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Risky Business: Psychopathy, Risky Decision-Making, and Financial Outcomes

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Doctor of Philosophy

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Risky Business: Psychopathy, Risky Decision-Making, and Financial Outcomes

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An abstract of
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Abstract

Risky Business: Psychopathy, Risky Decision-Making, and Financial Outcomes

By Sarah Francis Smith

Psychopathy, or psychopathic personality, is a condition characterized by interpersonal features such as superficial charm, affective features such as lack of empathy, and behavioral features such as poor impulse control and antisocial behaviors (Hare, 1991/2003). As psychopathy is increasingly recognized as a multifaceted, dimensional construct (e.g., Benning et al., 2003; Walter et al., 2007), examination of the condition's implications for everyday behavior becomes more important. Specifically, psychopathic features such as boldness and disinhibition may bear important implications for risk-taking relevant to real-world outcomes such as financial behaviors. The present study sought to (a) examine the relationship between psychopathy and financial outcomes, (b) clarify the role of risk-taking as an intermediate pathway between psychopathy and adaptive and maladaptive financial behaviors, and (c) examine the impact of interaction effects between components of psychopathy (e.g., boldness and disinhibition) and financial behaviors. Using a sample of North American participants from the online community (N = 500), I found evidence of differential financial correlates across components of psychopathy. Specifically, components such as boldness were largely associated with adaptive financial behaviors, whereas disinhibition was exclusively associated with maladaptive financial behaviors. Although boldness and disinhibition were both associated with risk-taking in some capacity, these effects did not mediate the relationship between psychopathy components and financial behaviors. Moreover, the results of the present study revealed no evidence of moderation between disinhibition and boldness in predicting financial behaviors. Although the results of the present study were mixed, they make valuable contributions to a growing body of literature examining the implications of psychopathy for everyday life. The present study provides continued evidence for the existence of potentially adaptive manifestations of certain psychopathic personality features and highlights important conceptual issues, such as the need for continued conceptualization of psychopathy as a multifaceted construct.

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Table of Contents

In a 2002 keynote address to the Canadian Police Association, pioneering psychopathy researcher Robert Hare (2002) stated that “not all psychopaths are in prison, some are in the board room.” Psychopathy, or psychopathic personality, is a condition characterized by interpersonal features such as superficial charm, affective features such as lack of empathy, and behavioral features such as poor impulse control and antisocial behaviors (Hare, 1991/2003). In a now classic book, *The Mask of Sanity*, Cleckley (1941/1988) described the psychopath as exhibiting a façade of likability. This façade, consisting of manipulativeness, social poise, and charisma, conceals marked social and emotional deficits. Cleckley delineated 16 features believed to be central to the condition of psychopathy. These features include superficial charm, lack of anxiety, absence of psychotic/neurotic symptoms, egocentricity, lack of remorse or empathy, incapacity for love or close relationships, poor impulse control, irresponsibility, and unmotivated antisocial deviance. Others have expanded on the concept, often by postulating more menacing features such as “lovelessness” and “guiltlessness” as the heart of the disorder (McCord & McCord, 1964).

The recognition that psychopathy extends outside prison walls, even as far as the workplace or the board room, is far from new. For instance, Cleckley (1941/1988) described several case studies of psychopathic individuals who achieved marked professional success in arenas such as law, medicine, and business. Nevertheless, surprisingly little is known about the implications of psychopathic personality traits for functioning in everyday life, including the business world. In the wake of recent social and economic catastrophes such as Enron, the housing market crash, and Ponzi schemes, the issue is of paramount importance. As such, researchers and social commentators alike

have become increasingly interested in the existence and potential repercussions of psychopathic features outside of prisons. Many portrayals of the psychopathic businessman, which Babiak & Hare (2006) termed a “snake in a suit” (p. 5), present a paradox of a ruthless, conniving worker who rises through the ranks of corporations with the use of guile and charm (Furnham, 2007; Gudmundsson & Southey, 2012). Once ascended to the top of the corporate ladder, however, these individuals may prove to be destructive leaders, making decisions detrimental to company morale, the economy, and perhaps even countries. Such a paradox raises important questions. If psychopathic individuals display sufficient skills to rise through the ranks of corporations, why would they ultimately prove to be destructive leaders? How do psychopathic individuals make important decisions when faced with uncertainty? What are the processes leading to the potential successes and failures of psychopathic individuals? In this thesis, I attempt to make preliminary inroads into these questions using an analogue sample.

Conceptual Issues in Psychopathy

The psychopathy literature is riddled with debates regarding conceptual issues such as definition, etiology, and measurement. As a consequence, issues of definition and measurement are of paramount importance when conducting research on psychopathy.

Psychopathy: Category or Dimension?

For decades, research on psychopathy has focused almost exclusively on largely unsuccessful individuals, primarily incarcerated males. It was not until the 1970s that researchers began to examine potentially adaptive manifestations of the condition with early investigations centering on community samples. Straying from the typical inmate

sample, Widom (1977) attempted to draw potentially psychopathic individuals with newspaper advertisements seeking

"adventurous carefree people" who are "impulsively irresponsible but are good at handling people and at looking after number one" (p. 675). Sixty five percent of the recruited sample met criteria for sociopathy, an informal term similar to psychopathy. Additionally, several participants held jobs of significant ranking, such as business managers and investment bankers. More recently, researchers have continued to use Widom's advertisement-based recruitment paradigm to attract non-incarcerated individuals with pronounced levels of psychopathic traits from community or undergraduate samples (e.g., Miller, Jones, & Lynam, 2011; Miller, Rauscher, Hyatt, Maples, & Zeichner, in press). This realization that psychopathic traits exists in the community highlights one important debate in the conceptualization of psychopathy; many assume that psychopathy is an all-or-none condition, a taxon that is categorically separable from normal range personality. Still, others view psychopathic traits as existing on a continuum (Lilienfeld, 1998). A categorical perspective on psychopathy regards the condition as qualitatively distinct from normal range personality whereas a dimensional conceptualization assumes that individuals vary on a continuum of these traits (Walters et al., 2007). The existence of such a taxon (i.e., Meehl & Golden, 1982) suggests that individuals with psychopathy differ in kind, not degree, from others.

Keeping with psychopathy history, this debate has not been easily resolved. Harris, Rice, and Quinsey (1994) used taxometric procedures (see Meehl & Golden, 1982) to conclude that psychopathy as assessed by the Psychopathy Checklist-Revised (Hare, 1991/2003), the most commonly used and best validated interview-based

psychopathy measure, was taxonic, or categorical. More recently, however, Edens, Marcus, Lilienfeld, and Poythress (2006) raised questions regarding the Harris et al. (1994) methodology such as the use of an atypical sample of offenders (i.e., a sample of inmates for a maximum security psychiatric prison) a large number of whom were designated not guilty by reason of insanity and a reliance on file review data rather than interview information. Using more advanced taxometric procedures, in contrast to Harris et al. (1994), Edens and colleagues (2006) found that PCL-R scores best fit a dimensional rather than categorical model. Indeed, burgeoning research and replications using multiple operationalizations of psychopathy continues to suggest that psychopathy exists on a continuum (e.g., Guay, Ruscio, Knight, & Hare, 2007; Marcus, John, Edens, 2004; Walters et al., 2007). This conceptualization of psychopathy as a dimension is important, as it highlights the need for research on psychopathic traits in the general population.

Psychopathy: A Two Factor Model

To address the long history of conceptual confusion and disagreement regarding clinical criteria for psychopathy, Hare (1980) developed an assessment procedure, the Psychopathy Checklist (PCL), now revised (PCL-R), to measure the personality traits and antisocial behaviors associated with the disorder. Subsequent investigations of the PCL and other measures of psychopathy led to the more recent conceptualization of the disorder within the context of an oblique (i.e., correlated) two-factor model (Benning, Patrick, Hicks, Blonigen, & Krueger, 2003; Harpur, Hakstian, & Hare, 1988; Harpur, Hare, & Hakstian, 1989). Prior to these studies, psychopathy was viewed primarily as a global trait, often assessed by a total score on the PCL or other measures. Nonetheless, factor analyses of the PCL have revealed a replicable two factor structure with both

factors consisting of two underlying facets (Hare, 2003; Harpur et al., 1988). The first factor, termed Factor 1, consists primarily of the affective and interpersonal traits most closely allied with Cleckley's (1941/1988) original conceptualization of the disorder (Harpur, et al., 1989). These traits include glibness, egocentricity, lying, manipulativeness, lack of remorse and empathy, and a failure to accept responsibility for one's actions. Factor 1 is associated with related traits such as narcissism, interpersonal dominance, and low levels of anxiety (Harpur et al., 1989). As mentioned previously, two underlying facets load onto this factor, namely the interpersonal and affective facets of the PCL. In contrast, Factor 2 is associated primarily with traits such as irresponsibility, impulsivity, and a lack of behavioral controls (Hare, 1991/2003). The factor is associated with a "chronically unstable and antisocial lifestyle" (Harpur at al., 1989, p. 6), and the two facets, antisocial lifestyle and criminal history, load onto this factor. This factor is more behaviorally defined and strongly resembles criteria used to assess antisocial personality disorder (ASPD) in the *Diagnostic and Statistical Manual of Mental Disorders*, 5th Edition (DSM-5; APA, 2013). Indeed, empirically, Factor 2 psychopathy is closely related to ASPD (Hare, 2003).

Alternative modes of psychopathy assessment, such as the self-report Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996) also exhibit a two-factor structure (Benning et al., 2003). The PPI is a self-report measure of psychopathy designed to assess the disorder as described by Cleckley (1941/1988) and other influential psychopathy theorists. Unlike the PCL, the PPI does not assess overt antisocial and criminal behavior, and instead focuses on personality traits associated with psychopathy. Like the PCL factors, the components of the PPI display differential

patterns of correlates. For example, the first factor of the PPI, termed *Fearless Dominance* (PPI-I), is positively associated with emotional stability and adjustment, social dominance, physical fearlessness and immunity to stress. In contrast, the second factor of the PPI, *Self-Centered Impulsivity* (PPI-II), is negatively associated with stability, adjustment, and stress immunity, and positively associated with most antisocial and externalizing behaviors (Benning et al., 2003). Unlike PCL Factor 1, Fearless Dominance's correlates are primarily adaptive. This adaptive nature of Fearless Dominance has led some researchers to question its conceptual relevance to the construct of psychopathy (Miller & Lynam, 2012; but see Lilienfeld et al., 2012, for a rebuttal). Indeed, over the past several years in particular, disagreement regarding the role of potentially adaptive traits such as charisma, social poise, stress immunity, and venturesomeness have developed. This broad amalgam of seemingly adaptive traits has come to be known more recently as boldness (Benning et al., 2003; Patrick, Fowles, & Krueger, 2009). Some authors (e.g., Lilienfeld et al., 2012; Patrick & Drislane, 2015) contend that boldness traits are central to the conceptualization of psychopathy, whereas others (e.g., Crego & Widiger, 2014; Lynam & Miller, 2012; Miller & Lynam, 2012; Neumann, Uzieblio, Crombez, & Hare, 2014) suggest they are peripheral.

The Low Fear Hypothesis

Over the years, several models of the etiology of psychopathy have emerged. Models such as those of Quay (1965) and Zuckerman (1978) explains psychopathy as a disorder of underarousal, which in turn contributes to excessive sensation-seeking. According to these models, psychopathic individuals are characterized by cortical hypoarousal, in turn leading to "stimulus hunger" and a desire to take risks. Other

theories, such as the response modulation hypothesis (Newman, 1998), posit psychopathy as a disorder of information processing or selective attention. Over the past two decades, however, the low fear model has emerged as one of the preeminent explanations of the causes of psychopathy.

The *low fear model*, proposed by Lykken (1957, 1995), points to a relative absence of fear as the core developmental source of the disorder. This model proposes that psychopathic individuals are marked by inadequate fear, which in turn gives rise to the other major features of the condition, such as superficial charm, lack of guilt, dishonesty, and a failure to learn from punishment. A number of studies have offered support for this hypothesis (see Lykken, 1995, for an early review) by demonstrating that psychopaths do not exhibit fearful responses in situations normally leading to such emotional reactions. For example in classical conditioning paradigms, anticipatory anxiety responses are commonly measured using skin conductance responses to neutral noises (e.g., tones, buzzers) that were previously paired with aversive stimuli (e.g., electric shocks). Psychopathic individuals show significantly lower skin conductance in such anxiety conditioning paradigms than do comparison individuals, suggesting that the psychopathic individuals are marked by deficits in fear or anxiety conditioning (Hare, 1965a; Hare, 1965b; Hare & Quinn, 1971; Lorber, 2004; Lykken 1957). Furthermore, psychopathic individuals exhibit a diminished fear-potentiated startle response. In such studies, participants view images of pleasant, unpleasant, or neutral scenes. On some of the viewing trials, a loud noise occurs at an unpredictable point during the slide presentation. In normal individuals, during the presentation of unpleasant slides, startle responses tend to be augmented as individuals are already on edge. In contrast, severely

psychopathic individuals often fail to display such a marked startle response, suggesting a deficit in the experience of aversive emotional states, especially fear (Patrick, Bradley, & Lang, 1993). Blair's (2001) more recent and closely allied violence inhibition mechanism model proposes that because of amygdala deficits, psychopathic individuals do not experience fear and allied negative emotions in response to others' distress. Because these emotions inhibit aggression in normal individuals, psychopathic individuals are chronically prone to engaging in violence toward others.

Lykken (1957, 1995) highlighted this lack of a normal affective response to everyday human experiences as central to the development of psychopathy. He posited that psychopathic individuals begin as normal children "save for a below average endowment of innate fearlessness" (p. 180). According to the low fear hypothesis, it is from this innate fearlessness that all things psychopathic develop. Certain environmental characteristics or perhaps amalgamations with other distinctive personality traits may then direct such individuals into outcomes of varying degrees of success. Indeed, recent evidence suggests that psychopathic features such as fearlessness may be channeled adaptively into professions involving a high-level of risk. For example, the psychopathic higher-order dimension of Fearless Dominance, which appears to be a marker of Lykken's fearlessness trait, is modestly positively associated with heroism in undergraduates, the U.S. presidents, and community samples (Smith, Lilienfeld, Coffey, & Dabbs, 2013) and may exist in elevated levels among individuals in high-risk professions (e.g., emergency personnel, fire-fighters, police officers; Falkenbach & Tsoukalas, 2011; Lilienfeld, Latzman, Watts, Smith, & Dutton, 2014). Still, psychopathy is certainly better known for its maladaptive features, and traits such as fearlessness and

willingness to take risks also predispose individuals to negative outcomes such as engaging in risky sexual or antisocial behavior (e.g., Fulton, Marcus, & Payne, 2010; Hare, 1991/2003).

Configural and Channeling Models of Psychopathy

Although many researchers have examined psychopathy exclusively at the global level, the differential pattern of associations seen among components of psychopathy raises questions regarding the global assessment of the condition by means of total scores. Furthermore, such a pattern bears implications for the multidimensionality of psychopathy. Indeed, some authors have conjectured that psychopathy is a configuration of related but largely separate personality traits, a speculation that has been supported by at least some psychometric data (e.g., Lilienfeld & Fowler, 2006). Patrick et al. (2009) expanded on this idea, proposing that psychopathy is a condition composed of three separable traits in the triarchic model of psychopathy. In this model, psychopathy consists of *Boldness* (closely related to PPI Fearless Dominance), *Disinhibition* (closely related to PPI Self-Centered Impulsivity), and *Meanness* (which overlaps with the PPI Coldheartedness and Machiavellian Egocentricity lower-order scales). *Boldness* refers to an ability to remain calm in threatening situations and is characterized by dominance, reduced stress reactivity, physical harm avoidance, and thrill seeking (Benning et al., 2003). *Disinhibition* is a predisposition toward deficits in impulse control marked by a lack of planfulness, foresight and affect regulation (Patrick et al., 2009). Finally, *Meanness* is marked by a lack of empathy and attachment, disdain towards others, and rebelliousness. Although relatively novel and requiring further validation, this triarchic model of psychopathy promises fruitful directions for future research.

Configural models of psychopathy point to statistical interaction among psychopathy's components as integral to the understanding of the disorder. For example, one possibility is that features such as boldness (e.g., PPI-R Fearless Dominance) alone are not malignant in their own right, but in combination with traits such as disinhibition (e.g., PPI-R Self-Centered Impulsivity) or meanness they become particularly dangerous. Some authors have reported statistical interactions in which high levels of boldness potentiate the relationship between disinhibition and negative outcomes such as aggression and risky sexual behavior (Kastner & Sellbom, 2012; Smith, Edens, & McDermott, 2013). Nevertheless, several others have failed to replicate these interactions (e.g., Maples et al., 2014, Vize et al., 2016).

Still, configural models of psychopathy and the examination of the statistical interactions of its components may provide fruitful directions for research. Indeed, although boldness is consistently related to positive real-world outcomes (e.g., leadership positions, heroic behavior, presidential performance; Lilienfeld et al., 2012; Smith et al., 2013; Smith, Watts, & Lilienfeld, in preparation), in the presence of high levels of disinhibition it might be channeled into more maladaptive consequences (see Frost, Ko, & James, 2007, and James, 2008, for a discussion of channeling models). Channeling models have been used to describe other psychological phenomena, such as aggression, whereby implicit aggressive tendencies are "channeled" into different explicit aggressive behaviors (e.g., physical aggression, verbal hostility), dependent on self-beliefs about aggression (James & LeBreton, 2013). Such models may be particularly useful in understanding how particular configurations of psychopathic personality traits may combine to channel behavior into differential real-world outcomes.

Psychopathy and Decision-Making

The extent to which psychopathic personality traits exhibit "response penetration" (Tellegen, 1991) into everyday life is not well understood. A number of personality theorists (e.g., Allport, 1937; Funder, 1991) have posited that personality traits influence everyday behavior largely by influencing our perceptions of situations. For example, individuals who are particularly fearful may perceive situations in terms of potential threats. In contrast, those with low levels of fear may be more likely to engage in risky behaviors given that they are not inhibited by fear. From this schema-driven perspective, our personality traits influence the way we interpret the world. Thus, one possible avenue towards understanding the response penetration of such traits lies in the exploration of decision-making. Given the influence of personality traits on our perceptions, such features likely influence how individuals perceive potential outcomes and ultimately make decisions.

The processes by which psychopathic individuals make decisions, particularly ones pertaining to risk, likely have implications for everyday behavior. It is well known that risky decision-making bears implications for real-world outcomes, both among adolescents and other populations (Reyna & Zayas, 2014). If psychopathic individuals are marked by trait fearlessness, such fearlessness would be expected to influence their perceptions of risk, and ultimately influence decisions pertaining to risk. The examination of how psychopathic individuals engage in decision-making under conditions of risk may serve as an important vehicle for understanding the expression of such traits and their implications for everyday functioning.

Operationalizations of Risk

Risk, and subsequent risky decision-making, pervades countless domains of life (e.g., finance, healthcare, sexual activity), producing manifold outcomes. On the one hand, a risky decision can be costly, producing dire outcomes such as losing individuals' life savings, or worse, their lives. On the other hand, humans take risks constantly and the outcomes are sometimes beneficial. Astute investments in the stock market, for example, can have a large pay off. Moreover, like risk, extreme circumspection can be costly. Extremely cautious individuals may be marked by omission bias, the tendency to overvalue risk aversion, thereby overweighting potentially damaging actions compared with potentially damaging inactions. Such biases may account for harmful inactions, such as reluctances to vaccinate children (Ritov & Baron, 1990), unaggressive approaches to saving for retirement and lower lifetime returns (Bernartzi & Thaler, 2001; Rick, Cryder, & Lowenstein, 2009), or overly conservative financial approaches on the part of large organizations. In sum, both risk-taking and risk non-taking have important implications, including financial outcomes.

Risk can be defined both psychologically and economically. Most psychologists adopt a more colloquial approach to defining risk. In short, risk can be understood as the possibility of loss or harm (Fox & Tannenbaum, 2011; Reyna & Huettel, 2014). Risk inherently encompasses uncertainty; behaviors that could lead to negative outcomes (e.g., drunk driving, skydiving, robbing a bank) do not always do so. Salient as it may be, the modal psychological definition of risk is problematic because inherent in such a definition is the separable, albeit related, construct of loss aversion (Kahneman & Tversky, 2000). Conversely, in the economic sense, risk is about the choice between

known, but uncertain, outcomes of varying value. Unlike the psychological definition, when at least one outcome is typically negative, outcomes of economic risk are not necessarily problematic. For example, the choice between $1000 and a 50% chance to win $1500 entails no real negative outcomes, but the latter option would still be considered riskier than the former (Reyna & Huettel, 2014).

Theories of Risky Decision-Making

For quite some time, rational choice theory (Becker, 1976; Homans, 1961) and expected utility (EU) theory (Bernoulli, 1738/1954) served as some of the most prominent models in the fields of risky and economic decision-making. Proponents of rational choice theory posit that when making decisions, individuals carefully balance expected costs against expected benefits in an effort to maximize gains and minimize losses. Somewhat similar to rational choice theory, the EU framework to understanding risky decision-making presumes that the decision maker selects between risky prospects by likening their expected utility values (Mongin, 1997). An EU value is calculated by summing the weighted utilities of uncertain outcomes. To illustrate, consider the choice between winning (a) $1000 for sure or (b) a 25% chance to win $4000 (and a 75% chance of winning nothing). Per EU theory, the *expected values* of the two options are calculated as follows: (a) $1000 X 100% = $1000 and (b) $4000 X 25% + $0 X 75% = $1000. The expected values of the two scenarios are equivalent. In the face of such information most individuals would choose the sure $1000. Diverging from rational choice theory, EU theory suggests that individuals do not evaluate scenarios based purely on their monetary value but rather a subjective value (i.e., weighted average utility of outcomes) (Bernoulli, 1738/1954; Kahneman & Tverky, 1983; Platt & Huettel, 2008) or perceived utility. This

distinction is important as it recognizes that the psychological value of money may differ from the actual value of money. For example, $1000 dollars bears more significance to an individual below the poverty line than to a millionaire. Although EU and rational choice models provide a useful framework for understanding decision-making under conditions of uncertainty, they frequently fail to predict real-word outcomes. In the face of options with unequal expected values (e.g., $1000 for sure vs. 50% chance of $4000), EU and rational choice models are often violated, as most individuals choose the sure option over the gamble, even when the gamble shows a higher expected value (Camerer, 1981; Kahneman & Tversky, 1979).

In an effort to account for apparent violations of EU models, Kahneman and Tversky (1979) proposed an alternative model of risky decision-making termed *prospect theory*. With this theory, which led to Kahneman's Nobel Prize in Economics, Kahneman and Tversky sought to identify situations in which individuals would systematically violate predictions of EU theory.

The two were particularly critical of EU theory's failure to acknowledge the importance of reference points in decision-making. Instead, Kahneman and Tversky highlighted the importance of favorable versus unfavorable prospects in risky decision-making. They discovered that the favorability or unfavorability of an outcome influenced the decision to take a gamble versus a sure outcome. The now classic "Asian disease problem" (Tversky & Kahneman, 1981) illustrates this phenomenon well. Individuals are presented with two versions of a problem:

> *Scenario 1:* Imagine the US is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat

> the disease have been proposed. Assume that the exact scientific estimates of the consequences of the program are as follows: *Program A:* 200 people will be saved. *Program B:* 1/3 probability that 600 people will be saved and 2/3 probability that nobody will be saved. *Which of the two programs (A or B) do you favor?*
>
> *Scenario 2:* Imagine the US is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimates of the consequences of the program are as follows: *Program A:* 400 people will die. *Program B:* 1/3 probability that nobody will die and 2/3 probability that 600 people will die. *Which of the two programs (A or B) do you favor?*

According to EU theory, these two scenarios should be treated in much the same way given that the expected values of the outcomes are the same. In Scenario 1, Program A and Program B each have expected values of 200 lives saved (200 X 100% = 200; 600 X 33.3% + 0 X 66.6% = 200, respectively). Similarly, in Scenario 2, Programs A and B have expected values of 400 deaths (400 X 100% = 400; 600 X 66.6% + 0 X 33.3% = 400) and ultimately an equivalent of 200 lives saved. Again, EU theory would predict consistency in responses across the two different versions of the problem as they each demonstrate equivalent utility. Instead, Kahneman and Tversky predicted correctly that the differing prospects of lives saved (gains) versus lives lost would be integral to decision-making. Participants demonstrated choice reversal across the conditions, preferring Program A in Scenario 1 (certain outcome) and Program B in Scenario 2 (risky outcome). This framing effect illustrated that individuals show risk aversion at the

prospect of gains and risk-seeking at the prospect of losses (Kahneman & Tversky, 1972, 1983; Tversky & Kahneman, 1981).

This theory of risky decision-making sharply contrasted with earlier models and continues to be an influential perspective, considered by some as the best explanation of decision-making under conditions of uncertainty (Birnbaum, 2008; Wu, Zhang, & Abdelloui, 2005). Integral to prospect theory is the concept of loss aversion. Simply put, to the average person, losses generally produce a more pronounced psychological impact than do gains. The fear of losing something is much stronger than the desire to gain something else (Baumeister, Bratslavsky, & Finkenauer, 2001; Kahneman, 2011). Such tendencies likely drive the influence of framing effects such as the one presented earlier.

Although Kahneman and Tversky originally sought to describe decision-making in general, consideration of stable individual differences in risky decision-making is important. In fact, the study of individual differences in risky decision-making is increasing, including the examination of the relevance of personality traits to decision-making under conditions of uncertainty (e.g., Weber, Blais, & Betz, 2002). Despite these preliminary efforts, relatively little research has examined individual differences in personality in relation to sensitivity to framing effects such as those created in paradigms employed by Kahneman and Tversky. A burgeoning body of literature suggests that individuals with anxiety and fear-related disorders tend to perceive threat in ambiguous situations (Cisler & Koster, 2010; McNally, 1996). In contrast, individuals with high levels of psychopathy features, such as boldness, may occupy the opposite end of a continuum, perceiving little risk or threat in such scenarios. Examination of decision-making in ambiguous situations may be particularly valuable as situational factors may

limit the expression of individual differences (Mischel, 1977; see Meyer, Dalal, & Hermida, 2010 for a review). Strong situations (e.g., a job interview) exert more pressure for individuals to behave in a certain manner than do weak situations (e.g., cocktail party). In unstructured, ambiguous scenarios, individual differences such as stable personality features may become more apparent. This phenomenon may extend to risky decision-making. For example, situations with a high degree of risk with little opportunity for positive outcomes could be considered strong situations in which most individuals would be risk averse. In contrast, situations in which the risks and benefits are more ambiguous and less understood, individual variation in decision-making may be more apparent.

Given that individuals marked by high levels of psychopathic boldness exhibit diminished sensitivity to punishment (Ross et al., 2007), the may also display less loss aversion when making decisions pertaining to risk. Early psychopathy theorists speculated that imbalance among separate systems controlling emotional behavior may lead to psychopathic behavior. First described by Gray (1976, 1987), the behavioral inhibition system (BIS) influences responses to aversive stimuli by inhibiting behaviors that lead to punishment or nonreward. A separate, but related, behavioral activation system (BAS) acts in opposition to the BIS activating appetitive and reward seeking behavior. Psychopathic individuals tend to exhibit weak behavioral inhibitions systems, lower anxiety in response to threatening situations, and difficult inhibiting behavior in the face of punishment threats (Fowles, 1980; Lykken, 1995). Given the centrality of loss aversion to framing effects, the examinations of such effects in relation to psychopathy may begin to elucidate the processes by which individuals with such features perceive

and make decisions pertaining to risk. For example, individuals high on boldness may demonstrate a relative insensitivity to loss and framing effects.

Psychopathy and Risky Decision-Making

As mentioned previously, relatively little research has examined individual differences in risky decision-making. Nevertheless, a small but growing cadre of researchers has begun to examine the relation between psychopathic personality features, risk, and decision-making. Much of the research examines psychopathy and economic decision-making more broadly. Such research often draws on interpersonal paradigms like the prisoner's dilemma (e.g., Axelrod, 1980) and ultimatum games. In the widely used ultimatum game, two players must agree on how to divide a sum of money. The first player (the proposer) receives the money and proposes to the second player (the responder) how to distribute the money between the two participants. If the second player accepts the offer, the deal moves forward, but if he or she rejects the proposal, neither player receives any money. Traditionally, researchers examine psychopathy in the context of the responder, centering on the behavior of the responder and the acceptance of unfair offers. Results of studies are mixed, with some suggesting that psychopathic individuals show lower acceptance of unfair offers (Berg, Lilienfeld, & Waldman, 2013; Koenigs, Kruepke, & Newman, 2010) but others suggesting that they show higher acceptance (Osumi & Ohira, 2010). The behavior of the proposer in the ultimatum game is studied less frequently, with some suggestion that psychopathic individuals tend to offer lower amounts to responders (Koenigs et al., 2010). Although often used in examination of economic decision-making and sometimes interpreted as an indicator of

risk-taking tendencies, the ultimatum game does not bear directly on the issue of risk and likely taps prosocial attitudes and selfishness.

Other economic decision-making paradigms such as the prisoner's dilemma may be better suited to answer questions related to risk-seeking tendencies. In this two player game, participants have two options with outcomes depending on the simultaneous choice made by the other participant. This paradigm is typically framed as two prisoners deciding on whether or not to confess to a crime. Participants have the options to "defect" (e.g., deny participating in the crime) or "cooperate" (e.g., confess to the crime). Dual defection (e.g., both participants deny the crime) results in low pay offs (e.g., longer prison sentences), whereas dual cooperation results in higher payoffs (e.g., more lenient prison sentences). The lowest payoffs occur for the player who cooperates when the other defects and the highest payoff occurs for the player that defects when the other cooperates (e.g., the defector serves no prison time). Cooperation could be considered the risky option in the prisoner's dilemma as participants run the risk that their partner defects. In a sample of 215 undergraduates, Berg et al. (2013) found a significant positive association between defection on the prisoner's dilemma game and both PPI-R Self-Centered Impulsivity and Coldheartedness, indicating that features such as impulsivity, manipulativeness, and callousness may underlie certain economic decision-making processes. Other studies show mixed findings, with some negative associations between cooperation and total psychopathy scores and PPI features such as Fearlessness, Machiavellian Egocentricity, and Stress Immunity (Mokros et al., 2008). Still, the findings of other studies show no significant relations among psychopathy and behavior in the prisoner's dilemma game (Rilling et al., 2007; Widom, 1976). Furthermore, the

prisoner's dilemma is not a pure indicator of risk-seeking tendencies as it (a) incentivizes defection and (b) incorporates elements of distrust that may be more related to aspects such as cynicism or coldheartedness rather than risk-seeking.

Other research on the topic of psychopathy and risky decision-making draws on gambling paradigms such as the Iowa Gambling Task (IGT; Bechara, Damasio, Damasio, & Anderson, 1994). The IGT and related tasks consist of a card game in which participants select from four decks. Each deck pays out at different rates and to varying degrees. Some of the decks have higher frequency of punishment (e.g., monetary loss) of low value, whereas other decks have low rates of punishment of high value. Thus, some decks are disadvantageous over many trials and will tend to result in sizable losses. Mitchell, College, Leonard, and Blair (2002) used this task to examine risky decision-making and psychopathic features. The researchers hypothesized that individuals would randomly sample decks at the start of the task but develop preferences for the advantageous decks. Instead, psychopathic individuals, unlike the comparison individuals, would fail to adapt such a risk-aversive approach. Indeed, results of their study were consistent with these hypotheses and other studies have shown similar findings (e.g. Blair, Colledge, & Mitchell, 2001; Gao, Baker, Raine, Wu, & Bezdjian, 2009) using the IGT. Nevertheless, results of the IGT have not always replicated (Schmitt, Brinkley, & Newman, 1999) and are difficult to evaluate as indicators of risky decision-making because the indices derived from the IGT are complex admixtures that can reflect hyper-sensitivity to reward, undersensitivity to punishment, or both.

Given conceptual differences between existing decision-making tasks and inconsistencies across findings, it may be helpful to conceptualize risky decision-making and measures of risky decision-making as falling into two broad categories, with some

primarily assessing risk perception (e.g., framing effect measures) and others primarily assessing risky behaviors (e.g., IGT). With the conceptualization of psychopathy in a two-factor or configural model, psychopathy subdimensions likely relate differentially to various aspects of risky decision-making. For instance, boldness, which is associated with low levels of anxiety and fear (Benning et al., 2003), may be more related to the risk perception aspect of risky decision-making. In contrast, disinhibition, which is associated with externalizing psychopathology (Benning et al., 2003), is likely more related to the behavioral component of risky decision-making. As a consequence, these two higher-order traits of psychopathy may relate to financial risk behaviors via different mediators.

Present Study

In light of recent media attention and increasing research on psychopathy in everyday areas such as the workplace, understanding the impact of psychopathic personality traits in the community is an important task. Personality traits influence our perceptions of ambiguous situations (Allport, 1937; Funder, 1991) and decision–making under risky conditions is one important way to examine how personality traits may express themselves in daily life. Attitudes and perceptions of risk can have vast implications for outcomes in a variety of domains such as health and finance. In the present study, I seek to understand the relationship between psychopathy and risky decision-making and their impact on the real-world outcomes of financial successes and failures. Using data from an online community sample, I will test several hypotheses and models.

1. I predict that the boldness component of psychopathy will be negatively associated with risk perception as measured by several

risky decision-making instruments, such as Kahneman and Tversky's framing effect problems.

2. I predict that boldness will be positively associated with real-world financial successes and largely unassociated with financial failures, even after controlling statistically for financial literacy.

3. I predict that the disinhibition component of psychopathy will be positively associated with risk behaviors as assessed by laboratory tasks described later.

4. I predict that disinhibition will be negatively associated with real-world financial successes and positively associated with financial failures.

Additionally, I will test several models of mediation and moderation. Specifically, I hypothesize that:

1. As illustrated in Figure 1, the association between disinhibition and financial outcomes will be mediated by a propensity toward risky behavior. More specifically, I predict disinhibition will be negatively associated with financial successes and positively associated with maladaptive financial behaviors and that this relationship is in part due to the tendency for individuals high on disinhibition to engage in higher levels of risky behavior.

2. As illustrated in Figure 2, the association between boldness and adaptive financial outcomes will be largely mediated by an increased willingness to take risks, driven by decreased risk perception.

3. Finally, the relationship between boldness and financial outcomes can be represented by a channeling model (See Figure 3). Under this model, I predict a disordinal interaction, such that boldness will be channeled into different outcomes (e.g., financial successes or failures) dependent on levels of disinhibition. In essence, I predict that with adequate impulse control, individuals with high levels of boldness will display a capacity to take calculated risks necessary for financial success. At low levels of disinhibition, boldness will be channeled into adaptive financial behaviors. In contrast, at high levels of disinhibition, boldness will be channeled into maladaptive financial behaviors.

Method

Participants

Participants were North American members of the online community (N = 500) ranging from 19 to 70 years of age with a mean of 37.9 years (SD = 11.5 years). The sample was primarily female (59.2%) with a racial breakdown as follows: Caucasian (79.8%), African American (8.8%), Asian (8.4%), Hispanic (4.4%), Biracial (2.0%), American Indian (1.8%), Middle Eastern (2.0%), and Other (2.0%). The marital status of the sample was as follows: Married (41.6%), Single/Never Married (40.4%), Divorced (9.0%), Domestic Partnership (6.8%), Separated (1.6%), and Widowed (.8%).

The majority of the sample identified as either employed for wages (62.8%) or self-employed (23.2%). The rest of the sample identified their employment status as the following: homemaker (8.8%), unemployed and looking for work (6.6%), student (5.4%),

unemployed but not looking for work (2.4%), retired (2.2%), and unable to work (1.4%). A large proportion of the sample had pursued higher education, with 48.2% possessing a Bachelor's Degree or higher. Only 14.4% of the sample had not completed high school and the rest of the sample (37.2%) had completed some college or an Associate's Degree. The modal income level of the sample was low with 22.2% making less than $10,000/year. For the rest of the sample, income level broke down as follows: $10,000 - $19,999/year (18.8%), $20,000 - $29,999/year (15.2%), $30,000 - $39,999/year (14.2%), $40,000 - $49,999/year (8.8%), $50,000-$59,999/year (7.2%), $60,000 - $69,999/year (3.6%), $70,000 - $79,999/year (3.8%), $80,000 - $89,999/year (2.4%), $90,000 - $99,999/year (.8%), $100,000 - $149,999/year (2.4%), over $150,000/year (.4%).

Psychopathy Measures

Psychopathic Personality Inventory-Revised (PPI-R; Lilienfeld & Widows, 2005). The PPI-R is a 154 item self-report inventory designed to assess the personality traits, attitudes, and dispositions associated with psychopathy rather than overt antisocial behaviors. Items are answered on a 1-4 Likert-type scale. The measure consists of eight factor-analytically derived lower-order scales (i.e., Social Influence, Fearlessness, Stress Immunity, Rebellious Nonconformity, Blame Externalization, Carefree Nonplanfulness, Machiavellian Egocentricity, and Coldheartedness). These scales often coalesce into two largely independent higher-order factors, Fearless Dominance (PPI-R FD) and Self-Centered Impulsivity (PPI-R SCI) (Benning et al., 2003; but see Neumann, Malterer, & Newman, 2008 for an alternative factor structure). The eighth subscale, Coldheartedness, does not load highly on either PPI higher-order factor and is typically treated as a standalone psychopathy dimension reflecting emotional detachment (e.g., lovelessness,

guiltlessness). PPI-R total scores are positively associated with peer and interviewer ratings of Cleckley psychopathy and measures of antisocial personality disorder. The PPI-R demonstrates good construct validity with total scores showing negative correlations with self-reported fear, anxiety, and empathy, and positive associations with indices of antisocial, narcissistic, and histrionic traits (Lilienfeld & Widows, 2005). In the present sample, Cronbach's alphas for the PPI-R subscales were high (*Social Influence*, $\alpha = .92$; *Fearlessness*, $\alpha = .91$; *Stress Immunity*, $\alpha = .91$; *Rebellious Nonconformity*, $\alpha = .88$; *Blame Externalization*, $\alpha = .91$; *Carefree Nonplanfulness*, $\alpha = .87$; *Machiavellian Egocentricity*, $\alpha = .90$; and *Coldheartedness*, $\alpha = .85$).

The PPI-R also includes three validity scales designed to detect biased or inconsistent responding. The Deviant Responding Scale consists of 10 items aimed at detecting malingering, careless responding, or difficulties in reading comprehension. The Variable Response Inconsistency Scale consists of the sum of the absolute differences between 40 item pairs, measuring a respondent's proclivity to respond inconsistently to items with similar content. Finally, the PPI-R Virtuous Responding scale consists of items designed to detect socially desirable responding (e.g., "I have never wished harm on someone else") and was used as a covariate in subsidiary analyses. In this sample, 19 participants with scores of 50 and above on the Variable Response Inconsistency Scale or scores of 25 and above on the Deviant Responding Scale were excluded from analyses. These cutoffs were determined by visually inspecting the distributions of the variables using histograms and are broadly consistent with recommendations put forth in the PPI-R manual (Lilienfeld & Widows, 2005).

Triarchic Psychopathy Measure (TriPM; Patrick, 2010). The TriPM is a 58 item self-report measure designed to assess the triarchic conceptualization of psychopathy described earlier (Patrick et al., 2009). Items are answered on a 1-4 Likert type scale. The measure consists of three scales assessing each of the components of the triarchic model of psychopathy (i.e., Boldness, Disinibition, Meanness). The Boldness scale (19 items) is designed to roughly assess the PPI-R construct of Fearless Dominance (Patrick, 2010). The Disinhibition (20 items) and Meanness (19 items) scales are derived from the Externalizing Spectrum Inventory (ESI; Krueger, Markon, Patrick, Benning, & Kramer, 2007) and roughly map onto the PPI-R constructs of Self-Centered Impulsivity and Coldheartedness, respectively (Patrick, 2010). Despite being a relatively new inventory, the TriPM demonstrates encouraging construct validity. The Boldness scale is positively associated with the interpersonal facet (e.g. charm, grandiosity, manipulativeness) of the PCL-R and the Fearless Dominance component of the PPI-R (Patrick, 2010; Sellbom & Phillips, 2013; Stanley, Wygant, & Sellbom, 2013). The Disinhibition scale is positively associated with the lifestyle facet (e.g., impulsivity, irresponsibility) of the PCL-R (Patrick, 2010), and with PPI-R Self Centered Impulsivity (Sellbom & Phillips, 2012; Stanley, Wygant, & Sellbom, 2012). Finally, scores on the Meanness scale are positively associated with callous aggression, the affective facet (e.g., shallow affect, lack of remorse) of the PCL-R (Patrick, 2010), and PPI-R Coldheartedness (Sellbom & Phillips, 2012). In this sample, Cronbach's alphas for the TriPM subscales were high (*Boldness*, $\alpha = .84$; *Disinhibition*, $\alpha = .87$; *Meanness*, $\alpha = .86$).

Levenson Self-Report Psychopathy Scale (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995). The LSRP is a 26 item self-report measure modeled largely after the PCL-R. The measure consists of two scales, one assessing primary psychopathy and the other secondary psychopathy (see Karpman, 1941, for a detailed description of the primary-secondary psychopathy distinction). The Primary Scale of the LSRP is designed to assess "a selfish, uncaring, and manipulative posture towards others" (p.152). Conversely, the Secondary Scale aims to measure "impulsivity and a self-defeating lifestyle" (p. 152) and a disposition toward antisocial and criminal behavior. The LSRP scales show promising construct validity. For example, the Primary Scale correlates negatively with five factor model (FFM) agreeableness, whereas the Secondary Scale correlates negatively with FFM agreeableness and conscientiousness, but positively with neuroticism (Lynam, Whiteside, & Jones, 1999). Nonetheless, the Levenson Primary Scale has been criticized (e.g., Lilienfeld & Fowler, 2006) for appearing to operate largely as a measure of secondary psychopathy; for example, in several studies this scale has correlated just as highly, if not more highly, with measures of antisocial behavior than did the Levenson Secondary Scale (e.g., McHoskey, Worzel, & Szyarto, 1998). More recently, Poythress et al. (2010) showed the Levenson Primary Scale demonstrates poor discriminant validity as it correlates significantly more highly with Factor 2 of the PCL-R than Factor 1 of the PCL-R, which the Levenson Primary Scale is intended to map onto. In this sample, Cronbach's alphas for the two LSRP subscales were high (*Levenson Primary Scale*, $\alpha = .92$; *Levenson Secondary Scale*, $\alpha = .81$).

Risk Perception Measures

Framing Effects Measure. A measure of framing effects was adapted from earlier investigations (e.g., Fagley & Miller, 1987; Kahneman & Tversky, 1981; Mahoney, Buboltz, Levin, Doverspike, & Syvantek, 2010). The measure presents participants with 16 problems asking them to choose between a riskless, certain outcome and a risky option of equal expected value. Eight of the problems are presented with positive frames (e.g., gains) and eight of the problems are presented with negative frames (e.g., losses). The problems deal with a variety of domains such as life-threatening disease and financial decisions. The measure yields a total composite score indicated by the number of times the participant chooses the risky option in the negative frame condition, the positive frame condition, and across both conditions. In this sample, Cronbach's alphas for the framing scales were modest (*Positive Frame*, $\alpha = .61$; *Negative Frame*, $\alpha = .67$, *Total Frame*, $\alpha = .76$). In addition, the measure yields a framing sensitivity index. To calculate this index, a difference score was calculated for each positive and negative frame pair. These differences were squared and the square root was taken to produce a non-directional indicator of the magnitude of difference between the positive and negative frames. The resulting subscales were then added together into a total Framing Sensitivity Index score such that higher scores indicate greater sensitivity to framing and lower scores less sensitivity to framing. Similar measures and methods have been successfully used to assess individual differences in framing effects. For example, Mahoney et al. (2010) found that risk averse individuals show larger framing effects than risk-seeking individuals using a similar measure.

Choice Dilemma Questionnaire (CDQ; Kogan & Wallach, 1964). The CDQ was

designed to assess risk preferences through the use of hypothetical scenarios. The 12 item self-report measure uses an open-response format. These scenarios ask participants to indicate the probability of success that would be sufficient for them to accept a risky alternative. An example scenario is as follows: Mr. B, who has developed a severe heart ailment, has the choice of changing many of his strongest life habits or undergoing a delicate medical operation which will either succeed or prove fatal. Participants are then instructed, acting as advisors to the individual in the scenario, to indicate the probability of success that would be sufficient to undergo the surgery. In an adaptation specifically added for this study, participants were asked to indicate the probability of success necessary to choose the risky option, acting as if *they* were the individuals in the scenario. The measure was originally designed to assess the group polarization effect, but is often employed to assess risk-taking propensities (e.g., Erker, 2000; Fagley & Miller, 1990). A total score is aggregated across the 12 items with higher scores indicating greater risk aversion. The CDQ is moderately correlated with other measures of risk-taking such as the Risk Avoidance Inventory (RAS) and the Stimulating Instrumental Risk Inventory (SIRI) (Mahoney et al., 2011). In this sample, Cronbach's alphas for the CDQ scales were high (*CDQ Self*, $\alpha = .88$; *CDQ Advise*, $\alpha = .89$).

Risk Behavior Measures

Angling Risk Task (ART; Pleskac, 2008). The ART is a computer-administered behavioral task that was designed to assess risk-taking through choices made in a fishing scenario. This task simulates a computerized fishing tournament in which the pond is filled with one blue fish and (n – 1) red fish. The participants are instructed to catch as many fish as they can by casting a fishing rod as many times as desired within a round. If

the participant catches a red fish, he or she earns 5 cents and is allowed to cast again. If the participant catches a blue fish, the round immediately terminates and all money earned on that round is lost. The participant can discontinue fishing at any time and collect the money earned on the round. For each round, the program randomly samples to determine which cast will catch the blue fish.

In the present study, participants played 21 rounds of the tournament in each of two different "weather" conditions. In one condition, the weather is "clear" so that participants can see that number of fish in the pond and are ultimately able to estimate the risk of catching a blue fish on each round. In the second condition, the weather is "cloudy" so that participants cannot see the number of fish in the pond and the risk of catching a blue fish in each round is ambiguous. Before beginning the task, participants engaged in a practice trial of two rounds for each of the different weather conditions.

Conceptually, the ART is nearly identical to the Balloon Analogue Risk Task (BART; Lejuez et al., 2002) in which participants click a button to inflate a cartoon balloon. Similar to catching a blue fish in the ART, if the balloon is over-pumped, it will burst and the trial is lost. The average number of clicks across trials represents a measure of propensity to accept risks. The BART shows good construct validity, correlating moderately with related indices such as sensation-seeking, impulsivity, substance abuse, and gambling (Lejuez et al., 2002; Lejuez et al., 2003). On the ART, risk-taking is measured by the average number of casts (i.e., clicks) taken on rounds in which the participant chose to stop fishing and the number of times the trial suddenly ends due to catching a blue fish, analogous to the balloon bursting in the BART. Though less widely used than the BART, the ART also shows promising construct validity correlating with

risky health behaviors such as drug use (Pleskac, 2008). Although conceptually similar to the BART, the ART also allows for the examination of behaviors in two types of risky situations, ones in which the degree of risk is clear and ones in which it is ambiguous. For example, in the clear condition, participants are able to clearly see the ratio of blue to red fish, and hence are able to clearly estimate the probability of a negative outcome in this risky situation. In contrast, in the cloudy condition of the ART, participants cannot estimate the probability of a negative outcome, and thus the degree of risk is inherently ambiguous. These conditions also reflect the distinction between strong and weak situational forces which may impact the degree to which individual differences such as personality influence behaviors (e.g., Mischel, 1968; Cooper & Withey, 2009).

Cambridge Risk Task (CRT; Rogers et al., 1999). The CRT is a computer administered behavioral paradigm designed to assess risk-taking and decision-making. The CRT shows good construct validity, for example, drug abusers make riskier choices on the CRT than non-users (Fishbein et al., 2005) and it is moderately correlated with other behavioral measures of risk such as the BART (Palmer et al., 2013).

Each trial of the CRT requires the participant to guess the location of a winning token, hidden randomly in one of six boxes that are colored either red or blue. The subject is instructed to choose whether he or she believes the token is hidden in a red or blue box and then to decide how many points (from an initial 100 points) they wish to gamble on being correct. The likelihood of each choice being correct is indicated on each trial by the ratio of red to blue boxes displayed and hence results in outcomes of a more likely (9:1, 8:2, 7:3) or almost equally likely (6:4, 5:5) probability of winning vs. losing. Sequences of seven trials were run in three blocks under two conditions: an ascending condition in

which the points that can be bet start low and become progressively larger (e.g. 5%, 25%, 50% 75% up to 95%), or a descending condition in which the available points to bet start high and become progressively smaller. This feature is intended to account for impulsivity, as participants must wait until the bet ascends or descends to the desired value, rather than being able to respond immediately. The ratio of colored boxes and the balance between the associated reward varies independently from trial to trial according to a fixed pseudorandom sequence. The sequence ensures that each balance of reward and each ratio of colored boxes co-occurs an equal number of times. Participants began the task with 100 points and are instructed to maximize their profits. Before beginning the task, they completed a practice round of five trials each in the ascending and descending conditions.

The results of the CRT produce several indices. Risk Adjustment reflects the degree to which subjects adjust the proportion of their bet in response to changing odds of winning (i.e., ratio of red to blue boxes), with lower scores reflecting disadvantageous adjustment. Risk-Taking is measured by calculating the mean proportion of total points a participant bets on trials in which he/she chose the most likely outcome. Finally, Delay Aversion is the difference in risk-taking across the ascending and descending trial conditions. For the purposes of this study, the primary outcomes of interest were Risk-Taking and Risk Adjustment.

The results of this task yielded several variables with skewed distributions and implausible values. Because this task was administered online (see Design and Procedure), it was impossible to control the environment in which the task was completed. Thus, it is likely that participants varied greatly in their level of attention and

engagement with the task. The following strategies were employed in the data cleaning process in order to eliminate individuals who were likely disengaged throughout. The bet latency variable (i.e., average time participant takes to set bet across trials) was calculated for each condition (i.e., ascending and descending). The task timed out on each trial after 20 seconds. Examination of these variables showed a cluster of participants whose average bet latencies were 20 seconds for each of the conditions. This finding strongly suggests that these participants were not playing the game, but rather were allowing it to time-out on each trial. In addition, participants with reaction times less than one second on the CRT were likely attempting to complete the task as quickly as possible. Finally, the decision-making variable which indicates how often a participant chose the color most likely to be hiding the winning token was used to eliminate participants who chose the most likely outcome less than 60% of the time. This resulted in a total of 76 participants eliminated from analyses examining the laboratory tasks.

Financial Measures

Financial Behaviors Questionnaire (FBQ). The FBQ was adapted for use in the present study from research by Garman, Leech, and Grable (1996). The 37 item questionnaire asks participants to rate the frequency with which they have engaged in a variety of maladaptive behaviors (e.g., refinanced your mortgage, received a “pay day” loan, bought goods on layaway) on a Likert-type scale. The scale is designed to assess maladaptive or risky financial behaviors and yields a total score such that higher scores reflect higher levels of maladaptive financial behaviors. In addition, several items were included to assess participants’ financial success and adaptive financial behaviors. These 10 items used a variety of response formats to assess annual salary, success in the

workplace (e.g., raises and promotions), and financial security (e.g., savings, emergency funds). Participants were also asked to indicate the amount of money they had won and lost in activities such as gambling, playing lottery tickets, and investing in an individual stock or company.

Because this measure incorporated a diverse selection of items assessing a variety of financial behaviors both adaptive and maladaptive, I hypothesized that this measure would be marked by multiple underlying dimensions. A principal components analysis using Promax (oblique) rotation was used as an exploratory data reduction technique to aid in the interpretation of FBM results. Examination of the scree plot appeared to show an elbow at 4 dimensions. These four dimensions yielded by the analysis explained a total of 44.9% of the variance for the entire set of items. Further examination of the dimensions and their item loadings revealed a solution with numerous cross loadings that was difficult to interpret. Follow-up analyses were conducted forcing a three dimension solution. This solution explained 40.7% of the variance in the entire set of items. It yielded three interpretable dimensions with two assessing engagement in maladaptive financial behavior and one assessing engagement in adaptive behaviors. See Table 1 for the loadings of each item. Loadings of .4 or above were considered high. Only six of the items exhibited substantial cross-loadings (above .3).[1]

[1] An exploratory factor analysis was also conducted to identify potential underlying factors using principal axis factoring with Promax (oblique) rotation. The results of these analyses similarly revealed a four factor structure that was made more interpretable after forcing a three factor solution. In addition, the pattern of factor loadings were similar to those produced by the principal component analysis.

The first and largest dimension was named “Everyday Financial Irresponsibility” and explained 25.1% of the variance in the items. Items on this dimension reflect a general tendency to engage in poor financial behaviors, particularly those related to loans, credit, and debt. Representative behaviors include paying the minimum on a credit card, being charged late fees on credit card payments, carrying an outstanding balance on a credit card, and carrying liabilities in excess of assets.

The second dimension was named “Serious Financial Consequences” and explained 9.57% of the variance in the items. This dimension comprised items that assess more seriously maladaptive financial behaviors, including illegal or unethical activity. Representative outcomes on this dimension include being referred for credit/budget counseling by an employer, engaging in illegal/criminal behavior (e.g., employee theft, embezzlement, check fraud), having a lien placed on one’s property, and being evicted or having one’s home foreclosed on.

The third and smallest dimension was named “Financial Planning and Work Success.” This factor comprised items that assess adaptive financial behaviors including success in the workplace and an ability to save money and plan for the future. Representative outcomes on this dimension include being promoted and receiving raises at work, frequent contribution to a savings fund, and length of time one is able to survive without employment (e.g., rainy day funds).

In order to capitalize on the information available, composite scores were created using a regression based approach. This approach used a least squares regression method to predict the location of each subject on each of the factors. The resulting factor scores were standardized to a mean of zero and a standard deviation of one.

Change in Socioeconomic Status (SES). Socioeconomic status was coded for each participant to use as a covariate in subsidiary analyses as well as an indicator of financial success. In order to use SES as an indicator of financial success, the SES of each participant's family of origin as well as their current SES was estimated. This examination of current and past SES allowed for the estimation of the degree to which participants were able to transcend the social class that he or she was born into through educational and occupational advances. This change in socioeconomic status was examined as a potential indicator of financial success.

To estimate change in SES, the Hollingshead Four-Factor Index of Socioeconomic Status (Hollingshead, 1975), one of the most widely used SES measures, was used to code the current SES of each participant using four domains: marital status, employment status, education, and occupational reputation. The coding assigns numeric values to level of education based on a 7 point scale (1 = less than 7^{th} grade; 7 = graduate/professional training). In addition, a numerical value is given to the participant's occupation based on a nine step scale (9 = higher executive, proprietors of large businesses, major professionals; 8 = administrators, lesser professionals, proprietors of medium sized businesses, 7 = smaller business owners, farm owners, managers, minor professionals; 6 = technicians, semi-professionals, small business owners; 5 = clerical and sales workers, small farm and business owners; 4 = skilled manual workers, craftsmen; 3 = machine operators, semi-skilled workers; 2 = unskilled workers; 1 = farm laborers, unskilled service workers). The educational and occupational ratings are combined to given an overall index of SES. If the participant had a spouse, his/her spouse's educational and occupational ratings were used as well.

In order to calculate change in SES, participants were asked to provide the educational and occupational status of their primary caretakers as a child. Using the coding scheme described previously, the SES of the participant's family of origin was also calculated. Regression analyses were then used to estimate the linear relationship between family of origin SES and participant SES. For each participant, the standardized residual from this regression line was calculated. This standardized residual was used as an estimate of the participant's change in SES after accounting for the overall tendency for participants to improve their economic status.

Intellectual Ability Measures

Financial Literacy Questionnaire. (FLQ; van Rooij, Lusardi, & Alessie, 2007). The FLQ was adapted for use from van Rooij et al.'s study on financial literacy and stock market participation. The 13 item self-report questionnaire asks participants to respond to a series of questions to assess basic (e.g., interest, inflation, time value of money) and advanced (e.g., function of stock market, risk of stocks vs. bonds) financial literacy. The questions use multiple choice and true-false response formats to yield a total score with higher scores reflecting greater financial literacy. The measure correlates positively with education level and age, perceived knowledge of economics, and participation in the stock market (van Rooij et al., 2007). Total scores on the measure were used as a covariate in supplemental analyses. In this sample, the Cronbach's alpha for the FLQ was modest ($\alpha = .71$).

Shipley-Hartford Institute of Living Scale-2 (Shipley-2; Shipley, Gruber, Matrin, & Klein, 2009*).* The Shipley-2 is a 60-item short-form test assessing intellectual ability. The measure consist of two parts: Part One tests knowledge of

vocabulary by asking participants to choose the synonym of a word presented. Part Two consists of abstract reasoning questions in which the participant is asked to complete the missing portion of a provided series of words, letters, or numbers. The participant is allotted a maximum of 20 minutes to complete the test. The Shipley-2 shows moderate to high correlations with the Wechsler Adult Intelligence Scale (Zachary, Crumpton, & Spiegel, 1985). In this study, the Shipley-2 was used for follow-up analyses to statistically control for intellectual abilities.

Design and Procedure

This study employed a within-subjects design. Traditionally, studies examining framing effects employ between-subjects designs, with some participants receiving positive frames and others receiving negative frames. Other studies have examined framing effects using a within-subjects design, however, effect sizes tend to be lower than those found in between-subjects designs (Kühberger, 1998). Because a between-subjects design would result in multiple conditions and with limited resources to incentivize subjects, I adopted a within-subjects design. Given that statistical power is a function of effect and sample size (Cohen, 1988), a within-subjects design comprising a sufficiently large sample size was expected to yield statistical power sufficiently large enough to conduct mediation and moderation analyses.

Data were collected from participants using Amazon's Mechanical Turk (M-Turk), a widely used system allowing secure, rapid, and inexpensive data collection over the internet. With a user base of approximately 100,000 individuals, M-Turk hosts surveys posted by researchers to be voluntarily completed by workers for monetary

compensation. M-Turk samples are more representative of the U.S. population than are undergraduate samples and meet acceptable psychometric standards (Buhrmester, Kwang, & Gosling, 2011; Simons & Chabris, 2012). Participants were recruited through M-Turk and after agreeing to participate in the study, they were directed to complete the battery of personality and behavioral measures. The battery took approximately 90 minutes to complete and participants were compensated $5.00 for their participation. Subjects were awarded up to $1.00 as a bonus based on their performance on the behavioral tasks described earlier.

Each participant completed the behavioral tasks before moving onto the survey portion of the study. The order of the behavioral tasks was counterbalanced and participants were randomly assigned to one of four orders. Due to IRB restrictions, it was not possible to require participants to complete the study in its entirety. As a result, participants were able to skip questions or tasks that they did not wish to complete. A number of participants failed to complete the behavioral tasks, resulting in a smaller sample size for these analyses (N = 351). Follow-up analyses revealed that the participants who did not complete the behavioral tasks had significantly higher global psychopathy and disinhibition scores (Cohen's d = .51 - .89, depending on the psychopathy indicator). Additionally, these participants had lost significantly more money engaged in risky financial behaviors (Cohen's d = .47) and had significantly higher scores on FBM Serious Financial Consequences scales (Cohen's d = .57).

Results

Table 2 presents descriptive statistics for the primary measures and subscales in the study. Sample mean scores on the PPI-R did not differ markedly from established community norms (Lilienfeld & Widows, 2005).

Zero-Order Correlations among Psychopathy Measures

Table 3 presents the inter-correlations among the psychopathy measures. PPI-R Fearless Dominance and PPI-R Self-Centered Impulsivity were significantly associated. In addition, PPI-R Fearless Dominance was significantly positively correlated with LSRP 1 and was not significantly associated with LSRP 2. As expected, PPI-R Fearless Dominance was also highly and significantly positively associated with TriPM Boldness. In contrast, PPI-R Fearless Dominance was not significantly associated with TriPM Disinhibition or TriPM Meanness. Also consistent with previous literature (Selbom & Phillips, 2013), PPI-R Self-Centered Impulsivity was highly and significantly positively correlated with TriPM Disinhibition, TriPM Meanness, LSRP total scores, LSRP 1, and LSRP 2. As a whole, these inter-correlations are consistent with previous literature using these psychopathy measures.

Table 4 presents the inter-correlations among the subscales of the primary psychopathy predictor, the PPI-R. These inter-correlations are consistent with those reported in the development of the PPI-R (Lilienfeld & Widows, 2005).

Zero-Order Correlations among Risk Indicators

Table 5 presents the correlations among the measures of risk perception and risk behaviors (e.g., laboratory tasks). As expected, the majority of the risk perception indicators were significantly inter-correlated. The CDQ Advise scores and CDQ Self

scores were highly positively correlated. In addition, the CDQ scales were significantly negatively correlated with the Framing Effects Measure. Thus, as individuals' scores on the CDQ increased (i.e., indicating a higher probability of success required to enter a risky situation), they were less risk-seeking on the Framing Effects Measure (i.e., chose the guaranteed outcome rather than the risky outcome), and less sensitive to framing effects. In addition, the results suggested that individuals who were more risk-seeking in the Frame Negative condition were also increasingly sensitive to framing effects.

The risk perception measures were largely uncorrelated with the measures of risk behaviors (i.e., laboratory tasks) with a few exceptions. The Framing Sensitivity Index was significantly negatively associated with Average Fish and Sudden Ends in the clear condition of the ART. This result suggests that the more sensitive individuals were to framing effects, the less risk-seeking they were on this particular behavioral task. In addition, CRT Risk-Taking was significantly negatively correlated with CDQ Advise and CDQ Self scores, whereas CRT Risk-Taking was significantly positively associated with risk-taking on the Frame Positive and Frame Negative scales, but not the Framing Sensitivity Index. CRT Risk Adjustment was positively associated with the CDQ Advise scale suggesting that as individuals were more risk averse they also adjusted their risk-taking behaviors as the probability of success changed throughout the task. CRT Delay Aversion was significantly associated with the CDQ scales and the Framing Effects Measure scales, reflecting a tendency towards increased impulsivity as participant's levels of risk aversion decreased.

A number of the laboratory tasks measuring risk behaviors were also inter-correlated. All of the outcomes on the ART in both the clear and cloudy conditions were

highly positively correlated. In addition, the outcomes on the ART were significantly positively correlated with CRT Risk-Taking, although the effects sizes were small. In contrast, CRT Risk Adjustment was largely unassociated with the other laboratory measures with one exception. Risk Adjustment was significantly negatively associated with CRT Risk-Taking, suggesting that individuals who were more risk-taking displayed decreased adjustment in betting behavior as the probability of success changed throughout the task. Finally, CRT Delay Aversion was significantly positively associated with all the risk behavior indicators, indicating that individuals with greater difficulty delaying responding on the task were also more risk-taking.

Zero-Order Correlations among Financial Indicators

Table 6 presents the inter-correlations of measures related to financial behaviors and financial knowledge. FBM Everyday Irresponsibility was significantly positively correlated with FBM Serious Financial Consequences and FBM Money Lost (e.g., gambling, lottery tickets, stock market). Both of the maladaptive FBM scales were negatively correlated with the FBM Financial Planning/Work Success scale, although the effect sizes were small. Not surprisingly, FBM Financial Planning/Work Success was significantly positively correlated with subject SES, the SES Residual, annual income, and financial literacy as measured by the FLQ. Interestingly, FBM Financial Planning/Work Success was also significantly positively correlated with both FBM Money Won and FBM Money Lost. This correlation may be driven by the fact that individuals high on financial planning/work success may (a) have more disposable income to use in activities such as gambling and (b) be more inclined to invest in the stock market. This speculation is consistent with the fact the both money won and money

lost were significantly positively correlated with annual income and the FLQ. Finally, Subject SES and the SES residual were very highly correlated and both of these variables were significantly positively associated with annual income and the FLQ.

Zero-Order Correlations between Psychopathy and Risk Indicators

Psychopathy and risk perception. The zero-order correlations among psychopathy measures and risk measures were examined. As illustrated in Table 7, results were largely consistent with hypotheses. I hypothesized that features of psychopathy such as boldness would be significantly associated with measures of risk perception. Indeed, TriPM Boldness and PPI-R FD were significantly negatively associated with the CDQ scales, although the effect sizes were small. Thus, as scores on boldness increased, participants were less risk averse (e.g., willing to enter a risky scenario given a lower probability of success). In addition, although the effect sizes were small, indicators of boldness were significantly positively associated with scores on the Framing Effects Measure, such that as scores on boldness increased participants were more risk-seeking.

The Lee and Preacher (2013) macro was used to calculate the significance of the difference between dependent correlation coefficients based on data and theory driven hypotheses. These analyses revealed that the associations of CDQ Self with PPI-R Total, PPI-R FD, and TriPM Boldness were significantly greater in magnitude than those between CDQ Advise ($z = 2.57$; $z = 3.31$; $z = 3.27$, $p < .05$, respectively) and the aforementioned psychopathy scales. These results suggest that individuals higher on the construct of boldness are more risk-seeking when making decisions for themselves, rather than advising others.

The associations among some indicators of disinhibition and the risk perception measures were unexpected. Given their largely behavioral nature, I did not predict significant associations between indicators of disinhibition and the risk perception indices. Nevertheless, select indicators of disinhibition exhibited significant relations with some of the risk perception measures, particularly the CDQ, although the effect sizes were small. Most of the indicators of disinhibition (i.e., PPI-R SCI, TriPM Disinhibition, LSRP 1) were significantly negatively associated with both scales of the CDQ, with the exception of TriPM Disinhibition which was only significantly associated with the CDQ Self scale. These results suggest that increased impulsivity/behavioral features of psychopathy are associated with less risk aversion in certain hypothetical scenarios. As expected, indicators of disinhibition were largely unassociated with scales on the Framing Effects Measure, with the exception of PPI-R SCI which was significantly positively associated with risk-seeking in the Frame Positive condition. Consistent with hypotheses, LSRP 2 was not significantly associated with any of the risk perception measures with the exception of the Framing Sensitivity Index with which it was significantly positively correlated. For instances in which indices of disinhibition were significantly associated with risk perception measures, indicators of boldness were generally more strongly correlated with these measures, although this difference was only statistically significant for the comparison between PPI-R FD/ TriPM Boldness and TriPM Disinhibition with the CDQ Self variable ($z = 2.78$, $z = 1.81$, $p < .05$).

A dependent samples t-test was used to examine the overall difference in risk-seeking in participants across the positive and negative frame conditions in the Framing Effects Measure. The results indicated that the framing manipulation had a significant

impact on risky decision-making (t = -18.2; p <.01, *d* = -.84). Overall, participants were less risk-seeking in the positive frame condition (e.g., potential for gains) and more risk-seeking the in negative frame condition (e.g., potential for losses). These results are consistent with previous research on framing effects and risky decision-making (e.g., Kahneman & Tversky, 1979). Somewhat unexpectedly, the Framing Sensitivity Index was largely uncorrelated with features of psychopathy with the exception of LSRP Total and LSRP 2 scores. Results indicated that as scores on LSRP Total and LSRP 2 increased so did sensitivity to framing effects. PPI-R FD and TriPM Boldness were significantly associated with both the Frame Positive and Frame Negative scales and the magnitude of these correlations did not differ statistically. This result suggests that the propensity of individuals high on boldness to engage in risk-seeking did not change significantly based on framing.

Psychopathy and risk behaviors. Table 8 displays the zero-order correlations among the risk behavior (i.e., laboratory tasks) and psychopathy measures. Overall, the results of the laboratory tasks were largely inconsistent with hypotheses. Somewhat surprisingly, these tasks were not highly correlated with psychopathy measures with a few exceptions. LSRP 1 was negatively associated with CRT Risk Adjustment, suggesting that as participant scores increase on these features of psychopathy they become less likely to adjust their risk-taking behaviors with changing probability of success. LSRP 1 was also positively associated with CRT Delay Aversion suggesting that those high in these interpersonal and affective psychopathy features show increased difficultly with response inhibition (i.e., show greater impulsivity). In addition, LSRP 2 was significantly negatively associated with Sudden Ends and Average Fish caught in the

cloudy condition of the ART, although the effect sizes were small. These results are somewhat surprising in that they suggest that the impulsivity/behavioral features of psychopathy were associated with less frequent catching of the blue fish (analogous to a balloon burst in the BART) but also fewer fish caught (analogous to number of pumps on the BART).[2]

Psychopathy and Financial Outcomes

Table 9 displays the zero-order correlations among the psychopathy measures and financial outcomes. As predicted, measures of the boldness component of psychopathy (i.e., TriPM Boldness and PPI-R FD) were significantly positively associated with adaptive financial outcomes such as the FBM Financial Planning/Work Success scale, FBM Money Won (e.g., investing in the stock market, gambling, lottery tickets), and annual income, with effect sizes in the small to medium range. Furthermore, indicators of boldness were largely unassociated with indicators of maladaptive financial behaviors, with effect sizes near zero, with one exception. Increases in boldness were associated with significantly higher amounts of money lost on risky activities (e.g., investing in the stock market, gambling, and lottery tickets). Although this effect size was small, the result may suggest that individuals higher on boldness engage in riskier financial decisions overall, both adaptive and maladaptive. Interestingly, PPI-R FD and TriPM Boldness were more highly correlated with FBM Money Won than FBM Money Lost (z

[2] As mentioned previously, the order of the laboratory tasks was counterbalanced using four different orders. A Box's M test was used to examine differences in covariance matrices across the different orders. Results of the Box's M test were nonsignificant suggesting that the covariance matrices can be assumed equivalent across the four different groups.

= 2.58, p <.01; z = 2.31, p <.05). These results suggest that the construct of boldness is more predictive of winning money when taking financial risks than losing money.

Indicators of disinhibition were significantly associated with FBM Money Lost, but not with FBM Money Won. Indeed, this feature of psychopathy appears purely maladaptive as evidenced by significant positive associations with indicators of maladaptive financial behaviors and negative associations with adaptive financial behaviors, with effect sizes in the small to medium range. Specifically, PPI-R SCI, TriPM Disinhibition, and the LSRP scales were all significantly positively associated with both FBM Everyday Irresponsibility and FBM Serious Financial Consequences. These scales were also significantly negatively associated with FBM Financial Planning/Work Success and financial literacy, with the exception of LSRP 1. LSRP 2 was also negatively associated with annual income, whereas LSRP 1 displayed an unexpected significant positive association with annual income. The associations of PPI-R Total, PPI-R SCI, TriPM Disinhibition, TriPM Meanness, LSRP Total, LSRP 1, and LSRP 2 with FBM Serious Financial Consequences were significantly higher than those with FBM Everyday Irresponsibility (z = 2.82; z = 2.88; z = 2.76; z = 4.74; z = 3.27; z = 3.02; z = 2.26, p <.05). This result suggests that these features of psychopathy are more predictive of serious maladaptive financial behaviors than mild irresponsibility.

Contrary to hypotheses, none of the variables were significantly associated with the SES Residual, although PPI-R FD exhibited a small positive association with subject SES.

Subsidiary analyses. Because financial literacy is a predictor of financial decision-making and financial outcomes (Fernandes, Lynch, & Netemeyer, 2014), it was

used as a covariate in subsequent analyses. All of the psychopathy indicators, with the exception of PPI-R FD and TriPM Boldness, were significantly negatively associated with financial literacy (*r*s = -.18 to -.28). SES is also a substantial predictor of financial behavior (Xiao, Tang, Serido, & Shim, 2011) and was also used as a covariate in subsidiary analyses. The final covariates examined in subsidiary analyses were two indicators of intellectual ability, the Shipley-2 scales of verbal and abstract reasoning. Partial correlations among the psychopathy indicators and the financial outcome measures were examined controlling for each of these covariates individually. The results of these analyses are summarized in Tables 10, 11, 12, and 13, respectively.

In general, the associations between global psychopathy scores, indicators of disinhibition, and maladaptive outcomes (e.g., FBM Everyday Irresponsibility, FBM Serious Financial Consequences, FBM Money Lost) increased in magnitude after controlling separately for financial literacy, SES, and abstract reasoning. For some indicators of disinhibition, one adaptive outcome emerged after controlling for these covariates, namely, FBM Money Won; however, these results varied slightly depending on the psychopathy measure examined. A somewhat different pattern emerged when controlling for verbal reasoning abilities. In this case, indicators of disinhibition became more highly correlated with FBM Everyday Irresponsibility and less highly correlated with FBM Serious Financial Consequences.

In contrast to the other psychopathy indicators, the associations between boldness and adaptive financial outcomes (e.g., FBM Financial Planning/Work Successes) were largely unchanged after controlling for each of the aforementioned covariates

individually. In addition, the sole maladaptive correlate of boldness (e.g., FBM Money Lost) typically became nonsignificant after controlling for these covariates.

Exploratory analyses. Exploratory analyses were conducted to examine the relations among the PPI-R subscales, risk indicators, and financial outcomes. As illustrated in Table 14, the measures of risk perception were correlated with a number of the PPI-R subscales. All of the PPI-R subscales were significantly negatively associated with the CDQ scales with the exception of Carefree Nonplanfulness and Blame Externalization; Blame Externalization was not significantly associated with any of the risk perception measures, whereas, Carefree Nonplanfulness was significantly associated only with the Frame Positive and Framing Sensitivity Index. This findings suggests that as Carefree Nonplanfulness levels increased, individuals were more risk-seeking and more sensitive to framing effects, although the effect sizes were small. The Frame Positive scale was also significantly positively associated with Machiavellian Egocentricity, Fearlessness, and Rebellious Nonconformity. Fearlessness was the only subscale significantly associated with the Frame Negative scale. Finally, the Frame Total scales was significantly associated with Social Influence, Fearlessness, and Rebellious Nonconformity.

Table 15 presents the associations among the PPI-R subscales and the risk behavior laboratory tasks. The associations among the PPI-R subscales and the risk behavior measures were largely non-significant with the exception of the Stress Immunity scale, which was significantly positively associated with ART Sudden Ends in the cloudy condition.

The correlations of the PPI-R subscales with the financial outcome measures are presented in Table 16. Coldheartedness was largely uncorrelated with the financial outcome measures with the exception of income, with which it was significantly positively associated. In addition, all of the PPI-R subscales loading on the higher order factor of Fearless Dominance were significantly positively associated with income, as was Machiavellian Egocentricity. In contrast, very few of the PPI-R subscales were significantly associated with the SES Residual with the exception of Social Influence and Rebellious Nonconformity which were both significantly positively associated with the scale. These results suggest that individuals who are engaging, self-confident, and socially skilled may be more likely to transcend the SES of their family of origin. Somewhat surprisingly, the significant correlation between the SES Residual and Rebellious Nonconformity also suggests that individuals with unconventional attitudes, boredom susceptibility, and a lack of subscription to social norms may also be more likely to increase their social status.

Most of the subscales loading on the higher order factor of PPI-R SCI were significantly positively associated with the maladaptive scales on the FBM. In addition, the Carefree Nonplanfulness and Blame Externalization subscales appeared to drive the significant negative association between the higher order factor of PPI-R SCI and adaptive outcomes on the FBM. Not surprisingly, each of the subscales loading on the higher order factor of PPI-R FD were positively associated with adaptive FBM scales and annual income. The PPI-R subscales of Social Influence and Stress Immunity were particularly highly correlated with adaptive outcomes on the FBM and annual income. These scales were also significantly associated with one maladaptive outcome, namely,

FBM Money Lost. Finally, some features of PPI-R SCI (e.g., Machiavellian Egocentricity) had limited adaptive correlates, namely, FBM Money Won.

Summary of Zero-Order Correlational Findings

Results of the aforementioned analyses were largely consistent with the hypotheses that some features of psychopathy such as boldness would be associated with risk-seeking on risk perception measures as well as adaptive financial outcomes. Somewhat surprisingly, features of disinhibition were also associated with risk-seeking on some of the risk perception measures. Nevertheless, results indicated that disinhibition was consistently associated with increased negative financial outcomes and decreased financial and workplace successes. None of the components of psychopathy were consistently related to risk behaviors on the laboratory tasks.

Mediation and Moderation Analyses

Statistical mediation. Statistical procedures outlined by Baron and Kenny (1986) and adapted by Preacher and Hayes (2004) were used to examine mediation effects. The Preacher and Hayes' (2004) PROCESS macro for SPSS estimated simple mediation effects at the manifest variable level. As recommended by Preacher and Hayes (2004, 2008), the total, direct, and indirect effects of risky decision-making indices on the relations between self-report psychopathy features and financial outcome variables were estimated using 1000 bias-corrected bootstrap samples. This boot-strapping method does not assume normality of the indirect effects and is one of the most statistically powerful mediation tests available (Fritz & MacKinnon, 2008). Effect size estimates have been specifically developed by Preacher and Kelley (2011) for indirect effects. Kappa-squared (K^2) is the preferred estimate of effect sizes as it addresses some of the limitations

inherent in R^2. K^2 takes into account the maximum possible effect size given measurement error and skewness. This effect size estimates the magnitude of the indirect effect relative to the maximum possible indirect effect, given the distributional properties and error of the measures.

Given the number of indicators used in the present study, certain conceptually overlapping and highly correlated manifest variables were combined to minimize the number of analyses and associated Type I error. Of the psychopathy indicators, PPI-R Fearless Dominance and TriPM Boldness were combined by standardizing and adding participant scores on each variable. PPI-R Self-Centered Impulsivity, TriPM Disinhibition, and LSRP 2 were also combined into one index. CDQ Self and CDQ Advise were combined into one variable. Finally, the ART indices average fish caught and sudden ends were combined into one index.

As mentioned previously, I predicted that the relationship between indicators of disinhibition and financial outcomes would be mediated by a tendency to engage in risky behaviors, as measured by outcomes on laboratory tasks (e.g., CRT, ART; see Figure 1). In contrast, I predicted that associations between boldness and adaptive financial outcomes would be mediated by risk perception as measured by the CDQ and Framing Effects Measure (see Figure 2). Table 17 summarizes the mediation analyses conducted.

Results were not consistent with hypotheses. As illustrated in Table 18, neither the CDQ, Frame Positive, nor Frame Negative scales were significant mediators of the relationship between boldness and financial outcome measures. In fact, the indirect effects were near zero for each of these analyses. These findings may suggest that the psychopathic features of boldness are directly rather than indirectly related to financial

outcomes. Results examining mediation effects among disinhibition, risk behaviors (i.e., laboratory tasks), and financial outcomes were also nonsignificant (see Table 19). Although contrary to hypotheses, these results were not surprising given the lack of zero-order associations among indicators of disinhibition and risk behaviors.

Statistical moderation. As highlighted earlier, configural models of psychopathy point to statistical interactions among psychopathy's components as integral to the understanding of the disorder. Features such as boldness alone may not be malignant in their own right, but may be particularly maladaptive in combination with other traits such as disinhibition. I predicted the relationship between boldness and financial outcomes would be represented though a channeling model. Specifically, I expected that in the presence of high levels of disinhibition, boldness would be channeled into maladaptive financial outcomes. In contrast, at low levels of disinhibition boldness would be channeled into adaptive financial outcomes (see Figure 3).

The hypothesis was examined at the manifest variable level using the Preacher and Hayes' (2004) PROCESS macro for SPSS to estimate simple moderation. Using this macro, I calculated the product of boldness and disinhibition variables, mean centered the predictor variables, and calculated the proportion of variance in financial outcomes uniquely attributable to the moderation effect of boldness by disinhibition. The change in R^2 due to the interaction term was used to determine the degree to which a statistical interaction was present in each model. As with the mediator analyses, in order to minimize the number of analyses conducted and associated Type I error, conceptually overlapping and highly correlated variables were combined (i.e., PPI-R Fearless Dominance and TriPM Boldness; PPI-R Self-Centered Impulsivity, TriPM Disinhibition,

LSRP 2). Results were not consistent with hypotheses and did not suggest that disinhibition moderates the relation between boldness and financial outcomes. For each of the financial outcome indices (i.e., Everyday Irresponsibility, Serious Financial Consequences, Financial Planning/Work Success, Money Won, and Money Lost), the statistical interaction of disinhibition and boldness did not explain a significant proportion of the variance ($\Delta R^2 < .01$ for all analyses).[3]

Discussion

As increasing evidence suggests that psychopathic individuals differ in degree and not kind from others (e.g., Edens et al., 2006; Guay et al., 2007; Marcus et al., 2004; Walters et al., 2007), the need to understand the implications of psychopathic personality traits for functioning in everyday life deepens. Although the speculation that psychopathy exists in diverse settings, from prisons to corporate boardrooms, is not new (e.g., Cleckley, 1941/1988), until relatively recently (e.g., Lilienfeld at al., 2014) the expression and impact of psychopathy features such as boldness and disinhibition among individuals in the general population has been largely neglected.

The degree to which psychopathic personality traits display "response penetration" (Tellegen, 1991) into everyday life is unclear. This area of research is

[3] Given the often tenuous associations among personality indicators and behavioral outcomes (Mischel, 1968; Epstein, 1979), I attempted to aggregate conceptually related variables into latent constructs and examine mediation and moderation hypotheses using a latent variable framework. Unfortunately, initial analyses examining underlying measurement models would not converge using a latent variable approach. Numerous attempts to diagnose and remedy problems with the models (e.g., increasing number of iterations, rescaling variables, and allowing manifest variables on common factors to correlate) were unsuccessful. Thus, higher order structural models examining mediation and moderation effects could not be examined using this framework and were conducted at the manifest variable level.

valuable for several reasons. First, personality traits likely impact behavior in part by influencing one's perceptions of situations (Allport, 1937; Funder, 1991). Psychopathic individuals may interpret the world differently than others. Indeed, features such as psychopathy may shape an individual's perceptions of situations, especially ones pertaining to risk, and may ultimately impact decision-making. Second, in recent years, the popular press and media have paid particular attention to the influence of psychopathic personality traits in the workplace. Claims regarding the insidious nature of psychopathic individuals in such settings are often overly sensational. Nevertheless, these assertions raise important questions about the degree to which psychopathic personality traits are harmful, or less often acknowledged, potentially beneficial. If psychopathic individuals are indeed marked by a relative absence of fear as posited by the low fear hypothesis (e.g., Lykken, 1957, 1995), the examination of risk perception, risky decision-making, and risk behaviors may provide one avenue to improved understanding of the implications of psychopathy for everyday outcomes.

Exploring the Low Fear Hypothesis: Psychopathy and Risky Decision-Making

The low fear model, proposed by Lykken (1957, 1995), points to a relative absence of fear as the core developmental origins of psychopathy. This model proposes that psychopathic individuals are marked by inadequate fear, which in turn gives rise to the other major features of the condition. This lack of normal fear response may in turn influence an individual's perception of dangerous or risky situations. In particular, the psychopathic features of boldness appear to be associated with a general paucity of social and physical fear (e.g., López, Poy, Patick, & Moltó, 2013; Smith et al., 2013).

Psychopathy and risk perception. The results of this study were broadly consistent with hypotheses that psychopathic individuals, particularly individuals high in boldness, would exhibit risk-seeking (or less risk averse) attitudes. More specifically, the higher individuals were on boldness, the less risk averse they were on measures such as the CDQ. As mentioned previously, the CDQ was designed to assess risk preferences through the use of hypothetical scenarios asking participants to indicate the probability of success that would be sufficient for them to accept a risky alternative over a known outcome. Individuals higher on boldness accepted lower probabilities of successful outcomes when imagining themselves in the scenario and when asked to imagine they were advising another individual. Although boldness was significantly associated with risk-taking in both the advise and self-scenarios, the magnitude of the associations were significantly higher in the self-condition, suggesting that individuals with high levels of boldness were particularly willing to take risks when imagining themselves in the hypothetical scenarios. Similarly, on the Framing Effects Measure in both the negative and positive frame conditions, bolder individuals were more likely to choose the risky option (e.g., 75 % chance to lose $1000 and 25% chance to lose nothing) versus the sure option (e.g., a sure loss of $750). These results point to an overall tendency for individuals marked by high levels of boldness to be more willing to takes risks, both positive and negative. Moreover, these results are broadly consistent with the low fear hypothesis and provide some support for the notion that psychopathic individuals may be less fearful of risky situations and subsequently more willing to enter into conditions that others might perceive as being overly risky.

A number of personality theorists have posited that personality traits influence everyday behavior largely by influencing our perceptions of situations (e.g., Allport, 1937; Funder, 1991). Given that psychopathic individuals display lower trait levels of fear, I suspected that individuals high on boldness would be marked by abnormalities in risk perception. Thus, psychopathic individuals may be more willing to take risks simply because they perceive less risk in situations that others would interpret as risky. The examination of framing effects was largely intended to address this question regarding risk perception. Whereas most individuals were more risk-seeking in the face of loss and less risk-seeking in the face of gains, I hypothesized that individuals marked by high levels of boldness would not be susceptible to framing. Results were mixed and somewhat difficult to interpret. Although boldness was not significantly associated with the Framing Sensitivity Index created in this study, the variable was equivalently associated with risk-seeking in the negative frame and positive frame conditions. In contrast, other indicators of psychopathy did not follow this pattern and were marked by higher associations with risk-taking in the Frame Positive than the Frame Negative condition. This finding runs contrary to the broader literature on framing effects, which suggests that in general, individuals are more likely to accept a risky alternative when a scenario involves loss (e.g., 75% chance to lose 1000$ and 25% chance to lose nothing) as opposed to gains (e.g., 25% chance to gain $1000 and 75% chance to gain nothing) (see Kahneman & Tversky, 1979, 1983).

I did not predict that the behavioral components of psychopathy, such as disinhibition, would show significant associations with the risk perception measures. Instead, given the largely behavioral and impulsive nature of disinhibition, I expected that

this component of psychopathy would show strong associations with risk behaviors on the laboratory tasks. Nevertheless, the results of this study ran contrary to hypotheses with some indicators of disinhibition associated with increased risk-taking (decreased risk aversion) on the CDQ and the Framing Effects Measure. Nevertheless, boldness was generally more highly associated with the risk perception indices than disinhibition, although these differences were not always statistically significant. Some indicators of disinhibition such as LSRP Total and LSRP 2 were significantly positively associated with the Framing Sensitivity Index, suggesting that individuals marked by high levels of these traits are even more susceptible to framing effects than others. Still, these results should be interpreted with caution; given the large number of analyses conducted these positive findings could be the result of Type I error.

These results can also be interpreted in the context of Gray's (1976, 1987) behavioral inhibition (BIS) and behavioral activation (BAS) systems. BIS inhibits behavior through emotional responses such as fear and anxiety in the presence of aversive or punishment stimuli. In contrast, BAS acts in opposition to BIS by initiating approach behavior particularly in response to reward. A weakened BIS, such as in individuals marked by psychopathic features such as boldness (Ross et al., 2008), will be marked by a lack of anxiety in threatening situations (Fowles, 1980). Consequently, an imbalance created from a weakened BIS may also result in impulsive, reward-seeking or risky behavior marked by an overly active BAS (Fowles, 1980; Lykken, 1995). In the context of psychopathy, individuals with high levels of boldness may be marked by low levels of fear and a subsequent increase in the risky, reward-seeking behavior associated with the disinhibition component of psychopathy.

Psychopathy and risk behaviors. Unexpectedly, indicators of disinhibition were largely uncorrelated with the laboratory tasks. This may in part be due to methodological limitations. For example, constructs such as psychopathy, which are largely assessed by interview and self-reports measures, often show only modest associations with dependent measures from both cognitive and affective laboratory tasks, in part due to method variance (Campbell & Fiske, 1959; Patrick et al, 2013). Previous literature suggests that it is quite common for laboratory measures or behavioral data to exhibit low correlations with indices of personality (Epstein, 1979). This fact has been illustrated in previous research examining psychopathy and risk-taking as well. For example, the Angling Risk Task used in the present study, closely resembles the BART which has inconsistently associated with psychopathy features in previous studies (e.g., Hunt et al., 2005, Swogger, Walsh, Lejuez, & Kosson, 2010). Moreover, the present study used relatively small monetary rewards to study risk-taking behavior. Participants could earn up to $1.00 in bonus pay based on their performance on the laboratory tasks. Because of the small incentives, participants may not have been invested in the task and thus their behavior on the laboratory paradigms likely did not approximate the real world in which monetary stakes can be quite high (see Beattie & Loomes, 1997 for a review on the impact of incentives in risk-taking experiments).

In addition, a large portion of the sample did not complete the behavioral tasks and follow-up analyses indicated that these participants were significantly more psychopathic than those who did. These results suggest that the sample may have been censored to the lower-end of the psychopathy spectrum for these particular tasks. This restriction of range present in psychopathy scores could also limit detection of underlying

relationships (Gross & McGanney, 1987). Additionally, these low correlations between psychopathy indicators and the laboratory tasks may explain the lack of mediation effects among disinhibition, risk behaviors, and financial outcomes.

Psychopathy and Financial Outcomes: Understanding Successful Psychopathy through Configural Models

Mounting evidence suggests that psychopathy is best understood as a multidimensional rather than unidimensional construct (e.g., Lilienfeld & Fowler, 2006; Patrick et al., 2009). Indeed, when psychopathy is examined at the component, rather than global level, its features often display differential patterns with external correlates. For example, the boldness component of psychopathy is negatively associated with neuroticism and pathological gambling, whereas the disinhibition component is positively associated with these correlates (Maples et al., 2014). This fact highlights the need to continue to examine psychopathy correlates at the component level and furthermore suggests that new conceptualizations of psychopathy are warranted.

Psychopathy and financial correlates. The differential correlates of psychopathy's components were illustrated by the results of the present study. In particular, the dimensions of boldness and disinhibition show divergent correlations with adaptive and maladaptive outcomes such as financial success or failure. Depending on which component of psychopathy one examines, the disorder could be conceptualized as either largely adaptive or largely maladaptive. Specifically, the results of this study indicated that the boldness component of psychopathy is almost exclusively associated with adaptive financial outcomes such as higher annual income, money won when taking financial risks, superior financial planning, and successes in the workplace. Although

associated with a number of adaptive outcomes, boldness was also positively associated with money lost when taking financial risks, which may indicate that individuals high on boldness take more financial risks overall, both adaptive and maladaptive. Unexpectedly, boldness was not associated with change in SES as originally predicted. In fact, none of the psychopathy indicators were significantly correlated with change in SES, which may be in part due to this financial variable's very high association with baseline SES.

In contrast to boldness, the disinhibition component of psychopathy displayed purely maladaptive financial correlates. In fact, disinhibition was positively associated with serious financial consequences (e.g., engaging in illegal/criminal behavior, having a lien placed on one's property, being evicted or having one's home foreclosed on), everyday financial irresponsibility (e.g., paying the minimum on a credit card, carrying liabilities in excess of assets), and money lost when taking financial risks. Although associated with all of the indicators of maladaptive financial behavior in the present study, disinhibition was more strongly correlated with serious financial consequences than it was with everyday financial irresponsibility. This result could reflect the notion that poor financial behaviors such as garden variety irresponsibility are more normative than serious financial consequences and may be driven largely by other variables such as SES, financial illiteracy, and transient life stressors, such as loss of a job (for a review, see Fernandes et al., 2014).

Models of successful psychopathy. Despite the widely held view that psychopathy is invariably maladaptive, the results of the present study suggest that at least some features of psychopathy, namely boldness, may be quite adaptive and are associated with financial successes. Indeed, some researchers have argued that at least

some of psychopathy's component traits can be adaptive in certain settings and domains, including finance and the workplace (e.g., Dutton, 2012; Lilienfeld, 1994; Lykken, 1995). Although the hypothesis is controversial, a number of authors have proposed that psychopathy can manifest itself in successful, or at least, subclinical presentations (Lilienfeld, Watts, & Smith, 2015; Lykken, 1982; Sutker & Allain, 1983; Widom, 1977). Until relatively recently, the concept of successful psychopathy was merely clinical lore. However, researchers are increasingly examining the potential adaptive implications of these personality features and positing explanatory models of successful psychopathy such as subclinical manifestations, moderated expressions due to protective factors such as IQ, and dual process perspectives (Fowles & Dindo, 2009; see Hall & Benning, 2006 for a review). The dual process model proposes that the interpersonal and affective components of psychopathy (e.g., guiltlessness, lack of empathy, superficial charm, grandiosity) are distinct from the antisocial deviant components (e.g., impulsivity, irresponsibility) (Fowles & Dindo, 2009). From this perspective, psychopathy is conceptualized as a hybrid condition comprising an amalgam of traits, such as fearlessness, grandiosity, and charm. This amalgam of traits may predispose to either, or perhaps both, maladaptive and adaptive behaviors. Mounting evidence suggests that the different components of psychopathy are associated with significantly differential patterns of correlates (e.g., Edens et al., 2008).

Results such as those in the present study, indicating that some features of psychopathy may adaptive, whereas others may be maladaptive, continue to highlight the problematic nature of conceptualizing psychopathy as a global construct. Such a pattern bears implications for the multidimensionality of psychopathy. The conjecture that

psychopathy is a configuration of related but largely separate personality traits, a speculation which has been supported by psychometric data (e.g., Lilienfeld & Fowler, 2006), may aid researchers in continued efforts to understand successful adaptations of psychopathy. Models such as the triarchic framework (Patrick et al., 2009) are consistent with a configural approach which highlight the importance of statistical interactions for understanding manifestations of psychopathic personality traits.

Controversies surrounding the construct of adaptive psychopathy. The concept of successful psychopathy is not without controversy. Some researchers have questioned the relevance of adaptive features to psychopathy. These critics maintain that because psychopathy is a disorder, the existence of successful psychopathy is dubious, perhaps even oxymoronic (Kiehl & Lushing, 2013). Specifically, the construct of boldness has been criticized for its lack of relation to violence and antisocial behavior, and for its positive linkages to healthy personality traits, such as low neuroticism (Miller & Lynam, 2012). However, new research suggests that assertions regarding the relevance of boldness to the construct of psychopathy merit reconsideration. A recent meta-analytic review by Lilienfeld et al. (2015), suggests that boldness may be at least as relevant to psychopathy as its other dimensions (e.g., disinhibition) when operationalized with non-PCL-based measures. Such measures were developed and validated with prison populations and may inherently place less emphasis on adaptive traits such as fearlessness, interpersonal charm, and resilience. Even more recently, a systematic evaluation of Cleckley's case studies from *The Mask of Sanity* (1941) indicate that early conceptualizations of psychopathy were marked by features of boldness (Crego & Widiger, 2016). Furthermore, classic clinical writings on psychopathy (e.g., Cleckley,

1941) and some subtyping research (e.g., Hicks, Markon, Patrick, Krueger, & Newman, 2004) have historically alluded to the existence of two "faces" of psychopathy, one primarily associated with psychological health and adaptive functioning, and another associated with maladaptive features such as impulsivity and antisocial behavior (Lilienfeld et al., 2012).

The potential existence of two "faces" of psychopathy suggests that the exclusion of adaptive functioning from the nomological network of psychopathy is overly restrictive. Again, looking to configural models of psychopathy and the statistical interactions of its features may deepen our understanding of seemingly differential outcomes. As noted previously, channeling models (e.g., Frost, Ko, & James, 2007, and James, 2008) could elucidate the relevance of seemingly unrelated adaptive personality features, such as boldness. In light of past research suggesting that boldness may potentiate the relationship between disinhibition and maladaptive outcomes, such as risky sexual behavior and counterproductive workplace behavior (Kastner & Sellbom, 2012; Smith et al., 2013; Smith et al., unpublished), I hypothesized that the interaction between boldness and disinhibition would be critical to understanding differential financial outcomes. Specifically, I predicted that boldness, in the presence of good impulse control (i.e., low levels of disinhibition), would be largely adaptive. Conversely, I predicted that in the absence of adequate impulse control, boldness would act as a potentiating factor, strengthening the relationship between disinhibition and poor financial decisions. Nevertheless, I found no evidence of moderation between disinhibition and boldness in predicting financial outcomes. Although these negative results were unexpected, other studies have failed to replicate moderation effects in the psychopathy literature (e.g.,

Maples et al., 2014; Neo, Sellbom, Smith, & Lilienfeld, in press; Vize et al., 2016). Moreover, the effect sizes of interaction effects in personality research are notoriously small (Jaccard & Wan, 1995) and can be difficult to detect without substantial statistical power.

"The Right Stuff": Understanding Boldness, Risky Decision-Making, and Implications for Everyday Life

Although embroiled in scientific controversy (Lilienfeld et al., 2012; Lynam & Miller, 2012; Miller & Lynam, 2012; Patrick, Venables, & Drislane, 2013), boldness is an integral piece to understanding successful manifestations of psychopathy. At least under certain conditions, features such fearlessness, interpersonal charisma, sensation seeking, and a willingness to take risks can be quite adaptive. Referred to as "the right stuff" by American writer Tom Wolfe (1979) in his writings on famed pilot Chuck Yeager (the first human to break the sound barrier) and the early Mercury astronauts, this combination of personality features may be one key to success. Although the links among boldness, other potentially adaptive features (e.g., emotional resiliency, low neuroticism), and adaptive real-world outcomes have been supported by research (e.g., Lilienfeld et al., 2014, Smith et al., 2013), the nature of such relationships is not well understood. Studies examining boldness typically rely on cross-sectional designs, making it difficult to demonstrate that the construct directly leads to positive real-world outcomes. Thus, the potential mechanisms through which boldness may lead to adaptive outcomes are neither well researched nor well understood. One aim of the present study was to further examine the relationships among boldness, adaptive outcomes such as financial success, and potential mediators such as risk perception.

Pathways to adaptive risk-taking. The psychopathic higher-order dimension of boldness is heavily saturated with traits such as fearlessness and a willingness to take adaptive risks. It is modestly positively associated with heroism in undergraduates, the U.S. presidents, and community samples (Smith et al., 2013) and may exist in elevated levels among individuals in high-risk professions (e.g., emergency personnel, fire-fighters, police officers; Falkenbach &Tsoukalas, 2011; Lilienfeld et al., 2014). Given the association with potentially adaptive risk-taking (e.g., heroism, high-risk professions), I suspected that risk perception may be the intermediate link between boldness and adaptive outcomes. Specifically, I hypothesized that individuals marked by high levels of boldness would perceive less than others. This decreased perception of risk may predispose such individuals to engage in high risk financial decisions that others would not (e.g., investing in a high risk, but potentially high reward stock). Overtime, this willingness to take calculated risks that others may be hesitant to take could lead to positive outcomes, especially in occupational and financial domains. Still, a tendency to take calculated risks could also lead to negative consequences.

Unexpectedly, the results of the present study did not reveal evidence for mediational effects among boldness, risk perception, and financial outcomes. Instead, the results suggest that the link between boldness and financial success may be independent of risk perception, at least as measured in the present study. Recent research by Hosker-Field et al. (2016) on mediation models of psychopathy and risk-taking has similarly raised questions regarding the role of risk perception among these variables. Their results indicated that risk perception mediated the relationship between psychopathy features and risk-taking in ethical, health/safety, and recreational domains. In contrast, they found no

evidence of mediation between psychopathy features and risk-taking in financial and social domains. Thus, psychopathic personality features, including those associated with boldness, were marked by increased social and financial risk-taking, regardless of risk perception.

Alternative explanations of the relations between boldness and adaptive financial behaviors. Taken in consideration with the results of the present study, it seems likely that additional explanatory models of the relationship between boldness and adaptive risk-taking need be explored. Examination of results from the PPI-R subscales could shed light onto this issue and provide one direction for future research. In the present study, the PPI-R subscales of Stress Immunity and Social Influence were significantly more strongly associated with FBM Financial Planning/Work Success than was PPI-R Fearlessness. These results suggest that the interpersonal features of psychopathy, such as a relative lack of social anxiety, charm, and ability to influence others, as well as a tendency to remain calm under pressure may be more related to financial success than factors such as fearlessness which are presumably more related to risk perception.

In addition, an examination of sensitivity to reward and punishment could provide a more nuanced understanding of the association among boldness and adaptive financial behaviors. Psychopathy is a complex and multifaceted construct that includes a potent cocktail of both reward oversensitivity and punishment under sensitivity. Although the disinhibition component of psychopathy shows arguably the clearer relationship with reward oversensitivity (e.g., Buckholtz et al., 2010), boldness is also positively correlated with measures of Gray's Behavioral Activation System (BAS) and thus may be

associated with reward hyper-sensitivity to some degree (e.g., Ross et al., 2007). For individuals with high levels of boldness or disinhibition, the rewarding aspects of risk-taking may be more influential in decision-making than the perception risk, or lack thereof. Indeed, research on risky decision-making suggests that risk-taking may be influenced by the perceived benefits of risk-taking as least as much, if not more, as the perceived consequences (e.g., Figner & Weber, 2011; Hanoch & Gummerum, 2011). In addition, research suggests that risk-taking is driven by both affective and cognitive processes (Slovic, Finucane, Peters, & MacGregor, 2004). Risky situations that elicit positive emotions (e.g., earning money on a financial investment) tend to lead individuals to perceive high benefits with relatively low risk (Johnson & Tversky, 1983). For individuals marked by high levels of boldness, the affective components of risk perception may be decreased whereas the cognitive components of evaluating perceived benefits remains intact. For bold individuals, the appraisal of the potential benefits of risk-taking may be even more critical to behavior than risk perception itself. Thus, it may not be a lack of risk perception driving bold individuals to engage in risky behaviors, but rather a lack of concern for the negative consequences and a desire to reap the potential benefits inherent in some risk-taking. Nevertheless additional research examining alternative explanations and pathways to adaptive risk-taking is needed for a superior understanding of the link between boldness and adaptive real-world outcomes.

Limitations and Future Directions

The results of the present study must be interpreted in light of a number of limitations, many of which provide promising directions for future research in the area of psychopathy, risky decision-making, and implications for everyday behavior.

Reliance on self-report measures. One of the more significant limitations of the present study is the exclusive reliance on self-report indices of psychopathy and financial behaviors. Shortcomings of the self-report assessment of psychopathy include potential dishonesty and positive impression management, which is often considered a hallmark feature of the condition (Hare, 1991/2003, Lilienfeld & Fowler, 2006). Because of this limitation, the validity of self-report responses by psychopathic individuals may be compromised. Thus, it is worth noting that subsidiary analyses controlling for the PPI-R Unlikely Virtues scale (an indicator of social desirability response biases) altered results of the study only minimally. In fact, after controlling for social desirability the associations among disinhibition and serious financial consequences increased slightly in magnitude, pointing to the presence of suppressor effects. In contrast, the association between boldness and the negative outcome of money lost was no longer significant. In addition, the few significant associations produced by the laboratory tasks were rendered nonsignificant after controlling for social desirability. Although potentially informative, these results should be interpreted with caution especially in light of the notorious sample specificity of such analyses. Furthermore, these analyses may entail statistical overcontrol. For one, controlling for social desirability, which is associated with low neuroticism and high agreeableness (One, Viswesvaran, & Reiss, 1996; Pauls & Stemmler, 2003), removes some of the adaptive features of boldness. For example, it may remove variance accounted for by healthy self-esteem, which in itself may be a large component of constructs such as boldness.

In addition to dishonesty, psychopathy is often marked by a lack of insight (Cleckley, 1976) and components such as boldness are associated with higher levels of

grandiose narcissism (e.g., Williams & Paulhus, 2004), which itself may be tied to inaccurate self-evaluation (John & Robins, 1994). Thus, individuals with high levels on psychopathic traits may not understand how others perceive them and may not accurately report on their achievements (e.g., financial and work successes). Nevertheless, self- and other-report indicators of psychopathy tend to be moderately to highly correlated (Miller, Jones, & Lynam, 2011). In addition, recent research by Watts et al. (2016) found no evidence that response styles such as social desirability suppress or moderate the relationship between self-report psychopathy measures and theoretically relevant correlates. These results have raised questions about the widespread assertion that the associations among self-report psychopathy indicators and external criteria are distorted by response styles such as socially desirability. In addition, the primary outcome measure used in the present study asked participants to report on relatively objective behaviors (e.g., number of promotions at work, frequency of late payments on credit cards) and ostensibly requires minimal insight. Nevertheless, future research would benefit from the assessment of largely objective performance criteria (e.g., promotions, bonuses, firings, disciplinary problems, sales) and financial behaviors that could be verified or corroborated by observer reports or other records.

Limitations of Amazon's Mechanical Turk. Another limitation of the present study includes the use of a somewhat novel system for data collection, Amazon's Mechanical Turk. Although the system has been used increasingly for its ease of rapid data collection and access to community samples, the validity of data gathered using M-Turk requires further investigation. Some research on the validity of M-Turk data

suggests that participants produce high quality data and that samples represent a demographically diverse group of individuals (Buhrmester, Kwang, & Gosling, 2011).

The sample in the present study was predominantly Caucasian and of relatively low SES. For example, 6.6% of participants were unemployed compared to the national unemployment rate of 5.0% (Bureau of Labor Statistics, 2016). Moreover, the sample participants were of a relatively low income level with nearly 80% of the sample earning less than $50,000/year. This markedly contrasts with the national median income level of $52,250 (Noss, 2014). Nevertheless, the sample was generally well educated with 48.2% of participants possessing a Bachelor's degree or higher compared to the national rate of 28% (Ryan & Siebens, 2012). The aforementioned socioeconomic characteristics bear important implications for the interpretability of results in the present study. For example, individuals with low SES have increased exposure to negative life events (Brady & Matthews, 2002), are more susceptible to economic irrationalities such as sunk cost effects (Larrick, Nisbett, & Morgan, 1993), and display less consistency in risk perception across situations (Parker & Fischoff, 2005). Moreover, at least some research suggests that psychopathic personality traits are only associated with risk-taking in samples of higher SES (Gao, Baker, Raine, Wu, & Bezdjian, 2009). Thus, psychopathic personality features related to risk perception such as fearlessness may be less relevant to financial outcomes in low SES samples. Future research will be needed to clarify the role of psychopathy and risk-taking in samples of higher SES.

The psychometric properties of the self-report measures used in the present study confirm suggestions that M-Turk participants produce high quality data (Buhrmester, Kwang, & Gosling, 2011). Cronbach's alphas for subscales of the measures were high

and intra-correlations among subscales on the PPI-R were consistent with those of previous literature. However, recent research suggests that M-Turk participants may be less attentive than those in community samples (Peer, Vosgerau, & Acquisti, 2014). Nevertheless, in the present study, participants exhibiting high levels of inconsistency in responding on the PPI-R were excluded from analyses.

Although the use of high-reputation workers (as was done in the present study) may attenuate attention-related concerns (Peer et al., 2014), these concerns are particularly relevant given the use of behavioral tasks in the present study. The behavioral tasks employed are typically administered in controlled laboratory settings. In the case of the present study, although clear instructions were given to participants to complete the laboratory tasks in a quiet setting without interruptions, it was impossible to ensure that participants complied with these instructions. In fact, based on the reaction time data from the CRT, it appeared that at least some participants were not attending to the task. Although participants who allowed the task to time out were eliminated, the results of analyses examining these measures should be interpreted with caution in light of these limitations. Future research would benefit from the use of such tasks in in a controlled laboratory setting, where variables such as participant attention can be monitored more carefully.

Limitations of "t-data." The behavioral paradigms such as the ART and the CRT used to assess risk behaviors necessarily rely on laboratory data or "t-data." "T-data" can be defined as data drawn from standardized situations created in a laboratory, where behavior can be observed and measured with high levels of objectivity (Block, 1977; Cattell, 1965). Despite the utility of t-data for the ostensibly objective measure of

behavior, such data have been criticized for their unreliability and tenuous associations with other relevant indicators of personality (Block, 1977; Epstein, 1979). This may be partly due to the situational specificity of behavior, particularly behavior exhibited in the laboratory (Mischel, 1968; Patry, 2011). Measurement error may attenuate the true relations between psychopathy and risk behavior measures using laboratory paradigms. The aggregation of such tasks into a latent variable framework using statistical techniques such as structural equation modeling can address some of the inherent limitations with laboratory data. Nevertheless, in the case of the present study, attempts to aggregate laboratory data, as well as other indices of risk perception were not successful. These results may raise questions regarding the degree to which such laboratory tasks reflect a common underlying latent construct.

Although the limitations of t-data could not be fully addressed in the present study, laboratory paradigms remain an important avenue for understanding how psychopathic personality features relate to observable behavior and ultimately real-world outcomes. Patrick et al. (2013) have highlighted the utility of examining neurobehavioral traits as intermediate phenotypes between laboratory data and real-world clinical problems. To illustrate this concept, trait inhibition-disinhibition was linked empirically to relevant phenotypic features, such as externalizing behavior. Trait inhibition-disinhibition was then linked empirically to relevant neurological functions. Ultimately, a construct-network was modeled using trait disinhibition as a bridge between externalizing behavior and underlying neurophysiology. Such a neurobehavioral trait approach draws on multi-measurement, latent variable approximation across many manifest indicators. By adopting a construct-network approach, tying laboratory measures to well-validated

trait measures and in turn clinical problems, we may begin to clarify the role of cognitive and neurobiological processes in psychopathy and real-world outcomes.

Limitations of risk perception measurement. In addition to using somewhat novel methodology (e.g., online administration of laboratory tasks), this study employed a novel method of assessing risk perception, namely, the examination of framing effects using a within subjects design. Framing effects are conceptually tied to risk perception; however, the examination of risk-taking across scenarios framed in terms of gains versus losses is not typically examined as an individual difference variable. Although a handful of studies have examined the relation between variables such as need for cognition, intellectual ability, general personality, and framing effects (e.g., Levin, Gaeth, Schreiber, & Lauriola, 2002; Simon, Fagley, & Halleran, 2004; Stanovich & West, 1998), few studies employ methodology or measurement techniques that allow for the estimation of individual sensitivity to framing effects. Indeed, examining the distribution of sensitivity to framing effects is relatively uncommon. Future research would benefit from continued refinement of the methodology used to examine sensitivity to framing effects as an individual difference variable.

In addition, the measures of risk perception in the present study potentially conflate the constructs of risk tolerance and risk perception. Risk-taking necessarily involves the ability (or lack thereof) to discern risk and a willingness to accept said risks (Ricciardi & Rice, 2014). Thus, risk appraisal is somewhat dependent on an individual's perception of risk and a willingness to accept those risks. Although individuals who perceive less risk are more likely than others to engage in risky behaviors (e.g., Ulleberg & Rundmo, 2003), individuals who are more tolerant of risk (e.g., thrill seekers) do not

necessarily perceive less risk than others. Measures such as the CDQ and the Framing Effects Measure, which ask participants to indicate the probability of success needed to enter into a risky situation and to choose between a sure outcome and an uncertain outcome, inherently assess both risk tolerance and risk perception. Although the constructs of risk tolerance and risk perception can be difficult to disentangle in practice, work by Weber et al. (2002) and Hosker-Field et al. (2016) suggests that a simple methodology, such as asking participants on a Likert type scale how risky they perceive a situation to be, may be an adequate approach. Future research on psychopathy and risky decision-making would benefit from attempts to parse risk tolerance from risk perception.

In a similar vein, risky decision-making involves both cognitive and affective processes (Keller, Lipkus, & Rimerl, 2002; Slovic et al., 2004). When individuals are asked to evaluate risk, and ultimately make decisions about risky behaviors, they seldom have access to adequate statistical information. Thus, cognitive processes such as heuristics may guide decision-making in the absence, and sometimes even presence, of adequate information. The present study examined framing effects, but other mental phenomena such as the availability heuristic (Tversky & Kahneman, 1973), the representativeness heuristic (Tversky & Kahneman, 1983), and optimistic bias (Weinstein, 1982) likely impact the evaluation and decision-making processes related to risk. In addition to heuristics and biases, cognitive processes such as the evaluation of perceived benefits of risky behavior also play a role in decision-making (e.g., Figner & Weber, 2011; Hanoch & Gummerum, 2011). Nevertheless, evaluation of risk is not a purely cognitive process, and affective processes such as experiences of fear and anxiety clearly play a role in risk perception, risk tolerance, and risk-taking. For example, several

studies have demonstrated that eliciting negative affect in individuals leads to higher levels of risk perception, even when such affect elicited is unrelated to the risky situation (Johnson & Tversky, 1983; Vastfjall, Peters, & Slavic, 2008). Components of psychopathy such as boldness may be marked by a lack of affective processing of risk information, whereas disinhibition may be marked by disruptions in the cognitive components of risk perception. These examples illustrate the complex nature of risky decision-making and highlight the need for future research to separate these processes, especially when examining the relationship between psychopathic personality features and risk-taking.

Determining the directionality of effects. The present study employed a cross-sectional, correlational design. Although this design allows for convenient and large scale data collection, it presents limitations regarding the types of conclusions that can be drawn. Although not supported by the data in the present study, the mediational models proposed imply a causal flow of effects (Kraemer et al., 1997) such that the underlying personality features of disinhibition and boldness are associated with abnormalities in decision-making processes pertaining to risk. In turn, these abnormalities bear implications for real-world outcomes such as financial behavior. Though plausible, such conclusions are impossible to draw with cross-sectional study designs.

Longitudinal studies may provide helpful insight regarding the development of psychopathy, subsequent abnormalities in decision-making, and links to external criteria. Indeed, such studies could serve as a provisional step towards demonstrating causality by establishing the temporal precedence (a necessary but not sufficient criterion) of psychopathy traits to relevant outcomes (Haynes, 1992). However, alternative models of

causality, particularly ones in which the causal arrow runs in the opposite direction, should also be explored. For example, *habituated action theory* (Kasperson et al., 1988; Ravn, 2014) posits that lowered risk perception can be acquired through repeated engagement in high risk behavior without negative consequences. Over time, individuals marked by high levels of disinhibition or boldness, whose risky behaviors may initially arise from impulsivity or greater risk tolerance, could develop skewed perceptions of risk if their behaviors typically result in positive rather than negative consequences. Such hypotheses will be important to explore in future research on psychopathy and risk-taking.

Examination of general personality features. Another major limitation of the present study is the absence of measures of general personality. Although a long-standing rift exists between the fields of psychopathy and personality (see Lynam & Derefinko, 2006), a growing body of research suggests that bridging the two domains is warranted. For one, recent research indicates that psychopathic features are well captured by indices of normal-range personality traits (Decuyper et al., 2009; Hiklin & Widiger, 2005; Lilienfeld et al., 2015). In addition, psychopathy is increasingly conceptualized as a heterogeneous construct resulting from the combination of several personality dimensions (e.g., Lilienfeld & Fowler, 2006; Patrick et al., 2009).

Results of a recent meta-analytic examination of psychopathy and general personality correlates suggest that the condition is negatively associated with Agreeableness and Conscientiousness. In addition, operationalizations of psychopathy that include the broader traits of boldness are marked by low Neuroticism, high positive emotionality, and some facets of high Openness to experience (Lilienfeld et al., 2015).

Such findings highlight the potential utility of including measures of general personality in psychopathy research, as they may provide a more nuanced understanding of the processes driving associations with variables such as risk perception and financial outcomes. Indeed, results from a study by Levin et al. (2002), indicated that personality features such as high Neuroticism, low Agreeableness, low Openness, and high Conscientiousness were associated with heightened sensitivity to framing effects in risk choice paradigms. These results suggest that the examination of general personality is a promising avenue for future research on psychopathy and risky decision-making.

Understanding the differential correlates of disinhibition and boldness. As mentioned previously, the finding that disinhibition displayed associations with risk perception measures in a similar pattern to boldness was unexpected. Both of these components of psychopathy appear to be associated with risk-taking. However, results of the present study provide minimal clarification regarding the differential pattern of real word outcomes seen across these two psychopathy components.[4] For example, both boldness and disinhibition were positively associated with FBM Money Lost; however, boldness was also associated with FBM Money Won. Moreover, the association between boldness and FBM money won was significantly greater in magnitude than the association between boldness and FBM money lost. This results seems to suggest that boldness is more strongly associated with risk-taking of an adaptive nature. Nevertheless,

[4] Of note, subsidiary analyses examining partial correlations between boldness and the risk perception measures, controlling for disinhibition (and vice versa) did not differ from the zero-order correlations. These results suggest that boldness and disinhibition explain different components of the risk-taking criterion space and could shed light on the divergent pattern of real-world outcomes associated with these different features of psychopathy.

if both components of psychopathy are associated with risk-seeking on risk perception measures and well as financial risk-taking, the question of why one component is associated with primarily adaptive outcomes (e.g., boldness) and another primarily maladaptive outcomes (e.g., disinhibition) must be raised.

The present study and recent research on psychopathy and risk-taking provide some preliminary direction towards the clarification of the seemingly adaptive nature of risk-taking tied to boldness and the maladaptive risk-taking tied to disinhibition. For example, the evaluation of perceived benefits of risk-taking may be most significant to the emotional/affective components of psychopathy (Hosker-Field et al., 2016). Perhaps individuals with high levels of boldness take more circumscribed risks, particularly those with the potential for high reward. Future research examining these processes of risk appraisal are needed to clarify this hypothesis. In the present study, some indicators of disinhibition were significantly associated with risk-seeking in the Frame Positive condition, but not the Frame Negative condition. In contrast, boldness was associated with risk-seeking in both conditions. These results could also be reflective of reward oversensitivity in individuals marked by disinhibition.

In addition, broader literature on risky behavior highlights the domain-specificity of risk-taking, which is supported by evidence demonstrating that individuals who take risks in certain settings (e.g., recreational) may be risk averse or neutral in others (e.g., financial) (Weber et al., 2002). At least some research suggests that the disinhibition component of psychopathy is more readily linked to risk-taking of a sensation-seeking nature that is perhaps more maladaptive (Swogger, Walsh, Lejuez, & Kosson, 2010).

Economic decision-making and psychopathy. In the present study, I sought a deeper understanding of the relationships among psychopathy, decision-making, and real-world outcomes related to financial behavior. Nevertheless, the examination of decision-making was relatively narrow, focusing primarily on framing effects. Future research on psychopathy should turn to the broader literature on behavioral economics for a superior understanding of the implications of such personality features for everyday behavior. For example, the study of mental accounting, the cognitive processes used to evaluate financial activities, can be used to understand consumer behavior (see Thaler, 2014, for a review). Given the differences in affective processes (e.g., heightened emotional resilience) exhibited in bold individuals, they may be less susceptible than others to economically irrational behaviors such as "sunk cost" (Arkes & Blumer, 1985) effects. Moreover, many economic decision-making phenomenon are linked to the concept of loss aversion (Kahneman, Knetsch, & Thaler, 1991; Kahneman & Tversky, 1984), or the tendency for individuals to have misgivings about wasting resources and to emphasize the harmful effects of losing an object over the benefits of acquiring it. These tendencies lead to economic irrationalities such as the "endowment effect" (Thaler, 1980) in which individuals assign more value to an object simply because they own it, and the "status quo bias" (Samuelson & Zeckhauser, 1988) whereby individuals exhibit a preference for the current state of affairs, because any change from baseline would be perceived as disadvantageous. Such logical fallacies may subsequently interact with other cognitive processes like omission biases, in which individuals overweight potentially damaging actions compared with potentially damaging inactions (Ritov & Baron, 1990). Loss aversion and processes such as status quo and omission biases have the potential to

impact long-term financial outcomes (e.g., through unaggressive approaches for retirement saving; Bernartzi & Thaler, 2001; Rick, Cryder, & Lowenstein, 2009). Individuals marked by psychopathic features such as boldness likely experience lower levels of loss aversion and ultimately may be less susceptible to economic irrationalities. Examination of the relationship between psychopathy and other mental accounting phenomena such as these could provide valuable insight into the influence of psychopathy on economic decision-making.

Conclusions. The present study makes valuable contributions to a growing body of literature examining the implications of psychopathy for everyday life. It provides continued evidence for the existence of potentially adaptive manifestations of certain psychopathic personality features. In addition, the results highlight important conceptual issues, such as the need for continued conceptualization of psychopathy as a multifaceted construct that is likely underpinned by general personality dimensions. Perhaps most importantly, the present study highlights the continued importance of bridging the domains of personality, psychopathology, and real-world decision-making. Historically, the literature on financial and risky decision-making largely ignores individual differences, which are often treated as noise. Continued investigations in this area will allow researchers to begin to open up the “black box” of decision-making, providing an improved understanding of how individual differences in dispositions ultimately shape behavior.

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Table 1
FBM Factor Loadings Based On Principle Components Analysis

FBM Item	Everyday Irresponsibility	Serious Financial Consequences	Financial Planning And Work Success
Refinanced your mortgage.	.00	.30	.21
Gotten a short-term “pay day” or “salary advance” loan.	**.55**	.36	-.18
Gotten a “refund anticipation loan” to accelerate the receipt of your tax return.	.32	**.55**	-.14
Gotten an auto title loan.	.26	.33	.14
Used a pawn shop (to sell belongings).	**.41**	.25	-.22
Bought goods on a lay-away plan or at a rent-to-own store.	**.46**	.36	-.09
Carried an outstanding balance and paid finance charges on my credit card.	**.67**	.13	.09
Paid the minimum only on my credit card.	**.71**	.15	-.09
Was charged a late charge for late payments on my credit card.	**.75**	.31	-.08
Wrote a check with insufficient funds in your bank account.	**.60**	**.48**	-.10
Allowed an insurance policy to lapse (e.g., vehicle, renter's/homeowner's, medical, life).	**.49**	**.47**	-.19
Filed for personal bankruptcy.	.38	**.46**	-.02
Was referred by an employer for credit and budget counseling because of poor job performance.	.09	**.71**	-.02
Exhibited illegal and/or criminal behavior (e.g., employee theft, embezzlement, check fraud.)	.24	**.78**	-.03
Was sued for financial reasons.	.25	**.54**	-.10

Had property securing a debt repossessed.	.37	**.68**	-.04
Had utility service cutoff.	.35	**.45**	-.12
Was evicted from rental housing or had one's home foreclosed.	.25	**.76**	-.12
Had a lien placed on one's personal or real property.	.26	**.73**	-.10
Was charged an over the limit charge for charging more than my credit limit or was unable to use card due to being over the limit.	**.64**	**.42**	-.18
Used my credit card for a cash advance.	**.54**	**.63**	-.09
Had my credit card account closed down by the credit card company.	**.61**	**.50**	-.11
Had one's tax refund intercepted by a government agency or court.	.27	.37	-.07
Was denied additional credit, perhaps because of a lack of a sufficient positive credit history.	**.66**	.31	-.22
Obtained a debt consolidation loan.	.38	**.65**	-.03
Carried liabilities in excess of assets.	**.66**	.32	-.23
Which of the following best describes your current debt position:	**.51**	.06	-.43
In your history of work experience, how frequently are you promoted?	.38	.05	**.48**
In your history of work experience, how often do you receive raises?	.35	.04	**.52**
In your history of work experience, how often have you received bonuses?	.29	.03	**.43**
Do you hold a savings account, money market account, CD (certificate of deposit)?	-.14	-.03	**.54**

How long could you survive off of your emergency funds (e.g., salary free)?	-.33	-.10	**.74**
How often do you contribute money to a savings, pension, or retirement plan?	-.07	-.04	**.72**
In a typical month, do you ever have difficulty covering your expenses and paying all your bills?	**-.51**	-.31	**.57**
In the past year, would you say that your spending was less than, about equal to, or more than your annual income?	-.35	-.17	**.44**
How confident are you that you could come up with $2000 dollars if an unexpected need arose within in the next 2 months?	-.29	-.10	**.72**

Note. Loadings greater than .40 are highlighted in bold. FBM = Financial Behavior Measure.

Table 2

Means and SDs of Main Measures and Subscales

Measure	Mean (*SD*)	Measure	Mean (*SD*)
PPI-R		**CRT**	
Total	267.9 (40.9)	Risk-Taking	59% (13.0)
Fearless Dominance	132.6 (26.8)	Delay Aversion	29% (25.5)
Self-Centered Impulsivity	102.3 (21.5)	Risk Adjustment	4.8 (1.1)
TriPM		**ART**	
Boldness	47.6 (8.5)	*Cloudy Conditions*	
Disinhibition	35.1 (8.2)	Average Fish Caught	29.1 (15.2)
Meanness	32.3 (7.8)	Total Sudden Ends	5.3 (3.0)
LSRP		*Clear Conditions*	
Total	46.4 (12.9)	Average Fish Caught	35.3 (16.7)
LSRP 1	28.4 (9.0)	Total Sudden Ends	6.2 (3.2)
LSRP 2	18.0 (5.3)	**FBM**	
CDQ		Money Won	$4407 (16726)
Advise	60.0 (13.9)	Money Lost	$2680 (12573)
Self	62.1 (15.7)	**Shipley-2**	
Framing Effects Measures		Abstract Reasoning	13.4 (3.8)
Positive Frame	14.3 (2.6)	Verbal Reasoning	32.8 (5.4)
Negative Frame	16.5 (2.7)	Total	46.2 (8.1)
Frame Sensitivity	2.6 (1.5)	**FLQ**	9.7 (2.5)

Note. ART = Angling Risk Task; CDQ = Choice Dilemma Questionnaire; CRT = Cambridge Risk Task; FBM = Financial Behaviors Measure; FLQ = Financial Literacy Questionnaire; LSRP = Levenson's Self-Report Psychopathy Scale; PPI-R = Psychopathic Personality Inventory-Revised; TriPM = Triarchic Psychopathy Measure.

Table 3

Correlations among Psychopathy Measure Total Scores and Higher Order Factors

Measure	1.	2.	3.	4.	5.	6.	7.	8.
1. PPI-R Total	-							
2. PPI-R FD	.68**	-						
3. PPI-R SCI	.82**	.18**	-					
4. TriPM BOLD	.52**	.89**	.03	-				
5. TriPM DISIN	.60**	.05	.83**	-.10*	-			
6. TriPM MEAN	.62**	.05	.76**	-.09	.74**	-		
7. LSRP Total	.70**	.13**	.82**	.02	.75**	.78**	-	
8. LSRP 1	.70**	.24**	.72**	.15**	.63**	.74**	.95**	-
9. LSRP 2	.50**	-.08	.76**	-.21**	.77**	.64**	.83**	.62**

Note. * $p < .05$; ** $p < .01$; LSRP = Levenson's Self-Report Psychopathy Scale; PPI-R = Psychopathy Personality Inventory –Revised; PPI-R FD = Psychopathy Personality Inventory –Revised Fearless Dominance; PPI-R SCI = Psychopathy Personality Inventory –Revised Self-Centered Impulsivity; TriPM BOLD = Triarchic Psychopathy Measure Boldness; TriPM DISIN = Triarchic Psychopathy Measure Disinhibition; TriPM MEAN = Triarchic Psychopathy Measure Meanness; Due to missing data sample size for each correlation ranges from 471 – 485.

Table 4
Correlations among PPI-R Subscales

PPI-R Subscale	1.	2.	3.	4.	5.	6.	7.	8.
1. Machiavellian Egocentricity	-							
2. Social Influence	.22**	-						
3. Fearlessness	.45**	.34	-					
4. Rebellious Nonconformity	.58**	.29	.64**	-				
5. Coldheartedness	.45**	.10*	.27**	.21**	-			
6. Stress Immunity	-.17**	.50**	.22**	-.06	.21**	-		
7. Carefree Nonplanfulness	.50**	-.13**	.23**	.34**	.37**	-.27**	-	
8. Blame Externalization	.52**	-.10*	.25**	.40*	.12*	-.35**	.36**	-

Note. * p < .05; ** p < .01; *N* = 485; PPI-R = Psychopathy Personality Inventory – Revised

Table 5

Correlations among Risk Perception Measures and Risk Behavior Tasks

Measure	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. CDQ Advise	-												
2. CDQ Self	.82**	-											
3. Framing Total	-.21**	-.24**	-										
4. Framing Positive	-.18**	-.20**	.86**	-									
5. Framing Negative	-.18**	-.22**	.87**	.50**	-								
6. Framing Sensitivity	-.10*	-.11*	.24**	-.03	.43**	-							
7. ART Cloudy Sudden Ends	-.07	-.09	.06	.05	.05	-.03	-						
8. ART Cloudy Average Fish	-.11	-.11	.07	.07	.03	-.12*	.78**	-					
9. ART Clear Sudden Ends	.05	-.02	.03	.08	-.04	-.10	.57**	.63**	-				
10. ART Clear Average Fish	.06	.03	-.01	.01	-.05	-.17**	.68**	.73**	.74**	-			
11. CRT Risk Taking	-.16**	-.18**	.20**	.16**	.17*	-.05	.26**	.30**	.20**	.22**	-		
12. CRT Risk Adjustment	.13*	.10	-.02	-.01	-.02	-.07	-.07	-.07	.06	.09	-.49**	-	
13. CRT Delay Aversion	-.16**	-.18**	.19**	.16**	.16**	-.07	.26*	.31*	.21**	.21**	.98**	-.47**	-

Note. * $p < .05$; ** $p < .01$; ART = Angling Risk Task; CDQ = Choice Dilemma Questionnaire; CRT = Cambridge Risk Task; $N = 266 - 473$.

Table 6

Correlations among Financial Outcome Indicators and Covariates

Measure	1.	2.	3.	4.	5.	6.	7.	8.
1. FBM Everyday Irresponsibility	-							
2. FBM Serious Consequences	.41**	-						
3. FBM Financial Planning/ Work Success	-.17 **	-.13**	-					
4. FBM $Won†	.11	.03	.32**	-				
5. FBM $ Lost†	.29**	.14**	.12*	.64**	-			
6. Subject SES	-.07	.02	.18**	.10	.01	-		
7. SES Residual	-.06	.02	.11*	.10	.01	.93**	-	
8. Annual Income	.00	.-.05	.49**	.30**	.22**	.19**	.12*	-
9. FLQ	-.03	-.21**	.14**	.29**	.15**	.13**	.12*	.08

Note. * $p < .05$ ** $p < .01$; †FBM $ Won and $ Lost were log transformed due to non-normality of the distributions; FBM = Financial Behaviors Measure; FLQ = Financial Literacy Questionnaire; SES = Socioeconomic Status; N = 302 – 481 depending on analysis;

Table 7

Correlations Among Psychopathy and Risk Perception Measures

Measure	CDQ Advise	CDQ Self	Frame Positive	Frame Negative	Frame Total	Frame Sensitivity
PPI-R Total	-.19**	-.26**	.16**	.04	.11*	.06
PPI-R FD	-.19**	-.28**	.13**	.11*	.13*	-.01
PPI-R SCI	-.12*	-.14**	.13**	-.02	.06	.08
TriPM Boldness	-.14*	-.23**	.12**	.11*	.13*	-.01
TriPM Disinhibition	-.08	-.11*	.08	-.08	.01	.06
TriPM Meanness	-.09*	-.08	.07	-.10*	-.01	.02
LSRP Total	-.15**	-.15**	.04	-.06	.00	.11*
LSRP 1	-.19**	-.19**	.04	-.05	.00	.09
LSRP 2	-.05	-.05	.03	-.05	.00	.13*

Note. * $p < .05$; ** $p < .01$; CDQ = Choice Dilemma Questionnaire; LSRP = Levenson's Self- Report Psychopathy Scale; PPI-R = Psychopathy Personality Inventory –Revised; PPI-R FD = Psychopathy Personality Inventory –Revised Fearless Dominance; PPI-R SCI = Psychopathy Personality Inventory –Revised Self-Centered Impulsivity; TriPM = Triarchic Psychopathy Measure; N = 459 – 480 due to missing data.

Table 8

Correlations among Psychopathy and Risk Behavior Measures

Measure	ART Cloudy Sudden Ends	ART Cloudy Average Fish	ART Clear Sudden Ends	ART Clear Average Fish	CRT Risk Taking	CRT Risk Adjustment	CRT Delay Aversion
PPI-R Total	-.01	-.01	.04	-.01	.08	-.07	.10
PPI-R FD	.07	.07	.04	.01	.06	-.07	.07
PPI-R SCI	-.07	-.07	.02	-.01	-.04	.06	-.03
TriPM Boldness	.10	.10	.09	.05	.04	-.11	.06
TriPM Disinhibition	-.08	-.11	.01	-.11	.09	-.04	.09
TriPM Meanness	-.07	-.08	.02	-.05	.07	-.01	.07
LSRP Total	-.08	-.10	-.02	-.10	.09	-.11	.10
LSRP 1	-.05	-.06	.00	-.08	.11	-.14*	.12*
LSRP 2	-.12*	-.12*	-.05	-.12	.04	-.03	.03

Note. * $p < .05$; ** $p < .01$; ART = Angling Risk Task; CRT = Cambridge Risk Task; LSRP = Levenson's Self-Report Psychopathy Scale; PPI-R = Psychopathy Personality Inventory –Revised; PPI-R FD = Psychopathy Personality Inventory –Revised Fearless Dominance; PPI-R SCI = Psychopathy Personality Inventory –Revised Self-Centered Impulsivity; TriPM = Triarchic Psychopathy Measure; N = 266 - 275 due to missing data.

Table 9

Correlations among Psychopathy Measures and Financial Behaviors

Measure	FBM Everyday Irresponsibility	FBM Serious Financial Consequences	FBM Financial Planning/ Work Success	FBM $Won	FBM $Lost	SES Residual	Annual Income	SES	FLQ
PPI-R Total	.10*	.24**	.11*	.19**	.16**	.09	.22**	.09	-.18**
PPI-R FD	-.04	.04	.36**	.24**	.14*	.08	.32**	.09*	-.04
PPI-R SCI	.18**	.32**	-.15**	.08	.11*	.07	.03	.05	-.21**
TriPM Boldness	-.02	-.03	.39**	.21**	.12*	.07	.34**	.10	-.01
TriPM Disinhibition	.26**	.39**	-.23**	.03	.07	-.03	-.05	-.03	-.21**
TriPM Meanness	.12*	.35**	-.12*	.02	.07	-.01	.05	-.01	-.16*
LSRP Total	.14**	.30**	-.13**	.09	.16**	.00	.07	.00	-.28**
LSRP 1	.10*	.25**	-.03	.11	.18**	.01	.16**	.01	-.27**
LSRP 2	.19**	.30**	-.27**	.05	.09	-.03	-.10*	-.03	-.23**

Note. * $p < .05$; ** $p < .01$; FBM = Financial Behaviors Measure; LSRP = Levenson's Self-Report Psychopathy Scale; PPI-R = Psychopathy Personality Inventory –Revised; PPI-R FD = Psychopathy Personality Inventory –Revised Fearless Dominance; PPI-R SCI = Psychopathy Personality Inventory –Revised Self-Centered Impulsivity; SES = Socioeconomic Status; TriPM = Triarchic Psychopathy Measure; N = 300 – 481 due to missing data.

Table 10

Correlations Among Psychopathy and Financial Outcomes Controlling for Financial Literacy

Measure	FBM Everyday Irresponsibility	FBM Serious Financial Consequences	FBM Financial Planning/ Work Success	FBM $Won	FBM $Lost	SES Residual	Annual Income
PPI-R Total	.13*	.25**	.11	.23**	.17**	.04	.24*
PPI-R FD	-.04	.00	.36**	.26**	.08	.03	.32**
PPI-R SCI	.25**	.37**	-.17**	.12*	.18*	.03	.04
TriPM Boldness	-.02	-.03	.39**	.21**	.12*	.06	.35**
TriPM Disinhibition	.31**	.44**	-.23**	.07	.16**	-.04	-.04
TriPM Meanness	.11*	.36**	-.10*	.04	.09	-.06	.07
LSRP Total	.22**	.33**	-.14**	.14*	.21**	.00	.09
LSRP 1	.15*	.28**	-.03	.16*	.17**	-.01	.18**
LSRP 2	.26**	.34**	-.29**	.08	.22**	-.02	-.08

Note. * $p < .05$; ** $p < .01$; FBM = Financial Behaviors Measure; LSRP = Levenson's Self-Report Psychopathy Scale; PPI-R = Psychopathy Personality Inventory –Revised; PPI-R FD = Psychopathy Personality Inventory –Revised Fearless Dominance; PPI-R SCI = Psychopathy Personality Inventory –Revised Self-Centered Impulsivity; SES = Socioeconomic Status; TriPM = Triarchic Psychopathy Measure; N = 300 – 481 due to missing data.

Table 11

Correlations among Psychopathy and Financial Measures Controlling For SES

Measure	FBM Everyday Irresponsibility	FBM Serious Financial Consequences	FBM Financial Planning/ Work Success	FBM $Won	FBM $Lost	SES Residual	Annual Income
PPI-R Total	.15*	.27**	.09	.19**	.14*	.02	.20**
PPI-R FD	-.03	.00	.35**	.24**	.07	-.08	.30**
PPI-R SCI	.26**	.38**	-.17**	.08	.16**	.09	.01
TriPM Boldness	-.02	-.06	.37**	.22**	.01	-.15*	.33**
TriPM Disinhibition	.32**	.46**	-.23**	.04	.14*	.08	-.06
TriPM Meanness	.12*	.38**	-.09	.02	.08	.09	.05
LSRP Total	.23**	.36**	-.14*	.10	.18**	.06	.07
LSRP 1	.17*	.30**	-.03	.11	.14*	.03	.15**
LSRP 2	.27**	.36**	-.29**	.05	.20**	.10	-.09*

Note. * $p < .05$; ** $p < .01$; FBM = Financial Behaviors Measure; LSRP = Levenson's Self-Report Psychopathy Scale; PPI-R = Psychopathy Personality Inventory –Revised; PPI-R FD = Psychopathy Personality Inventory –Revised Fearless Dominance; PPI-R SCI = Psychopathy Personality Inventory –Revised Self-Centered Impulsivity; SES = Socioeconomic Status; TriPM = Triarchic Psychopathy Measure; N = 300 – 481 due to missing data.

Table 12

Correlations among Psychopathy and Financial Measures Controlling For Abstract Reasoning

Measure	FBM Everyday Irresponsibility	FBM Serious Financial Consequences	FBM Financial Planning/ Work Success	FBM $Won	FBM $Lost	SES Residual	Annual Income
PPI-R Total	.13*	.25**	.10	.20**	.15*	.05	.21**
PPI-R FD	-.05	-.01	.36**	.25**	.08	.05	.31**
PPI-R SCI	.25**	.37**	-.18**	.08	.16**	.04	.01
TriPM Boldness	-.04	-.07	.38**	.23**	.02	.06	.34**
TriPM Disinhibition	.31**	.44**	-.25**	.03	.14*	-.03	-.07
TriPM Meanness	.12*	.38**	-.11	.01	.08	-.06	.04
LSRP Total	.22**	.34**	-.15*	.10	.19**	-.01	.05
LSRP 1	.16*	.28**	-.04	.11	.15*	-.01	.14**
LSRP 2	.26**	.34**	-.30**	.05	.20**	-.01	-.11*

Note. * $p < .05$; ** $p < .01$; FBM = Financial Behaviors Measure; LSRP = Levenson's Self-Report Psychopathy Scale; PPI-R = Psychopathy Personality Inventory –Revised; PPI-R FD = Psychopathy Personality Inventory –Revised Fearless Dominance; PPI-R SCI = Psychopathy Personality Inventory –Revised Self-Centered Impulsivity; SES = Socioeconomic Status; TriPM = Triarchic Psychopathy Measure; N = 300 – 481 due to missing data.

Table 13

Correlations among Psychopathy and Financial Measures Controlling For Verbal Reasoning

Measure	FBM Everyday Irresponsibility	FBM Serious Financial Consequences	FBM Financial Planning/ Work Success	FBM $Won	FBM $Lost	SES Residual	Annual Income
PPI-R Total	.12*	.19**	.09	.20**	.14*	.03	.21**
PPI-R FD	-.06	-.07	.36**	.25**	.07	.05	.31**
PPI-R SCI	.24**	.33**	-.19**	.08	.15*	.02	.01
TriPM Boldness	-.04	-.11	.38**	.23**	.01	.06	.34**
TriPM Disinhibition	.31**	.39**	-.27**	.02	.12	-.05	-.07
TriPM Meanness	.10	.31**	-.12*	.00	.06	-.07	.04
LSRP Total	.21**	.27**	-.17*	.10	.17**	-.02	.06
LSRP 1	.15*	.21**	-.05	.11	.13*	-.02	.15**
LSRP 2	.26**	.30**	-.31**	.05	.19**	-.03	-.12*

Note. * $p < .05$; ** $p < .01$; FBM = Financial Behaviors Measure; LSRP = Levenson's Self-Report Psychopathy Scale; PPI-R = Psychopathy Personality Inventory –Revised; PPI-R FD = Psychopathy Personality Inventory –Revised Fearless Dominance; PPI-R SCI = Psychopathy Personality Inventory –Revised Self-Centered Impulsivity; SES = Socioeconomic Status; TriPM = Triarchic Psychopathy Measure; N = 300 – 481 due to missing data.

Table 14

Correlations among PPI-R Subscales and Risk Perception Measures

PPI-R Scale	CDQ Advise	CDQ Self	Frame Positive	Frame Negative	Frame Total	Framing Sensitivity Index
Machiavellian Egocentricity	-.11*	.-.12**	.12**	.00	.07	.06
Social Influence	-.12**	-.19**	.09	.09	.10*	-.01
Fearlessness	-.21**	-.29**	.15**	.12*	.16**	.04
Rebellious Non-Conformity	-.15**	-.21**	.12**	.07	.11*	.03
Coldheartedness	-.10*	-.12**	.04	.00	.02	.06
Stress Immunity	-.11*	-.17**	.06	.06	.06	-.06
Carefree Nonplanfulness	-.07	-.07	.10*	-.06	.02	.10*
Blame Externalization	-.06	-.07	.07	-.03	.02	.06

Note. * $p < .05$; ** $p < .01$; CDQ = Choice Dilemma Questionnaire; PPI-R = Psychopathy Personality Inventory –Revised; SES = Socioeconomic Status; $N = 302 – 481$ due to missing data.

Table 15

Correlations among PPI-R Subscales and Risk Behavior Measures

PPI-R Scale	ART Cloudy Sudden Ends	ART Cloudy Average Fish	ART Clear Sudden Ends	ART Clear Average Fish	CRT Risk-Taking	CRT Risk Adjustment	CRT Delay Aversion
Machiavellian Egocentricity	-.05	-.04	.06	.00	.06	-.03	.07
Social Influence	.09	.09	.07	.03	.04	-.09	.03
Fearlessness	-.05	-.04	.01	-.03	.09	-.01	.11
Rebellious Non-Conformity	-.06	-.05	.00	-.03	-.02	-.01	-.02
Coldheartedness	-.02	-.03	.03	.02	.08	-.06	.10
Stress Immunity	.13*	.11	.02	.02	.04	-.05	.07
Carefree Nonplanfulness	-.09	-.09	.01	-.08	.07	-.09	.07
Blame Externalization	-.02	-.04	-.01	-.01	.07	.03	.06

Note. * $p < .05$; ** $p < .01$; ART = Angling Risk Task; CRT = Cambridge Risk Task; PPI-R = Psychopathy Personality Inventory-Revised; SES = Socioeconomic Status; *N* = 272-275.

Table 16

Correlations among PPI-R Subscales and Financial Outcome Measures

PPI-R Scale	FBM Everyday Irresponsibility	FBM Serious Financial Consequences	FBM Financial Planning/ Work Success	FBM $Won	FBM $Lost	SES Residual	Annual Income
Machiavellian Egocentricity	.19**	.28**	-.02	.12*	.17**	.08	.14**
Social Influence	.00	.04	.35**	.20**	.11*	.10*	.29**
Fearlessness	-.02	.11*	.14**	.20**	.16**	.07	.19**
Rebellious Non-Conformity	.08	.21**	-.01	.16**	.07	.12*	.04
Coldheartedness	.01	.07	.07	.04	.06	.03	.18**
Stress Immunity	-.08	-.07	.33**	.13*	.07	-.01	.25**
Carefree Nonplanfulness	.10*	.22**	-.22**	-.02	.02	-.02	-.04
Blame Externalization	.19**	.24**	-.23**	-.02	.05	.02	-.08

Note. * $p < .05$; ** $p < .01$; FBM = Financial Behaviors Measure; PPI-R = Psychopathy Personality Inventory –Revised; SES = Socioeconomic Status; $N = 302 – 481$ due to missing data.

Table 17
Summary of Mediation Analyses Conducted

Psychopathy Factor	Mediator	Outcome
Boldness	CDQ	Financial Planning/Work Success
		FBQ Won*
		FBQ Lost*
		Annual Income
	Frame Positive	Financial Planning/Work Success
		FBQ Won*
		FBQ Lost*
		Annual Income
	Frame Negative	Financial Planning/Work Success
		FBQ Won*
		FBQ Lost*
		Annual Income
Disinhibition	ART Clear	Everyday Irresponsibility
		Serious Financial Consequences
		Financial Planning/Work Success
		FBQ Won*
		FBQ Lost*
		Annual Income
	ART Cloudy	Everyday Irresponsibility
		Serious Financial Consequences
		Financial Planning/Work Success
		FBQ Won*
		FBQ Lost*
		Annual Income
	CRT Risk Taking	Everyday Irresponsibility
		Serious Financial Consequences
		Financial Planning/Work Success
		FBQ Won*
		FBQ Lost*
		Annual Income
	CRT Risk Adjustment	Everyday Irresponsibility
		Serious Financial Consequences
		Financial Planning/Work Success
		FBQ Won*
		FBQ Lost*
		Annual Income

Note. ART = Angling Risk Task; CDQ = Choice Dilemma Questionnaire; CRT = Cambridge Risk Task; Boldness is the standardized combination of PPI Fearless Dominance and TriPM Boldness; Disinhibition is the standardized combination of PPI Self-Centered Impulsivity, TriPM Disinhibition, and LSRP 2; ART Clear is the standardized combination of ART Average Fish and Sudden Ends in the clear condition; ART Cloudy is the combination of ART Average Fish and Sudden Ends in the cloudy condition; CDQ is the standardized combination of CDQ scales Self and Advise.

Table 18
Results of Boldness Mediation Analyses

Psychopathy Factor	Mediator	Outcome Measure	K^2	R^2	*N*
Boldness	*CDQ*	Financial Planning/Work Success	.01	.00	462
		Annual Income	.00	.01	461
		FBQ Won*	.00	.00	293
		FBQ Lost*	.00	.00	337
Boldness	*Frame Positive*	Financial Planning/Work Success	.00	.01	464
		Annual Income	.01	.01	463
		FBQ Won*	.01	.02	293
		FBQ Lost*	.00	.01	341
Boldness	*Frame Negative*	Financial Planning/Work Success	.00	.00	465
		Annual Income	.01	.01	464
		FBQ Won*	.01	.02	295
		FBQ Lost*	.00	.01	342

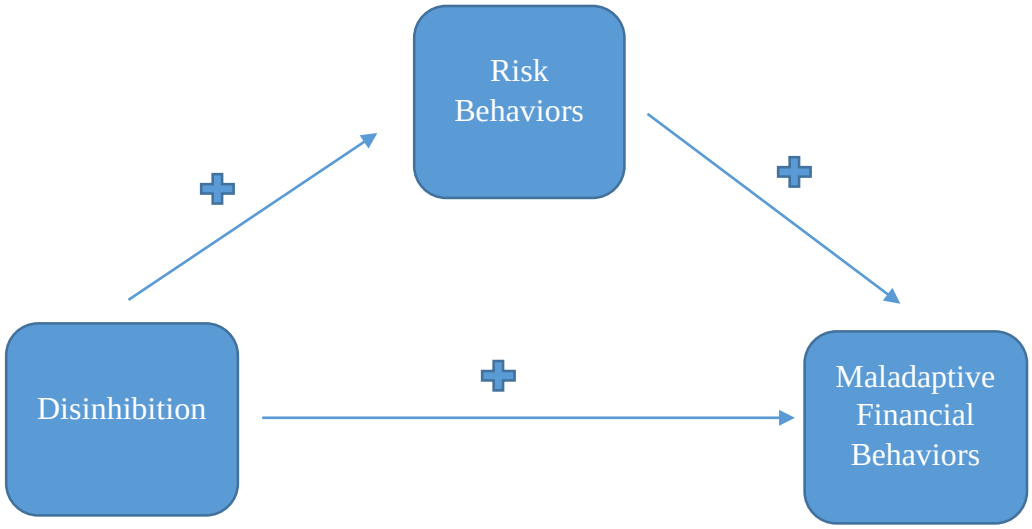
Note. ART = Angling Risk Task; CDQ = Choice Dilemma Questionnaire; CRT = Cambridge Risk Task; Boldness is the standardized combination of PPI Fearless Dominance and TriPM Boldness; CDQ is the standardized combination of CDQ scales Self and Advise.

Table 19

Results of Disinhibition Mediation Analyses

Psychopathy Factor	Mediator	Outcome Measure	K^2	R^2	*N*
Disinhibition	ART Clear	Everyday Irresponsibility	.00	.00	313
		Serious Financial Consequences	.00	.00	313
		Financial Planning/Work Success	.00	.00	313
		Annual Income	.00	.00	312
		FBQ Won*	.00	.01	211
		FBQ Lost*	.00	.01	243
Disinhibition	ART Cloudy	Everyday Irresponsibility	.00	.00	312
		Serious Financial Consequences	.00	.01	312
		Financial Planning/Work Success	.00	.00	312
		Annual Income	.00	.00	312
		FBQ Won*	.00	.02	208
		FBQ Lost*	.00	.02	241
Disinhibition	CRT Risk-Taking	Everyday Irresponsibility	.00	.00	316
		Serious Financial Consequences	.00	.00	316
		Financial Planning/Work Success	.00	.00	316
		Annual Income	.00	.00	380
		FBQ Won*	.00	.00	212
		FBQ Lost*	.00	.00	245
Disinhibition	CRT Risk Adjustment	Everyday Irresponsibility	.00	.00	315
		Serious Financial Consequences	.00	.00	315
		Financial Planning/Work Success	.00	.00	315
		Annual Income	.00	.00	381
		FBQ Won*	.00	.00	212
		FBQ Lost*	.00	.00	244

Note. ART = Angling Risk Task; CRT = Cambridge Risk Task; Disinhibition is the standardized combination of PPI Self-Centered Impulsivity, TriPM Disinhibition, and LSRP 2; ART Clear is the standardized combination of ART Average Fish and Sudden Ends in the clear condition; ART Cloudy is the combination of ART Average Fish and Sudden Ends in the cloudy condition.



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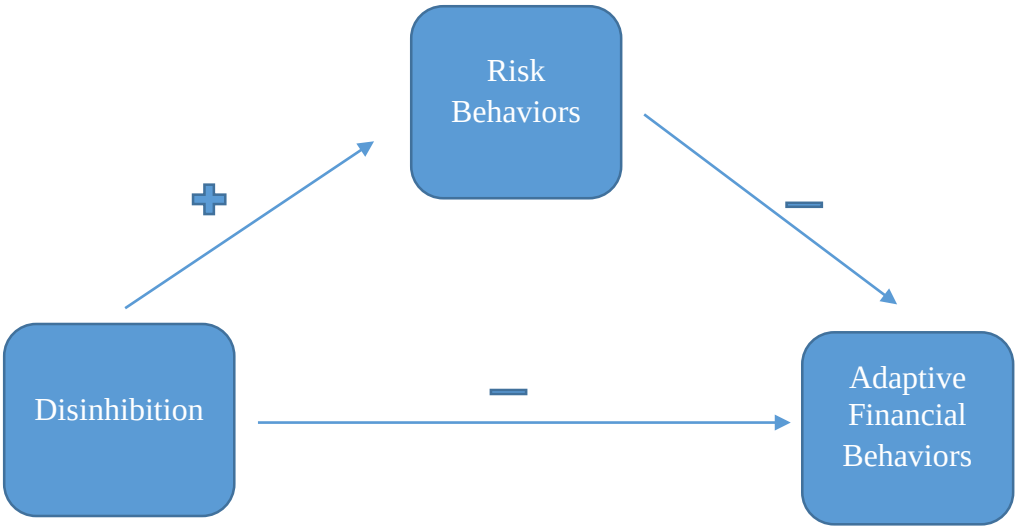

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Figure 1. *Disinhibition and Financial Behaviors Mediated by Risk Behaviors.*

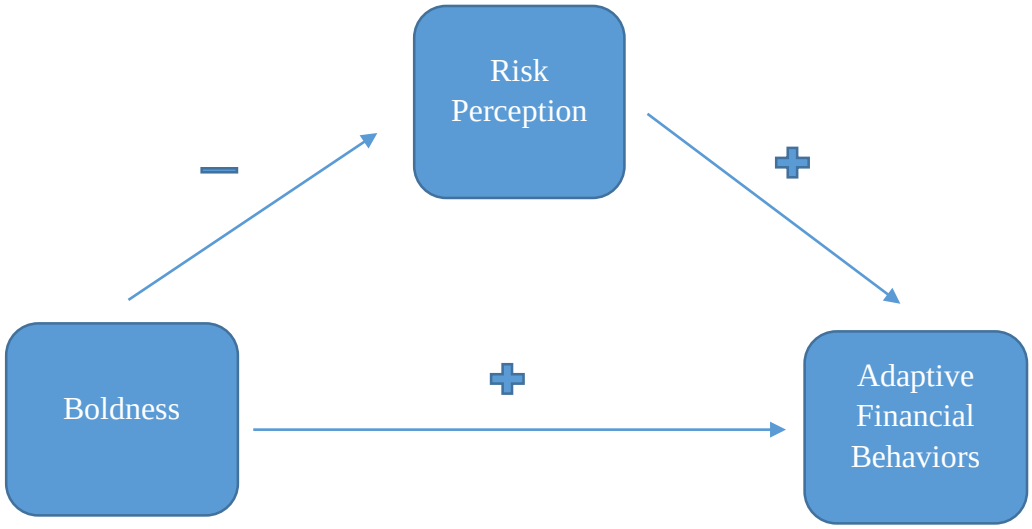

Figure 2. *Boldness and Adaptive Financial Behaviors Mediated by Risk Perception.*

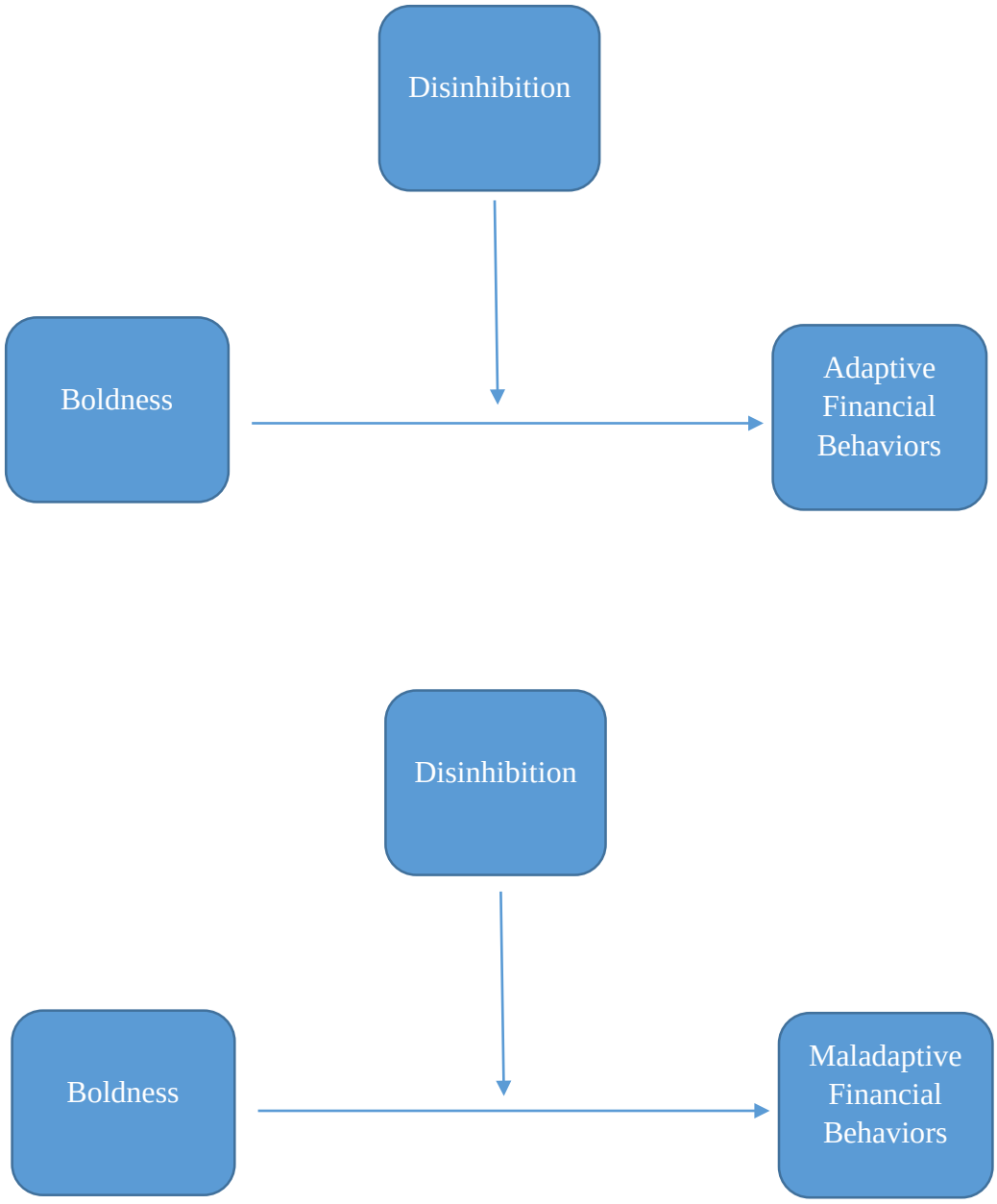

Figure 3. *Boldness and Financial Behaviors Moderated by Disinhibition*