The Interactive Effects of Incentive Threshold and Narcissism on Managerial Decision-Making

Kelsey Dworkis

University of California, Marshall School of Business.

Date: Friday, 9th November 2012
Time: 3.00pm – 4.30pm
Venue: Tyree Energy Technologies Building LGO5
(Refer to campus map reference H6 [here]())
I gratefully acknowledge the support and comments on my dissertation from my dissertation co-chairs S. Mark Young and Sarah E. Bonner and committee member, Peter Kim. I thank David Erkens, Ken Merchant, Maria Ogneva, Maria Loumioti, David Maber, Jim Manegold, William Holder, Randy Beatty, Yu Tian, Kari Olsen, Jong Hwan (Simon) Kim, Karen Ton, Jim Stekelberg, Kara Wells, Jeff McMullin, Bryce Schonberger, and workshop participants at the University of Southern California for their many comments. I am thankful to Linda Ramos, the Leventhal School of Accounting, The Marshall School of Business and the Institute of Management Accountants (IMA) Doctoral Grant Program for their generous support.
The Interactive Effects of Incentive Threshold and Narcissism on Managerial Decision-Making

ABSTRACT: This study investigates the effects of extrinsic motivation, as provided by a bonus threshold in a compensation plan, and intrinsic motivation that derives from narcissism on capital investment decision-making quality. Using an experiment, this study examines Millennial managers’ (i.e., managers born between 1978-1995) decision-making quality under two levels of bonus threshold (high, low) and two levels of measured narcissism (high, low). Results show that a manager’s level of narcissism and bonus threshold condition to which they are randomly assigned interact to result in systematically different performance levels on the capital investment task. Millennial managers higher in narcissistic characteristics outperform less narcissistic managers in a capital investment task under a low bonus threshold; however, this performance result is reversed under a high bonus threshold. Implications of MCS adaptations that can enhance decision-making of Millennial managers are discussed.

Keywords: management control system design; managerial decision-making; incentive compensation; narcissism

Data Availability: Contact the author
I. INTRODUCTION

Management Control Systems (MCS) consist of standards and procedures to increase performance within an organization. In designing MCS, firms aim to achieve congruence between MCS incentives and organizational performance. Achieving such congruence in practice allows MCS to be both effective, by motivating employees, and efficient in its use of resources. An enduring goal of MCS research is to understand the effects of elements of MCS such as the use of monetary incentives. As organizations evolve, these MCS elements also must adapt in order to continue to remain effective and efficient. By gaining an understanding of systematic shifts in characteristics of work place employees, research can better inform practice as to how MCS and accounting outcomes can be implicated.

Currently, the organizational environment is experiencing significant demographic shifts. Today in the U.S. there are roughly 80 million Millennials in and entering the workforce. By the end of 2012, Millennials will comprise 37% of the workforce. Millennials are a generation comprised of individuals born between 1978 and 1995. Millennial employees differ from their predecessors, Generation X (born 1965-1977) and Baby Boomers (born 1946-1964) in many ways, namely their social and technological practices and the way they view their role as an employee. Research on MCS design has begun to explore the match or mismatch between the traditional MCS and the Millennial manager since research in management and psychology has shown significant systematic personality and work attitude differences between the Millennials and older generations (Twenge and Campbell 2008; Dworkis, Olsen and Young 2012). As a result of these personality and attitude differences, traditional MCS effectiveness and efficiency may be compromised if these systems are met with unforeseen reactions by the new generation.
of managers. Investigation of this possibility can help shed light on fundamental differences in MCS effectiveness and potential complications for incentive design.

One key dimension on which the Millennial generation of managers differs from other generations is on their reported level of narcissism. Narcissism is defined as a “pervasive pattern of grandiosity (in fantasy or behavior), need for admiration, and lack of empathy, beginning by early adulthood and present in a variety of contexts,” (American Psychiatric Association 2000). The attributes that comprise a manger’s level of narcissism are stable personality characteristics that affect motivations towards and away from positive and negative events, such as monetary incentives (Foster and Brennan 2011). Research indicates that levels of narcissism among the Millennials have increased at an alarming rate over the last twenty years (Pinsky and Young 2009; Alsop 2008). Possible consequences of this rise relate to findings in psychology that have shown systematic differences in decision-making behavior in narcissists, with narcissists showing a stronger response to positive outcomes or events than to negative outcomes or events compared to their non-narcissistic counterparts.

While findings in narcissism research indicate systematic differences in the intrinsic motivations of narcissistic decision-makers, monetary incentives provide an extrinsic motivation for decision-makers. One common type of monetary incentive provided to managers is a bonus threshold. A bonus threshold sets an explicit goal above which a manager is rewarded. Bonus thresholds set at lower levels provide positive feedback along a wider range of possible outcomes whereas bonus thresholds set at higher levels provide negative feedback along a wider range of possible outcomes. Given the unique motivations of narcissists described above, the incentive threshold employed by a firm may have direct consequences on the observed performance of accounting related outcomes such as capital investment decision-making quality.
This study addresses a call in the management control literature to determine the extent to which MCS design differentially influences performance in managers with different “individual culture” or personalities (Merchant and Otley 2007 pp. 798) by examining the extent to which narcissism plays a role in corporate investment decisions that have the potential of affecting corporate profits and stakeholder wealth. Researchers studying accounting outcomes have begun to investigate the roles played by manager characteristics on corporate decisions (Bertrand and Schoar 2003), voluntary disclosure (Bamber et al. 2010), CFO accounting choices (Ge, Matsumoto and Zhang 2011), financial misreporting (Schrand and Zechman 2011), tax avoidance strategies (Dyreng, Hanlon and Maydew 2010), reported earnings-per-share, stock price and audit fees (Olsen, Young and Dworkis 2012) and stakeholder communication (Amernic and Craig 2010). Many of these studies use archival data and examine the relationship between these managerial characteristics and accounting performance outcomes.

This study extends existing archival research on managerial characteristics by experimentally manipulating extrinsic incentives (bonus threshold) and measuring intrinsic incentives (narcissism and approach-avoidance motivation). This design allows a more direct test of the interaction of incentive threshold and managerial characteristic effects on accounting outcomes. Furthermore, this study contributes to the growing literature in management and accounting on CEO narcissism and firm-level consequences (Chatterjee and Hambrick 2007) by measuring narcissism with a well-validated psychological instrument, the Narcissistic Personality Inventory (NPI), and directly testing its effect on observed investment decision-quality. Finally, this study contributes to the literature currently underway in psychology on narcissism and decision-making (Foster and Brennan 2011) and investigates decision-making behavior in an MCS context across different generations of managers.
The purpose of this study is to examine the interactive effects of bonus threshold condition and level of narcissism on the capital investment decision-making quality of Millennial managers. In this study, Millennial managers are assigned into one of two levels of bonus threshold conditions and their level of narcissism is measured using the Narcissistic Personality Inventory (NPI) (Raskin and Terry 1988). Manager participants are then asked to make investment decisions on behalf of their firm. The results show that bonus threshold and narcissism have a significant interactive effect on resulting investment decision-quality. Under a low bonus threshold condition, managers higher in narcissism perform better on an investment decision task compared to managers lower in narcissism. Conversely, under a high bonus threshold, managers higher in narcissism perform worse on an investment decision task compared to managers lower in narcissism. Relative approach-avoidance motivation (i.e., motivation towards (away from) rewards (penalties)) partially mediates the relationship between these variables, indicating that narcissistic managers’ performance differences are driven in part by their underlying reward sensitivity. Furthermore, narcissistic managers’ decisions appear to be influenced more strongly by self-serving incentives (i.e., bonus threshold) than by firm-stated incentives (i.e., firm guidance). Finally, an extension of the study to older generations (Gen X and Baby Boomer) shows that the interactive effect of narcissism is not significant in older generations. The highly significant interaction in the Millennial managers indicates a systematic shift in the decision-making behavior of Millennial managers. As Millennials continue to enter the workforce and occupy management positions, it is important that MCS research considers systematic shifts in motivations that drive decision-making behavior since such behavior can affect accounting outcomes.
The remainder of the paper is organized as follows: Section II discusses the motivation of the study and key independent and dependent variables of interest. In Section III hypotheses are developed. Section IV describes the experimental procedures, design, task and measurement instruments. Section V presents the results of the tests of the hypotheses. Section VI presents an additional analysis extending the research question to other generations. Finally, Section VII concludes and discusses limitations and future research.

II. INCENTIVES AND NARCISSISM IN MANAGERIAL DECISION-MAKING

Decision-Making and Bonus Incentive Thresholds in Managerial Accounting

MCS can be categorized into two types of controls—formal control systems such as direct supervision and monitoring and cybernetics control systems such as budgeting and incentive plans. Under cybernetics control systems, standards of performance are determined, measuring systems gauge performance, comparisons are made between the standard and the actual performance and feedback is given to provide information on variances (Fisher 1988). Decision-making research in managerial accounting has attempted to understand and explain the effect of such controls on the decision-quality of managers (Sprinkle 2000). A common decision that managers make is the allocation of the firm’s resources in investments. These decisions can be referred to as capital budgeting decisions (Kida et al. 2001; Moreno et al. 2002; Sawers 2005; Vera-Muñoz 1998; Chenhall and Morris 1991; Awasthi and Pratt 1990). Many firms have implemented formal MCS systems to consider both financial and non-financial information when allocating capital to investments. These systems often employ the Balanced Scorecard (BSC, Kaplan and Norton 1992) which captures relevant financial and non-financial information. The BSC categorizes relevant information into four dimensions: financial performance,
customer satisfaction, internal process efficiency, and learning and growth. In addition to formal controls such as the BSC, cybernetics controls, such as the use of monetary incentives for high quality investments, are used by firms to increase the probability of a successful decision.

Monetary incentives used by firms have several forms. Incentives can be distributed uniformly over a period (flat wage), for reaching certain goals or targets (quota system), per unit of output (variable system), or for top performance (tournament system). Evidence on incentive plans suggests that quota systems, such as a bonus threshold, consistently predict increased performance compared to tournament or flat wage schemes (Bonner, Hastie, Sprinkle and Young 2000). Incentive plans induce control through motivation to increase effort, which in turn increases performance (Bonner and Sprinkle 2002). The increase in effort and motivation occurs as a result of increases in expectancy (Vroom 1964), goal commitment (Locke et al. 1981; Locke and Latham 1990), and self-efficacy (Bandura 1977). Another key determinant of motivation is an individual's relative approach and avoidance motivations (Carver and White 1994), which lead an individual to move toward positive stimuli or events (approach motivation) and/or to move away from negative stimuli or events (avoidance motivation).

Bonus threshold quota schemes offer incentives to managers by incorporating an explicit and assigned goal. Despite differences in assigned thresholds across incentive plans, these schemes consistently show positive effects on resulting performance on management accounting tasks. However, thresholds are often set for a manager without consideration of the manager’s unique goals or intrinsic motivations, such as those associated with narcissistic personality characteristics. Given research that finds narcissists respond uniquely to different levels of positive and negative outcome feedback (Foster and Brennan 2011), the level of bonus threshold faced by the manager may evoke different levels of resulting motivation and effort. As discussed
in the following section, these motivations play an important role in resulting motivation, effort, and observed performance. Consequently, decision-making quality may be affected by the bonus threshold set by the firm, the level of narcissistic personality characteristics of the manager, or an interaction of these two variables.

**Narcissistic Personality as a Determinant of Decision-Making Quality**

Manager personality characteristics have become an increasingly popular topic of research in recent years. Much of this research relies on Upper Echelons Theory to explain the association between characteristics of powerful actors in an organization and the accounting outcomes observed (Hambrick and Mason 1984). Upper Echelons Theory, which evolved from classical management theories introduced by Cyert and March (1963) and March and Simon (1958), considers choice a product of a decision-maker’s bounded rationality and his multiple and conflicting goals. A person’s goals are driven by, among other things, personality characteristics (Elliot and Thrash 2002). Recent research in management and accounting shows that one such managerial characteristic-- narcissism, can lead to accounting outcomes such as riskier asset investments (Chatterjee and Hambrick 2007), self-enhancing reports of performance (Hales et al. 2012) and increased Accounting and Auditing Enforcement Releases (AAERs) (Schrand and Zechman 2011). Additionally, research has discussed how narcissistic managers can facilitate self-promotion through accounting reporting (Amernic and Craig 2010).

Narcissism is defined in this study as it is in most non-clinical research on the topic. Specifically, *narcissism* is defined as a pervasive pattern of grandiosity (in fantasy or behavior), need for admiration, and lack of empathy, beginning by early adulthood and present in a variety of contexts. Narcissism has important implications for MCS at the individual, group, and firm level. Brown (1997) details six consequences of narcissistic traits at the organization level--
denial (e.g., denial of market demands), rationalization (post-hoc justification of a firm decision that had negative consequences), self-aggrandizement (creation of subcultures that discourage change or innovation), attributional egotism (attribution of negative outcomes to external factors), entitlement (priorities driven by convenience of managers rather than welfare of stakeholders) and anxiety (managers lack stability and the organization fails to maintain a common sense of culture). Such consequences can result in decreased financial performance as reflected in accounting performance outcomes.

Narcissism can be summarized by seven contributing factors: Authority, Self-Sufficiency, Superiority, Exhibitionism, Exploitativeness, Vanity, and Entitlement (Raskin and Terry 1988). Not all elements of narcissism are considered “bad”. In an organization, managers high in authority and self-sufficiency often perform very well. High levels of performance in high authority and high self-sufficiency managers are likely to occur more frequently when managers also exhibit higher levels of superiority. The high level of superiority contributes to the manager’s belief in their abilities (i.e., their self-efficacy), which can increase motivation and effort. Of course, some of the characteristics of narcissism are destructive and can have adverse consequences if manifested at a group or organizational level. Exploitativeness can lead to dysfunctional behavior such as a lack of control compliance and willingness to cheat or to exploit MCS. Vanity can predispose managers to hubris, an exaggerated pride or self-confidence. This exaggerated sense of self can lead managers to believe they can do no wrong. Such hubris has been shown to influence managers to pay higher equity premiums for acquisitions or investments because they believe they can turn the investment target into a more profitable project or entity (Hayward and Hambrick 1997). Entitlement can lead to unwillingness to make tradeoffs in a workplace and can decrease motivations of managers that do not believe
they are adequately compensated because they have an enduring feeling of privilege. Finally, exhibitionism can cause managers to take actions or exhibit behaviors to get attention, which can disrupt workflow and productivity. As a result of the myriad of possible consequences of narcissistic motivations, there are no consistent findings as to whether there exist any ability or performance differences in narcissists (Wallace and Baumeister 2002). In other words, narcissists’ performance is not consistently better or worse. However, these findings do not consider the unique motivations of the narcissists with respect to different assigned goals such as bonus thresholds. As such, it is an empirical question how these intrinsic motivations will interact with the level of bonus threshold in motivating performance on a capital investment decision task.

In addition to the possible consequences of narcissism in managers, an important consideration of MCS is that narcissism is a stable set of personality characteristics. Narcissistic individuals are not able to attenuate their behavior in certain domains, such as in an employment setting. As a result, narcissism becomes an integral part of a manager’s intrinsic motivation and an important determinant of success in the usefulness of bonus thresholds.

Intrinsic motivations play a key role in a manager’s decision-making process. Psychological models of narcissism (Morf and Rhodewalt 2001; Morf 2006) describe these effects as follows: each individual has a unique “internal control system” that regulates his or her thoughts and behaviors. A theoretical account, known as the Agency Model of Narcissism (AMON)\(^1\) (Campbell et al. 2006; Campbell and Foster 2007) has been developed that shows that narcissists have systematically different internal control systems from non-narcissists.

\(^1\)The term “Agency” in the Agency Model of Narcissism refers to the individual-level analysis (i.e., how the narcissist affects his or her own well-being). This model should not be confused with the definition of agency as a contracted relationship or of the economic theory of Agency and Agency Costs (Jensen and Meckling 1976).
Differences in narcissists internal control system result from differences in both extrinsic and intrinsic motivation. The systematic differences in the narcissist’s self-regulatory (i.e., internal control) system are fourfold. First, narcissists have a high approach/low avoidance orientation. This is the motivation to move toward (away from) good (bad) outcomes. Second, narcissists have an inflated and entitled view of themselves. Third, narcissists have a general desire for self-esteem. Fourth, narcissists emphasize self-focused goals over group or organizational goals.

The differences in both extrinsic and intrinsic motivation described above suggest a possible interaction of effects when both are present at different levels. Of the four characteristics, relative approach-avoidance motivations have perhaps the most immediate consequences on investment decision-making behavior since this motivation relies heavily on incentive compensation and feedback. Given the approach-avoidance differences of narcissists, studies have examined how quickly narcissists adjust their tactics to suit changing situational demands and if their approach orientations affect their tactics. These studies have investigated narcissism and dysfunctional impulsivity (Dickman 1990), narcissists’ risk seeking behavior in gambling (Lakey et al. 2008), and investment strategy and investment decisions (Foster et al. 2009; 2011), and show consistent support for the narcissists’ high approach motivation. Such motivations are explained by developmental theories on narcissism (Kohut 1977). These theories explain the determinants of narcissism and how it develops in an individual. This research has linked permissive parenting to levels of narcissism, which explains how narcissists become approach oriented. Children of indulgent parents come to expect constant positive reinforcement and rewards (Capron 2004). As a result, when these children enter the workforce and occupy management positions, their motivations differ to the extent they are approach and avoidance-
driven. In the next section, the four characteristic traits of narcissists are described in more detail as they relate to the hypotheses tested in this study.

III. HYPOTHESES DEVELOPMENT

To further develop the model of decision-making that is applied to this study, the four fundamental characteristics of narcissists are now discussed in greater detail. The first trait of narcissists\(^2\) is their unique approach and avoidance motivation. Approach motivation is the motivation to move toward a positive event, such as an increase in cash bonuses for good management investments. Avoidance motivation is the motivation to move away from negative events such as losses of potential bonuses for bad management investments. Thus, one would expect stronger approach motivation in the presence of $100 compared to $1 (ceteris paribus) - $100 is “better” than $1. Likewise, one would expect stronger avoidance motivation in the presence of an adult lion compared to a lion cub- an adult lion is more dangerous and poses more of a threat than a lion cub.

Not all individuals exhibit the same level of approach or avoidance motivation. Specifically, narcissists are less sensitive to losses than they are to gains. In other words, a narcissist should respond more strongly to (or be more motivated by) a $50 gain than to a loss of $50, whereas a non-narcissist would respond more strongly to the loss of $50 than to the $50 gain and adjust behavior as a result of such a loss. Conversely, a narcissist would not be as bothered by a $50 loss as the non-narcissist, and would be less motivated to adjust behavior as a

\(^2\) In this study, the term “narcissist” refers to individuals or managers with high levels of narcissistic personality characteristics. These narcissistic personality traits are typically studied at the sub-clinical level. This is different than narcissistic personality disorder (NPD), which is typically studied at the clinical level. The terms “narcissistic (non-narcissistic) manager” and “High (Low) N manager” are used interchangeably to describe managers with higher (lower) than average NPI scores.
result of the loss. The narcissistic manager is not as “phased” by the losses and continues to take on risky investments without re-consideration. As a result of their high level of sensitivity to rewarding outcomes, narcissistic managers (High N managers) who receive positive outcomes along a wider range of investment decisions will exhibit more pronounced approach motivation and risk-seeking behavior than non-narcissistic managers (Low N managers). A low bonus threshold allows a wider range of positive outcomes, rewarding any investment averaging more than 40%. On the other hand, a high bonus threshold constricts the range of positive outcomes, rewarding only outcomes that average more than 60%. The narrow range of successful investment prospects conflicts with the High N manager’s approach-oriented motivation and can impede their learning and performance under the constricted conditions.

The second and third traits of narcissists are that they have an entitled and inflated self-view while simultaneously desiring self-esteem. While narcissists have a high explicit self-esteem (they have a high opinion of their competence and abilities) they have a low implicit self-esteem (how they actually feel about themselves and their opinion of their love or likeability) (Bosson and Weaver 2011). Narcissists have a grandiose and vulnerable self-concept (Rhodewalt and Eddings 2002). On the surface, narcissists have very inflated self-views and entitled behavior (high explicit self-esteem); however, these observed behaviors are defense mechanisms the narcissist employs to mask their vulnerability. Beneath the outward grandiose behavior, narcissists have an underlying fear that they are worthless and inferior (low implicit self-esteem). As a result, narcissists employ mechanisms such as seeking self-affirming feedback (i.e., praise) and overestimating their attractiveness and intelligence to regulate their self-worth (Ziegler-Hill

---

3 Prospect Theory (Kahneman and Tversky 1979) would predict higher avoidance motivation (or heightened sensitivity in the loss domain).
4 Other research has contended that narcissism reliably predicts strong approach motivation but only weakly predicts avoidance motivation (Foster and Trimm 2008). In all cases, approach motivation is a strongly associated with narcissism.
and Jordan 2011). This self-enhancement, or tendency to claim greater standing on a characteristic or more credit than is objectively warranted (Alicke and Sedikides 2009), is manifested through both monetary and social mechanisms such as fame or social promotion (Young and Pinsky 2006; 2009). Any failure on a task is externalized by frustration and a reinforcing need to display his or her heightened self-view and seek self-enhancement through future actions (Wallace 2011). Additionally, narcissists have self-esteem that is contingent upon performance outcomes (Morf et al. 2000).

These second and third traits of narcissists serve a reinforcing role to the approach and avoidance motivation of narcissists. Every time a narcissistic manager is rewarded for approach behavior such as taking an investment that yields a reward, their inflated self-view is confirmed and getting a correct response reinforces their self-esteem. Every time the narcissistic manager is penalized for approach behavior, such as taking an investment that yields a penalty, the manager receives neither confirmatory feedback on their self-view nor attention to their self-esteem. The manager disregards the negative reinforcement and penalty because such information does not serve the manager’s own interests of grandiosity, entitlement, and need for self-enhancement. As a result, the avoidance motivation, or the motivation to stay away from adverse approach behavior is not as discerning in the narcissistic manager.

The first three characteristics of narcissists form the basis for the first set of hypotheses. The strong implicit motivations of narcissistic managers (approach and avoidance motivations, inflated self-view and need for self enhancement), coupled with a threshold condition consisting of positive (negative) stimuli across a wider range of investment criteria, will create differential effects on the performance for High and Low N managers. As such, the first predictions are as follows:
Hypothesis 1: The interaction of incentive threshold condition (Low: LTC, High: HTC) and narcissistic characteristics in managers will differentially affect a manager’s performance on an investment decision task.

H1a: Managers higher in narcissistic characteristics will outperform managers lower in narcissistic characteristics under a low bonus threshold condition (LTC).

H1b: Managers higher in narcissistic characteristics will underperform managers lower in narcissistic characteristics under a high bonus threshold condition (HTC).

Furthermore, because the approach-avoidance motivation is a key characteristic in the differential relationship between high and low narcissistic managers, it is important to determine whether these motivations are ultimately responsible for observed performance differences. If these motivations are responsible for the relationship between the threshold-narcissism interaction and performance, approach and avoidance should fully mediate the statistical relationship between the interaction variable and performance (i.e., the statistical relationship between NPI and performance should be attenuated when approach-avoidance is included in the analysis). On the other hand, if there are characteristics of narcissists beyond these approach and avoidance differences (such as those described above) that lead to differences in decision-making behavior, full mediation will not be observed. As such, the third prediction is as follows:

H2: High Approach-Low Avoidance motivation will partially mediate the differential relationship of incentives and narcissism on performance.

The fourth fundamental trait of narcissists is that they are extremely self-focused in their goal setting and motivational behavior. That is, they place more value on getting ahead than on getting along. When faced with a budgeting decision that is not a prudent investment for the firm, but will likely produce a personal payoff and reinforce their self-esteem, the narcissistic
manager will opt to invest in the project. This type of systematic bias in decision-making can lead to important firm level consequences such as over-investment and reckless decision-making. Strongly motivated by rewarding incentives and positive feedback which both serve self-focused goals; High N Managers are expected to invest in more projects than Low N Managers. When given the option to invest in a project that provides monetary incentives as well as positive outcome feedback, High N managers will be both extrinsically motivated by the bonus potential and intrinsically motivated by potential positive reinforcement of behavior that narcissists seek.

As an example, in deciding on whether to invest in a project, a manager will consider both their individual bonus threshold (a self-focused goal) and the firm guidance (a communal goal). If a manager has been assigned a 40% bonus threshold (i.e., the percentage an investment must yield for the manager to receive a bonus) but has been given firm-guidance to invest only in projects that yield more than 50%, a High N manager is expected to accept all investments that fall between their bonus threshold and the firm guidance (i.e., projects between 40%-50%). The High N Manager will be more strongly influenced by the bonus compensation and positive reinforcement available for such an investment than by the firm’s guidance of 50%. The self-focused goal and resulting motivation will trump the motivation to adhere to the firm’s guidance.

In the case of a High N manager who has been assigned a higher bonus threshold of 60% (and the same firm guidance of 50%) the implications are somewhat more ambiguous. On the one hand, if the manager only seeks to attain self-driven goals then it is likely that she will not take on any investments that fall between the firm guidance and her bonus threshold (i.e., projects between 50%-60%). These investments will not yield either a compensation bonus or positive feedback because they do not meet the 60% threshold. Hence, High N managers would be expected to take fewer investments when assigned to a higher threshold condition (i.e., 60%
vs. 40%), resulting in an overall insignificant net effect of the total investments taken across the conditions (more investments in lower threshold condition and fewer investments in higher threshold condition).

However, as discussed above, High N managers are also expected to have relatively low levels of *avoidance motivation* with respect to their investment decision behavior. This motivation is the motivation to move away from losses. In a higher threshold environment avoidance motivation is an advantage since there is a narrower range of correct investment prospects. Therefore, a High N manager will likely take more faulty decisions because of their handicapped avoidance motivation. Given these two conflicting possible outcomes, it is unclear whether the High N manager will choose to take fewer investments in the higher threshold condition (as the fourth trait suggests) or more investments (as the first trait suggests). In summary, it is expected that High N managers will take more investments when presented with a low bonus threshold (40%) but not a significantly different number of investments when presented with a high bonus threshold (60%). Taken together this leads to the following predictions:

**Hypothesis 3:** The interaction of incentive threshold condition (Low: LTC, High: HTC) and narcissistic characteristics in managers will differentially affect a manager’s investment frequency.

**H3a:** Managers higher in narcissistic characteristics will invest more frequently than managers lower in narcissistic characteristics under a low bonus threshold condition (LTC).

**H3b:** Managers higher in narcissistic characteristics will invest as frequently as managers lower in narcissistic characteristics under a high bonus threshold condition (HTC).
Furthermore, because managers higher in narcissism are more highly motivated by self-focused goals, these managers’ investment decisions should theoretically be more strongly influenced by their bonus threshold (as it represents a self-focused goal) than the firm’s guidance (as it represents a communal goal). This influence will be reflected in the variance of the projects a manager chooses to invest. Managers will focus on a target, either self-focused (their bonus threshold) or communal (firm guidance) and take investments based on this target. As a result, the more weight or decision-making influence the information carries, the more the manager will rely on it when choosing to invest in a project or not. This leads to the last hypothesis:

**H4: Managers higher in narcissistic characteristics will choose investments based on individual thresholds rather than firm-driven thresholds.**

**IV. METHOD**

To test the hypotheses, this study employs a 2x2x4 between and within-subjects experimental design. The two between subjects factors are narcissism (high, low) and bonus threshold (high, low), and the within-subjects factor is the period (4 periods). Participants are 156 participants between the ages of 18-34 located in the United States. They were recruited using Amazon Mechanical Turks Applications. Amazon Mechanical Turks (AMT, MTurks) is an internet labor market launched in 2005 (see [https://www.mturk.com/mturk/help?helpPage=overview#what_is](https://www.mturk.com/mturk/help?helpPage=overview#what_is) for detailed information). MTurks is a relatively new application for social science research (Buhrmester et al. 2011), but has become increasingly popular because it enables a large, readily accessible, and representative subject pool (Paolacci, Chandler and Ipeirotis 2010). Recent research in accounting has successfully conducted experimental research using MTurks to explore investor reaction (Bonner
et al. 2012; Rennekamp 2012), investor social norms (Koonce, Miller and Winchel 2012), and fraud and misconduct (Brown, Rennekamp, Seybert and Zhu 2011).

**Experimental Task**

**Decision Task**

Participants completed a managerial investment decision-making task. Participants played the role of a manager making a series of capital budgeting decisions on behalf of their firm. Participants were instructed to choose investments based on graphical representations of the hypothetical investments. To simulate such a setting, investments were shown as graphic depictions of the four Balanced Scorecard (BSC) dimensions: financial performance, customer satisfaction, internal process efficiency, and learning and growth. Participants were told that their firm viewed an investment as “good” if the four categories averaged more than 50%; however, their bonus compensation may be based on a different threshold.

The complete task instructions and compensation details are included in Appendix A.5. Following the instructions, participants were required to answer three questions correctly to ensure they understood the instructions.6 Once the participant had answered all three questions correctly they were directed to the practice round of investment decisions.

Participants viewed graphical balanced scorecards for 40 investments7 and made decisions to either invest or not invest in each project. Appendix B displays an example investment prospect. The first ten investments were not eligible for bonus compensation.

---

5 The task was adapted from Smillie, Dalgeish, and Jackson (2007) Experiment 1 and Foster, Reidy, Misra and Goff (2011).
6 One of these questions included asking participants what percent the four BSC categories must average to be considered a "good" investment by the firm. Participants were required to correctly answer 50%. This not only ensured the participants understood the firm’s guidance, but also made it salient to the manager participant.
7 These 40 investments consisted of 4 periods of 10 trials.
Participants were given feedback after each decision. This feedback could be used to help the manager estimate their bonus threshold but they were not compensated in these initial ten trials. Following the ten practice decisions, the participant was reminded that the next 30 decisions would be eligible for bonus compensation.

Participants were rewarded for each investment they chose to invest in that met or exceeded their bonus threshold and penalized for every investment they undertook that was below their bonus threshold. Decisions not to invest were neither rewarded nor penalized. Each participant started with a flat wage of $1.00 and the bonus for each investment correctly taken was 20% of the flat wage. In other words, participants could “play it safe” and neither gain nor lose money from their compensation if they did not take any investments.

Following the task the participants estimated their bonus threshold, evaluated their confidence of their estimate, completed BAS/BIS scales, a post-experimental questionnaire and then received their final base and bonus compensation amount.

**Bonus Threshold Manipulation**

The bonus threshold was manipulated between subjects. Managers were randomly assigned into one of two bonus threshold conditions: low or high. These two levels serve as proxies for the variation that exists in firms’ incentive plans. The bonus threshold manipulates the range of values over which a participant would receive positive feedback on a given investment decision. The low threshold condition (LTC) includes primarily positive stimuli and the high threshold condition (HTC) includes primarily negative stimuli. Each condition had the same number of investments that would generate an incentive so total maximum compensation is equivalent in both conditions.
In the low threshold condition (LTC), participants received bonus compensation for any investment they chose that averaged at least 40% on the four balanced scorecard dimensions. In the HTC, participants received bonus compensation for any investment they chose that averaged at least 60% on the four dimensions of the balanced scorecard. In both conditions, if a participant chose an investment below their threshold, their bonus compensation was deducted by the same amount as they would have otherwise been compensated had the decision been correct.

**Trial Manipulation**

Trials are manipulated within subjects. Each manager completed four periods of trials. The first period was the practice investment period and the investments were standardized for every manager. Following the standard practice investments, each manager saw 30 investments with an equal number of good and bad projects in each condition. In other words, the 30 investment prospects eligible for bonus compensation contained an equal number of “good” investments and “bad” investments as determined by the manager’s bonus threshold.

**Dependent Variable Measurement: Total Bonus Compensation**

Performance is measured by the total amount of bonus compensation earned by the manager. Recall that incentives could only be garnered for investments in good projects-- those that meet or exceed the manager’s bonus threshold. Although the decision to not invest in a bad investment is a correct decision, the manager receives no additional compensation for declining to invest. In this situation, they neither gain nor lose any money from their accounts. This design is intentional for two reasons: first, the alternative decision (investing in a bad company) yields a deduction in their account. Given that the participant has no control over whether the given investment is good or bad, the choice to not invest in a bad investment is economically
superior to the choice to invest. Additionally, the conservative decision is optimal for the firm in the absence of the manager’s knowledge of their bonus threshold. That is, if the participant chooses projects based on the viability of the project only (not considering the threshold), investments may serve firm-level goals even if they do not serve self-focused goals. Hence, the design of the payments predicts differential behavior based on self-focused (firm-driven) goals, which is the fourth fundamental trait of a narcissist.

Second, given a good investment, a participant receives no deduction if they choose to not invest. Once again, this is not the optimal solution for the manager but they are economically equivalent to the expected value had they received a bad investment. Given that each condition contains an equal number of winners and losers (based on the manager’s bonus threshold), the expected value of the additional incentives is zero if the participant randomly guesses. Outcome feedback provided after each investment provides information as to the bonus threshold for the manager.

NPI and Approach/Avoidance Motivation Measurement

Two personality instruments that have been previously used and validated are used to measure narcissism and approach/avoidance motivation. Prior to completing the task, participants completed the Narcissistic Personality Inventory (NPI, Raskin and Terry 1988; Raskin and Hall 1979). The NPI is a 40-item forced choice instrument. The NPI measures overall narcissistic personality characteristics across seven dimensions-- authority, self-sufficiency, superiority, entitlement, exhibitionism, exploitativeness, and vanity and is the most commonly used measure in nonclinical narcissism research (Campbell and Foster 2007).

Following the task participants completed the 20-item approach/avoidance scale (Behavioral

---

8 The expected value of payout on any given decision= $0.10 (-$0.10) = [$0.20 (-$0.20)*50% winners (losers) + $0.00* 50% winners (losers)] if the participant simply randomly guessed.
Activation Scale (BAS)/Behavioral Inhibition Scale (BIS) scale, Carver and White 1994). This scale elicits responses to brain function behavior, specifically anxiety and impulsivity. The BAS and BIS scales measure sensitivity to positive and negative stimuli. The BAS measures approach motivation, the motivation towards positive outcomes or events. Items on this instrument include “when I get something I want, I feel excited or energized”. The BIS measures avoidance motivation, the motivation to move away from negative outcomes or events. Items on this instrument include “If I think something unpleasant is going to happen I usually get pretty ‘worked up’”. Appendix C contains the instruments used for NPI and BAS/BIS measurement.

V. TESTS OF HYPOTHESES

Table 1 presents the descriptive statistics of the sample. High and low narcissism is defined using the national mean of NPI, 15.2 (out of a possible 40). Managers scoring higher than 15.2, above the national average, are categorized as High N Managers and those below 15.2 are categorized as Low N Managers. As a robustness check, the sample median of the managers (14.23) is used as the high/low cutoff and results remain consistent.

Tests of Hypothesis 1: Narcissism and Performance

Table 2, Panel A presents the Pearson correlations in both the LTC and the HTC for all performance variables. NPI is statistically significantly associated with total compensation. In the LTC this relationship is positive ($p<0.01$), indicating that managers higher in narcissism do better under this incentive scenario. In the HTC, the relationship is flipped and NPI has a significant negative coefficient ($p<0.05$), indicating managers higher in narcissism do worse.
Mean bonus compensation in each cell is presented in Table 2, Panel B. As expected by Hypothesis 1a, High N managers (those individuals who scored higher than the national average of NPI, 15.2) performed better (188) in the LTC when they were presented with more positive stimuli than low N managers (156). In contrast, consistent with Hypothesis 1b, High N managers performed worse in the HTC (165) when they were presented with more negative stimuli or outcomes than low N managers (193). Figure 1 plots the total compensation for each condition and the interaction of level of narcissism (Level N) and bonus incentive conditions (LTC, HTC). The observed performance differences increased in magnitude throughout the four periods, indicating learning had occurred. Analysis of variance, presented in Table 2, Panel C confirms a statistically significant interaction between level of narcissism and performance based on the threshold condition (p=0.01 in the LTC and p=0.03 in the HTC).

Tests of simple effects, presented in Table 2, Panel D show a significant interaction between level of narcissism and condition (F=12.165, p=0.001) with no main effect of either level narcissism (p=0.96) or condition (p=0.86). Managers with higher levels of narcissism did significantly better in the LTC, and significantly worse in the HTC providing strong support for hypotheses H1a and H1b. The non-significant main effects are also as predicted. Neither independent variable--level of narcissism nor threshold condition, explain differences in performance in isolation. The results of hypothesis 1a and 1b indicate that a match of narcissistic personality and incentive threshold is crucial in producing high levels of decision-making quality.

**Test of Hypothesis 2: Mediational Role of Approach/Avoidance Motivation**

Table 3 presents the test of Hypothesis 2. Hypothesis 2 predicts that approach and avoidance motivation will partially mediate the relationship between narcissism and performance
observed in the first set of hypotheses. Consistent with prior literature (Foster et al. 2008), NPI is positively associated with BAS ($p < 0.01$ in both conditions) and negatively associated with BIS ($p = 0.09$ in LTC and $p = 0.10$ in HTC). While the association between NPI and BIS is not significant in the HTC, the results are consistent with prior literature, which has shown a moderate negative association between the two. Recent research has shown the BAS to be the key motivational mediator in narcissism (Foster et al. 2011).

Table 3 Panels A through D present the results of the mediation analysis. Mediational tests reveal weak support that BIS partially mediates the relationship between NPI and performance in each condition. An explanation of the mediational tests employed is outlined in Table 3. The direct effect of NPI on performance in each condition is significant (positive in the LTC, $p = 0.01$ and negative in the HTC, $p = 0.01$). In both conditions NPI was a significant predictor of BAS ($p < 0.00$ in LTC and $p = 0.00$ in HTC). NPI was approaching significance in predicting BIS ($p = 0.09$ in LTC and $p = 0.10$ in HTC). The relationship between BAS and performance is insignificant in the LTC ($p = 0.14$) and in the HTC ($p = 0.17$), however, the relationship between BIS and performance was significant in both conditions ($p = 0.00$ in LTC and $p = 0.01$ in HTC). In the full regression, BAS and NPI decrease in significance ($p = 0.47$ and $p = 0.03$ respectively in LTC and $p = 0.91$ and $p = 0.02$ in HTC), revealing that BIS partially mediates the relationship between NPI and performance. Avoidance motivation, the motivation to move away from negative events, was a significant predictor in total bonus compensation; however, the evidence suggests there is weak support for the predictive power of NPI on BIS.

These results indicate that the approach and avoidance motivation partially explain the difference in performance differences in managers. The lack of full mediation indicates there is something inherently different about High N managers not captured by approach and avoidance
motivation that affects performance. Taken together, these results are consistent with research indicating that NPI is a strong predictor of approach motivation and a moderate predictor of avoidance motivation and this motivation is related to decision-making performance (Foster and Brennan 2011).

**Test of Hypothesis 3: Narcissism and Self-Focused Investment**

Table 4, Panel A presents the results of the tests of Hypotheses H3. H3a predicts that managers higher in narcissistic characteristics (High N Managers) will invest more than managers lower in narcissistic characteristics (Low N Managers) in the LTC. This hypothesis was supported. Managers higher in narcissism chose to invest more frequently in the LTC (11.72) compared to Low N Managers (10.00) and the investment frequency was significantly different ($p=0.06$). H3b predicts that High N Managers and Low N Managers will invest with equal frequencies in the HTC. H3b was supported—in the HTC there were no significant differences in investment frequencies between the High (15.30) and Low (16.26) N managers ($p=0.39$). In the full sample, presented in Table 4, Panel B, High N Managers mean number of investments was only marginally higher than Low N managers (High N=13.45, Low N=13.13, $p=0.70$). Therefore, this study finds support for Hypothesis 3.

These results indicate that managers higher in narcissism had the propensity to take on more investments when the incentive condition favored such behavior (as in the LTC) and not fully adjust investment behavior to high threshold environment (HTC). These results are consistent with characteristics of narcissists having high approach and low-avoidance motivation and being self-focused.

**Test of Hypothesis 4: Self-Focused Investments**
To test H4, i.e., whether managers were taking more self-focused investments, a measure of a participant’s variance in investments based on self-versus-firm-driven incentives is constructed. To compute this index the following variables are computed as follows:

\[
\text{Self Focused Index} = \sum_{i=1}^{n} \left( \frac{\text{Investment Average}_i - \text{Bonus Threshold}}{\text{Investment Average}_i - \text{Firm Threshold}} \right) ^ {10}
\]

This measure represents an index of each participant’s deviation from their threshold divided by their deviation from the firm guidance (50%). Smaller indices indicate more deviation in investments from the firm’s minimal investment criteria. Table 5 reports the firm-driven variance indices by condition. As predicted, High N managers in the LTC had smaller firm-driven variance (2.83) compared to Low N Managers in the LTC (2.87). The same trend occurred in the HTC. High N managers exhibited more self-focused strategies, basing their variance in investments on their own threshold compared to the firm threshold. High N managers in the HTC had a variance index of 0.36 compared to Low N managers with an average index of 0.40. These results indicate that the High N managers had more self-focused goals and higher sensitivity to the positive stimuli, however, neither the HTC nor LTC mean differences in self-focused index reach statistical significance (HTC: \( p=0.73 \), LTC: \( p=0.96 \)) and hence, H4 is not supported.

**Ruling out Alternative Explanations**

One possibility for the aforementioned results is that some other variable(s), highly correlated with narcissism but distinct from narcissism is (are) driving the performance differences. For example, if narcissism was highly correlated with intelligence, the NPI

\(^9\text{Self-focused investments proxy for self-focused goals. This operationalization assumes managers will set goals to maximize compensation benefits available to them given their knowledge of their threshold and the investment prospects they evaluate.}\)

\(^{10}\text{Variance in investments based on self (firm)-driven incentives. Variance is computed by creating an index of each participant’s deviation from their threshold divided by their deviation from the firm objective. Smaller indices indicate more deviation in investments from the firm’s minimal investment criteria.}\)
measurement could in fact be capturing intelligence and intelligence could be driving the differential performance in decision-making quality. However, in the current study intelligence, ability, skill set, and overall competence would not explain a negative performance effect in the HTC (because intelligent and competent managers should do better in both conditions). However, because the narcissism variable is measured rather than manipulated it is important to consider such possibilities. As discussed in Section II, prior studies have documented that narcissism has no consistent relationship with performance (Wallace and Baumeister 2002; Gabriel et al. 1994). These findings are consistent with the present study, which finds no overall performance main effect for incentive condition ($p=0.86$) or level of narcissism ($p=0.96$).

Another possible construct that may be correlated with narcissism is confidence. There are many dimensions of narcissism that closely resemble confidence (e.g., authority, self-sufficiency, entitlement). However, there are also dimensions that are distinct from confidence that are measured by the NPI (e.g., exhibitionism, exploitativeness, vanity). Results from the current study show a non-significant relationship between NPI and confidence. When asked to estimate their threshold and subsequently assess the confidence of their estimate, managers higher in narcissism were not significantly higher in their confidence of their estimate ($p=0.51$ in LTC and $p=0.41$ in the HTC).

Finally, optimism may be correlated with narcissism. Farwell and Wohlwend-Lloyd (1998) reported that narcissism was positively correlated with predictions of one’s own course grades and ability, but was not correlated with predictions of abilities of one’s partner in the experimental task. An analysis of the seven dimensions of narcissism measured in this study rules out this explanation. Authority ($p=0.01$) and exploitativeness ($p=0.10$) account for the most variation of performance differences in the LTC whereas vanity ($p=0.07$) and authority
(ρ=0.19) account for the most variation of performance differences in the HTC. Hence, authority, exploitativeness and vanity-- all distinct constructs from optimism have significant effects on performance in both conditions.

VI. ADDITIONAL ANALYSIS: GENERATIONAL DIFFERENCES

The primary analysis examines only Millennial managers (managers born between 1978 and 1995). To examine whether these results extend to other generations, additional participants were recruited using MTurks. These managers were born before 1978. While the focus of this paper is on the implications for MCS design, which must adapt to the entering Millennial managers, it is important to understand whether these findings transcend generations. Recent research on generational differences in narcissism and management control attitudes (Dworkis, Olsen and Young 2012) shows significant differences between generational cohorts.

In a separate analysis, 70 managers who are born before 1978 were recruited. The same procedures outlined in section IV of this paper were used for these non-Millennial managers. Table 6 shows the sample statistics for the non-Millennials population. The average age of the non-millennial sample is 46. The average NPI (mean) is 15.5, which is consistent with national averages between 15 and 17 (Miller and Campbell 2008; Emmons 1987), and the national average used in the previous analysis (15.2). Table 7, Panel A shows the correlations of key variables for the non-millennial sample by incentive condition.

Unlike the millennial sample, there are no significant performance differences in either incentive condition in the non-millennial sample. While directionally, the correlations and performance results are consistent (positive relation for LTC, negative for HTC) there are no significant differences. For comparison, Table 7, Panel B presents the performance for each cell.
for the non-Millennial managers. Table 7, Panel C presents the analysis of variance for each condition. Table 7, Panel D presents the tests of simple effects for the non-Millennial sample. Unlike the Millennial managers, there was no significant interaction effect of incentive condition and level of narcissism ($p=0.64$).

Table 8, Panel A presents the means comparison of the three generational cohorts. Panel B presents the ANOVA results by generation. While Gen X has the highest NPI (16.14), Millennials report the highest levels of BAS (49.15) and confidence in their estimate (64.49%). Approach motivation (BAS) is significantly different across generations (Gen X=48.80 and Boomer=45.29); indicating that reward responsiveness in entering Millennial employees is heightened compared to the other two generations. Confidence is also significantly different across generations, with Generation X reporting the lowest levels of self-confidence in their threshold estimate (45.63%) compared to Boomers (56.10%) and Millennials (64.49%). This high level of confidence reported by Millennials is not surprising considering the heightened level of explicit grandiosity anecdotally observed in the workplace (Alsop 2008), a fundamental trait of narcissists.

Overall, the significant difference of narcissism on performance in the Millennial generation ($p<0.01$) but not in the other two generations ($p=0.64$) indicates that these traits play a more significant role in the performance of entering managers. Narcissism in Millennials has significantly stronger interaction effects on performance in managerial decision-making than in other generational cohorts. Millennial managers have heightened levels of decision-making biases with respect to their narcissistic personality characteristics, perhaps due to their increased levels of reward responsiveness.
VII. CONCLUSION

This study examines the effects of narcissistic personality characteristics and incentives on the managerial decision-making performance of Millennial managers. The results indicate that the interaction of narcissism and incentive threshold has a significant effect on resulting performance. Managers high in narcissism perform better on a managerial decision task in a low threshold environment compared to individuals lower in narcissism. Conversely, managers high in narcissism perform worse on a managerial decision task in a high threshold environment. Avoidance motivation (BIS) partially mediates the NPI-performance link in both conditions. These results indicate that personality characteristics affect how various bonus thresholds affect performance.

In extending the task to older generations, results indicate the interaction of narcissism and threshold condition on performance is non-significant in Gen X and Boomer generations. This implies that as narcissism has increased in younger managers, the interaction effect has become increasingly systematic and significant. The Millennial managers have relatively high performance on the task and not surprisingly, they show high sensitivity to any positive or negative outcomes, as exhibited by their BAS and BIS. Millennials are significantly more confident in their accuracy of their bonus threshold. Such over-confidence can lead to systematic over-investing or risk taking, as evidenced by prior archival research on over-confident CEO’s (Malmendier and Tate 2005).

The findings that Millennial managers respond more to agentic self-driven concerns than to communal or organizational concerns (e.g., taking investments that increase their own bonus threshold but do not align with the firm’s guidance) indicate that Millennial managers may be more likely to deviate from MCS. This deviation from MCS is illustrated by a recent survey of
Millennial employees, which compares responses to MCS attitude and personality scales across generations. Millennial employees reported the lowest scores on a measure of control compliance, a measure that captures an employee’s propensity to embrace MCS tenants such as authority and goal congruence (Dworkis, Olsen and Young 2012).

The phenomena observed in these studies are not limited to the workforce. A recent study of university cheating indicates that cheating behavior has increased in recent years and has become easier to do with tools such as the Internet (Pérez-Peña 2012). This cheating has become a game to many students, as illustrated by a quote from Donald McCabe, a Rutgers professor who studies cheating behavior, “There have always been struggling students who cheat to survive. But more and more, there are students at the top who cheat to thrive”.

The results of this study indicate that there exist systematic differences in motivation and resulting performance across managers of different generations. Millennial managers report higher levels of narcissistic personality characteristics and approach-avoidance motivation. Millennial managers are so sensitive to rewards that they often engage in MCS deviance simply for the thrill of the potential reward, being insensitive to the potential downside. While many Millennials were not managers at the time, and therefore did not play a significant role in the events that lead to the Global Financial Crisis of 2008, the mentality and actions of managers, leaders and other society figures may have influenced the adolescent and young adult Millennials. Millennials have been left hungry for the thrill they saw the generations before them experience in the late 1990’s and early 2000’s as the U.S. economy boomed.

MCS effectiveness and efficiency will ultimately be affected by the systematic shifts in motivations. As Millennials continue to enter the workplace and climb the corporate ladder, MCS design must carefully consider the ramifications of the above findings. High N Millennial
managers perform better when given a low bonus threshold and when presented with increases in reward incentives and positive feedback. As NPI has been shown to be increasing over the last twenty years, it may be beneficial for MCS design to consider adapting to the narcissistic managers. Implementing controls designed to reward may produce superior accounting and financial outcomes. The match between personality traits such as narcissism and incentive thresholds is imperative to consider since the results of this study indicate this match is highly significant in predicting performance on an investment decision task.

Given the experimental nature of the study, certain limitations exist in generalizing to overall managerial decision performance. While capital budgeting is a significant task of management accountants, there are other managerial tasks that may not be influenced by narcissistic personality traits or where potential motivational biases may be controlled. Additionally, depending on macro-economic conditions, bonus threshold may not be flexible to adapting to personality traits of managers. For example, in times of economic expansion, presenting low bonus thresholds for managers may induce more narcissistic managers to do better; however, if economic conditions decline, the firm may not be able to sustain these bonus thresholds. Managers may anchor on these low thresholds and become decreasingly motivated and hence perform worse when higher thresholds are required. Careful consideration of the long-term incentive consequences must be considered before implementing these findings into MCS design.

While the findings strongly indicate the interactive effect of narcissism and incentive threshold on performance, future research can explore different facets of incentive plans. Given the approach motivation of higher narcissism managers, flat wage or salary pay may prove to be an ineffective compensation plan. It may be more effective to pay Millennial managers
performance contingent-pay at a higher frequency, so as to maximize their motivation. Future research can also investigate other personality characteristics’ effects on performance under different incentive conditions. Narcissism is but one of many stable personality characteristics that can influence decision-making quality and accounting outcomes. Other stable personality characteristics such as optimism, self-esteem, and social identity may also influence decision quality. Finally, future research can explore different types of accounting tasks; for example-planning, fraud detection and reporting can be investigated to more fully understand the new Millennial era of management and the Millennial managers’ motivations and resulting performance.

The current research offers important insights into differential motivations of Millennial managers and how MCS can adapt to optimize effectiveness and efficiency. Future research on personality variables or other managerial characteristics offers many future research prospects examining other relevant accounting outcome variables important in MCS design. After all, “It is necessary to the sustainability of the workplace to develop future talent and train tomorrow’s leaders. Tomorrow’s leaders happen to be Millennials” (Schawbel 2011).
REFERENCES


treatment of opportunity costs in resource allocation decisions. Accounting, Organizations,
and Society, 16 (1): 27-46.

Prentice-Hall.


Dworkis, K.K., K.J. Olsen and S.M. Young. 2012. Compliance with Management Control
paper, University of Southern California.

Dyreng, S.D., M. Hanlon and E. Maydew. 2010. The Effects of Executives on Corporate Tax

and avoidance temperament and goals. Journal of Personality and Social Psychology, 82

Psychology, 52 (1): 11-17.

Results and Future Directions. Behavioral Research in Accounting, 10 (S): 46-64.

Motivation. In W.K. Campbell and J. Miller (Eds.), Handbook of Narcissism and
Narcissistic Personality Disorder: Theoretical Approaches, empirical findings, and

Foster, J.D., T.A. Misra and D.E. Reidy. 2009. Narcissists are approach-oriented toward their

Foster, J.D., J.W. Shenyes and J. Goff. 2009. Why do narcissists take more risks? Testing the
roles of perceived risks and benefits on risky behaviors. Personality and Individual
Differences, 47: 885-889.

Correlates and consequences of cocksure investing. Personality and Individual Differences,
50 (6): 816-821.


APPENDIX

A. TASK INSTRUCTIONS

Imagine you are a manager in a firm. As a manager, your role is to make decisions about investment opportunities on behalf of your firm. These are called "capital investment projects". You will be presented with various capital investment projects. Your management team has evaluated each project along four dimensions. These four dimensions are criteria that are frequently used by firms to judge the quality of an investment. The four dimensions are:

- Financial performance
- Customer satisfaction
- Internal process efficiency (what the firm can excel at)
- Learning and growth (what can create long-term value)

Your management team's evaluations of these prospects will be presented to you graphically in the task you will complete. Based on the evaluations, you must decide whether to invest in each project. All projects are independent of each other. If you make the correct decision to invest in a project, you will receive bonus compensation. If you incorrectly invest, you will incur a penalty that will reduce your overall compensation. Decisions not to invest will incur neither bonuses nor penalties.

A project will be considered either a "good" or "bad" project based on the dimensions described above (financial performance, customer satisfaction, internal process efficiency, and learning and growth). Your firm considers an investment where the four dimensions average 50% or more to be a "good" investment. Your firm considers these investments to have a positive net present value (NPV). NPV is an equally weighted average of the four dimensions shown to you. These dimensions are the best predictors of the investment’s value. However, the average value of the dimensions that is required for YOU to receive bonus compensation may be based on a different value than the 50% average rule of thumb described above. In other words, YOUR bonus may be given for investments that average less than 50% on the four dimensions or only for investments that average more than 50%. You can think of this as your "bonus threshold". Your bonus threshold is the value the dimensions must average for YOU to get a bonus, or the average value beyond which you will receive a bonus. You will be rewarded for investments that meet or surpass your bonus threshold based on an equally weighted average of the four dimensions. Your bonus threshold will remain the same within each round. The bonus threshold will not be disclosed to you; however, you will be able to learn what your bonus threshold is based on real-time feedback for each capital investment project in which you decide to invest.

Payment/Compensation

Your base compensation for completing this exercise is $1.00. However, for every project you invest in that meets or surpasses your bonus threshold, your compensation will increase by $0.20. For every project you invest in that does not meet your bonus threshold, your compensation will decrease by $0.20. Your compensation will not be affected if you choose not to invest—regardless of whether the investment you choose not to invest in was a "good" or "bad" project.

Your first 10 decisions will be PRACTICE. No compensation or penalty will be incurred for these decisions. After 10 practice decisions, your bonus compensation will be available and you will be subject to the loss penalty. You will be notified when the practice decisions are complete.
B. EXAMPLE INVESTMENT PROSPECT/DECISION

Project Alpha - PRACTICE

As a Manager, would you invest in the following project? *

- Yes
- No

C. PERSONALITY INSTRUMENTS

BIS/BAS Scales

*Please indicate your answer on a scale from 1-strongly disagree to 4-strongly agree in the blank following each statement

*Example: I love accounting class ___ 4 ______

**BIS**
1) If I think something unpleasant is going to happen I usually get pretty “worked up” ______
2) I worry about making mistakes ______
3) Criticism or scolding hurts me quite a bit ______
4) I feel pretty worried or upset when I think or know somebody is angry at me ______
5) Even if something bad is about to happen to me, I rarely experience fear or nervousness ______
6) I feel worried when I think I have done poorly at something ______
7) I have very few fears compared to my friends ______

**BAS Reward Responsiveness**
8) When I get something I want, I feel excited or energized ______
9) When I’m doing well at something, I love to keep at it ______
10) When good things happen to me, it affects me strongly ______
11) It would excite me to win a contest ______
12) When I see an opportunity for something I like, I get excited right away ______

**BAS Drive**
13) When I want something, I usually go all-out to get it ______
14) I go out of my way to get things I want ______
15) If I see a chance to get something I want, I move on it right away ______
16) When I go after something I use a “no holds barred” approach __________

_BAS Fun Seeking_

17) I will often do things for no other reason than that they might be fun __________
18) I crave excitement and new sensations __________
19) I’m always willing to try something new if I think it will be fun __________
20) I often act on the spur of the moment __________

_Narcissistic Personality Inventory_

INSTRUCTION: In each of the following pairs of attitudes, choose the one that you MOST AGREE with. Mark your answer by circling the letter (either A OR B for each pair). Only mark ONE ANSWER for each attitude pair, and please DO NOT skip any items.

1. A. I have a natural talent for influencing people.
   B. I am not good at influencing people.
2. A. Modesty doesn’t become me.
   B. I am essentially a modest person.
3. A. I would do almost anything on a dare.
   B. I tend to be a fairly cautious person.
4. A. When people complement me I sometimes get embarrassed.
   B. I know that I am good because everybody keeps telling me so.
5. A. The thought of ruling the world frightens the hell out of me.
   B. If I ruled the world it would be a better place.
6. A. I can usually talk my way out of anything.
   B. I try to accept the consequences of my behavior.
7. A. I prefer to blend in with the crowd.
   B. I like to be the center of attention.
8. A. I will be a success.
   B. I am not too concerned about success.
9. A. I am no better or worse than most people.
   B. I think I am a special person.
10. A. I am not sure if I would make a good leader.
    B. I see myself as a good leader.
11. A. I am assertive.
    B. I wish I were more assertive.
12. A. I like to have authority over other people.
    B. I don’t mind following orders.
13. A. I find it easy to manipulate people.
    B. I don’t like it when I find myself manipulating people.
14. A. I insist upon getting the respect that is due to me.
    B. I usually get the respect that I deserve.
15. A. I don’t particularly like to show off my body.
    B. I like to show off my body.
16. A. I can read people like a book.
    B. People are sometimes hard to understand.
17. A. If I feel competent I am willing to take responsibility for making decisions.
    B. I like to take responsibility for making decisions.
18. A. I just want to be reasonably happy.
B. I want to amount to something in the eyes of the world.
19. A. My body is nothing special.
   B. I like to look at my body.
20. A. I try not to be a show off.
    B. I will usually show off if I get the chance.
21. A. I always know what I am doing.
    B. Sometimes I am not sure of what I am doing.
22. A. I sometimes depend on people to get things done.
    B. I rarely depend on anyone else to get things done.
23. A. Sometimes I tell good stories.
    B. Everybody likes to hear my stories.
24. A. I expect a great deal from other people.
    B. I like to do things for other people.
25. A. I will never be satisfied until I get all that I deserve.
    B. I take my satisfactions as they come.
26. A. Compliments embarrass me.
    B. I like to be complemented.
27. A. I have a strong will to power.
    B. Power for its own sake doesn’t interest me.
28. A. I don’t care about new fads and fashions.
    B. I like to start new fads and fashions.
29. A. I like to look at myself in the mirror.
    B. I am not particularly interested in looking at myself in the mirror.
30. A. I really like to be the center of attention.
    B. It makes me uncomfortable to be the center of attention.
31. A. I can live my life in any way I want to.
    B. People can’t always live their lives in terms of what they want.
32. A. Being an authority doesn’t mean that much to me.
    B. People always seem to recognize my authority.
33. A. I would prefer to be a leader.
    B. It makes little difference to me whether I am a leader or not.
34. A. I am going to be a great person.
    B. I hope I am going to be successful.
35. A. People sometimes believe what I tell them.
    B. I can make anybody believe anything I want them to.
36. A. I am a born leader.
    B. Leadership is a quality that takes a long time to develop.
37. A. I wish somebody would someday write my biography.
    B. I don’t like people to pry into my life for any reason.
38. A. I get upset when people don’t notice how I look when I go out in public.
    B. I don’t mind blending into the crowd when I go out in public.
39. A. I am more capable than other people.
    B. There is a lot that I can learn from other people.
40. A. I am much like everybody else.
    B. I am an extraordinary person.
TABLE 1
PANEL A - Descriptive Statistics (n=156)

<table>
<thead>
<tr>
<th></th>
<th>Gender (0=Male, 1=Female)</th>
<th>Birth Year</th>
<th>NPI Total</th>
<th>Total</th>
<th>BAS</th>
<th>BIS</th>
<th>Th Est</th>
<th>Confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.31</td>
<td>1986.87</td>
<td>14.23</td>
<td>175.38</td>
<td>49.15</td>
<td>22.92</td>
<td>37.59%</td>
<td>64.49%</td>
</tr>
<tr>
<td>Median</td>
<td>0.00</td>
<td>1987.50</td>
<td>13.50</td>
<td>180.00</td>
<td>50.00</td>
<td>23.00</td>
<td>50.00%</td>
<td>60.00%</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>0.47</td>
<td>4.29</td>
<td>7.06</td>
<td>55.32</td>
<td>8.28</td>
<td>3.89</td>
<td>23.29%</td>
<td>14.25%</td>
</tr>
<tr>
<td>Range</td>
<td>1.00</td>
<td>15.00</td>
<td>35.00</td>
<td>320.00</td>
<td>65.00</td>
<td>30.00</td>
<td>131.00%</td>
<td>50.00%</td>
</tr>
<tr>
<td>Minimum</td>
<td>0.00</td>
<td>1979.00</td>
<td>1.00</td>
<td>-20.00</td>
<td>0.00</td>
<td>0.00</td>
<td>-51.00%</td>
<td>50.00%</td>
</tr>
<tr>
<td>Maximum</td>
<td>1.00</td>
<td>1994.00</td>
<td>36.00</td>
<td>300.00</td>
<td>65.00</td>
<td>30.00</td>
<td>80.00%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

TABLE 2
PANEL A - Correlation of NPI and Performance Variables (n=156)

<table>
<thead>
<tr>
<th>Incentive Condition</th>
<th>NPI Total</th>
<th>Total</th>
<th>1HSCORE</th>
<th>2HSCORE</th>
<th>1st 10 - Score</th>
<th>2nd10- Score</th>
<th>3rd10- Score</th>
<th>4th10- Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTC</td>
<td>NPI Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>.309**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1HSCORE</td>
<td>.229</td>
<td>.815**</td>
<td>.466**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2HSCORE</td>
<td>.294**</td>
<td>.892**</td>
<td>.466**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st 10 - Score</td>
<td>.042</td>
<td>.353**</td>
<td>.321**</td>
<td>.289**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd10 - Score</td>
<td>.123</td>
<td>.696**</td>
<td>.918**</td>
<td>.348**</td>
<td>.302**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd10 - Score</td>
<td>.276</td>
<td>.743**</td>
<td>.471**</td>
<td>.767**</td>
<td>.063</td>
<td>.214</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4th10 - Score</td>
<td>.285</td>
<td>.813**</td>
<td>.490**</td>
<td>.859**</td>
<td>.445**</td>
<td>.423**</td>
<td>.402**</td>
<td>1</td>
</tr>
<tr>
<td>HTC</td>
<td>NPI Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>-.330**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1HSCORE</td>
<td>-.316**</td>
<td>.926**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2HSCORE</td>
<td>-.260**</td>
<td>.838**</td>
<td>.569**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st 10 - Score</td>
<td>-.140</td>
<td>.302**</td>
<td>.338**</td>
<td>.169</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd10 - Score</td>
<td>-.139</td>
<td>.791**</td>
<td>.890**</td>
<td>.435**</td>
<td>.319**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd10 - Score</td>
<td>-.444**</td>
<td>.702**</td>
<td>.531**</td>
<td>.760**</td>
<td>.025</td>
<td>.220</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4th10 - Score</td>
<td>-.222</td>
<td>.859**</td>
<td>.716**</td>
<td>.835**</td>
<td>.347**</td>
<td>.546**</td>
<td>.516**</td>
<td>1</td>
</tr>
</tbody>
</table>
PANEL B- Mean Performance by Condition (n=156)

<table>
<thead>
<tr>
<th>Threshold Condition</th>
<th>Level N</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>165</td>
<td>193*</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>188**</td>
<td>156</td>
<td></td>
</tr>
</tbody>
</table>

*indicates difference between groups is significant at the $p<0.05$ level
**indicates difference between groups is significant at the $p<0.01$ level

PANEL C- ANOVA Results by Incentive Condition and Level N (n=156)

<table>
<thead>
<tr>
<th>Incentive Condition</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTC</td>
<td>19961.032</td>
<td>1</td>
<td>19961.032</td>
<td>7.095</td>
<td>.01**</td>
</tr>
<tr>
<td>Total * LEVELN</td>
<td>216636.436</td>
<td>77</td>
<td>2813.460</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>236597.468</td>
<td>78</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HTC</td>
<td>14899.589</td>
<td>1</td>
<td>14899.589</td>
<td>5.174</td>
<td>.03**</td>
</tr>
<tr>
<td>Total * LEVELN</td>
<td>215967.943</td>
<td>75</td>
<td>2879.573</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>230867.532</td>
<td>76</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PANEL D-Simple Effects Test (n=156)

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incentive Condition</td>
<td>1826.431</td>
<td>1</td>
<td>1826.431</td>
<td>0.053</td>
<td>0.86</td>
</tr>
<tr>
<td>LEVELN</td>
<td>138.747</td>
<td>1</td>
<td>138.747</td>
<td>0.004</td>
<td>0.96</td>
</tr>
<tr>
<td>Incentive Condition * LEVELN</td>
<td>34623.452</td>
<td>1</td>
<td>34623.452</td>
<td>12.165</td>
<td>0.001**</td>
</tr>
</tbody>
</table>
Table 3—NPI Mediation

As established by Baron and Kenny (1986), and further discussed in Kenny et al. (1998), a variable is mediating when it meets the following conditions:

Step 1: The initial variable is correlated with the outcome variable. (Path C)
Step 2: The initial variable is correlated with the mediator. (Path A)
Step 3: The mediator variable is correlated with the outcome variable. (Path B)
Step 4: When Paths A and B are controlled, a previously significant relation between the initial variable and outcome variable is no longer significant, with the strongest demonstration of complete mediation occurring when Path C' is zero.

PANEL A: Direct Effects of NPI on Total Compensation

<table>
<thead>
<tr>
<th>Total Compensation</th>
<th>Estimate</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTC NPI</td>
<td>2.55</td>
<td>0.94</td>
<td>0.01</td>
</tr>
<tr>
<td>HTC NPI</td>
<td>-2.43</td>
<td>0.91</td>
<td>0.01</td>
</tr>
</tbody>
</table>

PANEL B: NPI Effects on Approach and Avoidance Motivation

<table>
<thead>
<tr>
<th>BAS</th>
<th>Estimate</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTC</td>
<td>0.41</td>
<td>0.09</td>
<td>0.00</td>
</tr>
<tr>
<td>HTC</td>
<td>-0.44</td>
<td>0.11</td>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BIS</th>
<th>Estimate</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTC</td>
<td>-0.07</td>
<td>0.04</td>
<td>0.09</td>
</tr>
<tr>
<td>HTC</td>
<td>-0.10</td>
<td>0.59</td>
<td>0.10</td>
</tr>
</tbody>
</table>
Table 3 continued

PANEL C: Mediator Effects on Total Compensation

<table>
<thead>
<tr>
<th>Total Compensation</th>
<th>Estimate</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTC BAS</td>
<td>1.61</td>
<td>1.08</td>
<td>0.14</td>
</tr>
<tr>
<td>HTC BAS</td>
<td>-1.01</td>
<td>0.73</td>
<td>0.17</td>
</tr>
<tr>
<td>LTC BIS</td>
<td>-5.91</td>
<td>1.98</td>
<td><strong>0.00</strong></td>
</tr>
<tr>
<td>HTC BIS</td>
<td>4.03</td>
<td>1.49</td>
<td>0.01</td>
</tr>
</tbody>
</table>

PANEL D: Mediated Effects on Total Compensation

<table>
<thead>
<tr>
<th>Total Compensation</th>
<th>Estimate</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAS</td>
<td>0.78</td>
<td>1.08</td>
<td>0.47</td>
</tr>
<tr>
<td>BIS</td>
<td>2.40</td>
<td>1.38</td>
<td>0.08</td>
</tr>
<tr>
<td>NPI</td>
<td>1.84</td>
<td>0.83</td>
<td>0.03</td>
</tr>
<tr>
<td>HTC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAS</td>
<td>-0.08</td>
<td>0.68</td>
<td>0.91</td>
</tr>
<tr>
<td>BIS</td>
<td>2.40</td>
<td>1.38</td>
<td>0.08</td>
</tr>
<tr>
<td>NPI</td>
<td>-2.17</td>
<td>0.93</td>
<td>0.02</td>
</tr>
</tbody>
</table>
### TABLE 4
**PANEL A-Investments and Percent Correct Investments by Condition (n=156)**

<table>
<thead>
<tr>
<th>Incentive Condition</th>
<th>LEVELN</th>
<th>#Invest</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LTC</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LO N</td>
<td>Mean</td>
<td>10.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>4.56</td>
<td></td>
</tr>
<tr>
<td>HI N</td>
<td>Mean</td>
<td>11.72</td>
<td>0.06*</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>2.83</td>
<td></td>
</tr>
<tr>
<td><strong>HTC</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LO N</td>
<td>Mean</td>
<td>16.26</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>3.65</td>
<td></td>
</tr>
<tr>
<td>HI N</td>
<td>Mean</td>
<td>15.30</td>
<td>0.39</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>6.06</td>
<td></td>
</tr>
</tbody>
</table>

**PANEL B-Mean Investments by Level N (n=156)**

<table>
<thead>
<tr>
<th>LEVELN</th>
<th>#Invest</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LON</td>
<td>13.13</td>
<td>0.70</td>
</tr>
<tr>
<td>HIN</td>
<td>13.45</td>
<td>0.70</td>
</tr>
</tbody>
</table>

### TABLE 5
**Firm Focused Index by Incentive Condition (n=156)**

<table>
<thead>
<tr>
<th>Incentive Condition</th>
<th>LEVELN</th>
<th>SAMPLE</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LTC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LO N</td>
<td>Mean</td>
<td>2.87</td>
<td>36</td>
<td>.92</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HI N</td>
<td>Mean</td>
<td>2.83</td>
<td>41</td>
<td>.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Mean</td>
<td>2.85</td>
<td>77</td>
<td>.71</td>
<td></td>
<td>0.96</td>
</tr>
<tr>
<td><strong>HTC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LO N</td>
<td>Mean</td>
<td>0.39</td>
<td>40</td>
<td>.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HI N</td>
<td>Mean</td>
<td>0.36</td>
<td>37</td>
<td>.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Mean</td>
<td>0.38</td>
<td>77</td>
<td>.17</td>
<td></td>
<td>0.73</td>
</tr>
</tbody>
</table>
**TABLE 6**
Descriptive Statistics Non-Millennials  
*(n=70)*

<table>
<thead>
<tr>
<th></th>
<th>Gender (0=Male, 1=Female)</th>
<th>Birth Year</th>
<th>NPI Total</th>
<th>Total</th>
<th>BIS</th>
<th>BAS</th>
<th>Th Est</th>
<th>Confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>0.61</td>
<td>1966</td>
<td>15.5</td>
<td>162</td>
<td>22.87</td>
<td>47.04</td>
<td>38.37%</td>
<td>50.86%</td>
</tr>
<tr>
<td><strong>Median</strong></td>
<td>1</td>
<td>1968</td>
<td>15</td>
<td>180</td>
<td>24</td>
<td>48</td>
<td>50.00%</td>
<td>60.00%</td>
</tr>
<tr>
<td><strong>Std. Deviation</strong></td>
<td>0.49</td>
<td>8.5</td>
<td>4.283</td>
<td>61.682</td>
<td>3.635</td>
<td>8.55</td>
<td>23.67%</td>
<td>32.08%</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>1</td>
<td>31</td>
<td>18</td>
<td>260</td>
<td>23</td>
<td>44</td>
<td>79.00%</td>
<td>89.50%</td>
</tr>
</tbody>
</table>

**TABLE 7**
PANEL A - Correlations by Incentive Condition, Non-Millennials *(n=70)*

<table>
<thead>
<tr>
<th>Incentive Condition</th>
<th>Gender (0=Male, 1=Female)</th>
<th>Birth Year</th>
<th>NPI Total</th>
<th>Total</th>
<th>BIS</th>
<th>BAS</th>
<th>Th Est</th>
<th>Confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTC</td>
<td>Gender</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Birth Year</td>
<td>-0.027</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NPI Total</td>
<td>-0.394</td>
<td>0.227</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>-0.103</td>
<td>0.193</td>
<td>0.125</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIS</td>
<td>0.249</td>
<td>0.047</td>
<td>-0.12</td>
<td>-0.008</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BAS</td>
<td>-0.029</td>
<td>0.236</td>
<td>0.3</td>
<td>-0.054</td>
<td>0.069</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Th Est</td>
<td>-0.322</td>
<td>0.06</td>
<td>0.126</td>
<td>-0.191</td>
<td>-0.276</td>
<td>-0.236</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Confidence</td>
<td>-0.336</td>
<td>-0.257</td>
<td>0.172</td>
<td>0.312</td>
<td>-0.098</td>
<td>-0.104</td>
<td>-0.056</td>
</tr>
<tr>
<td>HTC</td>
<td>Gender</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Birth Year</td>
<td>0.033</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NPI Total</td>
<td>-0.232</td>
<td>0.231</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>-0.293</td>
<td>0.083</td>
<td>-0.035</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIS</td>
<td>-0.073</td>
<td>0.163</td>
<td>0.014</td>
<td>0.285</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BAS</td>
<td>-0.211</td>
<td>.362</td>
<td>.419</td>
<td>-0.122</td>
<td>0.149</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Th Est</td>
<td>-0.139</td>
<td>0</td>
<td>0.022</td>
<td>0.047</td>
<td>0.202</td>
<td>0.004</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Confidence</td>
<td>-0.317</td>
<td>-0.067</td>
<td>0.234</td>
<td>.428</td>
<td>0.224</td>
<td>-0.039</td>
<td>0.207</td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.05 level (2-tailed). **Correlation is significant at the 0.01 level (2-tailed).*
PANEL A- Means by Generation

<table>
<thead>
<tr>
<th>GENERATION</th>
<th>Total</th>
<th>NPI Total</th>
<th>Th Est</th>
<th>Confidence</th>
<th>BAS</th>
<th>BIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOOMER</td>
<td>Mean</td>
<td>145.71</td>
<td>14.86</td>
<td>38.49%</td>
<td>56.10%</td>
<td>45.29</td>
</tr>
<tr>
<td>N</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35.00</td>
<td>35.00</td>
</tr>
<tr>
<td>GENX</td>
<td>Mean</td>
<td>178.29</td>
<td>16.14</td>
<td>38.26%</td>
<td>45.63%</td>
<td>48.80</td>
</tr>
<tr>
<td>N</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35.00</td>
<td>35.00</td>
</tr>
<tr>
<td>MILLENN</td>
<td>Mean</td>
<td>175.38</td>
<td>14.23</td>
<td>42.74%</td>
<td>64.49%</td>
<td>49.15</td>
</tr>
<tr>
<td>N</td>
<td>156</td>
<td>156</td>
<td>156</td>
<td>156</td>
<td>156.00</td>
<td>156.00</td>
</tr>
<tr>
<td>Panel B: ANOVA by Generation</td>
<td>Sum of Squares</td>
<td>df</td>
<td>Mean Square</td>
<td>F</td>
<td>Sig.</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------</td>
<td>----</td>
<td>-------------</td>
<td>------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td><strong>Total * GENERATION COHORT</strong></td>
<td>27221.889</td>
<td>2</td>
<td>13610.944</td>
<td>4.226</td>
<td>.016**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>718231.209</td>
<td>223</td>
<td>3220.768</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>745453.097</td>
<td>225</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NPI Total * GENERATION COHORT</strong></td>
<td>106.767</td>
<td>2</td>
<td>53.384</td>
<td>1.327</td>
<td>.267</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8970.264</td>
<td>223</td>
<td>40.225</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9077.031</td>
<td>225</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Th Est * GENERATION COHORT</strong></td>
<td>924.562</td>
<td>2</td>
<td>462.281</td>
<td>.236</td>
<td>.790</td>
<td></td>
</tr>
<tr>
<td></td>
<td>437191.172</td>
<td>223</td>
<td>1960.499</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>438115.735</td>
<td>225</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Confidence# * GENERATION COHORT</strong></td>
<td>10886.008</td>
<td>2</td>
<td>5443.004</td>
<td>12.072</td>
<td>.000**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100544.046</td>
<td>223</td>
<td>450.870</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>111430.054</td>
<td>225</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BAS * GENERATION COHORT</strong></td>
<td>430.144</td>
<td>2</td>
<td>215.072</td>
<td>3.103</td>
<td>.047*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15456.352</td>
<td>223</td>
<td>69.311</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15886.496</td>
<td>225</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BIS * GENERATION COHORT</strong></td>
<td>10.543</td>
<td>2</td>
<td>5.272</td>
<td>.362</td>
<td>.696</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3244.505</td>
<td>223</td>
<td>14.549</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3255.049</td>
<td>225</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
FIGURE 1
Total performance by condition

Mean Total

Incentive Condition
- LTC
- HTC

LEVELN

LON
HIN