conduct additional tests to examine the effects of enhanced management forecasts on market reactions to the release of critical comment letters. The primary results in this study suggest that managers are likely to provide management forecasts on a more frequent basis and supplement earnings forecasts with disaggregated item forecasts after receiving critical comment letters. It is thus interesting to see whether enhanced management forecast practice is effective in mitigating the negative impact of comment letters. When the comment letters are publicly released and investors learn about the issues identified by the SEC staff, the uncertainty increases. If the management forecasts indeed provide useful information and alleviate investor concerns in firms' disclosure quality, market responses to the dissemination of the SEC comment letters will be moderated. I estimate the following regression:

$$AbsCAR = PostFrequency + PostDisaggregate + PreFrequency + PreDisaggregate + Issues + Controls + \epsilon.$$

*PostFrequency* is the daily number of forecasts for the review period between the receipt of the first comment letter and the public release of the comment letter dialog, calculated as the number of forecasts divided by the number of days during this period. I use the daily number of forecasts instead of the total number of forecasts because the

process time may vary for different review cases. *PostDisaggregate* is the daily number of disaggregated forecasts issued during the period after receiving the comment letter and before its release. The dependent variable *AbsCAR* is the abnormal return on the release date calculated as the firm return less the CRSP capitalization weighted market return, taking the absolute value. I control the previous forecast practice before receiving the comment letter with *PreFrequency* and *PreDisaggregate*. Furthermore, *Issues* represents the number of issues presented in the first comment letter, taking logarithm. It proxies for the information content in public released comment letter reviews. Several firm characteristic variables are included as control variables. The regression results are provided in Table 3.8. The coefficients of *PostFrequency* and *PostDisaggregate* are negative and significant, indicating that firms that issue more earnings forecasts and provide more disaggregated forecasts have attenuated market reaction.

**Table 3. 8 Change in market reactions to the release of public comment letters**

	(1)			(2)		
Intercept	0.0305	0.000	***	0.0277	0.000	***
<b>Postforecasts</b>	-0.1423	0.028	**	-0.1543	0.022	**
<b>PostDisaggregate</b>	<b>-0.0025</b>	<b>0.003</b>	<b>***</b>	<b>-0.0017</b>	<b>0.030</b>	<b>**</b>
Preforecasts	0.1090	0.219		0.1284	0.157	
PreDisaggregate	0.0031	0.001	***	0.0022	0.023	**
LetterIssues	-0.0002	0.864		-0.0003	0.767	
Size	-0.0021	0.000	***	-0.0021	0.000	***
Loss	0.0051	0.003	***	0.0055	0.001	***
EarnVola	0.0153	0.240		0.0148	0.233	
EP	-0.0073	0.474		-0.0065	0.514	
YearFixed		No			Yes	
Obs		1339			1339	
R2		7.47%			10.38%	

\*, \*\*, and \*\*\* represent the two-tailed significance levels of 0.1, 0.05, and 0.01, respectively using t statistics adjusted for firm and year clustering (Petersen 2009).

### Comparison of positive and negative forecasts

Literature suggests that one possible motivation for managers to provide management forecasts is to reduce future litigation risks (e.g., Skinner 1994). Overall, investors are more concerned with managerial behaviors that lead to investment loss compared to actions that result in unearned gains, which usually result in opportunity costs (Cheng et al., 2013). After receiving comment letters, managers will expect higher litigation risks because comment letters may be used by investors as a supporting proof of misleading reporting in lawsuits against managers. If this is the case, I predict that the documented relationship between comment letters and management forecasts will be stronger for negative news forecast sample compared to positive news forecast sample. In this section, I divide the management forecasts into positive news and negative news sample and compare managers' forecast characteristics changes for the two separate samples. A forecast is categorized as positive if the lower end of the forecast value is larger than the analyst consensus on the day of issuance and negative if the upper end of management forecast value is lower than the analyst consensus. The results are presented in Table 3.8. The frequency of both positive forecasts and negative forecasts increases for the revenue recognition comment letter firms, but the coefficient in the positive forecast sample is not significant. Column 3 and Column 4 suggest that managers increase the frequency of disaggregated forecasts during the post-letter period, and the effect is more pronounced in negative forecast sample. The results indicate that the effect of series comment letters is more significant for negative forecast sample, supporting the view that managers provide more transparent disclosure to reduce litigation risks.

**Table 3. 9 Comparison of positive and negative news forecast**

	Frequency				Disaggregation			
	(1)	(2)	(3)	(4)				
Intercept	-2.170	0.000 ***	-0.205	0.332	-1.266	0.101	0.198	0.551
<b>Post</b>	-0.113	0.152	-0.080	0.099 *	-0.021	0.816	-0.030	0.555

CL	0.735	0.000	***	0.241	0.004	***	1.114	0.000	***	0.440	0.000	***
<b>CL*Post</b>	0.322	0.003	***	0.094	0.149		0.665	0.000	***	0.191	0.051	*
Size	0.192	0.000	***	0.063	0.000	***	0.227	0.000	***	0.079	0.001	***
Loss	-0.614	0.000	***	-0.194	0.000	***	-0.840	0.000	***	-0.276	0.000	***
EarningVola	-0.568	0.076	*	-0.459	0.071	*	-1.168	0.083	*	-0.599	0.099	*
CashVloa	0.728	0.097	*	0.613	0.056	*	1.234	0.160		0.760	0.118	
FirmAge	0.532	0.000	***	0.035	0.495		0.106	0.609		-0.168	0.054	*
Analyst	0.368	0.000	***	0.122	0.000	***	0.542	0.000	***	0.191	0.001	***
Diff				0.228						0.474		
P-value				0.005						0.001		
Year Effects	Yes			Yes			Yes			Yes		
Obs	4508			4510			4508			4510		
R2	15.94%			8.18%			10.70%			6.11%		

## CONCLUSIONS

This study provides useful implications for the debate on the effectiveness of the SEC comment letter review process. The SEC spends enormous resources in the review process, yet the actual benefits of such a process are not clearly documented. Researchers have assessed the potential impact of comment letters on firms' behaviors. It is found that, overall, managers improve the disclosure quality and information environment (Bens et al. 2016; Bozanic et al. 2017; Johnston and Petacchi 2017; Brown et al. 2018).

This study analyzes the impact of SEC comment letter review process on firms' voluntary disclosure of forward-looking information in the form of management earnings forecasts. It is argued that the SEC's regulatory scrutiny generally enhances firms' reporting quality and improves the information environment. This study adds to the literature by focusing on the provision of forward-looking information related to managers' estimates for their performance in the future. The regression results in this paper suggest that after receiving critical comment letters concerning revenue recognition issues, managers are likely to provide more frequent management earnings forecasts than firms that do not receive comment letters. In addition to that, firms also tend to disclose estimates

on the disaggregated earnings items. However, I do not find significant changes in the precision level of management forecasts. The effect of critical comment letter on management forecasts is more pronounced when the firms have negative news. I also observe an increase in the frequency of revenue account forecasts. I further evaluate the consequences of enhancing management forecast practices and find that the market reactions to the release of revenue recognition comment letter are weaker for firms that provide more frequent earnings forecasts and more disaggregated management forecasts after they receive the comment letter from the SEC.

## **Chapter 4: The impact of regulatory monitoring on corporate hedging activities**

### **INTRODUCTION**

This study evaluates the impact of the Securities and Exchange Commission's disclosure scrutiny on firms' hedging activities. Sarbanes Oxley Act of 2002 requires that the Securities and Exchange Commission (SEC) review all public registrants' filings at least once every three years. During the review process, if the SEC staffs determine that the financial statements are materially deficient or require additional clarification, they will issue comment letters to firm management. Upon receiving the comment letter, management has to respond within ten business days, either by submitting a response letter or agreeing to amend the reviewed filing. Unless all issues are resolved, follow-up comment letters and management responses will continue. Until then the SEC will issue a "Completion of Review" letter. Since August 2004, all comment letters are publicly released no earlier than 45 days after completion of the review. After January 1, 2012,

comment letters are released "no earlier than 20 business days" after the completion of the review process.

Despite the significant costs for the SEC to conduct the reviews and for firms to respond to the SEC's comments, whether the process provides useful information to investors is still controversial. Some prior studies suggest that SEC's oversight improves firms' disclosure transparency and thus the information environment (Bens, Cheng, and Neamtiu 2016; Bozanic, Dietrich, and Johnson 2017; Brown, Tian, and Tucker 2017; Johnston and Petacchi 2017). For example, Bozanic et al., (2017) evaluate several text attributes of corporate filings and find that the comment letter process enhances firms' qualitative disclosures in financial reporting. Johnston and Petacchi (2017) report that the adverse selection component of bid-ask spread decreases and the Earnings Response Coefficient (ERC) increases immediately after the resolution of issues raised in the comment letters. However, prior literature has more focused on how regulatory monitoring affects corporate disclosures, but few studies have so far closely examined and found any evidence on the effect of the comment process on firms' real economic behaviors with only several exceptions. Robinson, Xue, and Yu (2011) examine the effect of the comment letter review process on the real changes in management compensation policy, but they fail to find any change in disclosures related to these policies. More recently, Kubick et al., (2016) who investigate whether firms receiving comment letters on tax-related issues change their tax decisions, find a decrease in tax avoidance activities for the firms receiving such letters.

In this study, I focus on firms that receive comment letters addressing their hedging activities disclosures and compare them to a matched sample of firms that receive comment letters addressing other issues, i.e., the comment letters they receive do not mention derivatives-related keywords. The primary reason for firms to receive derivatives-related

comment letters is that the SEC questions the qualification of their hedge instrument effectiveness. I choose this setting for the following reasons. Financial derivatives have been used by many firms to hedge financial risks such as foreign exchange risks, interest rate risks, and commodity price risks (Zhang 2009). On the other hand, firms may also use derivatives to speculate in the capital and commodities markets (speculative hedgers) (e.g., Bodnar, Hayt, and Marston, 1998; Hentshcel and Kothari, 2001; Chernenko and Faulkender, 2011; Zhang, 2009; Bodnar et al., 2014). While effective hedging can potentially increase firm value by reducing firms' earnings and cash flow volatility (Zhang, 2009), tax (Smith and Stulz, 1985; Graham and Rogers, 2003), likelihood of distress, and the agency costs caused by underinvestment and risk-shifting problems (Smith and Stulz, 1985; Stulz, 1996), speculative position is likely to increase the earnings and cash flow volatility as well as the firm's risk (Geczy, Minton, and Schrand, 2007; Zhang, 2009). However, the "exceedingly complex" nature of derivatives makes it challenging for investors to assess a firm's derivatives activity from its financial statements even for the most sophisticated market participants such as financial analysts (Chang, Donohoe, and Sougiannis, 2016). The economic and reporting complexity of financial derivatives hinders investors from making optimal investment decisions. Therefore, it is of interest to find out whether the regulatory monitoring will enhance the effectiveness of derivatives activities and discourage firms from conducting speculative activities.

SFAS 133 requires that the ineffective portion of the hedging instrument be reflected in contemporaneous earnings under hedge accounting. If the current hedge instruments are not qualified as an effective hedge, the ineffective portion will be reflected in higher short-term earnings volatility, which is generally less desirable by investors. Volatile earnings is also associated with higher corporate equity and borrowing costs (Beatty and Weber, 2003;



Gay et al., 2010; Chen and King, 2014) and risks (Graham et al., 2005). Thus, managers may consider adjusting the current derivatives positions towards more effective derivatives portfolios. Also, the receipt of comment letter is likely to attract attention from the SEC's Division of Enforcement (Bozanic et al., 2017) as well as higher level of public scrutiny (Johnston and Petacchi 2017). This will likely deter managers' speculative behavior that is not in the shareholders' best interests. Taken together, I hypothesize that companies will overall experience a reduction of risk exposures after they receive derivatives-related comment letters. I primarily focus on three types of risk exposures in this study: 1) interest rate risk, 2) foreign exchange risk, and 3) commodity price risk. The three types of risk exposure are selected because the survey conducted by Bodnar et al. (1998) indicate that these risks are typically managed with derivatives. In addition, I conjecture that when the costs of using financial derivatives outweigh the benefits, managers are likely to stop holding derivatives positions after the receipt of comment letters that specifically mention their use of derivatives.

The study focuses on the comment letters issued during the period 2005 to 2014. I use the keyword search method to identify the derivatives-related comment letters. The final sample contains 657 comment letters that cover derivatives issues. The difference-in-difference regression results suggest that firms that receive comment letters related to derivatives experience a reduction in risk exposures to interest rate risk and foreign exchange risk. Derivatives-related letters receiver firms are also likely to stop using derivatives as hedging instruments.

The study contributes to the current literature in the following ways. First, I add to the research on the effectiveness of the SEC's disclosure regulation (e.g., Kedia and Rajgopal 2011; Files 2012; Cassell et al. 2013). Prior studies point out the lack of empirical

research on disclosure regulation effectiveness (e.g., Healy and Palepu 2001; Leuz and Wysocki 2016). I respond to their call for more examination on ex-ante and preventive approaches to disclosure regulation in addition to ex-post approaches such as enforcement or litigation. In this study, I extend the current literature by investigating the effect of a comment letter on firms' real behaviors and focusing on the hedging activities related to financial derivatives.

Second, the findings support the view that regulatory scrutiny on disclosure practice can potentially affect firms' real behavior changes. While comment letters mainly address issues related to firms' financial reporting practices, they can restrain firms from conducting activities that are not in investors' best interests. This study adds to the work of Kubick et al. (2016) who examine the effect of comment letters on tax avoidance. I focus on an opaque aspect of hedging activities and argue that disclosure scrutiny can potentially improve hedging effectiveness and discourage opportunistic derivatives usage.

Third, this study also contributes to the growing literature on derivatives usage and reporting (Aretz and Bartram 2010). Evidence suggests that investors and other practitioners generally have difficulties understanding firms' derivatives activities via financial reports due to the economic as well as reporting complexity (Holland and Glasgall 1994; Koonce et al. 2005; Chang et al. 2016). I extend this line of research by investigating whether SEC intervention can affect firms' hedging effectiveness and benefit shareholders.

The paper is organized as follows. Section 2 contains institutional background and develops hypotheses. Section 3 describes the data and the sample collection process, and Section 4 presents the results. Additional tests are discussed in Section 5. Section 6 concludes the paper.

## **BACKGROUND AND HYPOTHESES DEVELOPMENT**

### **Institutional Background and literature review**

After SOX of 2002, the Division of Corporation Finance in the Security Exchange Committee has selectively reviewed corporate filings to monitor and enhance reporting compliance. Every reporting firm must be reviewed at least once every three years, but some firms may be reviewed more frequently. The primary task of the SEC Corporation Finance Division is to scrutinize public filers' disclosure practices and reduce information asymmetry. The objective of the review process is to monitor and enhance firms' compliance with disclosure and accounting requirements. Once the SEC's review process reveals that the registrant's filing conflicts with applicable accounting standards or is deficient in clarity, the staff in Corporation Finance Division will issue a comment letter to the firm under review. Since the SEC only discloses which firms have been reviewed when they send out comment letters, firms and investors are generally not aware of the review process going on. After receiving the comment letters, companies are required to respond in ten business days. The conversation between the SEC and the respondent may continue for several rounds until the identified issues are all resolved. The firms can choose to either provide clarifying information or agree to revise current or future filings.

In the year 2004, the SEC decided to release comment letters and firms' response letters no earlier than 45 days after the completion of the review process, which provides more opportunity for researchers to better understand the SEC review process and how it influences firms' behaviors. This time lag is further reduced to 20 days after 2011. Extant research has investigated the relationship between SEC comment letters and disclosure practices (e.g., Cassel et al. 2013; Ettredge, Johnstone, Stone, and Wang 2011; Bens, Cheng, and Neamtiu 2016; Bozanic, Dietrich, and Johnson 2017; Brown, Tian, and Tucker 2017;

Johnston and Petacchi 2017). The literature generally focuses on the determinants and consequences of the review process. For example, Cassell et al., (2013) find that firms that are more complex, less profitable, have less effective internal control and with smaller audit firms are more likely to receive comment letters; they also report that it usually takes a longer time to complete the review process for those firms. On the other hand, Johnston and Petacchi (2017) document a decline in bid-ask spread and increase of earnings response coefficients after the comment letter review process is complete. Johnston and Petacchi (2017) focus on the qualitative disclosure characteristics and provide supporting evidence that firms generally enhance information transparency after comment letter reviews. Bens, Cheng, and Neamtiu (2016) focus on firms' fair value disclosure policies and suggest that the SEC review process enhances the quality and credibility of fair value disclosure. Some other studies also document the spillover effect of SEC comment letters. For example, Brown et al., (2017) find that firms tend to adjust subsequent disclosures if their peer firms have received SEC's comment letters that discuss the risk factor disclosure, reducing future likelihood of receiving SEC letters addressing the same issue.

Financial derivatives have been widely used by companies to manage risk. Derivatives are standard tools to hedge the risk that are not directly related to firms' operations (Bartram et al. 2009). For instance, firms may choose to hold foreign currency derivatives to hedge the exchange risk that is not likely to be influenced by management performance. The difficulties for market participants to understand and evaluate firms' derivatives activities are attributed to both economic as well as reporting complexity of hedging accounting. The problem intensifies when firms fail to apply accounting rules consistently and correctly (Kawaller 2004). SFAS 133 requires that companies measure all derivatives at fair value as an asset or liability and any changes in fair value be recognized

as unrealized gains/losses on the income statement. For instruments that are qualified as an effective hedge, companies can simultaneously record in the income statement the changes in fair value of the hedged item and of the effective hedge instrument. Effective hedging enables firms to reduce earnings and cash flow volatility (Zhang 2009). However, to be designated or qualified for FAS 133 hedge accounting, firms must provide hedge documentation and prove that the hedged item and hedging instrument have a correlation ratio between 80% and 125%. Otherwise, the derivatives position is not qualified for hedge accounting and any speculative or ineffective position will directly affect the contemporary earnings. Therefore, a typical issue raised in comment letters related to hedge accounting is whether firms present sufficient evidence to support the qualification of the hedge instrument. Below is one example of a comment letter addressing hedge accounting disclosure:

*“We note your disclosure that you have elected to fair value hedge certain commodity inventories. please address the following with respect to these hedges:*

- 1) tell us the commodities, including their specific locations that you have elected to hedge.*
- 2) tell us the hedging instruments used for your commodity hedges and if there are any basis differences (i.e., type of commodity or location) between the hedged item and the hedging instrument.*
- 3) tell us if you include any commodity inventory that you have elected to fair value hedge on your fair value hierarchy table on page 189, and if so please tell us the amount.”<sup>1</sup>*

## **Hypotheses Development**

While the staffs of the Corporation Finance Division focus mainly on corporate disclosures without much emphasis on firms' operations, their scrutiny on firm disclosure may eventually lead to firms' real activity changes (e.g., Kubick et al. 2016).

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<sup>1</sup> This example is extracted from the comment letter addressed to JP Morgan on the 10-k for fiscal year ended December 31, 2011.

First, firms may reevaluate their hedge portfolio effectiveness. Under SFAS 133, hedge accounting requires that the correlation between the underlying hedged item and the hedging instrument to be between 0.8 and 1.25. Thus, if the instruments, or a portion of the instruments, no longer meet the qualification requirement, firms are likely to experience an increase in earnings volatility, which is usually not in the shareholders' best interest. Consequently, firms take actions to increase the hedging effectiveness. Therefore, I predict that firms that receive derivatives-related comment letters are likely to reevaluate their risk-management policy and move towards more effective derivatives portfolios. I follow prior studies and mainly focus on firms' exposures to risks related to interest rate, foreign exchange rate and commodity price to captures firms' risk-management effectiveness (Guay 1999; Zhang 2009; Chang et al. 2016).

**H1:** *Ceteris paribus, the receipt of SEC comment letters related to financial derivatives is associated with lower future risk exposures.*

Next, I posit that the scrutiny on firms' hedge accounting disclosures may alter the costs and benefits associated with holding current derivatives positions. Adjusting the derivatives portfolio or providing more detailed information regarding the hedging strategy may increase compliance costs as well as proprietary costs to the firms. This is because disclosing hedging strategies may reveal private operational information to competitors. Thus, once the costs of derivatives hedging outweigh the benefits, managers tend to reduce the financial derivatives usage after receiving the comment letter or even stop holding derivatives positions in the subsequent period. The argument leads to the third hypothesis:

**H2:** *Ceteris paribus, firms receiving SEC comment letters on derivatives usage are likely to stop holding derivatives positions after receiving the letters.*

While I present the hypotheses in directional forms, it is possible that I will not observe the expected results if the firms choose not to take any actions to improve their risk-management effectiveness. Some firms merely present additional information to justify the current hedge portfolio without making real activities changes. For instance, Robinson et al. (2011) do not find significant changes in the compensation plan after firms receive the SEC comment letters discussing executive compensation disclosures. Alternatively, managers may choose not to make any changes at all. Instead of taking actions to address the issues mentioned by the SEC, managers also have the option of not complying the suggested directions in anticipation that the future filing will not be reviewed by Corporate Finance Division Staff. This is likely to happen when the costs of compliance are higher than the benefits (Robinson et al., 2011). In addition, I may not be able to find results consistent with the hypotheses if it takes a long time for firms to make changes to their risk management and the changes are not captured in the three-year window.

## RESEARCH DESIGN

### Hedging Effectiveness

In order to test the first hypothesis, I follow similar steps as in Guay (1999) to construct three measures to capture firms' risk exposures during the three-year period before and after they receive comment letters related to derivatives instruments (Also see Zhang 2009; Donohoe 2015; Chang, Donohoe, and Sougiannis 2016). Specifically, I take the absolute value of the estimated coefficient as the firm's risk exposure to the macro factor. The model to estimate the firm's risk exposure can be specified as below:

$$Ret_{i,t} = \beta_{0i} + \beta_{1i}MarketRet_t + \beta_{2i}Factor_t + \epsilon_{i,t}$$

where  $Factor_t$  refers to the monthly changes of the three macro risk factors ( $Chg\_Libor$ ,  $Chg\_Exchange$ ,  $Chg\_Commodity$ ).  $MarketRet_t$  is the monthly value-weighted market portfolio return. The absolute value of  $\beta_{2i}$  ( $|\beta_{2i}|$ ) is my measure of the particular firm's risk exposure to the macro factor during these 36 months.

### Untreated Control Group

I employ the propensity score matching design to estimate the probability of receiving derivatives related comment letters. Each treatment firm, i.e., firm that receives comment letters addressing derivative activities, is matched to an other-letter firm with the closest probability to receive a derivative comment letter, where other-letter firms refer to firms that receive the SEC comment letters, but the letters do not include derivatives-related issues (e.g., Bens, Cheng, and Neamtiu 2016). I estimate the following logit model to determine the propensity score based on the firm characteristics during the pre-letter period:

$$DrLetter = \alpha_0 + \alpha_1 LiborExpo + \alpha_2 ExchgExpo + \alpha_3 PPIExpo + \alpha_4 CashVola + \alpha_5 EarnVola + Controls + \epsilon$$

### Changes in Risk Exposures

Next, I examine the changes in firms' risk exposures before and after receiving comment letters. To examine **H1**, I run the following regression model, with the estimated risk exposure metrics from the following equation:

$$RiskExpo = \gamma_0 + \gamma_1 Post + \gamma_2 DrLetter + \gamma_3 DrLetter \times Post + Controls + \epsilon$$

$RiskExpo$  is one of the three risk exposure measures:  $LiborExpo$ ,  $ExchgExpo$ , or  $PPIExpo$ , estimated from the risk exposure regressions.  $DrLetter$  is set as one if the firm receives derivatives-related comment letters and zero otherwise.  $Post$  is equal to 1 for



the post-letter period and 0 for the pre-letter period. My variable of interest is the interaction term between *DrLetter* and *Post*. **H1** predicts a negative value for this coefficient. I control for other firm characteristics that are likely to be associated with firms' risk exposure levels.

### **Changes in Derivatives Use Patterns**

I investigate firms' derivatives activities after they receive derivatives-related comment letters. I argue that firms will weigh the costs and benefits of maintaining versus adjusting current hedging strategies after they receive comment letters addressing this issue. The costs of sticking to the current hedging strategies and refusing to make modifications might be significant. If managers fail to provide supporting evidence that proves the qualification of hedging instruments, they are not able to adopt hedge accounting and lose the benefits of derivatives hedging. Hence, the costs to continue using financial derivatives might exceed the benefits. Therefore, managers have incentives to stop holding derivatives positions in subsequent years. The logit regression model is as follows:

$$\begin{aligned} Stopper = & \sigma_0 + \sigma_1 DrLetter + \sigma_2 LiborExpo + \sigma_3 ExchExpo + \sigma_4 PPIExpo \\ & + \sigma_5 CashVola + \sigma_6 EarnVola + Controls + \epsilon \end{aligned}$$

*Stopper* is an indicator variable set as 1 for firms that no longer report holding derivatives positions in the next fiscal-year end after they receive the comment letter and 0 otherwise. I predict that firms with derivatives-related letters are more likely to stop holding derivatives positions. I also use alternative dependent variable measures where I set *Stopper* equal to 1 for firms that do not hold derivatives positions in the next two (three) years to provide further support for the argument.

## DATA

I obtain the data used in this study from various sources. The study focuses on the SEC comment letters issued from 2005 to 2013. The comment letter sample period is selected because the SEC started to release all comment letters from August of 2004. In addition, I require sufficient observations after firms receive comment letters for the analyses of the post-letter period. The comment letter sample is obtained from Audit Analytics. I use the links provided in Audit Analytics to extract the original text of comment letters from the SEC’s Electronic Data Gathering, Analysis, and Retrieval System. I then apply keywords search to identify whether the comment letter is related to derivatives usage<sup>2</sup> (Guay 1999; Zhang 2009; Chang et al. 2016). For a series of comment letters conversation, I keep only the first letter. I use keywords search to find derivatives user firms using SeekInf<sup>3</sup>. If firms include these keywords in their 10-K Filing in one year, I consider them as derivatives user firms during the corresponding fiscal year (e.g., Guay et al. 1999; Donohoe 2015; Zhang 2009; Chang et al., 2016). Financial data are gathered from Compustat and stock return data from CRSP. I also require the firm with available auditor information in Audit Analytics dataset. I remove financial firms and utility firms from my sample because they are more likely to use derivatives for trading purposes instead of hedging.

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**Table 4. 1 Sample description**

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Number of cases	Number of unique firms
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<sup>2</sup> The key words used to identify financial derivatives and hedging activities include “derivative”, “swap”, “hedging”, “forward contract”, “currency exchange contract”, “foreign exchange contract”, “futures contract” “SFAS 133” (e.g. Guay 1999; Zhang 2009; Chang et al. 2016). Companies that contain the key words in their annual reports are flagged as derivative users.

<sup>3</sup> [www.seekinf.com](http://www.seekinf.com)

10-K & 10-Q derivatives-related comment letters on Audit Analytics from 2005 to 2013	1,896	1,549
Less: Firms without COMPUSTAT GVKEY	(371)	(316)
Less: Firms without PERMNO CRSP	(355)	(293)
Less: Firms not in Audit Analytics Audit Fee database	(35)	(26)
Less: Financial firms	(478)	(337)
<b>Final Sample</b>	<b>657</b>	<b>577</b>

## RESULTS

### Descriptive Statistics

Table 4.1 presents the sample construction process. I start from 1896 derivatives-related comment letter cases. After removing firms without Compustat gvkey and CRSP permno identifiers, I further delete the observation if its auditor information is not available in the Audit Analytics database. These steps yield 657 comment letter cases (577 unique firms). I calculate the risk exposure metrics for the 36 months before and after the fiscal year that corresponds to the comment letter. For firm characteristics, I calculate the three-year average before and after the event year.

Table 4.2 shows the descriptive statistics for the firms that receive comment letter. The average firm size in the sample is \$5,855.067 million dollars. The mean exposure to interest rate change is 0.246. Similarly, the average values for the firms' foreign exchange exposure and commodity price exposures are 1.297 and 1.639.

	Mean	25%	50%	75%	Std	Obs
LiborExpo	0.246	0.064	0.148	0.305	0.295	11,856
ExchangeExpo	1.297	0.396	0.898	1.734	1.309	11,856
PPIExpo	1.639	0.499	1.123	2.160	1.674	11,856
Cash_vola (%)	2.020	0.586	0.790	1.415	4.494	11,856
Earn_vola (%)	2.990	0.414	0.922	2.335	7.493	11,856
Foreign	-0.111	0.000	0.000	0.018	9.712	11,856
Inventory	0.107	0.004	0.067	0.164	0.129	11,856
ShortInvest	0.061	0.000	0.002	0.057	0.125	11,856
Lsize	6.436	5.008	6.356	7.816	2.056	11,856
RetVola	0.034	0.022	0.030	0.042	0.021	11,856

BTM	0.602	0.294	0.509	0.826	2.330	11,856
Leverage	0.177	0.006	0.121	0.271	0.214	11,856
NonAuditFee	0.330	0.077	0.197	0.399	0.557	11,856
Big4	0.777	1	1	1	0.416	11,856

**Changes in Risk Exposure**

Table 4.3 presents the regression results for the risk exposure changes before and after receiving SEC comment letters for derivatives letter firms and other letter firms. I find that the derivative-related letter firms experience a reduction of risk exposures in all three types of macro-economic factors. Column 2 reports the difference-in-difference regression results. The coefficient of the difference-in-difference variable, i.e. the interaction term between *Post* and *DrLetter*, is negative and significant for *LiborExpo* (coefficient = -0.0572; p-value=0.01). The coefficient on *BTM* is negative but positive for return volatility (*RetVola*) and the percentage of non-audit fees (*NonAuditFee*), indicating that firms with higher return volatility and higher non-audit fees percentage are likely to experience larger exposures to interest rate change risks. I evaluate the changes in exposures to commodity price change risks and to exchange rate change risks after firms receive comment letters related to derivatives usage and report the results in Table 4.4 and Table 4.5. The coefficient of *Post×PPIExpo* is negative and significant (coefficient = -0.4202; p-value=0.001) but not significant for *Post×ExExpo* (coefficient = -0.0156; p-value = 0.873). Furthermore, I find that the coefficients on *BTM*, *RetVola*, and *NonAuditFee* are consistent across three types of risk exposure. Overall, the results suggest that derivative letter receiver firms experience a larger reduction in risk exposure to interest rate risk and commodity price risk, while other-letter receiver firms also have a similar degree of decrease in risk exposure to foreign exchange risk during the post-letter period.

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**Table 4. 3 Difference-in-Difference Results on Risk Exposure**

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**Panel A: Interest Rate Risk Exposure Change**

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	Interest Rate Risk Exposure			Interest Rate Risk Exposure		
Post	-0.0484	0.017	**	0.0224	0.160	
DrLetter				0.0139	0.400	
Post*DrLetter				-0.0572	0.010	***
Lsize	-0.0163	0.005	***	-0.0184	0.000	***
Foreign	0.0031	0.425		0.0015	0.508	
Inventory	0.0064	0.937		-0.0344	0.439	
Leverage	-0.0545	0.242		-0.0125	0.675	
BTM	-0.0019	0.265		-0.0025	0.034	**
ShortInvest	0.0109	0.924		0.0230	0.679	
RetVola	0.0165	0.150		0.0137	0.007	***
NonAuditFee	0.0145	0.377		0.0227	0.054	*
Big4	-0.0376	0.237		-0.0089	0.653	
Constant	0.3334	0	***	0.2983	0	***
R squared		0.06			0.06	
Obs		901			1796	

\*, \*\*, and \*\*\* represent the two-tailed significance levels of 0.1, 0.05, and 0.01, respectively using t statistics adjusted for firm and year clustering (Petersen 2009).

**Table 4. 4 Foreign Exchange Risk Exposure Change**

	Foreign Exchange Risk Exposure			Foreign Exchange Risk Exposure		
Post	-0.2022	0.006	***	-0.1685	0.015	**
DrLetter				-0.0096	0.898	
Post*DrLetter				-0.0156	0.873	
Lsize	-0.1217	0	***	-0.1166	0	***
Foreign	0.0656	0	***	0.0655	0	***
Inventory	-0.4409	0.23		-0.1412	0.533	
Leverage	-0.2917	0.282		-0.1351	0.341	
BTM	-0.0112	0.159		-0.0113	0.106	
ShortInvest	-0.0098	0.985		0.0171	0.951	
RetVola	0.1895	0	***	0.2102	0	***
NonAuditFee	0.1835	0.052	*	0.1867	0.002	***
Big4	-0.0268	0.868		-0.009	0.929	
Constant	1.6155	0	***	1.4081	0	***
R squared		0.16			0.2	
Obs		901			1796	

\*, \*\*, and \*\*\* represent the two –tailed significance levels of 0.1, 0.05, and 0.01, respectively using t statistics adjusted for firm and year clustering (Petersen 2009).

**Table 4. 5 Commodity Price Risk Exposure Change**

	Commodity Price Exposure			Commodity Price Exposure		
Post	-0.23	0.024	**	0.191	0.038	**
DrLetter				0.254	0.007	***
Post*DrLetter				-0.42	0.001	***
Lsize	-0.094	0.005	***	-0.126	0	***
Foreign	0.119	0	***	0.102	0	***
Inventory	-0.738	0.033	**	-0.491	0.054	*
Leverage	-0.229	0.448		-0.046	0.802	
BTM	-0.029	0.066	*	-0.027	0.067	*β
ShortInvest	0.599	0.283		0.246	0.477	
RetVola	0.2892	0	***	0.2434	0	***
NonAuditFee	0.182	0.22		0.111	0.141	
Big4	-0.007	0.971		-0.008	0.951	
Constant	1.413	0	***	1.496	0	***
R squared		0.16			0.16	
Obs		901			1796	

\*, \*\*, and \*\*\* represent the two –tailed significance levels of 0.1, 0.05, and 0.01, respectively using t statistics adjusted for firm and year clustering (Petersen 2009).

### Changes in Derivatives Use Patterns

H2 predicts that derivative user firms are more likely to pause their hedging activities after receiving derivatives related comment letters because the current hedging portfolios' costs outweigh the benefits if they are required to adopt stricter hedge accounting treatment by the SEC. I show the logit regression estimation results in Table 4.6. The dependent variable *Stopper* is set as 1 if the firm does not report derivatives activities in the post-letter period's 10-k filing, indicating that they do not use derivatives as hedging instruments in the period. I focus on one-year, two-year, and three-year windows in the analysis. Specifically, in column 1, the dependent variable is equal to 1 if the firm does not describe derivatives activities in the next one-year's 10-K filing. Similarly,

column 2 (3) shows the results of whether firms report derivatives activities in the next two (three) years; if the letter receiver firm does not provide derivatives activities discussion in any of the next two (three) years, the dependent variable is set as 1, and 0 otherwise. The coefficients of *DrLetter* are all positive and significant. Overall, the results suggest that firms that receive derivatives related comment letters are more likely to stop using financial derivatives as hedging instruments. Additionally, the results suggest that firms with high earnings volatility, heavy leverage, high return volatility, and short-term investment are more likely to maintain using derivatives in the next period while firms that have high book-to-market ratio as well as high market capitalization may stop using derivatives after they receive comment letters, but overall the coefficients are only marginally significant.

	1 Year			2 Year			3 Year		
DrLetter	1.3282	0	***	1.7879	0.001	***	2.1672	0.003	***
LiborExpo	0.0824	0.37		0.1635	0.117		0.2422	0.038	**
ExchangeExpo	0.0300	0.7		0.0337	0.712		0.0463	0.618	
PPIExpo	0.0453	0.513		-0.0190	0.822		-0.2962	0.105	
CashVola	4.5023	0.187		0.1372	0.976		0.6462	0.951	
EarnVOLA	-10.6328	0.146		-20.9641	0.073	*	-29.3341	0.094	*
Lsize	0.0556	0.659		0.1403	0.346		0.2697	0.073	*
Foreign	1.2509	0.684		2.4164	0.487		1.6620	0.707	
Inventory	-0.7796	0.507		-2.9559	0.053	*	-2.1985	0.205	
Leverage	-2.2059	0.1	*	-3.4604	0.055	*	-3.2726	0.093	*
BTM	0.1927	0.575		0.3707	0.288		0.8310	0.015	**
ShortInvest	-3.9003	0.2		-10.3455	0.098	*	-14.3900	0.262	
RetVola	14.6688	0.286		41.9765	0.01	***	45.7183	0.014	**
NonAuditFee	0.0327	0.898		-0.4279	0.329		-0.6890	0.194	
Big4	-0.1160	0.79		0.1030	0.86		0.5839	0.513	
Constant	-4.1686	0.001	***	-5.7012	0.001	***	-7.7578	0.001	***
Pseudo R squared	0.1999			0.1774			0.2273		
Obs	914			914			916		

\*, \*\*, and \*\*\* represent the two-tailed significance levels of 0.1, 0.05, and 0.01, respectively using t statistics adjusted for firm and year clustering (Petersen 2009).

### Falsification test

In this section, I conduct the falsification tests to further assure the robustness of the main results. I assume that firms receive the comment letters one year before the actual year (pseudo-event date) and test whether the relation between derivatives-related letters and risk management efficiency still exists. The results for the falsification test are reported in Table 4.7. The estimated coefficients for the interaction term between *DrLetter* and *Post* ( $Post \times DrLetter$ ) are no longer significant, indicating that the inferences drawn from the main tests are not likely to be confounded by the improvement of risk-management practices over the years.

<b>Table 4. 7 Falsification Test Results</b>						
<b>Panel A: Interest Rate Risk Exposure Change</b>						
Post	0.003	0.85		-0.004	0.822	
DrLetter				0.013	0.432	
Post*DrLetter				0.003	0.893	
Lsize	-0.026	0	***	-0.023	0	***
Foreign	-0.274	0.044	**	-0.110	0.353	
Inventory	-0.032	0.638		0.072	0.153	
Leverage	0.003	0.942		0.033	0.332	
BTM	-0.020	0.113		-0.018	0.106	
ShortInvest	0.070	0.537		0.213	0.015	**
RetVola	-0.051	0.932		0.846	0.094	*
NonAuditFee	0.058	0.048	**	0.038	0.02	**
Big4	-0.017	0.524		-0.015	0.454	
Constant	0.416	0	***	0.334	0	***
R squared		0.0633			0.0756	
Obs		998			1727	
<b>Panel B: Foreign Exchange Risk Exposure Change</b>						
Post	-0.221	0.001	***	-0.181	0.025	**
DrLetter				-0.010	0.901	
Post*DrLetter				-0.022	0.835	
Lsize	-0.091	0	***	-0.079	0	***
Foreign	-0.264	0.59		-0.213	0.697	
Inventory	-0.791	0.001	***	-0.637	0	***
Leverage	-0.008	0.964		0.015	0.916	



BTM	0.103	0.119		0.016	0.76
ShortInvest	0.275	0.522		0.470	0.165
RetVola	17.472	0	***	21.723	0 ***
NonAuditFee	-0.036	0.716		0.072	0.353
Big4	-0.214	0.091	*	-0.146	0.107
Constant	1.522	0	***	1.240	0 ***
R squared		0.2057			0.207
Obs		998			1727

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**Panel C: Commodity Price Risk Exposure Change**

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Post	0.000	0.998		0.081	0.44
DrLetter				0.095	0.349
Post*DrLetter				-0.079	0.573
Lsize	-0.072	0.024	**	-0.090	0 ***
Foreign	-1.286	0.081	*	-0.388	0.596
Inventory	-0.595	0.068	*	-0.546	0.034 **
Leverage	0.020	0.939		0.029	0.883
BTM	-0.033	0.709		-0.035	0.636
ShortInvest	0.649	0.226		0.544	0.184
RetVola	25.536	0	***	26.106	0 ***
NonAuditFee	0.161	0.264		0.176	0.076 *
Big4	-0.117	0.507		0.022	0.858
Constant	1.342	0	***	1.211	0 ***
R squared		0.1533			0.1467
Obs		998			1727

---

\*, \*\*, and \*\*\* represent the two-tailed significance levels of 0.1, 0.05, and 0.01, respectively using t statistics adjusted for firm and year clustering (Petersen 2009).

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## CONCLUSIONS

The essay analyzes changes in firms' derivatives usage after they receive the SEC-issued comment letters related to the derivatives usage disclosure. Derivatives-related comment letter receiver firms are found to experience a reduction of exposure to interest rate risk, foreign exchange risk, and commodity price risk. I apply a difference-in-difference research design to compare the derivative-letter receiver firms to other-letter receiver firms and find that derivative-letter firms generally have a larger reduction in risk exposures.

The study adds to the debate on the effectiveness of disclosure regulation, especially the comment letter review process. Prior research has established that comment letter review process enhances reporting quality and improves information environment (e.g. Boone et al., 2013; Brown et al., 2015; Bozanic et al., 2017; Johnston and Petacchi, 2017; Dechow et al., 2016; Duro, Heese, and Ormazabal, 2018). It is less investigated how regulatory scrutiny on disclosure can influence real activities. In this study, I specifically focus on derivatives usage activities, which may cause great confusions for financial statement users. The study also provides evidence suggesting that firms that receive derivatives-related comment letters are likely to experience an improvement of its risk-management effectiveness.

## **Chapter 5: Conclusions and Future Research**

### **DISCUSSION**

This dissertation contains three independent but related essays that focus on CEO career concerns, regulatory scrutiny, and management forecast characteristics.

The first essay investigates the impact of career concerns on management forecast precision decisions. It proposes that new CEOs under great career concerns are likely to issue more (less) precise forecasts when the underlying news is more (less) positive. The argument builds on prior studies that suggest market reaction is positively associated with forecast precision level, i.e., given the underlying news content, more precise forecasts are followed by stronger market reaction. Thus, managers may choose forecast precision strategically to influence the market perceptions on their ability (Li and Zhang, 2015; Cheng et al., 2013). The results suggest that new CEOs tend to increase the forecast

precision of more positive forecasts and reduce precision for more negative forecasts to highlight positive signals and obfuscate negative signals. The effect of CEOs' early tenure on forecast precision further is to be stronger when firms are headquartered in the states with stricter enforcement of the non-compete clause, especially when in-state industry concentration is high. The association between forecast precision and forecast news is also more significant when institutional ownership is small, when new CEOs are young, and when new CEOs are hired from outside the firm. The second essay aims to evaluate how comment letters affect firms' voluntary disclosure practices. Since the comment letter review process mainly addresses mandatory filing disclosure inadequacy, it is worth investigating how it may affect voluntary disclosure provision. As enormous resources have been devoted to the comment letter review process, regulators and investors voice the concern of potential unintended impacts of the review process. Leuz and Wysocki (2016) call for more research on the effectiveness of the SEC review process. Specifically, the third essay examines the provision of forward-looking information by investigating several management forecast characteristics: forecast frequency, precision, and disaggregated forecasts. The findings suggest that managers are likely to provide more frequent earnings forecasts after the receipt of critical comment letters. Furthermore, firms enhance the voluntary disclosure of disaggregated earnings item forecasts. I then document a smaller market reaction towards the public release of comment letters for managers who provide better voluntary disclosure after receiving comment letters. The third essay investigates the impact of SEC comment letters on firms' real activities. I find that firms' hedging effectiveness increases after they receive comment letters that question the disclosure of derivatives usage, where the hedging effectiveness is measured as the risk exposures to

several key macro-economic factors. The results also suggest that firms tend to stop using derivatives as hedging instruments after receiving the derivatives-related comment letter.

### **LIMITATIONS**

I note that the essays in this thesis is not without their limitations that may potentially hinder the generalization of the findings. In the first essay, the biggest challenge is the measure for managers' career concerns. We follow prior literature that uses the first three years in tenure as the proxy for career concerns and compare CEO's behaviors in the first three years with those in later years (e.g., Zhang 2008; Ali and Zhang, 2015). However, there are possible drawbacks of using this approach. Ideally, we compare CEOs when they are in the early tenure to themselves when they stay in the position for an extended period. Unfortunately, this comparison is not attainable in this setting because a large percentage of CEOs do not stay long enough in the position, i.e., longer than three years (e.g., Ali and Zhang, 2015). It is not surprising since the manager career concern literature is built on the premise that managers are under great risk of turnover during early tenure years. Keeping only CEOs who "survive" longer than three years will introduce a severe selection bias because one critical assumption in this study is that CEOs with poor ability are likely to be dismissed soon after they are promoted to the corporate leader. While this concern is not likely to be fully addressed, I use several cross-sectional analyses that invoke the variation in career concerns to enhance the argument. The cross-sectional results provide some assurance that the findings support our arguments. The limitations in the second essay mainly relate to the selection of comment letters type. The SEC comment letter can raise a wide variety of questions from a simple clarification to more serious ones that question the firms' accounting treatment. Dechow et al., (2016) use revenue recognition comment letters to proxy for more important comment letters and argue that revenue recognition is

the most critical issues addressed in comment letters. However, it is possible that other letters are also considered important by managers but not captured in this analysis. Thus, the findings in this study may not be generalized to other comment letters. In addition, I use management forecasts to analyze managers' disclosure of forward-looking information. It is also likely that managers choose other tools instead of earnings forecasts to enhance their disclosure such as conference calls, press release, etc. In future research, it is meaningful to also investigate management disclosures through other channels. In the last essay, I use textual analysis tools based on keywords search to extract comment letters related to derivatives activities (e.g., Guay 1999; Zhang 2009). However, this method is not free from errors. In some cases, a comment letter may include the keywords but are not actually discussing issues related to derivatives activities. On the other hand, if I impose keywords search that is too narrow, I may miss key phrases and result in a very small sample size. Overall, this method may lead to sampling errors.

### **FUTURE RESEARCH**

Combined, the dissertation has several implications for future research. The first paper analyzes one characteristic of management earnings forecast - forecast precision. The extant literature suggests that managers may select certain levels of forecast precision to achieve self-serving goals (e.g., Cheng et al., 2013). As pointed out by Hirst et al. (2008), more research is warranted on the examination of managerial incentives may influence managers decisions on forecast characteristics. I find that career concern is an important incentive that drives managers to make strategic disclosure choices to send favorable signals about their abilities. While career concerns have a great impact on managerial behaviors, it is hard to evaluate and manage. Existing studies have explored its role in shaping financial reporting and forecasting practices. For future research, it will be of

interests to investigate how career concerns may affect managers' actions in other dimensions. For instance, researchers can analyze real activities such as corporate investment on innovation and see whether career concerns motivate managers to make more innovative investments or prohibit them from taking innovation risks.

The second essay analyzes the changes in managers' voluntary disclosure of forward-looking information after they receive critical comment letters. Bozanic et al. (2017) examine managers' financial reporting practice changes and their implications for firms' information environment. In this study, I complement and extend current research that examines the consequences of comment letter review process and use the issuance of management earnings forecasts as proxies for voluntary disclosure. However, as aforementioned, investigation of other outlets of voluntary disclosure such as conference calls or press releases may give us a clearer picture of the effects of comment review process on managers' disclosures.

Finally, the third essay focuses on firms' derivatives activities. Firms' financial derivatives activities are complicated, and the disclosure on derivatives usage is difficult for financial statement users to evaluate. It is essential to understand what factors may affect firms' hedging efficiency. Future studies can further refine the textual analysis tools and create accurate measures that are capable of extracting useful information in comment letters efficiently.

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## Appendix

### Appendix A for Chapter 2

#### Variable Measurement

##### Dependent Variables

**Precision** Management forecast precision is defined as the difference between the high- and low-end estimates, divided by the absolute value of the mid-point of the estimate, taking negative value; for point estimate, precision is 0.

##### Independent Variables

**News** Forecast news is defined as the difference between mid-point of management forecasts (value of forecast if it is a point estimate) and the analyst consensus of the analyst forecasts issued within 90 days prior to the management forecasts.

**Early** Indicator variable equals to 1 if the management forecast is issued by CEOs within the first three years of a CEO's service.

##### Control Variables

**Size** Firm's market capitalization; we use the log transformation in the correlation matrix and regression analysis.

**M/B** Market-to-book ratio, calculated as the ratio of the market capitalization of equity divided by the book value of equity at the end of the quarter before the forecast;

**Loss** Loss indicator, defined as 1 if the actual EPS is negative for this quarter and zero otherwise.

**Return Volatility** Return volatility is defined as the standard deviation of daily stock returns over the 250 trading days prior to the management forecast release date.

**Analyst Dispersion** Analyst dispersion is calculated as the standard deviation of the analyst forecasts issued in the 90 days before management forecasts

**Analyst Coverage** Analyst coverage is defined as the number of unique analysts who provide earnings forecasts in the 90 days before management forecast, taking logarithm

**Horizon** The number of days between the forecast date and the fiscal period end date, taking logarithm.

**R&D** Research and development expenditures divided by total assets, set to zero if missing.

**Institutional Ownership** Institutional ownership is defined as the percentage of shares held by institutional investors

**Litigation** Indicator variable, equals to 1 if the firm operates in a high-litigation industry (SIC codes 2833–2836; 3570–3577; 3600–3674; 5200–5961, and 7370–7374), and zero otherwise.

**RegFD** Indicator variable that equals to 1 if the forecast is provided after Oct. 2000, and zero otherwise

## Appendix A for chapter 3

### Variable Definitions

#### Forecast Characteristics

Frequency	The number of times management issue forecasts during the test period.
Precision	The average precision of forecasts issued during the year. The forecast precision is calculated as the negative value of the difference between the higher end and lower end of the forecasts, divided by the absolute value of true earnings outcome. If the forecast is a point estimate, the precision is defined as 0.
Disaggregate	The number of disaggregated forecasts on line items for all the management forecasts issued during the year, and 0 otherwise.

#### Comment Letter Characteristics

CL	Indicator variable set as 1 if the firm receive at least one comment letter during the test period, and zero otherwise.
Revenue	Indicator variable set as 1 if the firm receive revenue recognition-related comment letter during the test period, and zero otherwise.

#### Firm Characteristics

LnSize	Firm capitalization at fiscal year-end, taking logarithm.
Restatement	Indicator variable set as 1 if the firm has restated within one year before the fiscal year end.
EP	Earnings to price ratio
Age	Number of years since the establishment of the firm
Big4	Indicator variable set as 1 if the firm is audited by a Big 4 audit firm for the fiscal year
IPO	Indicator variable set as 1 if the firm has IPO within two years before the fiscal year end
CashVola	Cash flow volatility is defined as the standard deviation of quarterly operating cash flow divided by total assets for the three years before and after the comment letter.
EarnVola	Earnings volatility is defined as the standard deviation of quarterly operating cash flow divided by total assets for the three years before and after the comment letter.

## Appendix A for chapter 4:

### Variable Definitions

#### Derivatives Activities

**DrLetter** Equals 1 if the comment letter discusses issues relating financial derivatives, and 0 otherwise

**Stopper** Equals 1 if the firm do not mention derivatives in their financial reports in the next one year, two years, or three years after receiving the comment letter, and 0 otherwise

#### Risk Exposure Measures

**LiborExpo** Risk exposure to interest rate risk, defined as the absolute value of the estimated coefficient from the regression where I regress firms' monthly stock return on the monthly percentage change in the London Interbank Offered Rate for 36 months before and after the comment letters' corresponding fiscal period end.

**ExchExpo** Risk exposure to foreign exchange rate risk, defined as the absolute value of the estimated coefficient from the regression where I regress firms' monthly stock return on the monthly percentage change in the Federal Reserve Board trade-weighted U.S dollar index for 36 months before and after the comment letters' corresponding fiscal period end.

**PPIExpo** Risk exposure to foreign commodity price risk, defined as the absolute value of the estimated coefficient from the regression where I regress firms' monthly stock return on the monthly percentage change in the producer price index for 36 months before and after the comment letters' corresponding fiscal period end.

#### Firm Characteristics

**Size** Firm's market capitalization; I use the log transformation in the correlation matrix and regression analysis. In my main analyses, I calculate the average of firm size for the three years before and after receiving the comment letter

**Leverage** Firm's leverage ratio, defined as long term debt divided by total assets, taking the average of the three years before and after the comment letter year.

**Foreign** The three-year average of foreign income divided by total assets, taking the average of the three years before and after the comment letter year.

**Inventory** Total inventory divided by total assets, taking the average of the three years before and after the comment letter year.

**BTM** Book to market ratio, calculated as the ratio of the book value of equity divided by the market capitalization of equity, taking the average of the three years before and after the comment letter year.

**ST\_Inv** Short-term investment deflated by total assets, taking the average of the three years before and after the comment letter year.

**Cash** The three-year average of cash held divided by total assets, taking the average of the three years before and after the comment letter year.

**RetVola** Monthly stock return volatility, defined as the standard deviation of stock return during the 36-month period before and after the comment letter.

**NonAudit** Percentage of non-audit fees over total audit fees, taking the average of the three years before and after the comment letter year.

**Big4** Big four indicator variable, set to 1 if the firm is audited by one of the Big 4 accounting firm and 0 otherwise.