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CEO Characteristics and the Choice of Using Non-Financial Performance Measures in Compensation Contracts

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A dissertation submitted in partial fulfillment of the requirements for the degree of Doctoral of Philosophy in Business at Virginia Commonwealth University.

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"Continuous effort - not strength or intelligence - is the key to unlocking our potential."
-Winston Churchill

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ABSTRACT

CEO CHARACTERISTICS AND THE CHOICE OF USING NON-FINANCIAL PERFORMANCE MEASURE IN COMPENSATION CONTRACTS

By Melloney Cheylae Simerly, Ph.D.

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This study examines how CEO characteristics influence the decision to use non-financial performance measures (NFPM) in compensation contracts. Specifically, I examine the CEO characteristics: gender, age, tenure, risk-aversion, overconfidence, and sensitivity of wealth. Using trait theory and the extant literature examining NFPM, females, age, tenure, and risk-aversion are expected to be positively associated with the use of NFPM while competing hypotheses are presented for overconfidence and sensitivity of wealth. Employing a two-way fixed effects method, controlling for fixed effects at the firm and year level, I find that female CEOs are positively associated with the use of NFPM because of increased risk-aversion. The short-term horizon perspective of younger and older CEOs lead to less preference for NFPM. Increasing tenure is associated with the power to self-select into contracts that include NFPM. Moreover, tenure is incrementally more important than age and gender. The results for

overconfidence are inconclusive. Finally, risk-aversion and sensitivity of wealth are both positively associated with weight of NFPM. The results of this study further the understanding for the use of NFPM and provide information regarding the specific managerial fixed effects that influence compensation decisions.

I. INTRODUCTION

The use of non-financial performance measures (NFPM) in compensation contracts has been gaining popularity among firms. NFPM include performance indicators such as market share ratios, efficiency and productivity metrics, quality indicators, innovation measures along with customer satisfaction and employee satisfaction scores (Ittner et al. 1997). These performance indicators include constructs not incorporated in traditional financial performance measures such as revenue, earnings, or some form of net income (Murphy 1999; Kaplan and Atkinson 1998). Kaplan and Atkinson (1998) argue that including both financial and non-financial measures in the design of compensation contracts engenders decisions that are based on a long-term perspective, thus decreasing short-term incentives that are not aligned with shareholder interests. In addition, NFPM are arguably better indicators of managerial performance than financial measures alone (Johnson and Kaplan 1987; Singleton-Green 1993; Kaplan and Norton 1996, 2001; Bushman et al. 1996; Lillis 2002). However, many companies do not use NFPM in the design of chief executive officer (CEO) compensation contracts (Ittner and Larcker 1998b, 2003). Thus, it is important to understand the factors that lead to the decision to use NFPM.

The study of executive incentives is complex and often controversial (Finkelstein and Hambrick 1988; Ryan and Wiggins 2001). Larcker (1983) demonstrates that implementing an incentive performance plan is advantageous by documenting an increase in capital market investments and a positive market reaction following performance plan adoption. The extant

literature provides evidence that using NFPM can lead to several benefits that include: better alignment of managerial actions to firm strategy (Kaplan and Norton 1996; Ittner et al. 1997; Ittner and Larcker 1998a, 1998b; Banker et al. 2000; Chenhall 2003; Ittner et al. 2003b), improved performance (Amir and Lev 1996; Ittner and Larcker 1998a; Banker et al. 2000; Maines et al. 2002; Said et al. 2003; HassabElnaby et al. 2005; Van der Stede et al. 2006; Hauser et al. 1994; Sedatole et al. 2003), expanded opportunity to assess managerial ability (Kaplan and Norton 1996; Johnson and Kaplan 1987; Eccles 1991), increased robustness in performance measurement (Singleton-Green 1993; HassabElnaby et al. 2010), and more timely feedback, as well as reduction of risk and noise inherent in financial measures (Lambert and Larcker 1987; Bruns and McKinnon 1993; Bushman et al. 1996; Feltham and Xie 1994; Hemmer 1996; Davila and Venkatachalam 2004). Srinivasan (2004) finds that NFPM contribute incremental explanatory power over financial measures in executive performance pay for firms in the airline industry. HassabElnaby et al. (2005) investigate why firms retain NFPM in compensation contracts, addressing Ittner and Larcker's (2001) concern about lack of consistency in the use of performance metrics. Their results establish firm performance as a key determinant for the retention of NFPM and provide evidence that the appropriate use of NFPM enhances performance. Nonetheless, these studies do not address what leads to the adoption of NFPM.

Ittner et al. (1997) find that the likelihood of using of nonfinancial performance measures in CEO bonus contracts increases with degree of innovation, with quality initiative strategies, and with the level of noise in financial measures. They find no evidence that the use of NFPM in bonus contracts is associated with the level of CEO equity holdings or the influence of the CEO over the board of directors (BOD). However, to proxy for CEO influence, Ittner et al.

(1997) use a composite measure including factors related to the CEO's firm specific involvement including, the number of directors appointed by the CEO, whether the CEO is chairman of the board, the number of shares exercisable by the CEO, and the number of outstanding shares held by institutional investors. Research indicates that NFPM are positively related to the length of the product life cycle and negatively related to financial distress (Said et al. 2003). Firm characteristics explain a significant amount of the variance for using NFPM in compensation contracts (Said et al. 2003; HassabElnaby et al. 2005). Said et al. (2003) and HassabElnaby et al. (2005) report that prospector firms, quality-oriented firms, healthy firms, firms with longer product development cycles, and regulated firms rely more heavily on the use of NFPM. However, these studies do not examine the specific characteristics or the traits of CEOs in relation to the adoption of NFPM. An objective of this study is to fill that gap in the accounting literature.

Prior literature highlights the importance of managerial characteristics in firm decisions regarding compensation. Bertrand and Schoar (2003) use panel data to investigate firm level effects resulting from the characteristics of individual managers by using manager mobility across firms. They identify patterns that signal differences in managerial styles and substantiate that managerial fixed effects make a difference in firm level compensation and governance outcomes. Alternatively, by using fixed effects regression methods to separate time invariant effects from the influence of individual managers, Graham et al. (2012) find that manager fixed effects explain a major portion of the variation in levels of executive pay, and they quantify the importance of managerial characteristics influencing total executive compensation. This research provides evidence that individual CEOs influence CEO pay decisions. In addition, specific CEO traits can affect firm pay structures. For example, age and tenure can influence the level of both

cash and incentive compensation (Lewellen 1987; Finkelstein and Hambrick 1989; Mehran 1995; Ryan and Wiggins 2001; Harvey and Shrieves 2001). Moreover, CEOs as a whole are risk-averse and prefer to have less of their pay tied to stock market performance (Lambert et al. 1991; Beatty and Zajac 1994; Jin 2002). However, prior literature indicates that the level of risk-aversion varies among CEOs (May 1995). This variation may affect the type of incentives offered to, or accepted by, these executives (Abdel-Khalik 2007). The managerial trait of overconfidence is also associated with the structure of executive incentive contracts (Gervais et al. 2011; Humphrey-Jenner et al. 2014). Humphrey-Jenner et al. (2014) find that firms can use less costly compensation schemes and offer overconfident CEOs more incentive-based pay in order to exploit their overly biased views regarding future firm performance. Finally, firm specific involvement and CEO power may also affect firm and compensation decisions (Bergstresser and Philippon 2006; Grant et al. 2009; Brick et al. 2006; Karuna and Merchant 2014). Murphy (1999) points out that CEOs and other top executives influence the design of compensation contracts and the performance measures included. Nevertheless, the extant literature does not document whether individual CEO characteristics matter in decisions regarding the adoption of NFPM.

Firms hire managers with the expectation that those managers will make decisions on behalf of owners under circumstances of uncertainty (Coase 1937; Jensen and Meckling 1976). The process by which managers make decisions is constrained by available information and by the ability of the manager to comprehend or obtain all of the facts. This is known as 'bounded rationality' (March and Simon 1958). Moreover, managerial decisions are the result of behavioral characteristics and not just a consequence of the pursuit of economic optimization (Cyert and March 1963). Risk- and effort-averse managers may not always act in the best

interest of the shareholders (Jensen and Meckling 1976; Kaplan 1982). To mitigate this issue, firms can offer incentives that align managerial motivation with shareholder interests (Jensen and Meckling 1976). The goal of compensation contracting is to provide incentives for managers to act in the best interest of shareholders while lowering the cost of managerial monitoring (Fama and Jensen 1983a, 1983b). There are four main theories discussed in the literature concerning strategic firm behavior and managerial behavior leading to the use of performance incentives that may or may not include NFPM: agency theory, contingency theory, upper-echelon theory, and trait theory.

According to agency theory, the design of compensation contracts should include incentives to entice risk- and effort-averse managers to act in the best interest of shareholders (Kaplan 1982; Indjejikian 1999). Therefore, these contracts contain components that impel managers to put forth effort and work to align manager interests with shareholder interests (Kaplan 1982; Indjejikian 1999). However, traditional financial market performance measures are noisy and can add risk that weakens performance incentives (Feltham and Xie 1994). Consistent with agency theory, NFPM can add value to traditional performance systems that utilize only noisy financial performance measures, by providing more information about managerial behavior and reducing uncertainty (Lambert and Larcker 1987; Bruns and McKinnon 1993; Bushman et al. 1996; Feltham and Xie 1994; Hemmer 1996; Davila and Venkatachalam 2004). Results from Hemmer (1996) indicate that the use of NFPM is valuable in promoting a long-term managerial focus and reducing managerial myopia. However, there are other factors to consider regarding the use of NFPM and performance measurement systems including contingency factors.

Contingency theory proposes that interactions between managerial decisions and environmental forces explain firm outcomes (Hrebiniak and Joyce 1985). Prior literature supports the use of contingency theory in explaining the use of NFPM (Hoque et al. 2001; Said et al. 2003: Van der Stede et al. 2006). Finkelstein and Boyd (1998) use contingency theory to demonstrate that a better 'fit' between CEO compensation and the firm context (discretionary environment) leads to improved firm performance. Hoque et al. (2001) establish that the intensity of market competition and use of multiple performance measures (including NFPM) are positively related, providing additional evidence that environmental context is a key determinant for the use of NFPM. Likewise, prior management accounting literature provides evidence that the performance benefits from using NFPM are contingent on the 'fit' between the NFPM and firm characteristics (Said et al. 2003; HassabElnaby et al. 2005; Van der Stede et al. 2006). Previous research establishes that environmental forces, firm characteristics, and other contingency factors play a role in the adoption of NFPM. However, what influence do managers themselves have regarding the use of NFPM in compensation contracts?

Upper-echelons theory contributes a foundation for understanding the importance of executives in organizational strategy choices (Hambrick and Mason 1984). This perspective views organizational behavior as a reflection of the most powerful actors in the firm, the top management team. Hambrick and Mason (1984) contend that observable managerial demographics are valuable in the study of firm strategic choices because psychological constructs and cognitive positions are difficult to confirm empirically. Prior literature supports the use of upper-echelons theory when studying corporate strategy and outcomes. Finkelstein and Hambrick (1990) document that long-tenure managerial teams tend to follow more persistent strategy and strategies that are consistent with industry norms. Wiersema and Bantel (1992)

assess the relationship between managerial team demographics and change in strategy (level of diversification) for Fortune 500 firms. After controlling for contingency factors (performance, firm size, managerial team size, and industry structure), they find that managerial team demographics such as age, tenure, and educational background are significantly related to changes in diversification. Providing additional evidence to support upper-echelons theory, results from Hambrick et al. (1993) indicate that longer tenure is associated with an increased commitment to the status quo and that, the better a firm's performance, the less likely an executive will be to change firm strategy. Hambrick et al. (1993) draw their conclusions based on the characteristics of individual managers rather than teams, using upper-echelons theory. Thus, it follows that the characteristics and traits of individual managers may also have a significant impact on the administrative and strategic choices of firms, such as the use of NFPM in compensation contracts.

Early studies concerning leadership traits focused on differentiating leaders from non-leaders (Stogdill 1948; Bass and Stogdill 1990; Hogan et al. 1994; House and Aditya 1997; Daft 1999). Bass and Stogdill (1990) conduct a review of the literature in this area and conclude that many determinants, including contextual factors and individual traits, affect leadership differentiation. More recently, DeRue et al. (2011) conduct a meta-analysis on the trait theory paradigm and advance the position that leadership outcomes are influenced through attributions made by others, rather than as a direct result of managerial traits. The finance and economic literature present results consistent with trait theory and contribute effective methods for separating the influence of firms from individual managerial effects. Bertrand and Schoar (2003), use a matched manager-to-firm dataset to track managers across firms and over time. Their results indicate that managerial characteristics account for significant variability in firm policies,

including compensation and governance decisions. Using more sophisticated analysis methods, several studies use fixed effects techniques to separate firm fixed effects from managerial fixed effects. These studies substantiate that the personal characteristics of managers lead to differences in corporate investment and compensation decisions (Malmendier and Tate 2005, 2008; Graham et al. 2012). Similarly, accounting research provides evidence consistent with trait theory, demonstrating the influence of managerial traits for the use of performance measures and compensation choices (Ittner et al. 2003a; Karuna and Merchant 2014). Thus, it follows that NFPM, another measure that can be included in the structure of compensation contracts, may be associated with the individual characteristics of CEOs.

I will examine several managerial characteristics that prior literature suggests may lead to different attributions or preferences for the use of NFPM. These include gender, age, tenure, risk-aversion, overconfidence, and sensitivity of wealth. Prior research indicates that female CEOs and older CEOs exhibit higher levels of risk-aversion (Byrnes et al. 1999; Cullis et al. 2006; Powell and Ansic 1997; Barua et al. 2010; Mehran 1995; Harvey and Shrieves 2001). As a consequence, I propose that female CEOs and older CEOs will be more positively associated with the use of NFPM. In addition, tenure is at the discretion of the BOD. However, increased tenure may lead to more influence over the BOD and a desire to lower risk in incentives (Finkelstein and Hambrick 1989; Ryan and Wiggins 2001; Lambert et al. 1991; Beatty and Zajac 1994; Jin 2002). Evidence from Bushman et al. (1996) suggests that CEO tenure is associated with less reliance on financial performance measures. Accordingly, I predict CEO tenure will be positively associated with the use of NFPM.

NFPM motivate managers to make decisions based on a long-term perspective, thereby aligning their actions with shareholder interest (Johnson and Kaplan 1987; Kaplan and Atkinson

1998; Singleton-Green 1993; Kaplan and Norton 1996, 2001; Bushman et al. 1996; Hemmer 1996). Moreover, NFPM can protect managers from uncontrollable factors resulting in uncertainty and increased risk in financial performance measures (Bruns and Mckinnon 1993; Feltham and Xie 1994). Therefore, risk preferences are important to consider regarding the decision to adopt NFPM. May (1995) documents that executives consider personal risk when making decisions. CEOs as a group are considered risk-averse because, compared to the broad population of investors, their investment portfolios are typically undiversified (Lambert et al. 1991; Beatty and Zajac 1994; Jin 2002). However, there may be substantial variation among CEOs regarding their levels of risk-aversion (May 1995; Abdel-Khalik 2003, 2007). Furthermore, managers tend to self-select into compensation structures that are aligned with their risk preferences (Abdel-Khalik 2003). Consequently, I argue that the varying levels of risk-aversion among CEOs may influence the use of NFPM. I expect CEOs with higher levels of risk-aversion to be more strongly associated with the use of NFPM (Bruns and McKinnon 1993; Feltham and Xie 1994).

The extant literature provides evidence that executive overconfidence is important to consider when studying corporate decisions (Malmendier and Tate 2005, 2008; Campbell et al. 2011). Overconfidence can lead to managerial bias (Larwood and Whittaker 1977) due to the better-than-average effect (Alick 1995). This occurs when individuals evaluate themselves as superior compared to their peers and typically results in unrealistic optimism about future events (Alick 1995; Weinstein 1980). Overconfident CEOs may make decisions based on a short-term perspective. Prior literature documents an increased propensity for overconfident CEOs to misstate earnings and make less conservative accounting choices (Schrand and Zechman 2012; Ahmed and Duellman 2013). This implies that overconfident CEOs would be less likely to opt

into compensation contracts including NFPM (Johnson and Kaplan 1987; Kaplan and Atkinson 1998; Singleton-Green 1993; Kaplan and Norton 1996, 2001; Bushman et al. 1996; Hemmer 1996). However, research indicates that overconfident executives also tend to overestimate expected returns and hold their options until they are deep in the money, revealing a long-term managerial perspective (Malmendier and Tate 2005, 2008). Moreover, overconfidence is associated with greater at-risk compensation (Gervais et al. 2011; Humphrey-Jenner et al. 2014). From this perspective, overconfident CEOs may prefer the use of NFPM in their compensation contracts in order to mitigate risk (Lambert and Larcker 1987; Bruns and McKinnon 1993; Bushman et al. 1996; Feltham and Xie 1994; Hemmer 1996; Davila and Venkatachalam 2004). As a consequence of these arguments, I propose competing hypotheses for whether overconfident CEOs would prefer the use of NFPM in compensation contracts.

The sensitivity of CEO wealth is a measure of the increase in total compensation resulting from changes in firm stock price (Bergstresser and Philippon 2006). Prior research indicates that incentive-based compensation motivates managers to engage the firm in riskier ventures and this effect may be exacerbated by the sensitivity of CEO wealth to stock volatility (Coles 2006). This may lead CEOs to prefer to lower their personal compensation risk by opting into contracts that include NFPM (Bruns and McKinnon 1993; Feltham and Xie 1994). Alternatively, when CEO equity-based compensation is more closely tied to firm equity, executives are more likely to engage in earnings manipulation (Bergstresser and Philippon 2006), a consequence of taking a short-term view for decision-making. NFPM engender a long-term perspective (Johnson and Kaplan 1987; Kaplan and Atkinson 1998; Singleton-Green 1993; Kaplan and Norton 1996, 2001; Bushman et al. 1996; Hemmer 1996). Due to these competing

incentives, I contend that the sensitivity of CEO equity to firm value could with be negatively or positively associated with the use of NFPM.

I test the hypotheses concerning the association of CEO characteristics and the inclusion of NFPM in compensation contracts using fixed effects regression methods, controlling for firm and year level fixed effects. The variables, gender, age, and tenure are collected directly from publically available data sources. Following prior literature, proxies are created for the latent variables: risk-aversion, overconfidence, and sensitivity of wealth (Murphy 1985; May 1995; Core and Guay 2002; Core et al. 2003; Bergstressor and Philippon 2006; Malmendier and Tate 2008; Campbell et al. 2011). I also include controls for firm variant effects, the noise in financial measures, and factors related to the BOD. Finally, as additional sensitivity analysis, I examine the association between CEO characteristics and the weight placed on NFPM.

I find that CEO gender is positively and significantly associated with the adoption of NFPM in compensation contracts. This is consistent with prior literature implying that women are more risk-averse and have a longer horizon perspective than men (Byrnes et al. 1999; Powell and Ansic 1997; Barber and Odean 2001; Cullis et al. 2006; Barua et al. 2010). Contrary to expectations, the results for CEO age demonstrate a concave relation with the use of NFPM. Both younger and older CEOs are less likely to opt into compensation contracts that include both financial and NFPM. This may be due to changes in personal preferences for older and younger CEOs over time (Finkelstein and Hambrick 1989). I am able to provide evidence that CEO tenure is positively associated with the use of NFPM in remuneration contracts. This is consistent with prior literature suggesting that more influence over the BOD leads to a preference for using NFPM in order to lower risk inherent in using contract incentives based on financial

measures alone (Finkelstein and Hambrick 1989; Ryan and Wiggins 2001; Lambert et al. 1991; Beatty and Zajac 1994; Jin 2002).

The results for the association between CEO risk-aversion and the dichotomous measure for NFPM are not compelling. Alternatively, I do find that CEO risk-aversion is positively and significantly associated with compensation contracts that include weights placed on NFPM. This adds to the evidence provided by May (1995) and Abdel-Khalik (2007) who find that risk-aversion among CEOs is not homogenous and that important insights can be gained by investigating this variation. The results for CEO overconfidence are not compelling and do not support either a short- or long-term horizon perspective on the part of the CEO. Additionally, the association between CEO sensitivity of wealth and the dichotomous measure for NFPM is inconclusive. However, when the relation of CEO sensitivity of wealth to the weight placed on NFPM is examined, the results suggest a positive relation. CEOs with more compensation dependent upon firm performance prefer contracts that include both financial and NFPM.

This research is valuable to those who hire CEOs and to those who design compensation contracts (e.g., BOD and compensation committee members). Additionally, the implications from this study are useful to investors who want to ensure they are supporting to firms with a leader whose focus is aligned with their investment strategy. Finally, this inquiry assists stakeholders in providing more information about the true nature and focus of a firm. In the next section, I provide a literature review for the utilization and benefits of using NFPM, as well as a summary of applicable theory. I then develop hypotheses for the CEO characteristics examined. Finally, I present the methodology and the results from statistical testing followed by the conclusions.

II. LITERATURE REVIEW

Utilization and Benefits of NFPM

Ittner and Larcker (1998b) discuss common practices among organizations for performance measurement and identify the use of NFPM as an increasing trend. They explain that the choice of performance measures is a key factor in shaping firm strategy. Eccles (1991) comments on the use of NFPM, pointing out that financial performance measures appear objective but frequently do not work in practice. Due to the inadequacy of traditional financial performance measures, companies integrate financial measures and NFPM in compensation contracts (Ittner and Larcker 1998b). Firms use NFPM to identify, communicate, define, and periodically revise firm strategy (Kaplan and Norton 1996; Ittner et al. 1997; Ittner and Larcker 1998a, 1998b; Banker et al. 2000; Chenhall 2003; Ittner et al. 2003b). Companies evaluate managers based on financial performance; however, firms can use NFPM to gain a strategic advantage (Singleton-Green 1993).

NFPM complement short-term financial performance measures by providing information about the firm progressing toward long-term goals (Johnson and Kaplan 1987; Kaplan and Atkinson 1998; Singleton-Green 1993; Kaplan and Norton 1996, 2001; Bushman et al. 1996; Hemmer 1996). Measures such as customer satisfaction, process improvement, and innovation reflect current managerial actions that lead to future benefits (Singleton-Green 1993; Said et al. 2003; Hauser et al. 1994; Nagar and Rajan 2001; Sedatole et al. 2003). The use of NFPM leads to a more strategy-based management approach by linking short-term goals to long-term

objectives (Kaplan and Norton 1996). Kaplan and Norton (1996) write a narrative about the integration of NFPM into traditional performance metrics by describing the use of a balanced scorecard. The balanced scorecard is a performance measurement system that adds strategic NFPM to traditional financial measures in order to better align business actions with firm goals. As a consequence of using NFPM, firms can experience benefits such as better alignment of business unit and individual goals with strategy, linking strategic objectives to long-term goals and annual budgets, and the facilitation of periodic performance reviews that can be used for training to improve strategic processes (Kaplan and Norton 1996). Subsequent to introducing the balanced scorecard, some firms have begun to rely less on short-term formula-based incentive plans and have more dialogue about the strategic goals the balanced scorecard represents. Singleton-Green (1993) argues that if a firm focuses solely on profit, it will ignore stakeholders and eventually fail. Lillis (2002) demonstrates that the appropriate integration of multiple performance dimensions, including NFPM, is important for aligning managerial motivation with firm strategy.

The use of NFPM can create more opportunity to observe performance and assess managerial ability (Kaplan and Norton 1996). For example, favorable sales figures in the short-term allows for an earlier assessment of the quality of managerial decisions as opposed to using less timely financial accounting reports. Additionally, NFPM can provide protection for managers by acting as a safeguard against circumstances beyond their control that may affect compensation (Bruns and Mckinnon 1993; Feltham and Xie 1994). For instance, managers may have daily counts for pounds of scrap and can make short-term decisions to reduce long-term waste. This allows for more span of control related to waste that may then result in lower costs and higher earnings (Bruns and Mckinnon 1993). Johnson and Kaplan (1987) argue that short-

term financial measures are not valid indicators for firm performance. They contend that matching revenues with costs for an arbitrary, limited period causes current period costs to include large allocations of expenditures made in prior periods; nonetheless, the benefits of these costs are not realized until future periods. In addition, NFPM are more robust than financial measures and are associated with a lower propensity to manipulate earnings (Singleton-Green 1993; HassabElnaby 2010). For example, customer satisfaction scores are relatively independent of firm managers (Singleton-Green 1993). The benefits gained by using NFPM can be achieved at relatively low cost; however, there are some disadvantages of using NFPM.

NFPM are more difficult to measure and quantify than financial measures (Eccles 1991). Moreover, NFPM can be viewed as 'fluff' and the link between NFPM and financials may be unclear to managers (Singleton-Green 1993). Additionally, the implementation of NFPM based on multiple dimensions can present challenges and can be more difficult to use effectively, depending on the firm's strategy. For instance, Lillis (2002) provides evidence using structured interviews that NFPM incorporating various components can be more difficult to implement. In this field study, a measure for customer satisfaction included not only overall customer satisfaction but also other dimensions such as quality, response time, and efficiency. This was problematic because actions taken to improve a customer's experience, such as customization, may improve overall satisfaction but have a negative impact on response time and efficiency. Lillis (2002) documents fewer of these concerns with multiple dimension NFPM developed to promote a quality improvement strategy. Despite these concerns, when firms link compensation to the appropriate use of NFPM in the balanced scorecard, this promotes the alignment of managerial action to the firm's vision and can lead to increased firm value and future profits (Kaplan and Norton 1996; Singleton-Green 1993).

Prior research substantiates that the use of NFPM is beneficial for future firm performance. When properly implemented, customer satisfaction measures and quality control accountability can predict future financial performance (Hauser et al. 1994; Sedatole et al. 2003; Banker and Mashruwala 2007). Amir and Lev (1996) examine the market value relevance for the use of a growth measure and an operating performance measure (market penetration) for firms in the cellular telephone industry. They find that when high growth industry firms combine NFPM with financial measures, NFPM contribute significantly to the explanation of security prices. Ittner and Larcker (1998a) use individual and firm level customer satisfaction data to demonstrate a significant and positive relationship between customer satisfaction and future accounting performance. They also produce cautionary evidence showing that the associations are non-linear with indications of diminishing returns for benefits at high satisfaction levels. Nonetheless, Ittner and Larcker (1998a) establish that customer satisfaction measures seem to provide incremental information to the market about future cash flows. However, this is not fully reflected in contemporaneous accounting book values. Consequently, the benefits of NFPM seem to occur over the long-term. Banker et al. (2000) examine whether the use of NFPM in CEO compensation contracts are related to performance in the hospitality industry. Using time series analysis, they regress revenue, cost and profit on measures of customer satisfaction (e.g., complaints, likelihood of customer returning). Banker et al. (2000) document that customer satisfaction is positively associated with future (not contemporaneous) financial performance. Konar and Cohen (2001) examine whether environmental performance influences market value. They present evidence that poor environmental performance (legally emitted toxic chemicals) has a negative relationship with intangible asset value. Thus, a reduction in emissions of toxic chemicals can lead to an increase in market value (Konar and Cohen 2001).

Previous literature documents guidance regarding the appropriate use and implementation of NFPM. Maines et al. (2002) assist the Financial Accounting Standards Committee of the American Accounting Association regarding the regulation of NFPM disclosures. After a review of the literature, they conclude that the disclosure of NFPM should not be mandatory because the appropriate measure is context specific (Maines et al. 2002). Said et al. (2003) examine this issue directly, demonstrating that the future accounting- and market-based performance benefits gleaned from the use of NFPM is contingent on the match between the NFPM and firm characteristics. Similarly, Ittner et al. (2003b) show that using NFPM is strongly associated with stock market performance by comparing firms in the financial service industry with similar strategies and value drivers. In a subsequent study, HassabElnaby et al. (2005) substantiate that firm performance is a crucial determinant of NFPM retention. Again, the results imply that the use of NPM is contingent on an appropriate 'fit' to firm strategy (HassabElnaby 2005). Furthermore, Van der Stede et al. (2006) provide evidence that firms with performance incentives including both financial and NFPM have higher performance regardless of strategy. Nonetheless, they find that their results are compromised in the case of a mismatch between the firm strategy and the performance measurement.

In summary, the use of NFPM is an increasing trend and can improve performance systems through the alignment of managerial actions and firm strategy (Johnson and Kaplan 1987; Kaplan and Atkinson 1998; Singleton-Green 1993; Kaplan and Norton 1996, 2001; Bushman et al. 1996; Hemmer 1996; Ittner and Larcker 1997; Ittner and Larcker 1998b). By implementing NFPM that are an appropriate match to firm characteristics (Maines et al. 2002; Said et al. 2003; Ittner et al. 2003b; HassabElnaby 2005; Van der Stede et al. 2006), firms can experience more opportunities to observe performance and assess managerial ability (Kaplan and

Norton 1996) while managers are able to gain protection from uncontrollable circumstances (Bruns and Mckinnon 1993; Feltham and Xie 1994). In addition, NFPM are less susceptible to manipulation than financial measures (Singleton-Green 1993; HassabElanaby 2010) and are associated with improved performance (Amir and Lev 1996; Ittner and Larcker 1998a; Banker et al. 2000; Maines et al. 2002; Said et al. 2003; HassabElnaby et al. 2005; Van der Stede et al. 2006; Hauser et al. 1994; Sedatole et al. 2003). Next, I will review the literature concerning the theoretical underpinnings for firm behavior and managerial actions in relation to performance incentive processes that may incorporate NFPM.

Theoretical Explanations for Firm and Managerial Behavior Regarding the Use of Performance Measures

Behavioral Theory of Firms

Coase (1937) describes the economic system as an entity coordinated by the price mechanism. Firms hire managers to offset the costs of operating firms. Subsequently, managers are endowed with the responsibility of directing resources and making decisions based on skill and foresight. Therefore, managers direct the firm under circumstances of uncertainty (Coase 1937). March and Simon (1958) characterize the process by which managers make judgments. They contend that decision outcomes involve various options and are dependent upon the limited information available, or bounded rationality. In other words, decision makers choose an optimal solution given the constraints of their ability to comprehend or gather the facts pertaining to the circumstance (March and Simon 1958). Further, decisions made by managers and organizations are not only the result of the pursuit of economic optimization but are also a consequence of behavioral characteristics (Cyert and March 1963).

Managers are hired to act as ‘agents’ on behalf of the ‘principal’ (firm, BOD or shareholders) and alternately, may not act in the best interest of the principal (Jensen and

Meckling 1976; Kaplan 1982). Firms can mitigate the conflict between agents and principals by providing appropriate monitoring or incentives that align motivation between the two parties. However, both the agent and the principal will incur costs for monitoring (Jensen and Meckling 1976). Managers are subject to the cost of risk (e.g., making decisions under conditions of uncertainty, noisy performance measures, etc.) and firms incur the costs associated with contracting incentives. Fama and Jensen (1983a) explain that firm contract structures are meant to limit risks undertaken by agents by offering fixed or incentive pay-offs based on specified performance measures. However, this separation of risk bearing for managers and the decision process for the firm leads to procedures that separate managerial decisions from owner control (Fama and Jensen 1983b). When this separation exists, managers are more likely to make decisions that are not in the best interest of the shareholders (Fama and Jensen 1983b). Thus, the result is the agency dilemma.

Agency Theory

Kaplan (1982) describes the agency relationship that emerges between a firm and managers. The firm endows managers with the responsibility of making decisions about operations and strategy. Agency theory assumes that principals and agents are all rational and desire to maximize utility. As a consequence, managers not only care about their own compensation but are motivated by perquisites that accompany their position (Kaplan 1982). Agency theory presumes that agents prefer leisure to hard work, although there is incentive for agents to perform well. If the principal observes and assesses managerial decisions, managers are motivated to put forth effort in order to avoid termination, assuming that another equally remunerative position is not available (Lazear 2000). However, agents may not always make decisions that maximize benefits for the principal (Jensen and Meckling 1976; Fama 1980;

Kaplan 1982). For instance, if firms compensate managers with salary only, managers may not exert the additional effort necessary to implement projects that will maximize shareholder wealth (Kaplan 1982). Indjejikian (1999) provides a discussion about how agency theory has been applied to compensation contracting in the accounting literature. Agency theory is based on the premise that the design of compensation contracts should motivate risk- and effort-averse managers to act in the best interest of shareholders. Therefore, these contracts contain risk components that motivate managers to put forth effort (Indjejikian 1999).

Performance measurement systems are used to evaluate managers in accordance with incentive agreements and are intended to mitigate the agency issues between managers and shareholders (Kaplan 1982). When first introduced, traditional financial performance measures were a mechanism meant to constrain managers from making decisions that increase their welfare at the expense of shareholders. However, financial performance market measures are noisy; consequently, firms must compensate managers for the risk introduced by the uncertainty (Feltham and Xie 1994). Thus, firms prefer the use of measures that are more precise. Lambert and Larcker (1987) document that organizations place more weight on market performance and less weight on accounting performance when the accounting performance measure contains more noise. Consistent with agency theory, NFPM can add value to performance systems that utilize only noisy financial performance measures (Feltham and Xie 1994; Hemmer 1996).

Agency theory predicts that a measure will be included in rewarding performance if it adds information to current measures; this is known as the informativeness principle (Holmstrom 1979; Bushman et al. 1996). Feltham and Xie (1994) use agency theory to predict that individual performance evaluation (evaluation based on individual managerial actions using multiple performance measures including NFPM) will increase with growth opportunities, length of

product development and life cycles, and noise in financial measures. They propose that NFPM will be used in compensation contracts because stock prices do not fully capture all information regarding managerial behavior. Using analytical methods, Feltham and Xie (1994) show that the use of a single non-perfectly congruent performance measure is noisy. Hence, the use of multiple performance measures, including NFPM, can add value because they reduce noise by appropriately matching managerial effort to incentives. Hemmer (1996) also uses analytical methods to show that the less effective an accounting performance measure is in predicting long-term performance, the more valuable it will be to use NFPM. Insights from Hemmer (1996) also reveal that NFPM may reduce managerial myopia by promoting a long-term focus.

Davila and Venkatachalam (2004) use the informativeness principle and an agency setting to show that passenger load factor (capacity utilization), an important measure for the airline industry, is positively related to CEO cash compensation. Consistent with agency theory, NFPM provide information incremental to accounting measures about managerial behavior (Davila and Venkatachalam 2004). In addition, this study produces weak evidence that CEO power and the noise contained in financial performance measures influence the association between NFPM and cash compensation (Davila and Venkatachalam 2004). The evidence above demonstrates that the agent-principal dilemma can be mitigated with the use of NFPM; however, there are other extenuating factors to consider regarding the use and benefits of performance measurement systems that include NFPM.

Contingency Theory

Contingency theory is based on the assumption that there is no particular type of accounting system that is appropriate for all organizations (Otley 1980). Furthermore, an accounting system that is beneficial for a firm under one circumstance may become obsolete

once conditions change. The managerial literature offers insight on reconciling two opposing views: 1) strategic choices influence organizational outcomes and 2) environmental forces rule organizational results. Hrebiniak and Joyce (1985) propose that individuals within organizations make process and strategic choices that influence firm outcomes. Nonetheless, there exist environmental forces that cannot be controlled by managers. Contingency theory asserts that managerial decisions are the result of adapting to environmental forces. Then, the interactions between environmental forces and managerial decisions explain firm outcomes (Hrebiniak and Joyce 1985).

Finkelstein and Boyd (1998) examine the interaction between CEO compensation and CEO discretion using contingency theory. They argue that a determinant for improved firm performance is the result of a better match between CEO discretion and CEO pay. In particular, they contend that CEO pay should be higher in firms in which managers have greater discretion because they have more opportunity to positively or negatively impact firm performance. Finkelstein and Boyd (1998) use factor analysis to document that CEOs are paid less in industries where managerial discretion is low (e.g., regulated industries, industries with high capital intensity) and are paid more in industries that allow for more discretion (e.g., high growth firms, firms with more investment opportunities). Furthermore, they find that this relationship is stronger when there is a better match between CEO compensation and firm context (Finkelstein and Boyd 1998). Hoque et al. (2001) also provide support consistent with contingency theory, demonstrating the effect of market competition on management accounting practices. They use firms in the computer-aided manufacturing industry to confirm that the intensity of market competition is positively and significantly related to the use of multiple performance measures (including NFPM). To add to these findings, Said et al. (2003) substantiate that the positive

performance effects of NFPM are contingent on the 'fit' between the NFPM and firm characteristics. Moreover, Van der Stede et al. (2006) use contingency theory to support the notion that the optimal design for a performance measurement system depends upon organizational strategy. They use self-reported data from managers and directors of manufacturing firms and find evidence that combining a quality strategy with the use of NFPM leads to improved performance (Van der Stede et al. 2006). Consistent with Said et al. (2003), this result is compromised if there is a mismatch between the firm strategy and the performance measure (Van der Stede et al. 2006). Based on the extant literature, environmental forces and firm characteristics play a role in the use of NFPM. However, this literature does not account for the influence managers themselves have in the design of compensation contracts.

Upper-Echelons Theory

Upper-echelons theory links research in psychology, sociology, strategy, and economics to provide a view of organizations as a reflection of the most powerful actors in the firm, the top management team. Advancing upper-echelons theory, Hambrick and Mason (1984) contend that observable managerial characteristics such as, age, tenure, socio-economic background, functional background, education, and financial position matter in organizational decisions and outcomes. They propose that observable characteristics are valuable in explaining the influence of executives regarding organizational behavior, since psychological constructs and cognitive processes are difficult to obtain and measure (Hambrick and Mason 1984). Hambrick and Mason (1984) contend that a combination of situational and upper-echelons characteristics will lead to certain strategic choices made by management teams. These strategic choices relate to formal and informal decisions, competitive choices, administrative choices, and compensation structure decisions. Further, upper-echelons theory supports the notion that executives structure situations

to accommodate their view of the world and that identifying factors directing executive attention is a central requirement for understanding organizational behavior (Hambrick and Mason 1984). Subsequent research offers empirical evidence supporting upper-echelons theory.

Finkelstein and Hambrick (1990) examine top management team characteristics as antecedents to influencing managerial actions and organizational outcomes. Specifically, they investigate the relationship between managerial tenure and firm strategy using upper-echelons theory and the moderating role of managerial discretion. They find that executive team tenure has a significant effect on strategy and performance. Long-tenure managerial teams tend to follow more persistent strategy and those that are consistent with industry norms. Consistent with contingency theory, their results are stronger when managers work in a high discretion environment. Finkelstein and Hambrick (1990) document that managerial discretion plays a moderating role in the relationship between managerial team tenure and adherence to firm strategy. In more discretionary decision contexts, the relation between managerial team tenure and strategic persistence was more positive for teams with higher tenure. Wiersema and Bantel (1992) assess the relationship between managerial team demographics and change in strategy (level of diversification) for Fortune 500 firms. After controlling for performance, firm size, managerial team size, and industry structure, they find that age, tenure, and educational background are significantly related to changes in diversification. Their evidence suggests that the cognitive perspectives of managers are reflected by demographic characteristics (Wiersema and Bantel 1992).

Hambrick et al. (1993) assess the relation of executive tenure to the psychological orientation of commitment to the status quo (current strategy). Using survey evidence, they find that industry-specific executive tenure is positively associated with a lower propensity to change

firm strategy. Moreover, results indicate that better firm performance exacerbates commitment to status quo (Hambrick et al. 1993). This study makes assertions about the influence of individual managers rather than teams using upper-echelons theory. It seems that the characteristics and traits of individual managers may also have a significant impact on administrative and strategic choices. The question of interest here is whether these choices can include the structure of compensation contracts and the choice of using or excluding NFPM.

Trait Theory

Studies concerning the traits of leaders began to emerge early in the 20th century, particularly in the psychology literature (Stogdill 1948; Bass and Stogdill 1990; Hogan et al. 1994: House and Aditya 1997; Daft 1999). The purpose of the early literature concerning leadership traits was to distinguish leaders from non-leaders (House and Aditya 1997). These reviews and inquiries investigated physical and psychological traits such as gender, height, intelligence, ability, and values, among others (Bass and Stogdill 1990). After a thorough review of the literature concerning leadership trait theory, Bass and Stogdill (1990) conclude that there are many determining factors for leadership differentiation including situational effects and the traits of the leaders themselves. Individuals differ from each other in consistent ways and these differences influence leadership action and outcomes (Bass and Stogdill 1990). More recently, DeRue et al. (2011) underscore a lack of theoretical integration in the trait paradigm research. Accordingly, they develop a model of leadership effectiveness by conducting a meta-analysis to integrate the extant literature and theoretical suppositions (DeRue et al. 2011). Specifically, DeRue et al. (2011) survey prior literature to determine whether leader characteristics such as age, gender, intelligence, personality, and leadership behaviors are related to leader effectiveness. They find evidence that both the attributes and the behaviors of leaders are

determinants of leadership results. DeRue et al. (2011) propose that it is not the case that managerial traits have a direct impact on outcomes via actual behavior but through how these traits are perceived by others.

The finance and economics literature provides some insight about the link between the individual characteristics of CEOs and incentives that are consistent with trait theory. Ryan and Wiggins (2001) find a concave relationship between CEO age and cash bonus levels. The firms in their sample paid smaller cash bonuses to young CEOs working to build their reputation and to older CEOs closer to retirement. Younger CEOs may be more motivated to acquire a favorable reputation in order to progress to another position or to remain in their role, since younger CEOs have many more years in the labor force ahead of them. Older CEOs may have accumulated enough assets that money becomes decreasingly motivating. In addition, Ryan and Wiggins (2001) report a negative relationship between CEO tenure and stock options. Milbourn (2003) produces evidence that the sensitivity of stock-based compensation is significantly associated with CEO reputation (proxied by CEO tenure, information contained in the press, whether the CEO was hired externally or internally, and firm performance during the CEO's tenure). Taken together, these results suggest that firms adjust CEO compensation schemes based on the traits of age, tenure, and reputation.

The stream of literature concerning CEO traits and the related attributions also demonstrates effective methods of separating the influence of firms from managerial effects. Bertrand and Schoar (2003) use a manager-firm matched dataset to determine whether managerial characteristics account for the unexplained differences in firm policies and outcomes. Tracking the same top executive across different firms over time, they find that the fixed effects for individual managers make a difference in investment, financial, and organization decisions.

Bertrand and Schoar (2003) identify patterns that signal differences in managerial styles and document evidence that managerial fixed effects make a difference in compensation levels and governance levels for firms.

Supplementary to the findings of Bertrand and Schoar (2003), several studies in the finance literature use alternative methods to separate firm fixed effects from manager fixed effects. Using fixed effects regression models, Malmendier and Tate (2005) relate the personal characteristics of CEOs to corporate decision making and report that CEO overconfidence, as measured by whether CEOs diversify company risk in their personal stock portfolios, is related to corporate cash flow. Their results suggest that CEOs who appear to be overconfident in personal investment decisions compared to their peers, are more sensitive to cash flow issues in making corporate investment decisions (Malmendier and Tate 2005). These CEOs overinvest when internal funds are abundant but view external funding as too costly. Thus, overconfident CEOs underinvest when they must acquire external funding. Malmendier and Tate (2005) also provide complementary evidence that CEO characteristics, other than overconfidence, are also related to corporate investment decisions. In particular, they examine educational background, employment background, age, and CEO affiliation (Malmendier and Tate 2005). Graham et al. (2012) use fixed effects regression models to show that manager fixed effects explain a major portion of variation for levels of executive pay. Moreover, Graham et al. (2012) isolate the pay effect of CEO promotion separate from the person-specific effect and find that the effect of being promoted to CEO is smaller than the person-specific compensation effect. This supports the notion that the influence of individual CEOs has repercussions for CEO pay.

The accounting literature also supports the premise that CEO characteristics influence firm behavior regarding performance measurement and incentives. Ittner et al. (2003a) use

survey evidence to examine the use of subjectivity in applying weights to financial measures and NFPM for the implementation of a balanced scorecard performance plan. They document evidence that superiors use subjectivity for weighting performance measures (both financial measures and NFPM) in order to incorporate factors not on the scorecard. They conclude that factors other than just informativeness affect performance measure choice and that some of these factors likely include the influence of managerial traits. Thus, the attributions made by superiors based on managerial traits influence the particular performance measures for which managers are held accountable. Ittner et al. (2003a) conclude that psychology-based explanations may be as relevant as economic-based concepts in explaining what measures firms use to reward managers. Further, the accounting literature provides evidence that CEO traits affect compensation. Karuna and Merchant (2014) investigate how CEO renown influences CEO pay. They develop a measure of CEO renown based on two dimensions (celebrity and task competence) and demonstrate that the individual trait of CEO renown is associated with compensation levels and structure. Specifically, CEOs with higher celebrity status receive more salary and have less pay sensitivity tied to stock market performance. Consistent with trait theory, Karuna and Merchant (2014) assert that CEO pay is influenced by the perception of the particular managerial trait, CEO renown.

Prior literature substantiates that not only do the characteristics of CEOs affect compensation levels but also the structure of compensation contracts (Ryan and Wiggins 2001; Milbourn 2003; Graham et al. 2012; Karuna and Merchant 2014). Moreover, Ittner et al. (2003a) suggest that psychology-based explanations may play an equally important role compared to economic-based explanations for determining what measures firms use to motivate managers concluding that factors other than just informativeness significantly influence performance

measure adoption. Managerial traits and the resultant attributions may be a key factor in the adoption of a particular performance measure for which CEOs are held accountable (Ittner et al. 2003a). Thus, NFPM are another component in the structure of compensation contracts that may be associated with the individual characteristics and traits of CEOs.

III. HYPOTHESIS DEVELOPMENT

Prior literature offers insights on several key managerial traits and characteristics that may lead to various firms to adopt NFPM in compensation contracts. These traits emerge in the extant literature as linked to various risk preferences or differences in managerial decisions that may influence the choice of using NFPM. I will include gender and age, two demographic variables, as well the firm specific characteristic of tenure. In addition, I will consider risk-aversion, overconfidence, and the effect of the CEO's sensitivity of wealth to firm performance as these relate to the propensity for the inclusion of NFPM in remuneration.

Gender

Byrnes et al. (1999) conduct a meta-analysis of both self-reported and observed data in the psychology literature and provide evidence that men are less risk-averse than women. Specifically, they find that women are less likely to engage in risky behaviors associated with smoking, using drugs or alcohol, driving, and gambling. Additionally, psychology researchers contribute insight on differences between men and women regarding leadership. In a meta-analysis conducted by DeRue et al. (2011), they conclude that leadership styles differ between men and women, however, gender will not make a difference in leadership performance once intelligence and personality differences are considered. Nonetheless, DeRue et al. (2011) contend that the attributions others make about the perceived differences between genders may affect leadership outcomes. Consistent with this premise, the management literature documents a larger negative abnormal stock return after the announcing a new female CEO compared to the

announcement of a new male CEO (Lee and James 2007). Moreover, after a review of the popular press articles for the first year after CEO changes, Lee and James (2007) report more emphasis on gender for newly appointed female CEOs than for new male CEOs.

The behavioral economics literature offers further insight on decision-making and risk preferences for men and women. In a computerized laboratory experiment, Powell and Ansic (1997) examine gender differences pertaining to risk preferences and strategic choices in making financial decisions. They manipulate task framing and task familiarity by using an insurance coverage decision (familiar task) and a currency market decision (unfamiliar task). They also vary the amount of money participants can earn as a result of managing costs and the ambiguity associated with the tasks. Powell and Ansic (1997) demonstrate that women are less likely to take risks, irrespective of task framing or the amount of uncertainty associated with the task. This study supports the notion that men and women adopt different strategies for financial decisions. However, these differences do not necessarily affect performance. Finally, Cullis et al. (2006) find that men behave differently than women in making decisions involving tax compliance risk. In an experimental setting, they manipulate the probability of detection and tax framing. Cullis et al. (2006) document that when taxes are framed as a loss, men report significantly less income.

The behavioral economics literature offers evidence that men and women adopt different strategies in financial decision contexts. Barber and Odean (2001) find that, on average, men trade stock more than women. Although this behavior did not affect performance, they conclude that the increased trading behavior for men may be the result of overconfidence and/or differences in risk tolerance. Additionally, in the accounting literature, Barua et al. (2010) report that CFO gender leads to differences in accrual accounting decisions. Their analysis provides evidence that companies with female CFOs have lower performance-matched absolute

discretionary accruals and lower absolute accrual estimation errors. Barua et al. (2010) argue that this is likely due to different risk preferences based on gender. This study indicates that not only are women more risk-averse than men, but they are also less likely to engage in earnings manipulation, a consequence of a short-term perspective.

NFPM promote a long-term managerial perspective, thereby decreasing short-term actions that are not aligned with shareholder interest (Johnson and Kaplan 1987; Kaplan and Atkinson 1998; Singleton-Green 1993; Kaplan and Norton 1996, 2001; Bushman et al. 1996; Hemmer 1996). In addition, NFPM can decrease risk inherent in noisy financial measures and can be a safeguard for managers against circumstances beyond their control (Bruns and Mckinnon 1993; Feltham and Xie 1994). Given the evidence that women are more risk-averse than men and exhibit a more long-term perspective when making accounting decisions (Byrnes et al. 1999; Powell and Ansic 1997; Barber and Odean 2001; Cullis et al. 2006; Barua et al. 2010), it follows that women may be more likely to be associated with the use of NFPM in compensation contracts. Furthermore, the compensation structure offered may differ depending on the attributions made to female CEOs versus male CEOs (Lee and James 2007; DeRue et al. 2011). Based on the preceding arguments, I propose the following hypothesis:

H1: Female CEOs will be more positively associated with the use of NFPM in compensation contracts than male CEOs.

Age

Prior literature suggests that CEO age is also an underlying factor in determining CEO remuneration. Finkelstein and Hambrick (1989) investigate the effect of age on CEO pay levels. They find an inverted U-shaped relationship between age and cash compensation. Even after controlling for CEO tenure, cash compensation increases up to age 59, after which these levels decline. Finkelstein and Hambrick (1989) explain that this is likely due to changes in the CEO's

personal circumstances. Younger CEOs may have more need for current cash incentives (e.g., mortgage obligations, child rearing expenses, etc.) and this grows as they attain tenure up to a point, then they begin to prefer other types of compensation. Firms also respond to the diverse CEO motivations related to age. Based on the premise that younger CEOs have an incentive to choose projects with short-term payoffs in order to bolster their reputations and older CEOs have incentive to choose projects that pay off before they retire, Ryan and Wiggins (2001) document that firms pay fewer bonuses to the youngest and oldest managers. They argue that this occurs in order to encourage a long-term decision making perspective for the youngest and oldest CEOs. These studies provide evidence that CEO personal preferences for incentives change over time and firms respond to these changes in order to appropriately motivate and attract quality managers.

The results for the relationship between CEO age and equity compensation are mixed. Mehran (1995) finds that older CEOs have less equity pay while, Lewellen et al. (1987) found the opposite result. Yermack (1995) specifically tests the relationship between CEO age and the number of stock options awarded. Using agency theory and incorporating horizon problem explanations, he contends that CEOs approaching retirement will avoid investment in long-horizon projects that will only reward their successor. To mitigate this issue, firms increase the amount of performance-based compensation for older CEOs in order to align their interests with firm value maximization. Contrary to theory, Yermack (1995) finds no specific relationship between CEO age and the number of stock options awarded. Harvey and Shrieves (2001) use data collected from proxy statements for stocks, options, and payouts resulting from long-term incentive plans to demonstrate that CEOs who are near or at retirement age are less willing to accept incentive pay. They conclude that this occurs because of a short time-horizon effect and

because older CEOs may have already taken on substantial firm specific risk, leading them to be more risk-averse as they get older.

Prior research fails to provide clear findings for the relationship between CEO age and equity compensation (Mehran 1995; Lewellen et al. 1987; Yermack 1995). However, older CEOs seem to be increasingly risk-averse (Mehran 1995; Harvey and Shrieves 2001). Previous studies concerning managerial traits indicate the relationship between age and compensation are due to both managerial preferences and the attributions made based on CEO age (Finkelstein and Hambrick 1989; Ryan and Wiggins 2001; Ittner et al. 2003a; DeRue et al. 2011; Karuna and Merchant 2014). Firms benefit from offering more incentive pay to older CEOs in order to mitigate time horizon effects (Murphy and Zimmerman 1993). On the other hand, older CEOs are less willing to accept incentive pay due to increased risk-aversion (Mehran 1995; Harvey and Shrieves 2001). Furthermore, older CEOs tend to have greater firm-specific investments exposing them to more risk because their portfolio is less diversified (Beatty and Zajac 1994). NFPM can reduce uncertainty and risk in financial measures and protect managers against factors beyond their control (Lambert and Larcker 1987; Bruns and McKinnon 1993; Bushman et al. 1996; Feltham and Xie 1994; Hemmer 1996; Davila and Venkatachalam 2004) making it more likely that older CEOs will prefer the use of NFPM. Based on the preceding arguments, I propose the following hypothesis:

> **H2: Older CEOs will be more likely to be associated with the use of NFPM in compensation contracts.**

Tenure

Tenure is at the discretion of the BOD, therefore more influence over the BOD may lead to greater tenure and vice versa. Much of the extant literature views CEO tenure as accompanied by increasing entrenchment and leverage to opt into compensation packages that suit CEO

preferences (Mace 1971; Finkelstein and Hambrick 1989; Hill and Phan 1991). However, Finkelstein and Hambrick (1989) find that tenure has an inverted U-shaped relationship with cash compensation. They explain that CEO power increases with tenure at first, but then decreases as the CEO's mobility in the market diminishes (Finkelstein and Hambrick 1989). In addition, CEO tenure is positively associated with stock ownership suggesting that more tenured CEOs have less need for the short-term cash components of compensation (Finkelstein and Hambrick 1989). Hill and Phan (1991) investigate whether CEO tenure is associated with CEO preferences for compensation structure. CEOs can gain control over boards by replacing board members with new directors (Finkelstein and Hambrick 1989) or by controlling the flow of information to compensation committees (Coughlan and Schmidt 1989). Accordingly, Hill and Phan (1991) argue that CEO tenure may act as a proxy for the CEO's ability to exert influence over the BOD pertaining to compensation decisions. Executives prefer guaranteed pay rather than incentives tied to the risk inherent in stock market performance; therefore, CEO compensation packages may increasingly reflect CEO preferences rather than stockholder interests. Hill and Phan (1991) report that both the absolute levels of and changes in CEO cash compensation are decreasingly associated with abnormal stock returns as CEO tenure increases.

On the other hand, CEO tenure may be an indication of managerial quality. Bushman et al. (1996) document evidence regarding the impact of CEO tenure on performance incentives by examining the relationship between individual performance evaluation and several explanatory variables including tenure. They find that the importance of individual performance evaluation is positively associated with tenure. This is consistent with the argument that increasing tenure for CEOs may result in the BOD having a clearer picture of the executive's ability and the quality of the CEO's strategic plans without needing to rely exclusively on financial performance measures

(Bushman et al. 1996). Ryan and Wiggins (2001) also present an alternative to the entrenchment argument for increasing CEO tenure. They argue that CEOs may have secured their tenure by creating shareholder value. In their investigation of these relationships, they find no support for the entrenchment argument reporting a negative relation between CEO tenure and stock options (after controlling for CEO age). Similarly, Davila and Vekatchalam (2004) investigate the role of NFPM in compensation contracts for the airline industry. Their main results indicate that passenger load factor is an important determinant for CEO pay. Additionally, they predict and find that CEO tenure, a proxy for CEO quality, is associated with higher levels of both cash and total compensation.

The extant literature supports the premise that tenure is associated with a CEO's ability to self-select into remuneration contracts that suit their risk-averse preferences (Finkelstein and Hambrick 1989; Ryan and Wiggins 2001; Lambert et al. 1991; Beatty and Zajac 1994; Jin 2002). Moreover, CEO tenure provides the BOD with more opportunity to assess ability and leads to less reliance on financial measures for performance evaluation (Bushman et al. 1996). Based on the preceding arguments, I propose the following hypothesis:

> **H3: CEO tenure will be positively associated with the use of NFPM in compensation contracts.**

Risk-Aversion

Compared to typical investors, CEOs as a group are assumed to be risk-averse. Managers bear more risk than outside investors because their portfolio is typically less diversified (Lambert et al. 1991; Beatty and Zajac 1994; Jin 2002). Outside shareholders can diversify risk at low cost and must only bear systematic risk. However, CEOs typically invest heavily in their own firm and must accept firm-specific risk as a part of their compensation (Jin 2002). May (1995) demonstrates that managers consider personal risk when making decisions on behalf of the firm.

Using a measure of risk based on a ratio of firm-specific wealth to manager total personal wealth, CEOs with greater personal wealth tied to their firm tend react conservatively by diversifying when making acquisitions (May 1995).

Previous accounting research provides evidence of variation among CEOs regarding their levels of risk-aversion (Abdel-Khalik 2007). Abdel-Khalik (2007) uses two measures of risk-aversion. The first is a measure derived from CEO personal wealth and the second is a measure of the CEO's choice for compensation structure. More risk-averse managers are assumed to have more guaranteed pay (i.e., salary) while higher levels of performance-based pay (i.e., stock and options) are associated with less risk-averse managers. Abdel-Khalik (2007) finds a negative association between risk-aversion among CEOs and the volatility of firm performance (earnings and operating cash flows). This suggests that the variation in risk-aversion among CEOs is a factor in leadership outcomes.

Although CEOs as a whole are risk-averse, I argue that the varying levels of risk-aversion among CEOs (May 1995; Abdel-Khalik 2007) influence the use of NFPM in compensation contracts. Managers tend to self-select into pay structures that are aligned with their risk preferences (Abdel-Khalik 2003). Although, it can be argued that BODs have significant control over the compensation structure (Mace 1971; Core et al. 1999; Jensen 1993), trait theory argues that it is not the managerial traits themselves that lead to particular outcomes but the attributions made by others based on these traits (Ittner et al. 2003a; DeRue et al. 2011; Karuna and Merchant 2014). NFPM have been established as measures that can allow managers more control over circumstances and can decrease risk when used in combination with financial measures in remuneration contracts (Bruns and McKinnon 1993; Feltham and Xie 1994). Based on the preceding arguments, I propose the following hypothesis:

H4: CEO risk-aversion will be positively associated with the use of NFPM in compensation contracts.

Overconfidence

CEO overconfidence is an important element to consider when studying corporate decisions (Daniel et al. 1998; Barber and Odean 2001; Malmendier and Tate 2005, 2008; Campbell; Hirshleifer 2012; Ahmed and Duellman 2013). Prior literature links overconfidence to biases in decision-making (Larwood and Whittaker 1977). In an experiment, Larwood and Whittaker (1977) find that participants are overconfident in predicting the success of a hypothetical firm for which they are a manager. This is known in the psychology literature as the better-than-average effect, where individuals compare themselves to an average peer and evaluate themselves in higher regard (Alicke 1995). This typically results in unrealistic optimism about future events. Weinstein (1980) models this phenomenon in an examination of individual perceptions about experiencing various health issues. He reports that college students consistently view their chances of having health challenges as lower than that of their peers.

Prior research establishes that overconfidence is important in the financial decision-making context. Daniel et al. (1998) propose that investor overconfidence may account for unexplained market behavior. They propose that individuals overestimate their own abilities depending on the process for information gathering. Investors may be more confident in information in which they have had personal involvement, such as financial statement analysis and other private information gathering activities. Moreover, if an investor is overconfident because they have obtained private information, they may disregard other external or public signals about the investment opportunity. In their study of these phenomena, Daniel et al. (1998) provide evidence supporting these assertions by showing that the market overreacts to private information and underreacts to public information.

Overconfidence has also been linked to CEO decision-making. Malmendier and Tate (2005) investigate overconfidence in light of corporate investment decisions. They classify CEOs as overconfident when they hold their stock until after a theoretically calibrated benchmark, when they hold their options until the last year before expiration, or if they habitually purchase stock. Malmendier and Tate (2005) propose that overconfident managers overestimate returns for investment projects and view external funding as unnecessarily costly. Using regression analysis, they document a significant positive relation between the sensitivity of investment to cash flow and CEO overconfidence. In addition, they find that managers are more likely to overinvest when internal funds are available compared to the circumstance in which external funding is required. Their results imply that overconfidence significantly influences investment decisions. Moreover, stock and options offered in CEO compensation are not likely to mitigate the influence of managerial overconfidence, and additional monitoring may be needed to control the detrimental effects of CEO overconfidence (Malmendier and Tate 2005).

In a subsequent study, Malmendier and Tate (2008) investigate the role of CEO overconfidence in mergers and acquisitions. Prior corporate finance literature suggests that on average, risk-averse CEOs will exercise options before the expiration date (before they are deep in the money) because of the increased concentration of their investment portfolio in firm-specific risk (Carpenter 1998; Hall and Murphy 2002). Malmendier and Tate (2008) classify CEOs as overconfident based on their willingness to hold company stock options until they are deep in the money. They predict and find that overconfident CEOs engage in mergers that are not expected to increase firm value. Consistent with Daniel et al. (1998), they provide evidence that overconfident CEOs overestimate their ability to generate returns, perhaps as a consequence of receiving private information. Moreover, overconfident CEOs engage in more frequent

acquisition behavior than CEOs who are not overconfident and the market discounts the merger and acquisition behavior of overconfident CEOs.

More recently, Campbell et al. (2011) examine the relation of optimism to CEO turnover. They use a modified version of the Malmendier and Tate (2005) measure of CEO overconfidence and re-label it as CEO optimism. Campbell et al. (2011) define a CEO as optimistic if their net purchases of shares (stock purchases minus sales) are positive over a period of time. They also create classifications for low-, medium- and high-optimism CEOs. They find that CEOs who exhibit very low- or very high-optimism are more likely to be terminated than moderately optimistic CEOs.

Overconfidence can also impact manager accounting policy decisions. Schrand and Zechman (2012) use AAERs (Accounting Auditing and Enforcement Releases) to provide evidence that overconfident CEOs may have an increased propensity to misstate earnings. They examine AAERs that demonstrate an optimistically biased but not necessarily intentional financial reporting misstatement. For example, an executive may have made an initially optimistic accounting judgment (e.g., premature revenue recognition, overvaluation of assets). However, when subsequent firm performance does not account for the initial optimism, overconfident executives are more likely to intentionally misstate earnings. They find that these misstatements grow in magnitude and are subjected to SEC enforcement (Schrand and Zechman 2012). Ahmed and Duellman (2013) find that CEO overconfidence is negatively related to accounting conservatism. In particular, they highlight CEO behavior concerning losses. Overconfident CEOs are reluctant to recognize losses, and once losses occur, they are more likely to undervalue them by using less conservative estimates (Ahmed and Duellman 2013).

Several studies explore what benefits may be gained from managerial overconfidence. Using an analytical model of capital budgeting, Gervais et al. (2011) provide evidence that firms can take advantage of CEO overconfidence by offering more incentive-based compensation. They explain that because overconfident managers overestimate the precision of signals when remuneration packages are increasingly based on performance, managers who are both risk-averse and overconfident will quickly take on projects with positive value signals and abandon projects with negative value signals. This may lead to an increase in value for the firm in exchange for less costly compensation. Humphrey-Jenner et al. (2014) produce results supporting these models by documenting that firms offer overconfident CEOs more incentive-based pay in order to exploit their overly biased views. This is a consequence of the attributions made to CEOs based on the trait of overconfidence. Hirshleifer et al. (2012) examine the relationship of overconfidence to CEO innovation using measures of option exercises and press coverage. They indicate that overconfident CEOs are more innovative and achieve greater performance as a result of investing in riskier projects. Additionally, Hirshleifer et al. (2012) demonstrate that overconfidence is not associated with inferior performance using several proxies (sales, ROA, and Tobin's Q) providing evidence contrary to the presumption that overconfidence is harmful to firms.

Prior research suggests that overconfident CEOs make decisions based on a short-term perspective since they may be increasingly compelled to misstate earnings and have been observed making less conservative accounting decisions (Schrand and Zechman 2012; Ahmed and Duellman 2013). Based on this presumption, overconfident CEOs would be less likely to opt into compensation contracts including NFPM (Johnson and Kaplan 1987; Kaplan and Atkinson 1998; Singleton-Green 1993; Kaplan and Norton 1996, 2001; Bushman et al. 1996; Hemmer

1996). On the other hand, overconfident CEOs hold their stock options longer than their less confident peers, therefore, they may be more prone to taking a long-term view for firm direction (Malmendier and Tate 2005, 2008). In addition, overconfident CEOs may prefer to opt into compensation contracts that include NFPM to mitigate the increased risk in compensation schemes based on the firm and BOD perceptions ascribed to the trait of overconfidence (Gervais et al. 2011; Humphrey-Jenner et al. 2014; Ittner et al. 2003a; DeRue et al. 2011; Karuna and Merchant 2014). This would provide a tool for these executives to lower increased risk associated with higher levels of incentive-based pay (Lambert and Larcker 1987; Bruns and McKinnon 1993; Bushman et al. 1996; Feltham and Xie 1994; Hemmer 1996; Davila and Venkatachalam 2004). Thus, overconfident CEOs may be either more likely or less likely to prefer to opt into compensation contracts that include NFPM. Based on the preceding arguments, I propose the following hypotheses:

H5a: CEO overconfidence will be positively associated with the use of NFPM in compensation contracts.

H5b: CEO overconfidence will be negatively associated with the use of NFPM in compensation contracts.

Sensitivity of CEO Wealth

Firms offer compensation contracts contingent on market performance in order to motivate managers to take risks and put forth effort that will maximize shareholder wealth (Jensen and Meckling 1976; Holmstrom 1979; Indjejikian 1999; Rajgopal and Shevlin 2002). As executives attain tenure and promotion within a firm, their personal wealth becomes increasingly connected to firm performance (Murphy 1985; May 1995). Coles (2006) examines the sensitivity of CEO wealth (including stock and options) to stock volatility and demonstrates that offering more ownership-based compensation motivates managers to take more investment risks and

implement a more aggressive debt policy. These results suggest that the increasing sensitivity of CEO wealth to firm performance may lead to lower levels of risk-aversion.

Grant et al. (2009) examine the relation between executive stock options (ESO) and income smoothing. Income smoothing is measured by estimating the correlation between the change in discretionary accruals and the change in nondiscretionary income. They find a significant and positive relationship between stock options and income smoothing, suggesting that executives use their discretion to disguise the unintended consequences of risk taking. However, the underlying 'real' risk remains. Previous research also reports that incentive-based compensation may lead to more aggressive accounting policies. Bergstresser and Philippon (2006) provide evidence that managers use discretionary accruals to manipulate earnings when their compensation is more equity-based. They measure the power of equity-based incentives by using the dollar change in CEO total compensation that would follow a one-percentage point increase in stock price. Their findings document that the use of discretionary accruals is greater when CEO equity-based compensation is more closely tied to firm market performance. Moreover, in years when accruals are especially high, they show a greater number of options exercised and shares sold by company insiders.

The personal wealth of executives becomes increasingly tied to performance as they gain tenure within firms (Murphy 1985; May 1995; Coles 2006). NFPM may be preferred by these executives since, when used in combination with financial measures, NFPM can allow managers more control over circumstances and can decrease risk (Bruns and McKinnon 1993; Feltham and Xie 1994). This provides a reasonable argument to propose that managers with increased sensitivity of wealth would prefer compensation contracts that include NFPM. Alternatively, managers who are encouraged to take risks via incentive compensation may use their discretion

to mask income volatility resulting from the unintended consequences of risky ventures (Coles 2006; Grant et al. 2009). Further, CEOs with total compensation more closely tied to market performance or greater sensitivity of wealth are more likely to manipulate earnings (Bergstresser and Philippon 2006), indicating a short-term perspective. In this circumstance, the CEO may use income smoothing or earnings manipulation as a substitute for mitigating risk with NFPM (Coles 2006; Grant et al. 2009; Bergstresser and Philippon 2006). Based on the preceding arguments, I propose the following hypotheses:

H6a: Sensitivity of CEO wealth will be positively associated with the use of NFPM in compensation contracts.

H6b: Sensitivity of CEO wealth will be negatively associated with the use of NFPM in compensation contracts.

IV. METHODOLOGY

Data and Sample Selection

The firms included in the analyses are comprised of companies listed on the Standard and Poor's 500 index (S&P 500) at least once from 1991-2012. The S&P 500 consists of common stock information for the 500 largest companies that trade on either the New York Stock Exchange or the National Association of Securities Dealers Automated Quotations indices. The S&P 500 is a valid indicator of firm behavior and performance for the U.S. economy (Fama and French 2002). The data for the independent variables of interest are contained in the Execucomp, Risk Metrics Directors, and Center for Research in Security Prices (CRSP) databases. The information for dependent variable, NFPM, was collected by reviewing proxy statement disclosures listed in the U.S. Securities and Exchange Commission Electronic Data-Gathering, Analysis, and Retrieval (EDGAR) database for the years 2000-2013. Therefore, the final sample covers the years 2000-2013.

Empirical Model

To test the link between the adoption of NFPM and CEO characteristics, I use the following logistic regression model and test the CEO characteristics independently:

$$P(NFPM_{i,t}=1) = \alpha_0 0 + \alpha_1 CEOcharacteristic_{i,t} + \alpha_2 adjROA_{i,t} + \alpha_3 Levratio_{i,t} + \alpha_4 Comp_{i,t} + \alpha_5 MktNoise_{i,t-1\ thru\ t-5} + \alpha_6 Cyclical_{i,t-1\ thru\ t-5} + \alpha_7 PercInsBOD_{i,t} + \alpha_8 PercOwnInsDir_{i,t} + \alpha_9 BODSize_{i,t} + \mu_i + \nu_t + \varepsilon_{i,t} \quad (1)$$

where,

i = observation for each firm;
t = observation for each year;

μ = fixed effect (indicator variables) for each firm;
v = fixed effect (indicator variables) for each year;
NFPM = binary variable coded as 1 if the firm indicates the use of NFPM in the CEO compensation contract for the year and 0 otherwise;
CEOcharacteristics *(tested independently):*
CEOgender = binary variable coded as 1 for female CEOs and 0 for male CEOs;
CEOage = age of the CEO in years;
CEOtenure = the number of years between the date the CEO joined the company and the year of termination or the current year (if the CEO continues to be employed by the firm);
CEOriskaversion = CEO firm specific wealth divided by CEO total wealth;
CEOoverconfidence = an indicator variable coded as 1 for CEOs that hold their options until they are 67% deep in the money and 0 otherwise;
CEOsensitivityofwealth = the dollar change in CEO options and holdings that would result from a one-percentage point increase in firm stock price;
Controls*:*
adjROA = income before extraordinary items divided by lagged total assets;
Levratio = ratio of total debt divided by total stockholder equity;
Comp = natural logarithm of net firm sales;
Cyclical = standard deviation of return on sales from the median industry return on sales for the five years prior to each proxy date;
MktNoise =Fisher z-score for the correlation between return on assets and stock market returns for the five years prior to each proxy date;
PercInsBOD = percentage of the board with insider affiliation (employee of the firm or one of the firm affiliates);
PercOwnInsDir = proportion of firm stock owned by directors with an insider affiliation;
BODSize = number of directors.

This model is used to assess the predictions for hypotheses H1-H6. Using model 1, I employ a conditional logistic regression method in order to control fixed effects at the firm and year level. This allows for the separation of firm-specific, time invariant factors from the influence of CEO characteristics by eliminating any fixed firm or year factors from the analysis. Therefore, firms that always or never use NFPM will be excluded from the analysis and any conclusions drawn from the results will apply to changes in the use of NFPM that occur across firms and time. To avoid problems associated with limited data availability and multicollinearity issues, each CEO characteristic is examined separately.

Measures

Dependent Variable

The information for the dependent variable was collected by reviewing proxy statements listed on EDGAR for each firm year. The disclosure of NFPM is primarily voluntary. Prior literature concludes that competitive force and not regulation should motivate firms to disclose NFPM information because the appropriate measures for performance are context specific (Eccles 1991; Maines et al. 2002). Following Ittner et al. (1997), firms are identified as using NFPM by searching for the keywords: " non-financial," "nonfinancial," "customer satisfaction," "employee satisfaction," "employee morale," " employee motivation," "quality process," "improvement," " individual objectives," "reengineering," "new product development," diversity," "market share," "productivity," "efficiency," "safety," "innovation," "operational, " "measure," "operational performance," "strategic objectives," "individual performance," and "individual goals." Then, the CEO compensation report was reviewed to ensure that the keyword(s) is used in the appropriate context as a part of CEO remuneration. Firms using both financial and NFPM are coded as one. Firms disclosing only the use of financial performance measures are coded as zero. In addition, the data for the weights placed on NFPM was collected to use as an alternative dependent variable.

Independent Variables of Interest

Demographic and firm-specific variables. The information on CEO gender is available in the Risk Metrics Directors database. Female CEOs are coded as one and male CEOs are coded as zero. The data for age and tenure is from Execucomp. The computation for the tenure variable is the difference between the current year and the year the CEO joined the firm (if the CEO continues to be employed by the firm) or the year of CEO termination.

Risk-aversion. In a study examining CEO risk motives, May (1995) uses a ratio of CEO firm-specific wealth to total CEO wealth to account for CEO risk. Total CEO wealth accounts for the executive's ability to diversify their earnings outside the firm. Tournament theory contends that firms use promotions to motivate managers; consequently, their acquired wealth may not only be due to performance outcomes, but also a result of advancing within the firm. Lazear (1999) uses panel data to document that promotions create sharp increases in compensation. For example, a worker with one promotion during an eight-year employment period received a 13% salary increase over an employee who was not promoted. Lazear (1999) provides evidence that the rate of earnings growth is higher for employees involved in promotions than for employees remaining at the same organizational level. I considered this issue in constructing the measure for risk-aversion based on CEO wealth.

Following May (1995), I estimate risk-aversion using the ratio of CEO firm-specific wealth (*FirmSpecificWealth*) to total wealth (*TotalWealth*). I calculate the total wealth of a CEO as a function of their ability to accumulate diversified wealth outside of the firm using the following equation:

$$TotalWealth_{i,t} = FirmSpecificWealth_{i,t} + [(CEOTenure\ (SalaryBonus_{i,t})) + (PresidentTenure\ (SalaryBonus_{i,t} / 1.14)) + (VicePresidentTenure\ ((SalaryBonus_{i,t} / (1.14)*(1.20))) + (AttainVPposition(SalaryBonus_{i,t} / (1.14)*(1.20)*(1.33)))] \quad (2)$$

where,

FirmSpecificWealth = market value of CEO equity for each firm year;
SalaryBonus = CEO salary plus bonus of the CEO for each firm year;
CEOTenure = number of years the CEO has been with the firm;
PresidentTenure = number of years that the CEO held the position of president of the BOD;
VicePresidentTenure = number of years that the CEO held the position of vice-president of the BOD;
AttainVPPosition = the number of years after age 30 until the CEO attained the position of vice-president.

The market value of CEO firm holdings listed in Execucomp since 1992 is the measure of CEO firm-specific wealth. The data for *PresidentTenure, VicePresidentTenure,* and *AttainVPPosition,* is available in the Risk Metrics Directors database beginning in 1996. These data are used, in addition to *FirmSpecificWealth,* to estimate the diversified wealth accumulation of CEOs. Salary increases based on the growth rate for executive salaries and the long-run growth rate of real GNP are assumed to be reinvested to yield a similar return (May 1995). Murphy (1985) reports that managers receive an increase of about 14% when promoted from president to CEO, 20% when promoted from vice-president to president, and 33% when they accept the position of vice-president. This information is used to construct a measure representing total CEO wealth. To proxy for CEO risk preferences, I use the ratio of *FirmSpecificWealth* to *TotalWealth*. Lower ratios of *FirmSpecificWealth* to *TotalWealth* indicate CEOs that are less risk-averse and higher ratios of *FirmSpecificWealth* to *TotalWealth* indicate CEOs that more risk-averse.

Overconfidence. Following Campbell et al. (2011) and using Execucomp data, I construct a measure to proxy for CEO overconfidence. Campbell et al. (2011) use a modified version of the Malmendier and Tate (2008) overconfidence measure based on the CEO's personal stock option exercise and holding decisions. I use Malmendier and Tate's (2008) 67% in the moneyness benchmark to create an indicator variable for CEO overconfidence. CEOs are classified as overconfident if they hold options until the stock price exceeds the exercise price by more than 67%. The Execucomp data do not have exercise price information for specific options and grants; therefore, I use Core and Guay's (2003) estimation method for computing the realizable value per option by dividing the estimated value of unexercised in the money options by the total number of unexercised but exercisable options (OPT_UNEX_EXER_EST_VAL,

OPT_UNEX_EXER_NUM). Then, following Campbell et al. (2011) I subtract the realizable value per option from the stock price at the end of the fiscal year (obtained from CRSP) to estimate the average exercise price. The in the moneyness percentage will be equal to the realizable value per option, divided by the estimated exercise price. CEOs who hold options until they are more than 67% deep in the money are coded as one, and zero otherwise.

Sensitivity of Wealth. Consistent with Bergstressor and Philippon (2006), I use the change in CEO compensation that would result from a one-percentage point increase in firm stock price to estimate the sensitivity of CEO wealth to firm value. This measure is constructed using stock price and option holdings data contained in CRSP and Execucomp using the following equation:

$$OnePercStockPriceChange_{i,t} = 0.01 * Price_{i,t} * (Shares_{i,t} + Options_{i,t}) \quad (3)$$

where,

Price = company share price;
Shares = value of firm shares held by the CEO for each firm year;
Options = value of options held by the CEO for each firm year.

I then use the *OnePercStockPriceChange* to calculate the CEO incentive ratio as follows:

$$CEOsensitivityofwealth_{i,t} = OnePercStockPriceChange_{i,t} / (OnePercStockPriceChange_{i,t} + Salary_{i,t} + Bonus_{i,t}) \quad (4)$$

where,

Salary = CEO salary for each firm year;
Bonus = CEO bonus for each firm year;

The variable *CEOsensitivityofwealth*, is the amount of total CEO compensation that would result from a one-percentage point increase in firm stock price. The data necessary to estimate the CEO sensitivity of wealth ratio are contained in the Execucomp, Compustat, and CRSP databases.

Control Variables

Prior research provides evidence that firm decisions to retain NFPM are significantly associated with prospector firms (firms seeking new product and market opportunities), regulated firms, firms with strong quality initiatives, and firms with longer product development cycles (Ittner et al. 1997; Said et al. 2003; HassabElnaby et al. 2005). This work substantiates that the use and retention of NFPM is contingent on the 'fit' between NFPM and time invariant firm characteristics. Additionally, NFPM are more difficult to measure and quantify than financial measures, however, firms can resolve this issue by making comparisons to competitors (Eccles 1991). Therefore, industry norms may be a determinant of whether NFPM are used in compensation contracts. Given that the factors in the discussion above are time invariant, they will be held constant by using the fixed effects regression method described previously (Malmendier and Tate 2005, 2008; Graham et al. 2012).

Time variant firm controls. I will include several controls for firm level time variant factors that research indicates are associated with the use of NFPM. Firm performance is a key determinant for the use and retention of NFPM (Said et al. 2003; HassabElnaby et al. 2005). Moreover, financial distress results in a lower likelihood that a firm will use NFPM (HassabElnaby et al. 2005). As a result, I include the lagged value of adjusted return on assets to proxy for performance and a variable indicating financial distress.

Consistent with prior theoretical and empirical literature firm complexity is related to the type and level of compensation offered (Rosen 1982; Core et al. 1999). Additionally, firms that are more complex are more likely to focus on structuring compensation that will attract the highest quality CEOs. Since this may positively influence the decision to include NFPM, I follow Core et al. (1999) and control for firm complexity using the logarithm of sales.

Controls for Noise in Financial Measures. Prior research substantiates that financial performance measures are noisy and that the use of NFPM are positively related to the amount of noise inherent in financial measures (Feltham and Xie 1994; Ittner et al. 1997). In addition, Davila and Venkatachalam (2004) provide evidence that the noise in financial performance measures influences the association between NFPM and CEO compensation (Davila and Venkatachalam 2004). Consequently, I follow Ittner et al. (1997) and incorporate two variables to control for the exogenous noise in firm financial performance measures. The first measure (*Cyclical*), accounts for the time series variability due to exogenous shocks and the cyclical behavior of industry accounting returns. This is measured using the standard deviation of return on sales from the median industry return on sales for the five years prior to each proxy statement date. The second measure (*MktNoise*) is calculated using the firm level correlations between accounting returns and stock market returns (Ittner et al. 1997; Lambert and Larcker 1987). I construct this measure by obtaining the Fisher z-score for the correlation between return on assets and stock market returns for the five years prior to each proxy date. Consistent with Ittner et al. (1997), the noise in firm financial measures is predicted to be inversely related to the correlation between return on assets and market returns. A low correlation indicates a higher level of noise, an indication of lower quality accounting earnings measures. Therefore, I expect firms experiencing a higher level of noise in financial measures to be associated with firms using both financial and NFPM.

BOD controls. Core et al. (1999) use CEO compensation as a proxy for assessing board effectiveness because it is observable. Moreover, the BOD has significant power over the level and structure of CEO compensation. Specifically, Core et al. (1999) find that the percentage of inside board members has a negative relation with CEO total compensation, a signal for optimal

compensation contracting. Accordingly, the proportion of inside directors may influence whether the BOD approves a CEO compensation package that includes or excludes NFPM. Thus, I include a measure for the percentage of inside board members obtained from the Risk Metrics Directors database.

Jensen (1993) argues that BOD with greater firm ownership will be more vigilant in monitoring managers and making firm decisions. Morck et al. (1988) reports that firm valuation, measured using stock market reaction, increases in relation to the proportion of director ownership. Specifically, they find that the stock market reaction is positive when firms announce the appointment of an insider director who owns a moderate proportion of firm stock (5% - 25%) but negative when firms announce the appointment of inside directors that own low percentages of firm stock (< 5%). This indicates that the market expects superior monitoring from the expertise of an inside director with substantial personal wealth tied to the firm (Morck et al. 1988). To control for the possibility that insider BOD ownership may either positively or negatively influence the use of NFPM, I include a control variable for the percentage of shares owned by insider directors. Further, Core et al. (1999) documents that total CEO compensation is positively related to board size. Therefore, I include a control variable for board size.

Additional Analysis

Prior research concerning the use of NFPM demonstrates that firms introducing NFPM will need to reduce the weight placed on accounting income for compensation contracts (Hemmer 1996). This is consistent with predictions made by Kaplan and Atkinson (1998), that firms may come to rely more on long-term indicators of performance (i.e., NFPM) and less on short-term financial measures. The weight placed on NFPM may signal the importance of an incentive (Ittner et al. 1997). In addition, Ittner et al. (1997) document the weight of NFPM are

positively associated with regulation, 'prospector' strategy, the adoption of a strategic quality initiative, and noise in financial measures. Ittner et al. (2003a) specifically examine how financial and NFPM are weighted for a subjective balanced scorecard plan. They find that the weights placed on NFPM are a result of management's subjective interpretation of the value of the measure. Following other studies that investigate the use of NFPM, I also collect information from the firm sample proxy statements concerning the weights applied to NFPM, and then used these as an alternative dependent variable in an analysis examining the relation of the weighted NFPM and CEO characteristics (Ittner et al. 1997; Said et al. 2003; HassabElnaby 2005; HassabElnaby 2010).

This analysis is conducted using the following fixed effects regression model, controlling for both time and firm fixed effects:

$$WeightNFPM_{i,t} = \alpha_0 0 + \alpha_1 CEOcharacteristic_{i,t} + \alpha_2 adjROA_{i,t} + \alpha_3 Levratio_{i,t} + \alpha_4 Comp_{i,t} + \alpha_5 MktNoise_{i,t\text{-}1 \text{ thru } t\text{-}5} + \alpha_6 Cyclical_{i,t\text{-}1 \text{ thru } t\text{-}5} + \alpha_7 PercInsBOD_{i,t} + \alpha_8 PercOwnInsDir_{i,t} + \alpha_9 BODSize_{i,t} + \mu_i + \nu_t + \varepsilon_{i,t} \quad (5)$$

where,

WeightNFPM = weight placed on the NPFM if used in CEO compensation contracts.

The independent variables for equation 5 are the same as defined for equation 1.

V. RESULTS

Sample Descriptives

The dataset is constructed by obtaining all of the CEO characteristic information from Execucomp for the years 2000-2013 and matching this to the Risk Metrics Directors and Center for Research in Security Prices (CRSP) databases in order to obtain the information needed to construct the independent variables of interest. Thus, the initial dataset contains 7,099 observations and NFPM information was collected from proxy statements for 4,932 of these observations. I then match these data to the Compustat, CRSP and Risk Metrics Directors databases to obtain information for the control variables. Missing control variable data reduce the sample by 559 observations and then another 998 firm year observations are excluded from the analyses because the use of NFPM does not change for these firms. This results in a final sample of 3,375 observations available for the analysis of H1-H6.

Table 1 contains the distribution of each industry represented by two-digit SIC code for the 3,375 firm year observations contained in the final sample. Business services have the highest representation among industries in the sample (9.48%, SIC code 73) followed by electronics and other electrical equipment manufacturers (8.12%, SIC code 36).

TABLE 1

Frequency Distribution of Industry Firm-year Observations

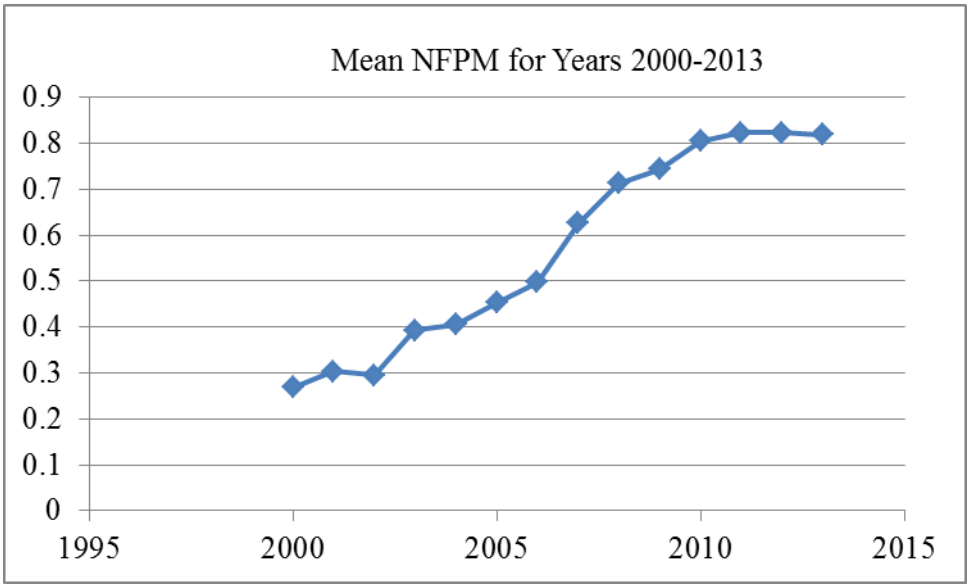
Industry	Two-digit SIC	# of obs	% of sample	Cum. %
Metal/Mining	10	18	0.53%	0.53
Coal Mining	12	10	0.30%	0.83
Oil and Gas Extraction	13	176	5.21%	6.04
Building Construction-Gen Contractors	15	21	0.62%	6.67
Heavy Construction-other than Building Contractors	16	14	0.41%	7.08
Special Trade Contractors	17	20	0.59%	7.67
Food and Kindred Products Manu.	20	130	3.85%	11.53
Tobacco Products	21	8	0.24%	11.76
Textile Mill Products	22	6	0.18%	11.94
Apparel and Other Finished Products Manu.	23	13	0.39%	12.33
Lumber and Wood Products except Furniture	24	22	0.65%	12.98
Furniture and Fixture Manu.	25	26	0.77%	13.75
Paper and Allied Products Manu.	26	66	1.96%	15.70
Printing Publishing and Allied Industries	27	75	2.22%	17.93
Chemicals and Allied Product Manu.	28	229	6.79%	24.71
Petroleum Refining and Related Industry Manu.	29	49	1.45%	26.16
Rubber and Miscellaneous Plastics Manu.	30	46	1.36%	27.53
Leather and Leather Products Manu.	31	16	0.47%	28.00
Primary Metal Industries Manu.	33	2	0.06%	28.06
Fabricated Metal Products Manu.	34	55	1.63%	29.69
Industrial and Commercial Machinery Manu.	35	199	5.90%	35.59
Electronics and Other Elect Equipment Manu.	36	274	8.12%	43.70
Transportation Equipment Manu.	37	76	2.25%	45.96
Measuring and Analyzing Instruments Manu.	38	187	5.54%	51.50
Miscellaneous Manufacturing Industries Manu.	39	11	0.33%	51.82
Railroad Transportation	40	10	0.30%	52.12
Motor Freight Transportation	42	15	0.44%	52.56
Air Transportation	45	25	0.74%	53.30
Communications	48	70	2.07%	55.38
Electric Gas and Sanitary Services	49	239	7.08%	62.46
Wholesale Trade-Durable Goods	50	11	0.33%	62.79
Wholesale Trade-Nondurable Goods	51	43	1.27%	64.06
Building Materials & Gardening Supplies	52	41	1.21%	65.27
General Merchandise Stores	53	73	2.16%	67.44
Food Stores	54	11	0.33%	67.76
Automotive Dealers and Service Stations	55	34	1.01%	68.77
Apparel and Accessory Stores	56	62	1.84%	70.61
Home Furniture and Furnishings Stores	57	5	0.15%	70.76
Eating and Drinking Places	58	27	0.80%	71.56

TABLE 1 (continued)

Industry	Two-digit SIC	# of obs	% of sample	Cum. %
Miscellaneous Retail	59	47	1.39%	72.95
Depository Institutions	60	214	6.34%	79.29
Security and Commodity Brokers	62	69	2.04%	81.33
Insurance Carriers	63	163	4.83%	86.16
Insurance Agents Brokers and Services	64	14	0.41%	86.58
Holding and Other Investment Offices	67	29	0.86%	87.44
Hotels & Other Lodging Places	70	8	0.24%	87.67
Personal Services	72	9	0.27%	87.94
Business Services	73	320	9.48%	97.42
Auto Repair, Services, & Parking	75	14	0.41%	97.84
Amusement and Recreation Services	79	11	0.33%	98.16
Health Services	80	32	0.95%	99.11
Educational Services	82	14	0.41%	99.53
Engineering Accounting and Management Services	87	7	0.21%	99.73
Non-Classifiable Establishments	99	9	0.27%	100.00
Total		3,375	100%	

Figure 1 documents the increased propensity for firms to use of NFPM for the years 2000-2013 using the mean of *NFPM* for each year for the 4,932 observations of data hand collected from proxy statements in EDGAR. Table 2 panel A contains the descriptive statistics for all of the variables in the final sample available to test H1-H6 (3,375 observations). Sample sizes for the analysis of each CEO characteristic vary depending on the availability of the CEO characteristic data.

FIGURE 1



The mean for *NFPM* is 0.541; consequently, over half of the firm year observations indicate the use of both financial and NFPM for CEO remuneration. With respect to the demographic variables of interest, less than 3% of the sample are female CEOs and the median for age is 56 years. Note that the samples for CEO tenure, CEO risk-aversion and CEO sensitivity of wealth are significantly smaller (1528 observations, 554 observations and 1332 observations, respectively) due to data availability issues with the Execucomp and Risk Metrics Directors databases. Average CEO tenure is slightly more than 17 years and the mean for CEO risk-aversion is 0.201. Recall, the measure for *CEOriskaversion* is the ratio of CEO firm specific wealth to total wealth. Therefore, an average of 20% of total CEO wealth is at stake as a consequence of contemporaneous firm decision making. The mean for CEO overconfidence is 0.29. Accordingly, 29% of the 3,051 observations retained for the *CEOoverconfidence* variable hold options until the stock price exceeds the exercise price by more than 67%. Finally, the mean

for CEO sensitivity of wealth is 0.537. This represents the average share of CEO total compensation that would result from a one-percentage point change in the value of equity for the firm.

Average return on assets adjusted by using the previous year total assets is 0.65 and firms in this sample have an average debt-to-equity ratio of 0.966. The mean of firm complexity, proxied by using the log value of sales, is 8.77. The noise in financial measures, indicated by exogenous shocks and the cyclical behavior of industry accounting returns (*Cycl*), is 0.022. Moreover, the noise in financial measures indicated by measuring firm level correlations between accounting returns and stock market returns (*MktNoise*) has a mean of 0.006. The percentage of inside board members and the percentage of shares owned by insider directors have means of 0.917 and 0.031, respectively. Finally, the median BOD size in this sample is 10 directors.

I conducted univariate tests for all of the variables, including the variables of interest, comparing the means of the initial dataset (7099 observations) to the means of the sample retained for analysis (3375 observations) and did not find any statistically significant differences, except with the proxy for CEO overconfidence. The mean for the initial sample is 0.310 (not tabulated) and represents a significantly higher level of overconfidence than the mean for the retained sample (0.290). Therefore, the sample may not be fully representative of the population for CEO overconfidence and this may lead to lack of findings for this variable of interest.

Panel B of Table 2 contains the difference tests and descriptive statistics for the variables of interest and the control variables comparing firms that use both financial and NFPM with firms that indicate the use of only financial performance measures in their proxy statements. According to the univariate tests, more women are associated with firms that use NFPM ($p <$

0.001). The mean of *CEOgender* for firms that use NFPM is 0.035 compared to a mean of 0.014 for firms that do not. This is consistent with prior research suggesting that women are more risk-averse than men (Byrnes et al. 1999; Powell and Ansic 1997; Cullis et al. 2006) and as a consequence would prefer to have NFPM included in compensation contracts as a risk reduction measure (Bruns and Mckinnon 1993; Feltham and Xie 1994). Additionally, firms that use NFPM employ younger CEOs. The difference test for age is marginally significant ($p = 0.080$). However, the two groups of firms have CEOs with relatively the same tenure ($p = 0.281$). The difference in *CEOriskaversion* is not significant, consistent with prior research that CEOs as a group are risk-averse (Lambert et al. 1991; Beatty and Zajac 1994; Jin 2002). Based on the difference tests, overconfident CEOs are more likely to be associated with firms that use only financial measures ($p < 0.001$), suggesting that these executives may have a short-term perspective (Johnson and Kaplan 1987; Kaplan and Atkinson 1998; Singleton-Green 1993; Kaplan and Norton 1996, 2001; Bushman et al. 1996; Hemmer 1996). Finally, the univariate tests do not reveal significant differences for CEO sensitivity of wealth when comparing firms that use NFPM and firms that do not utilize NFPM for CEO compensation.

The sample comparison of descriptive statistics for the control variables suggests that firms using NFPM have better performance. The mean *adjROA* for firms using both financial and NFPM is 0.070 compared to a mean of 0.058 for firms reporting only financial measures ($p < 0.001$). Further, firms using NFPM are more complex ($p < 0.001$). The difference tests reveal no significant difference between the two groups of firms for the leverage ratio or the cyclical behavior of industry accounting returns ($p = 0.630$, and $p = 0.800$ respectively). The comparative descriptive statistics show a significant difference in the mean for *MktNoise* ($p = 0.010$), consistent with prior research that suggests a low correlation reflects greater noise in financial

measures providing an incentive for the adoption of NFPM (Ittner et al. 1997; Said et al. 2005). There is a statistically significant difference between the two groups of firms for all three BOD variables. Firms that use NFPM have more inside board members and a larger BOD in general. The difference test for the proportion of insider firm ownership reveals that firms using NFPM have significantly less insider firm ownership ($p < 0.001$) than firms that use only financial performance measures.

Panel C of Table 2 contains the correlations for the dependent variable (*NFPM),* the variables representing CEO characteristics, and the control variables. As expected, *NFPM* is significantly and positively related to *CEOgender*, indicating the women are more risk-averse than men (Byrnes et al. 1999; Powell and Ansic 1997; Barber and Odean 2001; Cullis et al. 2006; Barua et al. 2010; Bruns and McKinnon 1993; Feltham and Xie 1994). Age is marginally significant in relation to *NFPM*. The correlation suggests that older CEOs are less likely to opt into compensation contracts that include NFPM. Prior research is mixed regarding the relationship between CEO age and equity compensation (Mehran 1995; Lewellen et al. 1987; Yermack 1995) making a prediction regarding risk preferences for older CEOs difficult. However, Yermack (1995) explains that CEOs approaching retirement avoid investment in long-horizon projects that will only reward their successor. Perhaps this engenders a short-term perspective leading to less preference for NFPM in compensation contracts. *NFPM* is also negatively correlated with tenure, however, the relationship is not significant. Perhaps, not only older CEOs but also CEOs that have accrued many years of tenure begin to take on a short-term perspective as the end of their career approaches.

The extant literature is clear that NFPM can decrease the risk inherent in a compensation package based solely on financial measures (Bruns and McKinnon 1993; Feltham and Xie 1994).

Accordingly, NFPM would be preferred by risk-averse CEOs (Lambert et al. 1991; Beatty and Zajac 1994; Jin 2002). Congruous with this argument, the correlations show that *NFPM* is positively, although not significantly, related to *CEOriskaversion*. Schrand and Zechman (2012) provide evidence that overconfident CEOs make decisions based on a short-term perspective because they have an increased propensity to misstate earnings. Supporting this argument, the correlation results reveal that *CEOoverconfidence* is negatively and significantly related to *NFPM*. Moreover, *CEOsensitivityofwealth* is positively related to *NFPM.* The correlation results support the notion that as managers embark on riskier ventures as a result of being offered more ownership-based compensation (Coles 2006), they prefer the use of NFPM as a risk-mitigating measure (McKinnon 1993; Feltham and Xie 1994).

Regarding the control variable correlations, *adjROA* is positively and significantly related to *NFPM* as is firm complexity (Said et al. 2003; HassabElnaby et al. 2005; Core et al. 1999). Consistent with Ittner et al. 1997, *MktNoise* is negatively associated with *NFPM*. Similar to the difference test results (above) the percent of insider ownership is negatively related to the use of *NFPM* in compensation contracts. Perhaps increased insider ownership leads to increased entrenchment where large insider board holdings lead to elevated levels of board member power (Morck et al. 1988). This increased power may lead to the board members's belief that they can ensure their jobs without the need for mitigating risk by recommending the use of NFPM for compensation schemes. Finally, board size is significantly and positively related to *NFPM*.

TABLE 2

Panel A: Full sample variable descriptive statistics

	N	Mean	Median	Std. Dev.	25th Percentile	75th Percentile
Dependent Variable						
NFPM	3375	0.541	1.000	0.498	0.000	1.000
Independent Variables of Interest						
CEOgender	3375	0.025	0.000	0.157	0.000	0.000
CEOage	3375	56.144	56.000	6.366	52.000	60.000
CEOtenure	1528	17.374	15.000	11.269	8.000	27.000
CEOriskaversion	554	0.201	0.167	0.159	0.092	0.271
CEOoverconfidence	3051	0.290	0.000	0.454	0.000	1.000
CEOsensitivityofwealth	1332	0.537	0.589	0.246	0.367	0.732
ControlVariables						
AdjROA	3375	0.065	0.057	0.093	0.021	0.106
LevRatio	3375	0.966	0.555	9.476	0.249	1.097
Comp	3375	8.770	8.704	1.241	7.858	9.557
Cyclical	3375	0.022	0.014	0.026	0.006	0.028
MktNoise	3375	0.006	0.000	-0.096	-0.018	0.020
PercInsBOD	3375	0.917	1.000	0.109	0.875	1.000
PercOwnInsDir	3375	0.031	0.008	0.071	0.002	0.024
BODSize	3375	10.458	10.000	2.667	9.000	12.000

NFPM = binary variable coded as 1 if the firm indicates the use of NFPM in the CEO compensation contract for the year and 0 otherwise;
CEOgender = binary variable coded as 1 for female CEOs and 0 for male CEOs;
CEOage = age of the CEO in years;
CEOtenure = the number of years between the date the CEO joined the company and the year of termination or the current year (if the CEO continues to be employed by the firm);
CEOriskaversion = CEO firm specific wealth divided by CEO total wealth;
CEOoverconfidence = an indicator variable coded as 1 for CEOs that hold their options until they are 67% deep in the money and 0 otherwise;
CEOsensitivityofwealth = the dollar change in CEO options and holdings that would result from a one-percentage point increase in firm stock price;
adjROA = income before extraordinary items divided by lagged total assets;
ΔReturn = change in CRSP adjusted stock returns;
Levratio = ratio of total debt divided by total stockholder equity;
Size = log of total assets;
Comp = natural logarithm of net firm sales;
Cyclical = standard deviation of return on sales from the median industry return on sales for the five years prior to each proxy date;
MktNoise =Fisher z-score for the correlation between return on assets and stock market returns for the five years prior to each proxy date;
PercInsBOD = percentage of the board with insider affiliation (employee of the firm or one of the firm affiliates);
PercOwnInsDir = proportion of firm stock owned by directors with an insider affiliation;
BODSize = number of directors.

TABLE 2 (continued)

Panel B: Difference Tests comparing firms that use NFPM and firms that do not use NFPM in CEO Compensation contracts

	Firms using financial and NFPM			Firms financial measures only			Difference Test (t-test)
	N	Mean	Median	N	Mean	Median	p-value
Independent Variables of Interest							
CEOgender	1827	0.035	0.000	1548	0.014	0.000	<0.001
CEOage	1827	55.967	56.000	1548	56.353	57.000	0.080
CEOtenure	842	17.654	16.000	686	17.029	15.000	0.281
CEOriskaversion	349	0.203	0.168	205	0.197	0.159	0.652
CEOoverconfidence	1623	0.252	0.000	1428	0.334	0.000	<0.001
CEOsensitivityofwealth	835	0.545	0.600	497	0.524	0.576	0.1361
ControlVariables							
AdjROA	1827	0.070	0.061	1548	0.058	0.053	<0.001
LevRatio	1827	0.894	0.555	1548	1.052	0.554	0.630
Comp	1827	8.961	8.876	1548	8.544	8.541	<0.001
Cyclical	1827	0.022	0.014	1548	0.022	0.014	0.800
MktNoise	1827	0.002	-0.002	1548	0.011	0.002	0.010
PercInsBOD	1827	0.931	1.000	1548	0.900	0.917	<0.001
PercOwnInsDir	1827	0.026	0.006	1548	0.037	0.012	<0.001
BODSize	1827	10.699	11.000	1548	10.174	10.000	<0.001

The variable definitions are the same as those defined in Panel A.

TABLE 2 (continued)

Panel C: Correlations for NFPM, Variables of Interest, and Control Variables

	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)	12)	13)	14)	15)
1) NFPM	1														
2) CEOgender	0.068[b]	1													
3) CEOage	-0.030[a]	-0.093[b]	1												
4) CEOtenure	-0.036	-0.039	0.403[b]	1											
5) CEOriskaversion	0.037	-0.024	-0.080[b]	-0.476[b]	1										
6) CEOoverconfidence	-0.089[b]	-0.049[b]	0.038[b]	0.021	0.047	1									
7) CEOsensitivityofwealth	0.096[b]	-0.050[b]	0.030	0.080[b]	0.504[b]	0.177[b]	1								
8) AdjROA	0.061[b]	-0.007	0.008	0.061[b]	0.071[b]	0.183[b]	0.208[b]	1							
9) LevRatio	-0.008	-0.006	-0.006	0.033	0.004	-0.012	-0.062[b]	-0.032[a]	1						
10) Comp	0.168[b]	0.051[b]	0.103[b]	0.298[b]	0.044	-0.103[b]	0.278[b]	-0.044[b]	0.019	1					
11) Cyclical	0.004	-0.002	0.067[b]	0.066[b]	-0.089[b]	0.009	-0.045[a]	-0.017	-0.001	-0.093[b]	1				
12) MktNoise	-0.045[b]	0.034[b]	-0.018	-0.043[b]	-0.005	-0.062[b]	-0.101[b]	-0.138[b]	0.014	-0.014	0.058[b]	1			
13) PercInsBOD	0.140[b]	0.036[b]	-0.006	-0.052[b]	0.097[b]	-0.067[b]	0.201[b]	-0.033[a]	0.012	0.055[b]	-0.030	-0.013	1		
14) PercOwnInsDir	-0.075[b]	-0.024	-0.004	0.132[b]	-0.023	0.052[b]	-0.059[b]	0.056[b]	-0.017	-0.066[b]	0.033[a]	-0.036[b]	-0.188[b]	1	
15) BODSize	0.098[a]	-0.003	0.136[b]	0.224[b]	-0.011	-0.124[b]	0.063[b]	-0.133[b]	0.014	0.398[b]	0.014	0.017	-0.069[b]	-0.004	1

a (b) denotes statistical significance for two-tailed tests at the 0.10 (0.05) level.

Variable definitions are the same as those defined Panel A.

Replicating Prior Literature

I begin the analysis of the data by confirming that I am able to replicate prior literature for the control variables before adding CEO characteristics to the analysis. Since previous research does not use a fixed effects method, I first use logistic regression and allow the control variables to vary over time and across firms (Ittner et al. 1997; HassabElnaby et al. 2005). I regress the dependent variable, *NFPM* on the control variables from model 1, for which prior literature offers insight: *αdjROA, Levratio, Comp, MktNoise,* and *Cyclical.* The role of the BOD in the use of NFPM for compensation contracts is not examined in the extant literature, therefore *PercInsBOD, PercOwnInsDir*, and *BODSize* are not included. I find that all of the coefficients are in the expected direction. *Comp* and *αdjROA* are both positively and significantly related to the use of NFPM (Said et al. 2003, HassabElnaby et al. 2005, Core et al. 1999). Financial distress is negatively related to the use of NFPM (HassabElnaby et al. 2005). Consistent with Ittner et al. (1997), *Cyclical* is positively related to the use of NFPM while *MktNoise* is negative and significantly related. I then attempt to replicate prior research concerning NFPM that uses fixed effects methods by regressing the dependent variable, NFPM on *adjROA, LevRatio* and *Comp* to ensure that controlling for fixed effects at the firm and year level produces substantively the same results as Said et al. (2003). Again, I find that the coefficients are in the expected direction.

Analysis to Determine the Appropriate Statistical Method

Next, I test whether the fixed effects method is the most suitable approach. Given that the dependent variable for the main analysis is dichotomous, I use logistic regression and conditional logistic regression to compare two analysis methods, a non-fixed effects method and a fixed effects method. Logistic regression allows all firm level and year level characteristics to vary

(non-fixed effects method). Conversely, the conditional logistic regression (fixed effects method) controls for firm and year level fixed effects thus removing unobserved heterogeneity that is invariant and may be correlated with the independent variables (Wooldridge 2013). Recall that conditional logistic regression only executes on the subsample of observations for which there is variation in the dependent variable within firms and over time. Therefore, firms that always or never use NFPM are excluded from the fixed effects analysis. Consequently, in order to draw an accurate conclusion about which method will provide the most reliable results, I use the sub-sample of observations for which there is variation in the use of NFPM for both methods. I compare the two methods/models using a likelihood ratio test (Amemiya 1981). The difference in the log likelihood ratio between the two analysis methods (using the same sample for both estimations) is used to construct a test statistic. This reveals information about which of the models provide parameter estimates that make the data 'most likely' (Amemiya 1981). A higher log likelihood ratio is evidence of a better fit to the data. Lastly, an F-test is conducted to confirm whether the difference between the two methods is statistically significant. A statistically significant F-test statistic implies that using logistic regression may produce unreliable coefficient estimates. I complete this analysis using model 1 which represents a conditional logistic regression model holding firm and year level effects fixed, and the following logistic regression model:

$$P(NFPM_{i,t}=1) = \alpha_0 0 + \alpha_1 CEOcharacteristic_{i,t} + \alpha_2 adjROA_{i,t} + \alpha_3 Levratio_{i,t} + \alpha_4 Comp_{i,t} + \alpha_5 MktNoise_{i,t-1\ thru\ t-5} + \alpha_6 Cyclical_{i,t-1\ thru\ t-5} + \alpha_7 PercInsBOD_{i,t} + \alpha_8 PercOwnInsDir_{i,t} + \alpha_9 BODSize_{i,t} \quad (6)$$

I complete the method comparison for each of the individual CEO characteristic variables: gender, age, tenure, risk-aversion, overconfidence and sensitivity of wealth. Table 3 contains the results. The test statistics overwhelmingly confirm that the fixed effect analysis

proposed with model 1, using conditional logistic regression and controlling for fixed effects at the firm and year level, is the most appropriate method for testing hypotheses H1-H6 ($p < 0.001$ for each CEO characteristic variable).

TABLE 3
Tests of Model fit: Comparing Logistic Regression Models to Conditional Logistic Regression Models

	Logistic Regression		Conditional Logistic Regression			
CEO Characteristic included as variable of interest	N	Log Likelihood Ratio	N	Log Likelihood Ratio	Difference	p-value
CEOgender	3375	-2839.67	3375	-1092.51	1747.16	< 0.001
CEOage	3375	-2222.42	3375	-1096.62	1125.80	< 0.001
CEOtenure	1528	-1002.01	1528	513.17	488.84	< 0.001
CEOriskaversion	554	-356.08	554	-182.04	174.03	< 0.001
CEOoverconfidence	3051	-2007.36	3051	-981.37	1026.00	< 0.001
CEOsensitivityofwealth	1332	-859.94	1332	-433.97	425.97	< 0.001
Control variables and year dummies included						

Test of H1: Gender

Hypothesis 1 states that female CEOs will be more positively associated with the use of NFPM in compensation contracts than male CEOs. Using model 1 and including gender as the independent variable of interest, the estimated coefficient for gender is positive (1.56) and significant ($p < 0.05$). Thus, hypothesis 1 is supported. Table 4 contains the results.

The analysis retains all 3,375 firm year observations. All of the control variables are in the expected direction with the exception of *Cyclical*. Most of the variability for *Cyclical* may occur across firms leading to inconsistent estimates when firm level characteristics are held constant. The proxy for performance (*adjROA*) is positively associated with *NFPM* and *LevRatio* is negatively related (Said et al. 2003; HassabElnaby et al. 2005), although these variables are

not significant. Consistent with Core et al. (1999), *Comp* is positively associated with the use of both financial and NFPM in CEO compensation. Using the fixed effects method, *Cyclical* is negatively related to the dependent variable; however the coefficient is not significant. Consistent with Ittner et al. (1997) *MktNoise* is negatively related to *NFPM* indicating that firms experiencing a higher level of noise in financial measures are associated with the use of both financial and NFPM (Ittner et al. 1997). Neither *PercInsBOD* nor *PercOwnInsDir* is significant. However, *BODSize* is positively and significantly associated with the use of NFPM ($p < 0.05$) suggesting that a larger board seeks to offer the most optimal compensation contracting.

TABLE 4
Conditional Logistic Regression Analysis for the Association of Gender to the use of NFPM in CEO Compensation

NFPM	Expected Sign	Coef.	z stat	p-value
CEOgender	+	1.56	2.30 **	0.021
AdjROA	+	1.07	1.46	0.145
LevRatio	-	-0.01	-1.05	0.294
Comp	+	0.17	0.67	0.505
Cyclical	+	-1.52	-0.66	0.512
MktNoise	-	-1.06	-1.30	0.192
PercInsBOD	no prediction	0.25	0.28	0.780
PercOwnInsDir	no prediction	0.44	0.20	0.838
BODSize	no prediction	0.14	2.51 **	0.012
Year dummies included				
N	3375			
Wald chi2	180.15			
Prob > chi2	0.000			
Pseudo R2	0.285			

Analysis is conducted controlling for fixed effects at the firm and year level. Results are reported after clustering errors at both the firm and year level. *, **, *** indicates statistical significance for two-tailed tests at the 0.10, 0.05 and 0.01 levels respectively.

Test of H2: Age

Age is expected to be positively related to the use of both financial and NFPM in compensation contracts. I include CEO age in model 1 to test this prediction. The coefficient for

age is negative and not significant. Table 5 contains the results. This result is not unexpected given that the research concerning age and CEO compensation is mixed (Mehran 1995; Lewellen et al. 1987; Yermack 1995; Finkelstein and Hambrick 1989; Ryan and Wiggins 2001).

TABLE 5
Conditional Logistic Regression Analysis for the Association of Age to the use of NFPM in CEO Compensation

NFPM	Expected Sign	Coef.	z stat	p-value
CEOage	+	-0.02	-1.14	0.255
AdjROA	+	1.01	1.38	0.168
LevRatio	-	-0.01	-1.01	0.310
Comp	+	0.12	0.49	0.627
Cyclical	+	-1.22	-0.53	0.596
MktNoise	-	-1.07	-1.37	0.171
PercInsBOD	no prediction	0.26	0.29	0.771
PercOwnInsDir	no prediction	0.72	0.34	0.734
BODSize	no prediction	0.14	2.48 **	0.013
Year dummies included				
N	3375			
Wald chi2	178.09			
Prob > chi2	0.000			
Pseudo R2	0.282			

Analysis is conducted controlling for fixed effects at the firm and year level. Results are reported after clustering errors at both the firm and year level. *, **, *** indicates statistical significance for two-tailed tests at the 0.10, 0.05 and 0.01 levels respectively.

This analysis retains 3,375 firm-year observations and the results for the controls are in the expected direction except for *Cyclical.* Similar to the analysis for Gender, the probability value for *Cyclical* is not significant (p = 0.596). Also consistent with the examination of CEO gender, *BODSize* is significantly related to the use of both financial and NFPM in compensation contracts.

Given that Finkelstein and Hambrick (1989) find an inverted U-shaped relation between CEO age and cash compensation, I also test model 1 and include both CEO age and the squared

value for age (*CEOage2*) to test for a non-linear function between *CEOage* and *NFPM*. Perhaps CEOs are more risk-averse at the beginning and the end of their careers. Younger CEOs may be eager to bolster their reputation by choosing projects with short-term pay offs (Ryan and Wiggins 2001), an indication of a short-term decision perspective. Further, older CEOs approaching retirement may avoid investment in long-horizon projects for which they will not reap the benefits (Yermack 1995) culminating in a negative association between the use of both financial and NFPM in CEO compensation contracts. The results are displayed in Table 6.

I first conduct tests of model fit between the model that includes *CEOage* and the model that includes both *CEOage* and *CEOage2*, and find that adding *CEOage2* significantly improves the analysis. The difference in log likelihood between models is 3.1661 with $p < 0.001$ (not tabulated). When I include both *CEOage* and *CEOage2* in model 1 for the CEO characteristic, the estimated coefficient for *CEOage2* is negative and marginally significant ($p = 0.101$) indicating a concave association between CEO age and the use of both financial and NFPM in compensation contracts. The control variables are in the expected direction, except *Cyclical*. The size of the BOD is again positive and significantly associated with the dependent variable.

TABLE 6
Conditional Logistic Regression Analysis and Test for a Non-Linear Association of Age to the use of NFPM in CEO Compensation

NFPM	Expected Sign	Coef.	z stat	p-value
CEOage	+	0.31	1.53	0.125
CEOage2	-	0.00	-1.64 *	0.101
AdjROA	+	0.95	1.33	0.184
LevRatio	-	-0.01	-0.98	0.327
Comp	+	0.12	0.47	0.639
Cyclical	+	-1.00	-0.43	0.665
MktNoise	-	-1.21	-1.52	0.128
PercInsBOD	no prediction	0.19	0.22	0.828
PercOwnInsDir	no prediction	0.79	0.37	0.715
BODSize	no prediction	0.14	2.52 **	0.012
Year dummies included				
N	3375			
Wald chi2	176.06			
Prob > chi2	0.000			
Pseudo R2	0.284			

Analysis is conducted controlling for fixed effects at the firm and year level. Results are reported after clustering errors at both the firm and year level. *, **, *** indicates statistical significance for two-tailed tests at the 0.10, 0.05 and 0.01 levels respectively.

To examine the impact of both CEO age and gender for compensation decisions about whether or not to include NFPM. I estimate a model that includes gender, age and the squared value for age. I find that gender continues to be positive and significant (p = 0.031). Further, *Age2* continues to be negative and marginally significant (p = 0.105, not tabulated).

Test of H3: Tenure

Hypothesis 3 predicts that CEO tenure will be positively related to the use of both financial and NFPM in compensation contracts. I test this notion using model 1 and including *CEOtenure* as the variable of interest. The coefficient for *CEOtenure* is positive and significant

(p = 0.088). Thus, hypothesis 3 is supported. The details for this analysis are displayed in Table 7.

The sample size for this variable is significantly smaller than the sample for *CEOage*, retaining only 1,528 observations. This is a consequence of missing data in the Execucomp database. All of the control variables are in the expected direction. The coefficient for *adjROA* is positive and significant (HassabElnaby et al. 2005). In addition, the positive and significant result for the coefficient to *Comp* provides corroborating evidence that more complex firms will focus on structuring compensation that will attract the highest quality CEOs (Core et al. 1999).

TABLE 7
Conditional Logistic Regression Analysis for the Association of Tenure to the use of NFPM in CEO Compensation

NFPM	Expected Sign	Coef.	z stat	p-value
CEOtenure	+	0.03	1.70 *	0.088
AdjROA	+	1.52	1.76 *	0.078
LevRatio	-	0.00	-0.74	0.462
Comp	+	0.72	1.80 *	0.071
Cyclical	+	0.06	0.02	0.982
MktNoise	-	-0.56	-0.66	0.512
PercInsBOD	no prediction	-0.73	-0.44	0.659
PercOwnInsDir	no prediction	2.07	0.63	0.530
BODSize	no prediction	0.13	1.56	0.118
Year dummies included				
N	1528			
Wald chi2	116.12			
Prob > chi2	0.000			
Pseudo R2	0.258			

Analysis is conducted controlling for fixed effects at the firm and year level. Results are reported after clustering errors at both the firm and year level. *, **, *** indicates statistical significance for two-tailed tests at the 0.10, 0.05 and 0.01 levels respectively.

Given that CEO tenure may reflect the same function as the CEO age data (Finkelstein and Hambrick 1989), I also test for a non-linear relation between tenure and *NFPM* by including both *CEOtenure* and a squared term for CEO tenure (*CEOtenure2*) in model 1. The estimated coefficient for *CEOtenure2* is positive but not significant ($p = 0.135$). There is little evidence of a curvilinear relationship between CEO tenure and NFPM.

Due to the positive relation between CEO tenure and CEO age, I use model 1 to test the incremental effect of tenure after controlling for age. The results are contained in Table 8. The coefficient for *CEOtenure* continues to be positive and significant providing further support for hypothesis 3. The coefficients for *CEOage* and *CEOage2* are in the expected direction, however, they are not significant. Due to the use of a two-way fixed effects method, the coefficient for *CEOage* can only be identified separately from tenure because some firms change CEO and hence change age and tenure differentially. Therefore, the results suggest that changes in CEO tenure is incrementally more important than changes in CEO age within a firm. Performance and firm complexity both continue to be positive and significantly associated with the use of NFPM in CEO remuneration. The coefficients for remaining control variables are in the expected directions.

TABLE 8
Conditional Logistic Regression Analysis for the Association of Tenure and Age to the use of NFPM in CEO Compensation

NFPM	Expected Sign	Coef.	z stat	p-value
CEOtenure	+	0.04	1.76 *	0.078
CEOage	+	0.32	1.06	0.291
CEOage2	-	0.00	-1.16	0.248
AdjROA	+	1.43	1.67 *	0.095
LevRatio	-	0.00	-0.70	0.481
Comp	+	0.67	1.69 *	0.091
Cyclical	+	0.00	0.00	0.999
MktNoise	-	-0.52	-0.61	0.542
PercInsBOD	no prediction	-0.86	-0.51	0.609
PercOwnInsDir	no prediction	2.34	0.69	0.491
BODSize	no prediction	0.12	1.56	0.118
Year dummies included				
N	1528			
Wald chi2	114.98			
Prob > chi2	0.000			
Pseudo R2	0.261			

Analysis is conducted controlling for fixed effects at the firm and year level. Results are reported after clustering errors at both the firm and year level. *, **, *** indicates statistical significance for two-tailed tests at the 0.10, 0.05 and 0.01 levels respectively.

Test of H4: Risk-Aversion

Hypothesis 4 predicts that CEO risk-aversion will be positively and significantly associated with the use of both financial and NFPM in compensation contracts. I include *CEOriskaversion* in model 1 to test this assertion. The results are displayed in Table 9. The coefficient for *CEOriskaversion* (1.09) is in the expected direction but is not significant (p = 0.370).

Due to the missing tenure data in Execucomp and limited data in Risk Metrics for *PresidentTenure* and *VicePresidentTenure,* only 554 observations are available for this analysis. The model significance cannot be calculated when errors are clustered at either the firm or the

year level because of missing information. I therefore report the model significance without clustering errors (LR chi-square = 53.28 and $p < 0.001$). All of the control variables are in the expected direction with the exception of *MktNoise*. To confirm my suspicion that the unexpected direction for *MktNoise* is a result of the smaller sample retained when *CEOriskaversion* is included, I estimate the model without this CEO characteristic on the sample available to test H1-H6 (3,375 observations). Consistent with Ittner et al. (1997), the coefficient for *MktNoise* is negative (-1.06, not tabulated). Therefore, the unexpected direction for *MktNoise* is an effect of the reduced sample size. The only significant control is *adjROA* which is positive and significant ($p = 0.024$).

TABLE 9
Conditional Logistic Regression Analysis for the Association of Risk-Aversion to the use of NFPM in CEO Compensation

NFPM	Expected Sign	Coef.	z stat	p-value
CEOriskaversion	+	1.09	0.90	0.370
AdjROA	+	3.27	2.25 **	0.024
LevRatio	-	-0.02	-1.16	0.244
Comp	+	0.45	0.77	0.442
Cyclical	+	1.42	0.34	0.733
MktNoise	-	1.17	0.90	0.367
PercInsBOD	no prediction	-0.80	-0.30	0.762
PercOwnInsDir	no prediction	-0.41	-0.11	0.913
BODSize	no prediction	-0.04	-0.33	0.743
Year dummies included				
N	554.00			
LR chi2	53.28			
Prob > chi2	0.000			
Pseudo R2	0.128			

Analysis is conducted controlling for fixed effects at the firm and year level. Results are reported after clustering errors at both the firm and year level. *, **, *** indicates statistical significance for two-tailed tests at the 0.10, 0.05 and 0.01 levels respectively.

Test of H5a and H5b: Overconfidence

For the test of the relation of CEO overconfidence to the inclusion of NFPM in compensation contracts, I present competing hypothesis. Hypothesis 5a predicts a positive relation while hypothesis 5b predicts a negative relation. The results of the conditional logistic regression, controlling for firm and year level fixed effects, reveals a positive coefficient for *CEOoverconfidence* (0.02), however, the relation is not significant (p = 0.886). Thus, neither hypothesis 4a nor 4b is supported. The results are contained in Table 10.

There are 3,051 firm observations included in this analysis and the model is significant (p < 0.001). All of the control variables are in the expected direction, except for *Cyclical*. Recall from the tests of H1 and H2 that much of the variability for *Cyclical* may occur across firms and

this can lead to inconsistent estimates when firm level characteristics are held constant. *BODSize* is positive and significantly related to the use of NFPM in compensation contracts.

TABLE 10
Conditional Logistic Regression Analysis for the Association of Overconfidence to the use of NFPM in CEO Compensation

NFPM	Expected Sign	Coef.	z stat	p-value
CEOoverconfidence	+	0.02	0.14	0.886
AdjROA	+	1.12	1.49	0.136
LevRatio	-	-0.01	-1.04	0.298
Comp	+	0.21	0.82	0.412
Cyclical	+	-0.90	-0.38	0.704
MktNoise	-	-0.91	-1.15	0.251
PercInsBOD	no prediction	0.60	0.73	0.463
PercOwnInsDir	no prediction	-0.70	-0.48	0.632
BODSize	no prediction	0.15	2.63 ***	0.009
Year dummies included				
N		3051.00		
Wald chi2		163.79		
Prob > chi2		0.000		
Pseudo R2		0.283		

Analysis is conducted controlling for fixed effects at the firm and year level. Results are reported after clustering errors at both the firm and year level. *, **, *** indicates statistical significance for two-tailed tests at the 0.10, 0.05 and 0.01 levels respectively.

Test of H6a and H6b: Sensitivity of Wealth

Similar to *CEOoverconfidence*, prior literature suggests competing hypotheses for *CEOsensitivityofwealth*. Hypothesis 6a and 6b propose a positive and a negative association with *NFPM*, respectively. The coefficient for *CEOsensitivityofwealth* is positive (0.40) but not significant ($p = 0.402$). The details are presented in Table 11.

Consistent with the tests for CEO overconfidence, all of the control variables are in the expected direction, with the exception of *Cyclical*. Due to missing CEO compensation data there are only 1,332 observations retained for the analysis. Similar to the test for CEO risk-aversion the model significance cannot be estimated due to lack of information. As a consequence, the model is estimated without clustering errors in order to obtain the model significance (LR chi-square = 131.10 and $p < 0.001$). The controls for financial distress and the percentage of insider directors are significant. The negative and significant coefficient for *LevRatio* is consistent with HassabElnaby et al. (2005) suggesting that firms that are in financial distress are less likely to include NFPM in compensation contracts. Similar to the correlation results (Table 2 panel C), the coefficient to *PercOwnInsDir* is negative and significant, providing corroborating evidence that higher levels of insider ownership may lead to entrenchment and thus a lower propensity to use both financial and NFPM in the structure of CEO compensation (Morck et al. 1988).

TABLE 11
Conditional Logistic Regression Analysis for the Association of Sensitivity of Wealth to the use of NFPM in CEO Compensation

NFPM	Expected Sign	Coef.	z stat	p-value
CEOsensitivityofwealth	+	0.40	0.84	0.402
AdjROA	+	1.61	1.58	0.113
LevRatio	-	-0.01	-2.40 **	0.016
Comp	+	0.09	0.24	0.813
Cyclical	+	-0.66	-0.22	0.824
MktNoise	-	-1.05	-0.88	0.380
PercInsBOD	no prediction	-1.41	-0.99	0.320
PercOwnInsDir	no prediction	-4.83	-1.95 *	0.051
BODSize	no prediction	0.02	0.26	0.791
Year dummies included				
N	1332.00			
LR chi2	131.10			
Prob > chi2	0.000			
Pseudo R2	0.131			

Analysis is conducted controlling for fixed effects at the firm and year level. Results are reported after clustering errors at both the firm and year level. *, **, *** indicates statistical significance for two-tailed tests at the 0.10, 0.05 and 0.01 levels respectively.

Additional Analyses

Weight on NFPM

Ittner et al. (1997) provide evidence that the weight placed on NFPM provides information about the importance of a performance metric. Following other studies that investigate the use of NFPM, I use information collected from proxy statements concerning the weights applied to NFPM as an alternative dependent variable (Ittner et al. 1997; Said et al. 2003; HassabElnaby 2005; HassabElnaby 2010). Similar to the main analysis, the CEO characteristics are examined separately. It is important to note that because the weights placed on NFPM are continuous data, unlike the previous analysis, the firms that have always used NFPM and firms that have never used NFPM can be included in the sample. Recall, the number of

observations obtained for all of the CEO characteristic information from Execucomp, Risk Metrics Directors and the CRSP databases for the years 2000-2013 was 7,099. NFPM information was collected from proxy statements for 4,932 observations and information about the weights of NFPM was included for 2,752 of these observations. After I match these data to Compustat, CRSP and the Risk Metrics Directors databases, 296 observations were eliminated due to lack of information for the control variables. Therefore, the final sample available for the analysis of H1-H6 using the weight of NFPM as the dependent variable contains 2,456 observations. The analysis for the relation of CEO characteristics to the weights placed on NFPM is conducted using model 5, a fixed effects regression model, controlling for both year and firm fixed effects. Table 12 contains the results.

Consistent with the main analysis, gender is positive, however, it is not significantly associated with the use of NFPM. Age continues to demonstrate a concave relation with NFPM and is significantly related to the weight placed on NFPM ($p = 0.094$). The coefficient for tenure is positive but not significant. Given that the direction of the coefficients for gender and tenure are consistent with the main analysis, the lack of significance may be a sample size effect. The coefficient for *CEOriskaversion* is positive (2.41) and significantly associated with *WeightNFPM* ($p = 0.017$). This variable was positive but not significant in the main analysis. The continuous variable, *WeightNFPM*, may provide a superior analysis given the missing data issues for *CEOriskaversion* ($N = 500$). The coefficient for *CEOoverconfidence* continues to demonstrate a non-significant relation to NFPM. Finally, the coefficient for *CEOsensitivityofwealth* is positive and the relation to the weight placed on NFPM in compensation contracts is marginally significant ($p = 0.105$). Similar to the analysis for CEO risk-aversion, the continuous dependent variable may provide a better analysis for the relation

between CEO sensitivity of wealth and the use of NFPM in compensation contracts due to a restricted dataset.

TABLE 12
Multinomial Regression Analysis for the Association of CEO Characteristics and the Weight Placed on NFPM in CEO Compensation

Dependent Variable: WeightNFPM	N	Coef.	t-stat		p-value
CEOgender	2456	0.02	0.70		0.487
CEOage2	2456	0.00	-1.68	*	0.094
CEOtenure	1252	0.00	1.11		0.269
CEOriskaversion	500	0.16	2.41	**	0.017
CEOoverconfidence	2287	0.01	1.04		0.297
CEOsensitivityofwealth	1031	0.03	1.62	*	0.105
Control Variables and Year dummies included					

Results are reported after clustering errors at both the firm and year level. *, **, *** indicates statistical significance for two-tailed tests at the 0.10, 0.05 and 0.01 levels respectively.

Analysis Methods and Sampling Differences

To demonstrate the contribution of controlling for both firm and year level fixed effects for this study, I compare the results of the fixed effects method in the main analysis to the results of an analysis that allows firm level characteristics to vary (alternative method). To prevent omitted variable bias, I add firm level controls suggested by prior literature to the alternative model. These include a proxy for the strategic orientation of the firm, a variable indicating quality orientation and a variable identifying regulated firms along with indicators representing the length of product development cycles, the length of product life cycles and industry indicators (Ittner et al. 1997; Said et al. 2003; HassabElnaby et al. 2005). To make this comparison I use model 1 and the following alternative model:

$$P(NFPM_{i,t}=1) = \alpha_0 0 + \alpha_1 CEOcharacteristic_{i,t} + \alpha_2 adjROA_{i,t} + \alpha_3 Levratio_{i,t} + \alpha_4 Comp_{i,t} + \alpha_5 MktNoise_{i,t\text{-}1 \text{ thru } t\text{-}5} + \alpha_6 Cyclical_{i,t\text{-}1 \text{ thru } t\text{-}5} + \alpha_7 PercInsBOD_{i,t} + \alpha_8 PercOwnInsDir_{i,t} + \alpha_9 BODSize_{i,t} + \alpha_{10} Strategy_{i,t} + \alpha_{11} Quality_{i,t} + \alpha_{12} Regulation_{i,t} + \alpha_{13} DevCycle_{i,t} +$$

$$\alpha_{14}LifeCycle_{i,t} + \alpha_{15}Industry_{i,t} + \alpha_{16}Year_i + \varepsilon_{i,t} \quad (7)$$

where,

i = observation for each firm;
t = observation for each year;
NFPM = binary variable coded as 1 if the firm indicates the use of NFPM in the CEO compensation contract for the year and 0 otherwise;
CEOcharacteristics *(tested independently):*
CEOgender = binary variable coded as 1 for female CEOs and 0 for male CEOs;
CEOage = age of the CEO in years;
CEOtenure = the number of years between the date the CEO joined the company and the year of termination or the current year (if the CEO continues to be employed by the firm);
CEOriskaversion = CEO firm specific wealth divided by CEO total wealth;
CEOoverconfidence = an indicator variable coded as 1 for CEOs that hold their options until they are 67% deep in the money and 0 otherwise;
CEOsensitivityofwealth = the dollar change in CEO options and holdings that would result from a one-percentage point increase in firm stock price;
Controls*:*
adjROA = income before extraordinary items divided by lagged total assets;
ΔReturn = change in CRSP adjusted stock returns;
Levratio = ratio of total debt divided by total stockholder equity;
Size = log of total assets;
Comp = natural logarithm of net firm sales;
Cyclical = standard deviation of return on sales from the median industry return on sales for the five years prior to each proxy date;
MktNoise =Fisher z-score for the correlation between return on assets and stock market returns for the five years prior to each proxy date;
PercInsBOD = percentage of the board with insider affiliation (employee of the firm or one of the firm affiliates);
PercOwnInsDir = proportion of firm stock owned by directors with an insider affiliation;
BODSize = number of directors;
Strategy = composite measure of firm market-to-book ratio, ratio of research and development to sales, and the ratio of employees to sales;
Quality = indicator variable coded as one if the firm won a quality award for the year, and zero otherwise;
Regulation = indicator variable coded as one if the firm industry is regulated (SIC codes 40-49) and zero otherwise;
DevCycle = indicator variable coded as one if the firm has a long product development cycle and zero otherwise;
LifeCycle = indicator variable coded as one if the firm has a long product life cycle and zero otherwise;
Industry = industry indicator variable constructed using firm two-digit SIC.
Year = indicator variable for each year.

The results are presented in Table 13. This provides information about how much of the variance is accounted for in the analyses for the relation of individual CEO characteristics to the decision to use NFPM in compensation contracts with and without including controls for firm level fixed effects.

TABLE 13
Analysis of the Contribution of the Fixed Effect Method (main analysis) in Comparison to the Logistic Regression Method (alternative method)

	Conditional Logit Analysis (Model 1)				Logit Regression Analysis (Model 7)			
Independent Variable of Interest	N	Coef.	z stat	p-value	N	Coef.	z stat	p-value
CEOgender	3375	1.56	2.30	0.021	1700	0.46	0.89	0.375
CEOage2	3375	0.00	-1.64	0.101	1700	0.00	-3.51	0.000
CEOtenure	1528	0.03	1.70	0.088	914	-0.01	-0.49	0.624
CEOriskaversion	554	1.09	0.90	0.370	607	0.19	0.16	0.870
CEOoverconfidence	3051	0.02	0.14	0.886	1557	-0.29	-1.51	0.132
CEOsensitivityofwealth	1332	0.47	0.99	0.323	1159	0.88	1.96	0.050
Control Variables and Year dummies included								

Results are reported after clustering errors at both the firm and year level.

Gender has a positive coefficient using both model 1 and model 7. However, gender is only significant when both firm and year level fixed effects are included (model 1). This is likely a result of two benefits derived from using a two-way (firm and year level) fixed effects method. First, the method used in the main analysis allows for the retention of a larger sample. The logistic regression sample is smaller due to the lack of data for the firm level controls added in order to avoid omitted variable bias. Secondly, model 1 provides better control of firm level fixed effects. The comparison of model 1(main analysis) to model 7 (alternative method), confirms that changes in *CEOgender*, from male to female, are positively and significantly associated with the use of NFPM in CEO compensation when controls for both firm and year level fixed effects are included.

CEOage2 has a negative and significant association using both methods, evidence of the robustness of the results for the concave relation between age and the use of both financial and NFPM in CEO remuneration. However, the coefficient for *CEOtenure* is negative, albeit not significant, when model 7 is employed. This is unexpected. Prior research suggests that CEO tenure will be positively associated with the use of NFPM (Finkelstein and Hambrick 1989; Ryan and Wiggins 2001; Lambert et al. 1991; Beatty and Zajac 1994; Bushman et al. 1996; Jin 2002). In the main analysis, CEO tenure is positively and significantly related to the use of NFPM in compensation contracts when both firm and year level fixed effects are included (model 1, Table 7). The unexpected results for *CEOtenure* using model 7 may be a result of sample size differences between the conditional logit method (model 1) and the alternative method (model 7).

The comparison of the two methods does not provide additional information regarding *CEOriskaversion* or *CEOoverconfidence*. The CEO sensitivity of wealth variable using model 7 is consistent with the additional analysis where the weight placed on NFPM is used as the dependent variable (model 5, Table 12). Using the alternative method (model 7), the CEO sensitivity of wealth is positively and significantly associated with the use of both financial and NFPM in compensation contracts. The coefficient for *CEOsensitivityofwealth* is positive but not significant using model 1, providing evidence that the two-way fixed effects method should be used with caution for NFPM research when only smaller sample sizes are available. In this case, the continuous dependent variable provides a better analysis of the relation between NFPM and CEO sensitivity of wealth when both firm and year level fixed effects are included.

To ensure the smaller sample size retained by model 7 does not produce results that conflict with the main analysis, I use the restricted sample retained for each CEO characteristic

(as a result of using model 7) to analyze the association between the individual CEO characteristics and *NFPM* using the two-way fixed effects method (model 1). The results for the variables of interest are consistent with the main analysis, except in the case of the CEO tenure variable. When model 1 is employed using the smaller sample retained by model 7, *CEOtenure* is negative but not significant. This provides evidence that the inconsistent results for the *CEOtenure* variable in the examination of the contribution for the two-way fixed effects analysis (Table 13) may be a sample size effect. The only other differences occur in levels of significance.

To examine the contribution of using the two-way fixed effects method when the weight of NFPM is used as the dependent variable, I also compare the results for model 5 to the results of an alternative method/model that does not include controls across firms for fixed effects. Similar to the construction of model 7, in order to prevent omitted variable bias, I add firm level controls to the alternative model indicated by prior research as important to the study of NFPM (Ittner et al. 1997; Said et al. 2003; HassabElnaby et al. 2005). Following is the alternative model for this comparison:

$$WeightNFPM_{i,t} = \alpha_0 0 + \alpha_1 CEOcharacteristic_{i,t} + \alpha_2 adjROA_{i,t} + \alpha_3 Levratio_{i,t} + \alpha_4 Comp_{i,t} + \alpha_5 MktNoise_{i,t\text{-}1 \text{ thru } t\text{-}5} + \alpha_6 Cyclical_{i,t\text{-}1 \text{ thru } t\text{-}5} + \alpha_7 PercInsBOD_{i,t} + \alpha_8 PercOwnInsDir_{i,t} + \alpha_9 BODSize_{i,t} + \alpha_{10} Strategy_{i,t} + \alpha_{11} Quality_{i,t} + \alpha_{12} Regulation_{i,t} + \alpha_{13} DevCycle_{i,t} + \alpha_{14} LifeCycle_{i,t} + \alpha_{15} Industry_{i,t} + \alpha_{16} Year_i + \varepsilon_{i,t} \quad (8)$$

where,

WeightNFPM = weight placed on the NPFM if used in CEO compensation contracts.

The independent variables for equation 8 are the same as defined for equation 7.

The results for gender, age, overconfidence and sensitivity of wealth using model 8 are substantively the same as the additional analysis for the weight of NFPM (model 5, Table 12). However, similar to the results for model 7, CEO tenure is negative but not significant using

model 8. Therefore, when the dependent variable is the dichotomous measure (*NFPM*) or the weight of NPFM (Table 7 and Table 12, respectively), the outcome for the relation to tenure is positive and significant. On the other hand, when the CEO tenure data are restricted by using model 7 and model 8, the coefficient for CEO tenure is unexpectedly negative, but not significant. Thus, the use of smaller samples to examine the association between CEO tenure and the use of NFPM, may lead to unreliable estimates. Only 914 observations are retained using model 7 (Table 13) and 436 observations are included in the analysis of CEO tenure using model 8 (not tabulated). The coefficient for *CEOriskaversion* is positive and marginally significant when controls are included for both firm and year level fixed effects (model 5) and is still positive but not significant when controls for firm level fixed effects are not included (model 8). Therefore, changes in *CEOriskaversion* are positively and significantly associated with the weight place on NFPM in CEO compensation contracts when the two-way fixed effects method is employed.

To examine whether the smaller sample size retained by model 8 produces results that conflict with the additional analysis for the weight on NFPM (model 5, Table 12). I also use the restricted sample retained for each CEO characteristic as a consequence of using model 8 (without firm level fixed effect controls) to examine the relation between CEO characteristics and the weight of NFPM using the two-way fixed effects method (model 5). I find that the results are consistent with the additional analysis when the *WeightNFPM* is used as the dependent variable and the two-way fixed effects method is employed (model 5, Table 12).

VI. CONCLUSIONS

It is beneficial for firms to include both financial and NFPM in executive compensation. NFPM are superior measures of managerial performance (Johnson and Kaplan 1987; Singleton-Green 1993; Kaplan and Norton 1996, 2001; Bushman et al. 1996; Lillis 2002) and provide protection for managers from the cost of uncertainty inherent in using only financial performance measures (Bruns and McKinnon 1993; Feltham and Xie 1994). However, many firms do not use NFPM. Thus, it is important to understand what factors lead to the adoption of NFPM in compensation contracts. This study provides empirical evidence regarding whether particular CEO characteristics lead to a greater likelihood of using these beneficial measures.

This investigation offers evidence that changes in CEO gender from male to female are positively associated with the use of both financial and NFPM in CEO remuneration. Given that NFPM provide a tool for mitigating risk inherent in using only financial performance measures (Bruns and McKinnon 1993; Feltham and Xie 1994), this result is consistent with prior literature suggesting that women are more risk-averse than men (Byrnes et al. 1999; Powell and Ansic 1997; Barber and Odean 2001). There are two distinct elements to consider regarding gender and executive compensation. First, the CEO must accept or opt into an agreed-upon contract with the types of performance measures specified. Secondly, those in authority over the structure of compensation contracting (i.e. BOD, compensation committee) include certain types of performance measures. The particular performance measures included could be the consequence of attributions made to the executive based on their gender (Lee and James 2007; DeRue et al.

2011). The results presented by this study complement the evidence provided by Barua et al. (2010) that female CEOs make decisions based on a more long-term perspective than their male counterparts. Moreover, female CEOs are perceived by others as being more risk-averse (Lee and James 2007; DeRue et al. 2011), thus NFPM may be used as a result of attributions made based on their gender. Consequently, both the time horizon perspective of female CEOs as well as perceptions based on gender play a role in the decision to use NFPM.

CEO age has a concave relation to the adoption of NFPM for compensation contracting. Younger CEOs and older CEOs nearing retirement are less likely to receive compensation associated with NFPM. This could be attributed to a short-term horizon perspective on the part of the CEO approaching the end of their career. These executives become less willing to invest in agendas that only reward their successor (Yermack 1995). Alternatively, younger CEOs may focus on establishing a reputation by taking on projects that provide expeditious gains (Ryan and Wiggins 2001). Therefore, both younger and older CEOs are associated with a lower preference for the inclusion of both financial and NFPM in remuneration packages.

The results for CEO tenure support the notion that as CEOs gain tenure within a firm, the executive has an increased ability to self-select into remuneration contracts that suit their risk-averse preferences (Finkelstein and Hambrick 1989; Ryan and Wiggins 2001; Lambert et al. 1991; Beatty and Zajac 1994; Jin 2002). The positive relation substantiated between CEO tenure and NFPM provides corroborating evidence to that provided by Bushman et al. (1996) that increasing CEO tenure provides the BOD with more opportunity to assess the CEO's ability and leads to less reliance on financial measures. Additionally, the effect of tenure continues to be present when age is considered. This substantiates that designers of compensation contracts should consider the time horizon perspective of the CEO based on both age and tenure.

The results are not compelling for the analysis of the association of CEO risk-aversion to the dichotomous measure for NFPM, possibly due to the small sample size. Conversely, when the continuous measure for the weight placed on NFPM is used as the dependent variable, the outcome implies a positive and significant relation. This is consistent with prior literature suggesting that risk-aversion among CEOs is not homogenous and that important insights can be gained by taking this into consideration (May 1995; Abdel-Khalik 2007). CEOs who are more risk-averse are more likely to opt into compensation contracts that include weighted NFPM. This may be a signal regarding the decision-making perspective and risk preference of the CEO.

The extant literature concerning CEO overconfidence is mixed. Overconfident CEOs may take a long-term perspective since they hold their options longer than their peers (Malmendier and Tate 2005, 2008). In addition, these executives are offered more incentive based pay due to attributions ascribed to the trait of overconfidence (Gervais et al. 2011; Humphrey-Jenner et al. 2014; Ittner et al. 2003a; DeRue et al. 2011; Karuna and Merchant 2014). This may lead to a preference for opting into compensation contracting that includes risk-mitigating NFPM (Lambert and Larcker 1987; Bruns and McKinnon 1993; Bushman et al. 1996; Feltham and Xie 1994; Hemmer 1996; Davila and Venkatachalam 2004). Alternatively, overconfidence is associated with a short-term perspective given that overconfident CEOs are more likely to manipulate earnings and make less conservative accounting decisions (Schrand and Zechman 2012; Ahmed and Duellman 2013). In this scenario, overconfident CEOs could be negatively associated with the use of both financial and NFPM (Bruns and McKinnon 1993; Feltham and Xie 1994). Unfortunately, the analysis of the association between CEO overconfidence and NFPM does not provide insight for either scenario. Further research will

need to be conducted to provide evidence regarding CEO overconfidence and the use of NFPM in compensation contracts.

Prior literature suggests competing hypotheses regarding the relation of CEO sensitivity of wealth to compensation contracts that include NFPM. As CEOs gain tenure within a firm, their personal wealth becomes increasingly tied to firm performance (Murphy 1985; May 1995; Coles 2006). These executives may prefer NFPM because such measures allow managers more control over circumstances thereby, decreasing risk (Bruns and McKinnon 1993; Feltham and Xie 1994). For example, daily waste measures would allow executives to make short-term decisions to reduce long-term waste and meet earnings targets that would otherwise be more volatile (Bruns and Mckinnon 1993). Therefore, managers with increased sensitivity of wealth would prefer compensation contracts that include NFPM. Conversely, incentive compensation encourages managers to be less risk-averse and may motivate executives to substitute earnings manipulation for actual risk mitigation (Coles 2006; Grant et al. 2009; Bergstresser and Philippon 2006) leading to a lack of concern for opting into compensation contracts that include NFPM. The results for the analysis of the relation of CEO sensitivity of wealth to the weight placed on NFPM indicate that CEO sensitivity of wealth is positively associated with compensation contracts that include weighted NFPM. This is another benefit of increasingly tying CEO compensation to firm performance.

Many studies show that the fixed effects of managers matter in firm level compensation and governance outcomes (Bertrand and Schoar 2003). Further, prior research has documented that several firm characteristics including strategic orientation, industry norms, and performance effects are associated with the use of NFPM (Ittner et a. 1997; Said et al. 2003; HassabElnaby et al. 2005). However, previous research does not address what particular CEO characteristics lead

to the adoption of NFPM. The evidence presented in this study demonstrates that gender, age, tenure, risk-aversion, and sensitivity of wealth are affiliated with the use of NFPM in CEO remuneration. This research is valuable to those who hire CEOs and to those who design compensation contracts (i.e., boards of directors and compensation committee members). Moreover, given that controls for corporate governance were considered, the results of this study suggests that executives may play a larger role in the compensation package compromise (between the CEO and the BOD) than do firm directors. The contributions are also informative to investors who want to ensure they are providing support to firms with a leader whose focus is aligned with their investment strategy. Finally, this investigation may assist stakeholders by contributing additional information about the true nature and focus of a firm, based on the characteristics of the CEO.

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