A CLOSER LOOK AT ENTREPRENEURSHIP AND ATTITUDE TOWARD RISK

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ABSTRACT

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Entrepreneurs' attitudes toward risk have been researched in the past with mixed and often contradictory results. Utilizing Blais and Weber's (2006) domain specific approach to understanding risk taking attitudes (DOSPERT), the present study investigated the relation of risk taking attitudes of entrepreneurs across risk-taking domains. In addition, we examined the relation of domain-specific risk attitudes to self-reported entrepreneurship. Results show that entrepreneurs show the greatest amount of risk taking in the social domain, and are generally more risk taking than non-entrepreneurs on most DOSPERT dimensions. Of the outcome variables examined (self-report success, firm creation, & business survival), financial risk taking and self-report success showed a significant relation. Contrary to what was hypothesized, there were no other significant relations between entrepreneurship, financial risk taking and any of the outcome variables, nor was there any interactional effect between financial risk taking and entrepreneurship. Additional analyses show that social risk taking is a significant predictor of self-reported entrepreneurship. Also, social risk taking provided significant incremental variance in the prediction of entrepreneurship above and beyond the Big Five.

To Emily and my family: Thank you for your constant love, support, and encouragement.

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CHAPTER 1. INTRODUCTION

In his 1755 *Essay on Economic Theory,* Richard Cantillon described the entrepreneur as, among other things, a risk bearer. The notion that risk is a key element of entrepreneurship is seen throughout the entrepreneurial literature (e.g. Ahmed, 1985; Caliendo, Fossen, & Kritikos, 2010; Koh, 1996; Long, 1983). Olson (1986), for example, asserted that risk taking is advantageous in creating new businesses, and Cromie (2000) suggested that the ability and willingness to bear and overcome risk is fundamental when engaging in entrepreneurial activity. Recent research by Caliendo, Fossen, and Kritikos (2010) found that risk attitudes can prolong the survival of an entrepreneur. And, Fairlie and Holleran (2012) found evidence to suggest that risk tolerance predisposed people to benefit more from entrepreneurship training. The common intuition that the entrepreneur has an atypical appetite for risk, however, has received mixed support. Stewart and Roth (2001) meta-analyzed over 20 years of research on general risk-taking attitudes of entrepreneurs finding that they have a higher risk propensity than managers. Miner and Raju (2004), however, meta-analyzed studies using measures of risk-taking motives (as opposed to attitudes), and found that entrepreneurs are generally risk-avoidant. Miner and Raju suggest that it is far too early to draw conclusions about the relation between entrepreneurship and individual-differences in risk taking.

In response to long-standing measurement problems in the literature on risk attitude, Weber and her colleagues (Blais & Weber, 2006; Weber, Blais & Betz, 2002) introduced the Domain Specific Risk-Taking (DOSPERT) scale. These researchers suggested that risk attitudes are domain specific and can be categorized into five distinct domains: financial, health/safety, ethics, recreational, and social. In its short existence, the DOSPERT has been highly cited, and

has become the risk measure of choice in the literature on judgment and decision making (Appelt, Milch, Handgraaf, & Weber, 2011).

The purpose of the present study is to provide a fine-grained look at the relation between entrepreneurship and risk by utilizing a scale that assesses risk in specific domains; a scale that has not been implemented in the entrepreneurship literature. The assessment of risk attitudes held by entrepreneurs, by way of Blais and Weber's (2006) DOSPERT, will allow for both an idiographic and nomothetic examination of entrepreneurship and risk taking. By utilizing a scale that differentiates domains of risk taking, the DOSPERT allows an examination of how entrepreneurs differ on the various dimensions of risk (e.g., Are entrepreneurs higher on financial risk taking than on social risk taking?). From a nomothetic perspective, the DOSPERT allows for a finer-grained analysis of *how* entrepreneurs may differ from the rest of the population on risk taking (e.g., Are entrepreneurs higher than nonentrepreneurs on financial risk taking?).

Entrepreneurship

Entrepreneurial management professor, Daryl Mitton likened the entrepreneur to obscenities, in that "I can't define it…but I know it when I see it" (1989, p. 9). The broad and enigmatic scope of entrepreneurial research makes it largely difficult and tedious for scholars to come to a consensus about the exact nature of entrepreneurship. Shane and Venkataraman (2000) developed a theoretical framework that urged researchers to conceptualize entrepreneurship as the interaction between the person and the situation. They argued that, for entrepreneurship to occur, there must exist an opportunity of which an enterprising or innovative individual can detect and take advantage. More precisely, the authors defined entrepreneurship as "the scholarly examination of how, by whom, and with what effects opportunities to create future goods and

services are discovered, evaluated, and exploited" (Shane & Venkataraman, 2000, p. 218). In other words, entrepreneurs may not only be characterized by who they are, but how they operate in and perceive certain situations. An alternative view is that of entrepreneurship existing within an organization (Miller, 1983). According to this view, although individuals can be entrepreneurial, so too can organizations. According to Miller (1983), an entrepreneurial organization is focused on innovation and proactive conduct, often in situations or markets that are inherently risky. From this view spawned research into the Entrepreneurial Orientation, which some (e.g. Covin & Lumpkin, 2011; Wales, Monsen, & McKelvie, 2011) adopt as the organization-centric approach to entrepreneurship.

Although entrepreneurship may be considered a function of an organization, much of the current research on entrepreneurship focuses on the entrepreneur as an individual; describing their personality, what kind of traits they possess, or what makes them different from others. For example, in an attempt to understand and simplify exactly who the entrepreneur is, Gartner (1990) asked academics, business leaders, and politicians to define entrepreneurship in their own words. He found that eight dimensions emerged as important aspects of the entrepreneur: personality characteristics, innovation, organization creation, creating value, profit or nonprofit, growth, uniqueness, and being owner/manager. With these dimensions, Gartner attempted to understand who the entrepreneur is and what the entrepreneur does. However, the author strategically did not come to a singular definition in his research because of the wide span that is created with these dimensions. The argument being that one could develop a definition of the entrepreneur that focuses on any one particular dimension and would be suited for the research's particular need, but one could not accurately define an entrepreneur and include all of these dimension (Gartner, 1990). Robinson, Stimpson, Huefner, and Hunt (1991) took the organization

creation and innovation dimensions into account when defining a start-up entrepreneur, as such they operationalized it as "an individual who has started more than one business, the last one being within five years, using some type of innovation" (p. 20). The authors used this definition in their research which identified four important factors (achievement, innovation, personal control, and self-esteem) as key indicators of the personality of an entrepreneur. They used this information to develop the Entrepreneurial Attitude Orientation (EAO) scale; a measure intended to predict the likelihood of one being an entrepreneur based on their attitudes.

Some researchers focused on narrower, personal psychological predispositions that may be indicative of entrepreneurism. Shaver and Scott (1991) examined the concept of venture creation as a proxy for entrepreneurism and suggested that risk taking propensity, locus of control, and achievement motivation were potential predominate factors that may be inherent in entrepreneurs. Stewart, Watson, Carland, and Carland (1999) looked at similar psychological predispositions (achievement motivation, preference for innovation, and risk taking propensity) in the entrepreneur, however, they took a different approach and attempted to identify if managers would differ in these factors from entrepreneurs. They classified entrepreneurs as those who had established a business and were actively managing that business. Whereas managers were identified by the lack of ownership stake in the organization for which they work and their role included managerial activities like supervision of employees or responsibility for performance. Although an entrepreneur may engage in similar managerial activities, the key distinction between them and managers is the stake in ownership. Attempting to understand the entrepreneur-manager distinction, Stewart and Roth (2001) meta-analyzed over 20 years of entrepreneurial research to gain a better sense of how exactly the entrepreneur is different from a manager. To do this, the authors operationalized an entrepreneur as someone "…who

independently owns and actively manages a small business" (p. 146). They found that a key difference between entrepreneurs and managers was found in their attitude toward risky decision. Yet, similar to the Stewart, Watson, Carland, and Carland (1999) definition, Stewart and Roth use ownership as a defining characteristic of an entrepreneur.

Defining the entrepreneur as someone who independently owns and manages a business is common and pervasive in the entrepreneurial literature (e.g. Brockhaus, 1980b; Carland, Hoy, Boulton, & Carland, 1984; Stewart, Watson, Carland, & Carland, 1999; Stewart & Roth, 2001). Because of its wide use and acceptance, the present study will utilize this definition of an entrepreneur.

Risk Taking and Entrepreneurship

From the early (e.g. Long, 1983; Olson, 1986) to current (e.g. Fairlie & Holleran, 2012; Willebrands, Lammers, & Hartog, 2012) research on entrepreneurship, risk has proved to be a pervasive and enduring theme. Risk taking has generally been viewed as a predispositional variable, rather than merely a situational one. Plax and Rosenfeld, (1976) found that individuals who were described as risk taking: "…were characterized as persistent, effective in their communication, confident and outgoing, clever and imaginative, aggressive, efficient and clear-thinking, and manipulative and opportunistic in dealing with others" (p. 416). As we can see from this definition, there is much overlap with the notion of an entrepreneur. If risk taking is indeed a dispositional quality as suggested by previous literature, research on entrepreneurs should identify an entrepreneurial profile in which risk taking is a fundamental element. It has been documented that risk may be an inherent and important factor when discussing

entrepreneurs (e.g. Stewart et al, 1999; Stewart & Roth, 2001; Macko & Tyszka, 2009), fueling the importance to understand the nature of risk taking in entrepreneurship.

In an attempt to further the understanding of the entrepreneur, Stewart, Watson, Carland and Carland (1999) take into account the notion of risk when investigating the differences between entrepreneurs and business managers; specifically looking at differences between the two groups in three important areas: need for achievement, preference for innovation, and risk-taking propensity. They make the distinction between entrepreneurs and managers by suggesting that an entrepreneur is someone who has created, owns, and manages a business; whereas a manager was not involved in the venture creation nor has any ownership at stake. The authors found that entrepreneurs – those who actively owned and managed a business – scored markedly higher than managers on all three factors. These results provide evidence that supports the claim of entrepreneurs being a separate, distinct population within the business world. Extending that research, Stewart and Roth (2001) meta-analyzed research on the risk taking propensities of entrepreneurs to answer the question of whether or not entrepreneurs have higher levels of risk taking tendencies than managers. Results from their meta-analysis reveal that entrepreneurs do in fact demonstrate more risk taking tendencies than managers, concluding that the risk taking propensity of an entrepreneur is what differentiates them from the prototypical business manager. Miner and Raju (2004), however, conducted another meta-analysis advocating for a more conservative view of entrepreneurship and risk taking; claiming that the studies included in Stewart and Roth's (2001) meta-analysis were not representative. Studies included in Miner and Raju's (2004) meta-analysis employed a projective assessment; the risk avoidance scale of the Miner Sentence Completion Scale. Results from their analysis suggested that entrepreneurs are mainly risk avoidant (Miner & Raju, 2004). However, when combining their results with the

results of the Stewart and Roth (2001) meta-analysis, they found no support for either side of the debate. Therefore, Miner and Raju (2004) disagreed that such conclusions found in the Stewart and Roth (2001) analysis could be made and instead suggested that much more research should be done in order to draw any definitive conclusions.

Measurement of Risk

Although risk is a construct simply described as how risky a choice is compared to alternatives; risk taking propensity, the focus of the present study and the interest of much of the risk related research on entrepreneurs, is described as a person's tendency to take or avoid risks (Sitkin & Weingart, 1995). Risk taking propensity among entrepreneurs has been studied with some mixed results. Some (Stewart et al, 1999; Stewart & Roth, 2001) found that entrepreneurs display higher risk taking than managers; while, others (Brockhaus, 1980b, Miner & Raju, 2004) have found there to be no significant differences in risk taking among entrepreneurs and managers. This discrepancy in the literature, however, may be due to the broad nature of current methods in assessing risk taking. Historically, risk taking has been measured using one of two widely accepted measures: the Jackson Personality Inventory (JPI) or the Kogan-Wallach Choice Dilemmas Questionnaire (CDQ). The JPI is an inventory that investigates 16 personality variables (Jackson, 1976). One of the subscales, the Risk Taking scale, of the JPI addresses one's willingness to make a decision that may ultimately lead to success or failure. Nine of the 14 studies included in Stewart and Roth's (2001) meta-analysis utilized the JPI. However, the JPI treats risk as a unitary trait, combining elements of social, physical, monetary, and ethical risks (Jackson, Hourany, and Vidmar, 1972).

The Kogan-Wallach CDQ assesses risk by presenting individuals with 12 diverse situations that contain some sort of risky decision. Each scenario contains a hypothetical person that must make a decision between a safe, less exciting choice and a more interesting but risky alternative. A subject is then asked to rate the probability of success (out of 10) that would be enough to warrant the choice of the risky alternative. A higher reported probability (e.g. 9/10) would indicate the subject is more risk averse for the given scenario. The CDQ has been highly criticized because of the measure's relatively low reliability, reliance on projective or ambiguous assessments, and it's lack of scoring procedure usually leads to scores across the 12 distinct situations being summed into one overall risk propensity score (Stewart & Roth, 2001). In Stewart and Roth's (2001) meta-analysis, four of the 14 studies included assessed risk using the CDQ. Studies contradicting the finding that entrepreneurs display higher risk taking tendencies than managers often utilized the CDQ (e.g. Brockhaus, 1980b) in their assessments of risk. Stewart and Roth (2001) caution readers to be careful when measuring risk taking propensity and suggest that the JPI may be the lesser of the two evils. In their meta-analysis, Stewart & Roth (2001) showed that the type of measurement (JPI vs. CDQ) moderated the observed effect size such that studies using the JPI demonstrated higher effect sizes that those using the CDQ (d=.31 vs. d=.25, respectively). However, the authors do recommend that future research should look into better instrumentation in the measurement of risk taking.

Weber, Blais, and Betz (2002) created the domain-specific risk-taking scale – DOSPERT. The authors suggested that attitudes toward risk may differ across life domains. For example; one's attitude toward smoking, a risky health behavior, may not be the same as his or her attitude toward plagiarizing, a risky ethical behavior. As such, Weber, Blais, and Betz (2002) posited that risk attitudes are domain specific and can be categorized into five distinct domains: financial,

health/safety, ethics, recreational, and social. The financial domain is characterized by activities such as investing one's money in a new business or stock, or gambling on sporting events. The health and safety domain consists of things like riding a motorcycle without a helmet or engaging in unprotected sex. The ethical domain is made up of ethically questionable topics such as revealing a friend's secret to someone else or having an affair. Recreational risk is characterized by engaging in activities like bungee jumping, skydiving, or going whitewater rafting. Finally, the social risk domain is characterized by things like admitting your tastes are different from a friend, disagreeing with an authority figure, or speaking your mind about an unpopular issue. A unique attribute of the DOSPERT is its effectiveness in identifying those who may display high risk taking attitudes in one domain (e.g. adrenaline "junkies" taking recreational risks) while displaying relatively little risk taking, or averse to risk, in other domains such as financial risks. In a study to test these attributes and the validity of the DOSPERT, Hanoch, Johnson, and Wilke (2006) assessed the domain specificity of this measure by using subgroups that were likely representative of each domain (e.g. athletes in the recreation domain, gamblers in the gambling domain, investors in the investment domain, smokers in the health risking domain, etc.). They found that the DOSPERT behaved as expected in that the representative subgroup demonstrated higher risk taking in their domain than the other subgroups. For example, gamblers showed higher risk taking scores in the gambling domain than other groups (investors, athletes, smokers, and gym members) and smokers showed higher risk taking scores in the health domain than the other groups.

An entrepreneur may demonstrate high risk taking scores in certain domains but not others and with the DOSPERT we can identify these differences, whereas with previous risk

measures like the JPI and CDQ these domain differences may have been washed out by summing across situations and coming up with an average response.

The Present Study

To date, there exists relatively little research on entrepreneurs that investigates risk taking propensities using a domain specific approach. To address this, the present study intends to investigate risk taking propensities, using Blais and Weber's (2006) revised version of the DOSPERT, among an American sample of entrepreneurs.

Previous research has suggested that entrepreneurs differ from others in their propensity to engage in risky decision (Stewart & Roth, 2001). The fact that an entrepreneur is also the owner of their venture means they engage in typical business decisions faced by an owner (e.g. financial decision; how to invest money and resources). Therefore, given financial risk taking consists of things like investing money in a new business venture, which is something an entrepreneur might engage in, it would be expected that entrepreneurs would demonstrate higher than typical scores in the financial domain as compared to other domains of the DOSPERT. Therefore it is hypothesized that:

> *Hypothesis 1:* Entrepreneurs will report more favorable attitudes toward risk by exhibiting higher scores in the Financial domain, compared with other domains of the DOSPERT.

Outcomes of Successful Entrepreneurship

Willebrands, Lammers, and Hartog (2012) investigated the effect of risk attitudes of owners of micro or small enterprises on the firm's subsequent performance – as indicated by

revenue. While the authors adopted the domain specific approach advocated by Blais and Weber (2006), their study neglected to use the DOSPERT to measure risk attitudes nor did they assess risk attitudes in all five domains. The authors instead used a custom made scale that only assessed risk attitudes in the financial domain. While their study found that financial risk propensity was not significantly related to successful performance, incorporating entrepreneurial attitudes toward risk with potential outcomes, especially those indicative of success, will allow a better understanding of entrepreneurs and future research to potentially predict likelihood of success based on the attitudes held by the entrepreneur. The present study's focus on the financial risk taking propensity of entrepreneurs coupled with an investigation of various success criteria will allow researchers to make predictions based on the risk attitudes of an entrepreneur. For example, do entrepreneurs who display more risk taking tendencies tend to be more successful? What types of criteria would risky entrepreneurship predict? For the purpose of the present study, the primary criterion of interest will be the entrepreneur's self-reported success relative to other businesses. Although previous research is inconclusive about this matter (e.g. Willebrands, Lammers, & Hartog, 2012), it is expected that the financial risk attitudes and success of entrepreneurs will be related.

> *Hypothesis 2a:* Entrepreneurs who exhibit higher financial risk-taking attitudes will report as being more successful relative to other businesses, than those who have lower financial risk-taking attitudes.

Additional outcome variables to be considered will include number of past businesses created by the entrepreneur and survival length of the current firm. In line with previous research on number of past businesses created, in which Ames and Runco (2005) characterized a

successful entrepreneur as one who created multiple businesses, we expected that riskier entrepreneurs will have engaged in more new business ventures than less risk ones.

> *Hypothesis 2b:* Entrepreneurs who exhibit higher financial risk-taking attitudes will have created more businesses than those who have lower financial risk-taking attitudes.

Research has also investigated the survival length of an entrepreneur's firm as a potential indicator of success. Ciavarella, Buchholtz, Riordan, Gatewood, and Stokes (2004) argue that while much entrepreneurial research focuses on what factors may influence one to become an entrepreneur, there is less research on what may lead to an entrepreneur's success. Therefore, the authors investigated how the Big Five personality traits may effect a firm's survival. Although the authors only found conscientiousness to have a positive, significant relationship with success, they maintain that more research should focus on what may impact the success and survival of an entrepreneurial firm. Similarly, Brockhaus (1980a) studied different psychological and environmental factors and which factors may lead to entrepreneurial success. The author did this longitudinally and classified entrepreneurs whose firm survived 3 years later, until time 2 of the study, as successful; and conversely those firms that did not survive the 3 years were unsuccessful. Among the factors included in the study, some of those found to be significantly different between successful and unsuccessful entrepreneurs were locus of control and job satisfaction. Brockhaus (1980a) also investigated risk-taking propensity as an indicator of successful entrepreneurship but neglected to find a significant difference between successful and unsuccessful entrepreneurs on this factor. However, this study falls victim to the same methodological issues seen in Brockhaus (1980b) (i.e. use of the CDQ to measure risk-taking

propensity) and therefore necessitates more research into the risk taking-firm survival relationship.

Similar to Ciavarella's et al (2004) finding that hard work and perseverance (i.e. conscientiousness) is key for new firm survival, one could assume that given the uncertain nature of entrepreneurship, an entrepreneur would need to make more risky decisions to prolong the survival of the firm. Therefore, it would be expected that entrepreneurs who have a higher risk propensity will be more successful than those who don't based on the length of survival of the firm.

> *Hypothesis 2c:* Entrepreneurs who exhibit higher financial risk-taking attitudes will own firms that have survived more years than those with lower financial risk-taking attitudes.

CHAPTER 2. METHOD

Participants and Procedure

Participants for this study were recruited via email requests from the Venture Club of Indiana, Louisville Venture Club, The Small Business Development Corporation in Indiana, The Edward Lowe Foundation, and the Bowling Green State University Business School alumni list. An email was sent out to all participants explaining the purpose and intent of the study as well as assurance of anonymity. The email also included instructions on how to access and complete the online survey. For every completed survey, $1 was donated to the Dallas Hamilton Center for Entrepreneurial Leadership at Bowling Green State University.

The initial sample consisted of 636 people. Due to incomplete or missing data on key variables, 94 people were dropped from further analysis, resulting in 542 people in the final sample. The majority of the sample was White (73%) with an age range from 23 – 98 (M = 51.1, SD = 12.0). The majority of the sample identified themselves as male (54%).

Measures

*Entrepreneurship***.** To identify an individual as an entrepreneur, the present study used one of the most common definitions of an entrepreneur that is also used in seminal entrepreneurship research (e.g. Carland, Hoy, Boulton, & Carland, 1984; Stewart & Roth, 2001). This definition characterizes an entrepreneur as someone who independently owns and actively manages a business. Therefore, the following questions were included: “Do you own a business by yourself?” and “Do you actively manage a business?” and “Are you involved in ownership decision (e.g. financial and personnel decisions)?” and finally “Do you consider yourself self-employed?” Another way to assess whether or not someone is an entrepreneur is by self-

assessment. To do this, items were included that stated: "I consider myself an entrepreneur," "Most people who know me would consider me an entrepreneur," and "I engage in entrepreneurial business activities." Responses to these items will be on a 5-point Likert-type scale ranging from "1 = strongly disagree to 5 = strongly agree." See Appendix A for full Entrepreneurship questionnaire.

*Risk taking propensity***.** Risk taking propensity was measured using the 30-item Domain-Specific Risk-Taking scale or DOSPERT (Blais & Weber, 2006). This measure is an update of the original DOSPERT from Weber, Blais, and Betz (2002) in which the scale was shortened while maintaining its stable psychometric properties. The DOSPERT assesses one's risk taking behavior within five separate domains: Ethical, Financial, Health/Safety, Recreational, and Social. The internal consistencies (α) range from .71 to .86 for the scale (ethical = .75; financial = .83; health/safety = .71; recreational = .86; social = .79). Participants are asked to indicate the likelihood of engaging in a certain activity. Responses are on a 7-point Likert-type scale ranging from "1 = extremely unlikely to 7 = extremely likely." Example items from each domain include: "Investing 10% of your annual income in a new business venture (Financial)," "Choosing a career that you truly enjoy over a more secure one (Social)," "Going camping in the wilderness (Recreational)," "Drinking heavily at a social function (Health/Safety)," or "Passing off somebody else's work as your own (Ethical)." See Appendix B for full DOSPERT Scale.

Self-report success, firm creation, and survival. Self-reported success was assessed by a three item scale that asked participants to indicate how successful they believe their businesses to be relative to similar or competing businesses in their field. Items asked included "Relative to other businesses in my field, I am successful," "I am more profitable than other businesses in my field," and "I am more successful than my competitors." Responses to these items were on a 5-

point Likert-type scale ranging from "1 = strongly disagree to 5 = strongly agree." To measure the number of firms created, an item was included that asked participants to indicate the number of firms they have personally started. We are also interested in the survival length of the firm. To address this, an item was included that asked the participants to indicate how many years their current firm has survived. If a participant had created multiple firms, an item also addressed how long the previous firms survived. See Appendix C for full success outcomes questionnaire.

*Personality***.** The Big Five personality information was also collected by a self-report measure. The shortened version of the International Personality Item Pool, called the Mini-IPIP, consisted of 20 items that had a statement and then had respondents rate to what degree the statement describes how they generally are now and not wish to be in the future (Donnellan, Oswald, Baird, & Lucas, 2006). Responses were on a 5-point Likert type scale ranging from "1 = very inaccurate to 5 = very accurate." This scale has proven to show good internal consistencies with α at least .65 for each of the five factors of personality (extraversion = .77; agreeableness = .70; conscientiousness = .69; neuroticism = .68; intellect/imagination = .65). See Appendix D for full Mini-IPIP scale.

CHAPTER 3. RESULTS

Descriptive statistics, scale reliabilities, and intercorrelations among the study variables are indicated in Table 1. For this study, the mean score of each DOSPERT Facet was calculated for analysis. However, the sum total of each facet was also computed to compare with Blais and Weber (2006) scale norms. Table 2 shows the means and standard deviations for this study's DOSPERT results as well as for Blais and Weber's (2006) scale norms. A t-test was also done to compare each facet mean from this study and Blais and Weber's (2006) norms. As can be seen in Table 2, the mean difference of each DOSPERT facet between this study and Blais and Weber's (2006) study is significant, indicating dissimilarity among results. Cohen's d effect sizes were also calculated, the results show small effects for the Social facet, d = .19, medium effects for Recreational and Financial facets, d = .53 and .55, respectively, and large effects for the Health and Safety and Ethical facets, d = .80 and 1.30, respectively (Cohen, 1992). Though significant differences exist between this study's sample and Blais and Weber's (2006) sample, it is possible these differences could be due to the nature of the samples. As noted before, this study had a final sample size of 542, whereas Blais and Weber (2006) had a final sample size of 172 English speaking respondents whose ages ranged from 22-35 and were recruited via online web boards and list servers. This may partially explain the much smaller standard deviations observed in our study. The smaller standard deviations may also indicate that our sample was more homogenous than the one used by Blais and Weber. Our study included business school graduates and members of regional venture and "start-up" clubs.

For the purpose of analysis, an "entrepreneur" was considered to be someone who scored a mean of four or greater on the Entrepreneurship Scale. Respondents were presented with a series of items that assessed their self-identification with entrepreneurship (e.g. I consider myself

and Entrepreneur). These items were on a 5-point Likert type scale in which 3=Neither Disagree nor Agree and 4=Agree. Therefore, those who had a mean score of four on the three item scale agreed, on average, to the statements signifying they would characterize themselves as entrepreneurs. Using this cut point resulted in 25% of the sample (N=137) being classified as entrepreneurs. These scores were corroborated by the inclusion of several self-report, yes/no questions. Of those who had a mean of four or greater on the Entrepreneur Scale, 70% responded "Yes" to the question "Do you own a business by yourself?," 87% responded "Yes" to the question "Do you actively manage a business?," 90% responded "Yes" to the question "Are you involved in ownership decisions?," and 61% answered "Yes" to the question "Do you consider yourself self-employed?" Table 3 shows the breakdown of our total sample on these four particular items. The different N for Entrepreneurs and Non-entrepreneurs (137 & 405, respectively) meant we could not directly compare the percentages; rather a standardized z test was conducted to test if these proportions were significantly different. In other words, we wanted to see if these two groups did in fact differ on each of the four "Yes/No" items. The final column in Table 3 shows the resulting z statistics, which demonstrates that there is a significant difference in terms of the proportions reported between the Entrepreneur and Non-entrepreneur groups for each question. Taken together, this substantiates our cutoff for Entrepreneur. Using this cut point to differentiate Entrepreneurs from Non-entrepreneurs, we compared their respective mean scores on each facet of the DOSPERT and the IPIP. Consistent with previous research (e.g. Cromie, 2000; Stewart et al, 1999; Stewart & Roth, 2001), Entrepreneurs were generally more risk taking than Non-entrepreneurs. As shown in Table 4, Entrepreneurs showed a higher propensity for risk taking on every DOSPERT facet. This was statistically significant ($p < .05$) for every facet except for the Ethical one. Similarly, Cohen's *d* showed small to medium

effect sizes for the differences (*d* from .24 to .65). Results on personality were less conclusive, though. Entrepreneurs only differed significantly ($p<.01$) on two domains, Extraversion and Intellect/Imagination. Entrepreneurs showed higher mean scores on these two domains with Cohen's *d* of .35 for Extraversion and .38 for Intellect/Imagination.

Hypothesis Testing

Idiographic results. The results from the preceding section do a good job of disentangling the entire sample and comparing Entrepreneurs to Non-entrepreneurs. However, one aim of the present study was to disentangle risk taking within an Entrepreneur. Therefore, Hypothesis 1 was approached from an idiographic point of view. First, to test the degree to which entrepreneurs' scores on the Financial domain differed from the other domains of the DOSPERT (H1), a paired samples *t* test was conducted with the Financial domain and the mean of the other domains. Because H1 stated that entrepreneurs will exhibit higher scores in the Financial domain than the other domains, a one-tailed *t* test was conducted, therefore only positive *t* values can be significant. The comparison between the Financial facet (M=2.96, SD=0.84) and the Mean composite (M=3.45, SD=0.72), were opposite of what was expected, $t(136) = -6.98$; $p < .05$. The score on the Financial domain (M=2.96, SD=0.84) was only higher than the entrepreneur's score on the Ethical domain (M=1.76, SD=0.66), $t(136)=14.66$; $p < .01$. Altogether, these results show little support for Hypothesis 1.

Nomothetic results. The following section shifts the focus back to a between-person focus and how an Entrepreneur's Financial risk taking attitudes can be used as a predictor of various outcome variables. Therefore, to test the following hypotheses, regressions were done on only the participants who met the above criteria of an "Entrepreneur" and the simple effects of Financial risk taking on the respective outcome variable was investigated. Because of the broad

age range and the predominance of male respondents, Age and Sex were controlled for in the following analyses by entering them into the regression first. To test if Entrepreneurs who demonstrated high financial risk taking scores were also more successful (H2a), the variable financial risk taking was added into the regression after the control variables. The overall model did not provide any significant results (R^2=0.06, $F(3, 75) = 1.54$, $p > .05$), nor did any individual variables. Therefore, Hypothesis 2a was not supported.

To test if Entrepreneurs who showed higher financial risk taking attitudes would have created more businesses (H2b), financial risk taking was added to a regression with firm creation as the outcome variable. Financial risk taking did not account for a significant amount of the variance in business created, R^2=0.07, $F(3, 72) = 1.77$, $p > .05$. Therefore, Hypothesis 2b was not supported; those entrepreneurs who have higher financial risk taking attitudes did not create more business than entrepreneurs with lower financial risk taking attitudes.

Finally, to test whether or not Entrepreneurs who had higher financial risk attitudes had businesses that have survived longer than businesses of an Entrepreneur who had low financial risk taking attitudes (H2c), a regression was done with financial risk taking and business survival as the outcome variable. The overall model was not significant, R^2=0.08, $F(3, 67) = 2.05$, $p > .05$, however, the control variable, Age, was individually significant (β=.24, $p < .05$). Though Age was significant, Hypothesis 2c was not supported.

Additional Analyses

Although not directly hypothesized, exploratory analyses were conducted to identify predictors of self-reported Entrepreneurship (see Table 8). Age and Sex were entered into the regression as control variables, and then the individual facets of the DOSPERT were included in a multiple regression. These variables accounted for a significant amount of variance explained

in the outcome variable, self-reported Entrepreneurship, R^2=0.19, F(7, 310) = 10.42, p < .01. It was found that the Social Risk taking facet (β=.27, p < .001), was a significant predictor of self-reported Entrepreneurship.

Another regression was conducted to identify if the DOSPERT facets were significant predictors of self-reported Entrepreneurship above and beyond the Big 5 personality traits (see Table 9). To do this, Age and Sex were entered into the first block of the regression as control variables. Extraversion, Conscientiousness, Agreeableness, Neuroticism, and Intellect/Imagination were then included. These variables accounted for a significant amount of variance in the prediction of self-reported Entrepreneurship, R^2=0.20, F(7, 310)= 10.75, p <.001. Finally, the DOSPERT facets were added, which contributed 4% of incremental variance to the model, ΔR^2=0.04, ΔF(5, 305) = 3.79, p <.01. Again, the Social facet was the only individually significant predictor (β=.22, p <.01).

CHAPTER 4. DISCUSSION

The goal of the present study was to take a closer look at the risk taking attitudes of entrepreneurs as assessed by a domain specific scale, the DOSPERT (Blais & Weber, 2006). The idea of risk being an inherent aspect in entrepreneurship is frequent in the literature (e.g. Stewart et al, 1999; Stewart & Roth, 2001, Plax & Rosenfeld, 1976). By dissecting risk into five separate domains, we were able to overcome issues in the measurement of risk, which has historically taken a holistic approach when measuring a person's risk taking tendencies; concluding that a person is either risk prone or risk averse (e.g. Jackson, Houray, & Vidmar, 1972; Stewart & Roth, 2001). Utilizing the DOSPERT to measure risk taking allows one to take a finer look at entrepreneurs' attitudes toward different aspects of risk taking.

Consistent with Stewart and Roth's (2001) Meta-analysis, we found that entrepreneurs were generally more risk taking than non-entrepreneurs. We found this pattern on all DOSPERT dimensions except the ethical risk-taking dimensions—where we observed no difference between entrepreneurs and non-entrepreneurs. We expected that entrepreneurs would exhibit higher financial risk taking than risk taking on the other DOSPERT domains. The logic behind this assumption is that entrepreneurs operate in a naturally risky environment and often have to make tough decisions on how or where to invest money and resources. So, entrepreneurs who wish to succeed may have to be more willing to make risky financial decisions. Findings from the current study suggest that entrepreneurs were risk taking across the board, and that their financial risk-taking was lower with respect to most of the other DOSPERT dimensions. It appears that entrepreneurs take more financial risks than non-entrepreneurs, but they do not take significantly more risks on that dimension than on the other DOSPERT dimensions.

It is interesting that the social domain demonstrated the highest overall scores, in both groups. Indicating that compared to the other domains, our sample had profoundly higher social risk taking than the other domains. We also found the largest difference in risk taking between entrepreneurs and non-entrepreneurs in the social domain, highlighting that entrepreneurs have significantly higher social risk taking attitudes. In the context of social exchange theory (e.g. Cook & Whitmeyer, 1992), this result is not altogether surprising. Entrepreneurship is a business activity that often necessitates the need for social exchange and networks. Many researchers (e.g. Aldrich & Zimmer, 1986; Davidsson & Honig, 2003; Greve & Salaff, 2003) argue that the entrepreneurial process relies on social capital or networks and how rooted they are within these networks. Hoang and Antoncic (2003) studied the importance of networks as a predictor of entrepreneurial outcomes like founding of a new venture and its subsequent survival. The authors found that strong networks, and the extent to which entrepreneurs utilize them, were beneficial in the creation of new firms and lead to longer business survival as compared to entrepreneurial ventures that didn't utilize strong networks. The results found in the present study are consistent with the social aspect of entrepreneurship. Of the outcome variables the present study investigated, social risk taking had a relation with success that approached significance ($p < .10$), whereas the results for firm creation and business survival were less conclusive. It appears that the importance of social exchange and one's willingness to take social risks would prove to be a fruitful area for future entrepreneurial research as identified from our findings of the high propensity for social risk taking among entrepreneurs and social risk taking as a predictor of entrepreneurship.

A secondary goal of the present study was to identify predictors of self-reported entrepreneurship. First, the domains of the DOSPERT were used to predict self-reported

entrepreneurship. Findings suggest that the DOSPERT social dimension explains considerable variance in self-reported entrepreneurship. Moreover, social risk taking predicted significant incremental variance in entrepreneurship - above and beyond the five-factor model of personality. This suggests that personality alone is not enough to understand entrepreneurial orientations. One's social risk-taking attitude appears important as well.

Predicting Performance

It was also hypothesized that entrepreneurs who had high financial risk taking attitudes would be more successful, have created more businesses, and own businesses that have survived longer than entrepreneurs who did not have high financial risk taking attitudes. Financial risk taking attitudes were not found to be significantly related to any of the outcome variables that were assessed.

The null findings with regard to the outcome variables may be due, in part, to a few factors. First, although taking risks may be beneficial for entrepreneurs, it may only be useful up to a point, at which point, taking more risks may become detrimental. Nieß and Biemann (2014) investigated the relationship between overall risk taking and self-employment survival over the course of 5 years. They found an inverted U-shaped relation between risk propensity and self-employment survival. Their finding supports the idea that risk taking is advantageous for a business, but can be detrimental if one takes too many risks. It is possible that a similar phenomenon is occurring in our sample, which would help explain the null findings. Second, the selection and measurement of the outcome variables may have hindered the finding of significant results. The use of self-report success as an outcome variable may have produced biased results. Our sample contained business school alumni, some of which may not have been in a position within their company to have the proper knowledge to compare their success to competitors.

Furthermore, self-reporting success may allow the respondent to over evaluate their business. Because the items asked the respondent to compare their success to a competitor, we may have been limited in the number of low success businesses that were recorded. This may be due, in part, to the fact that if a competitor is more successful than an entrepreneur's business, the entrepreneur may decide to end the venture, seek a buyout, or find alternative employment. Using a more objective identifier of success, such as revenue or sales (Davidsson & Honig, 2003), may prove to be a less biased estimate of success. Also, while the use of business survival is seen in the literature (e.g. Nieß & Biemann, 2014), this often does not take into account the various other successful outcomes of a business, such as selling the business, going public, or merging (Hoang & Antoncic, 2003). Using variables that take the plethora of successful outcomes into account would undoubtedly paint a truer picture of how risk taking impacts success. Finally, our null findings could be a result of focusing on the wrong risk taking domain. Although much of the focus of this study is on financial risk taking, it has been made apparent that social risk taking may be the main character in the interplay between risk taking and entrepreneurship. Future studies should investigate how social risk taking may influence entrepreneurial success. A post hoc analysis of the impact of social risk taking on entrepreneurs' success was conducted to initiate this stream of research. Although the overall model was not significant, the social risk taking attitudes of entrepreneurs was positively related to self-reported success, a relation that approached significance (β=.20, $p < .10$). Results looking at entrepreneurs' social risk taking attitudes and other success outcomes were less conclusive.

As mentioned before, some items on the DOSPERT lend themselves to socially desirable responding. For example, items such as "having an affair with a married man/woman," "riding a

motorcycle without a helmet," and "taking some questionable deductions on your income tax return" may have prompted the respondent to respond not as they truly feel but in a more desirable way. This study did not address the potential concern before collecting data, but future research using this scale may avoid this issue by instructing respondents to respond truthfully or include various scales that can detect socially desirable responding, such as the Self-Deception Questionnaire or the Marlowe-Crowne Social Desirability Scale (Nederhof, 1985). Second, as with many survey based studies, all data collected was self-reported and therefore a potential issue is that of common method contamination (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). It may be in the best interest of future researchers in this area to collect data from multiple sources, or implement one of the many remedies suggested by Podsakoff, MacKenzie, Lee, & Podsakoff (2003).

The present study supports the position that entrepreneurs have higher risk taking tendencies, but the debate is not over. Future research on entrepreneurs should first address the foggy nature of the construct. Proper research in any discipline requires that the construct in question be properly defined. This is an issue in entrepreneurial research because of the many different operational definitions and characterizations of just exactly what or who an entrepreneur is. The literature should seek an agreement on the nature of an entrepreneur and establish a useful operational definition in order to extend research in this area. Second, although this study provides a good starting point on the risk taking propensities of entrepreneurs, more research using the domain specific approach (e.g. the DOSPERT) will give researchers a better understanding of just how entrepreneurs perceive and react to various types of risk. Specifically, looking into how social risk taking is related various entrepreneurial activities and outcomes appear to be promising. Investigating potential moderators (e.g. personality, positive or negative

affect, etc) of these relations would also help to paint a better picture. Future research in this area may be able to construct a profile of a successful entrepreneur by linking their risk taking tendencies and other dispositional characteristics (e.g. personality) to specific, objective success outcomes.

CHAPTER 5. CONCLUSIONS

The results of this study are somewhat mixed, on the one hand we found that entrepreneurs have higher risk taking attitudes on the DOSPERT than non-entrepreneurs, but on the other hand, we didn't find clear evidence that entrepreneurship predicted any of our outcome variables. Thus, we believe this study provides good evidential support for the case that entrepreneurs are unique in their risk taking attitudes and we offer a promising area in which future research can focus; how/what does entrepreneurship predict? We have started this by demonstrating that entrepreneurs tend to be high in social risk taking, extraversion, and intellect/imagination (openness). While this is in line with common conjectures of the entrepreneur – an outgoing individual, interacting with others to create new and unique business ventures – we can use the evidence provided by this study to usher in new research that may focus on more specific outcomes of entrepreneurship.

REFERENCES

Ahmed, S. U. (1985). nAch, Risk-taking Propensity, Locus of Control and entrepreneurship. *Personality and Individual Differences, 6*, 781-782.

Aldrich, H., & Zimmer, C., (1986). Entrepreneurship through social networks. In: Sexton, D.L., Smilor, R.W. (Eds.), *The Art and Science of Entrepreneurship,* 3-23.

Ames, M., & Runco, M. A. (2005). Predicting entrepreneurship from ideation and divergent thinking. *Creativity and Innovation Management, 14*, 311-315.

Appelt, K. C., Milch, K. F., Handgraaf, M. J. J., & Weber, E. U. (2011). The Decision Making Individual Differences Inventory and guidelines for the study of individual differences in judgment and decision-making research. *Judgment and Decision Making, 6*, 252-262.

Birley, S. (1985). The role of networks in the entrepreneurial process. *Journal of Business Venturing, 1,* 107-117.

Blais, A.-R., & Weber, E. U. (2006). A domain-specific risk-taking (DOSPERT) scale for adult populations. *Judgment and Decision Making, 1*, 33-47.

Brockhaus, R. H. (1980a). Psychological and environmental factors which distinguish the successful from the unsuccessful entrepreneur: a longitudinal study. *Proceedings - Academy of Management,* 368-372.

Brockhaus, R. H. (1980b). Risk taking propensity of entrepreneurs. *Academy of Management Journal, 23*, 509-520.

Brunetto, Y., & Farr-Wharton, R. (2007). The moderating role of trust in SME owner/managers' decision-making about collaboration. *Journal of Small Business Management, 45*, 362-387.

Caliendo, M., Fossen, F., & Kritikos, A. (2010). The impact of risk attitudes on entrepreneurial survival. *Journal of Economic Behavior and Organization, 76*, 45-63.

Carland, J. W., Hoy, F., Boulton, W. R., & Carland, J. C. (1984). Differentiating entrepreneurs from small business owners: a conceptualization. *Academy of Management Review, 9*, 354-359.

Carsrud, A., & Brannback, M. (2011). Entrepreneurial motivations: what do we still need to know? *Journal of Small Business Management, 49*, 9-26.

Chay, Y. W. (1993). Social support, individual differences and well-being: a study of small business entrepreneurs and employees. *Journal of Occupational and Organizational Psychology, 66*, 285-302.

Ciavarella, M. A., Buchholtz, A. K, Riordan, C. M., Gatewood, R. D., & Stokes, G. S. (2004). The big five and venture survival: Is there a linkage? *Journal of Business Venturing, 19,* 465-483.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112,* 155-159.

Cook, K. S., & Whitmeyer, J. M. (1992). Two approaches to social structure: Exchange theory and network analysis. *Annual Review of Sociology, 18,* 109-127.

Covin, J. G., & Lumpkin, G. (2011). Entrepreneurial orientation theory and research: reflections on a needed construct. *Entrepreneurship Theory and Practice, 35*, 855-872.

Cromie, S. (2000). Assessing entrepreneurial inclinations: some approaches and empirical evidence. *European Journal of Work and Organizational Psychology, 9*, 7-30.

Davidsson, P., & Honig, B., (2003). The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing, 18,* 301-331.

Donnellan, M. B., Oswald, F. L., Baird, B. M., & Lucas, R. E. (2006). The Mini-IPIP scales: Tiny-yet-effective measures of the Big Five factors of personality. *Psychological Assessment, 18,* 192-203.

Erikson, T. (2001). "The promis of entrepreneurship as a fiel of research": a few comments and some suggested extensions. *Academy of Management Review, 26*, 12-13.

Fairlie, R. W. & Holleran, W. (2012). Entrepreneurship training, risk aversion and other personality traits: Evidence from a random experiment. *Journal of Economic Psychology, 33,* 366-378.

Feltham, T. S., Feltham, G., & Barnett, J. J. (2005). The dependence of family businesses on a single decision-maker. *Journal of Small Business Management, 43*, 1-15.

Gartner, W. B. (1990). What are we talking about when we talk about entrepreneurship? *Journal of Business Venturing, 5*, 15-28.

Greve, A., & Salaff, J.W. (2003). Social networks and entrepreneurship. *Entrepreneurship Theory and Practice,28,* 1-22.

Hanoch, Y., Johnson, J. G., & Wilke, A. (2006). Domain specificity in experimental measures and participant recruitment. *Psychological Science, 17*, 300-304.

Harrison, J. D., Young, J. M., Butow, P., Salkeld, G., & Solomon, M. J. (2005). Is it worth the risk? A systematic review of instruments that measure risk propensity for use in the health setting. *Social Science and Medicine, 60,*1385-1396.

Hoang, H. & Antoncic, B. (2003). Network-based research in entrepreneurship. A critical review. *Journal of Business Venturing, 18,* 165-187.

Hodgkinson, G. P., Sadler-Smith, E., Burke, L. A., Claxton, G., & Sparrow, P. R. (2009). Intuition in organizations: implications for strategic management. *Long Range Planning, 42*, 277-297.

Hull, D. L., Bosley, J. J., & Udell, G. G. (1980). Renewing the hunt for the heffalump: identifying potential entrepreneurs by personality characteristics. *Journal of Small Business Management, 18*(1), 11-18.

Iversen, J., Jørgensen, R., & Malchow-Møller, N. (2008). Defining and measuring entrepreneurship. *Foundations and Trends in Entrepreneurship,4,* 1-63.

Jackson, D. N. (1976). *Personality Inventory Manual.* Goshen, NY: Research Psychologists Press.

Jackson, D. N., Hourany, L., & Vidmar, N. J. (1972). A four-dimensional interpretation of risk taking. *Journal of Personality, 40*, 483-501.

Kargar, J., & Blumenthal, R. A. (1994). Successful implementation of strategic decisions in small community banks. *Journal of Small Business Management, 32*(2), 10-22.

Koh, H. C. (1996). Testing hypothesis of entrepreneurial characteristics. A study of Hong Kong MBA students. *Journal of Managerial Psychology, 11*, 12-25.

Long, W. (1983). The meaning of entrepreneurship. *American Journal of Small Business, 8*, 47-56.

Macko, A., & Tyszka, T. (2009). Entrepreneurship and risk taking. *Applied Psychology: An International Review, 58*, 469-487.

Miao, Q., & Liu, L. (2010). A psychological model of entrepreneurial decision making. *Social Behavior and Personality, 38*, 357-364.

Miller, D. (2011). Miller (1983) revisited: a reflection and some suggestions for the future. *Entrepreneurship Theory and Practice, 35*, 873-894.

Miller, D. (1983). The correlates of entrepreneurship in three types of firms. *Management Science, 29*, 770-791.

Miner, J. B., & Raju, N. S. (2004). Risk propensity differences between managers and entrepreneurs and between low- and high-growth entrepreneurs: A reply in a more conservative vein. *Journal of Applied Psychology, 89*, 3-13.

Mitton, D. G. (1989). The compleat entrepreneur. *Entrepreneurship Theory and Practice, 13*(3), 9-20.

Nederhof, A. J. (1985). Methods of coping with social desirability bias: A review. *European Journal of Social Psychology, 15,* 263-280.

Nieß, C. & Biemann, T. (2014). The role of risk propensity in predicting self-employment. *Journal of Applied Psychology, 999,* no page information.

Olson, P. (1986). Entrepreneurs: opportunistic decision makers. *Journal of Small Business Management, 24*(3), 29-35.

Patalano, A. L., & Wengrovitz, S. M. (2007). Indecisiveness and response to risk in deciding when to decide. *Journal of Behavioral Decision Making, 20*, 405-424.

Payne, G. T., Davis, J. L., Moore, C. B., & Bell, R. G. (2009). The deal structuring stage of the venture capitalist decision-making process: exploring confidence and control. *Journal of Small Business Management, 47*, 154-179.

Perren, L., Berry, A., & Partridge, M. (1998). The evolution of management information, control and decision-making processes in small growth-oriented service sector businesses: exploratory lessons from four cases of success. *Journal of Small Business and Enterprise Development, 5*, 351-361.

Plax, T. G., & Rosenfeld, L. B. (1976). Correlates of risky decision-making. *Journal of Personality Assessment, 40*, 413-418.

Podsakoff, P. M., MacKenzie, S. B., Lee, J., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88,* 879-903.

Robinson, P. B., Huefner, J. C., & Hunt, H. K. (1991). Entrepreneurial research on student subjects does not generalize to real world entrepreneurs. *Journal of Small Business Management, 29*(2), 42-50.

Robinson, P. B., Stimpson, D. V., Huefner, J. C., & Hunt, H. K. (1991). An attitude approach to the prediction of entrepreneurship. *Entrepreneurship Theory and Practice, 15*(4), 13-31.

Ronay, R., & Von Hippel, W. (2010). Power, testosterone, and risk-taking. *Journal of Behavioral Decision Making, 23*, 473-482.

Shane, S., & Venkataraman, S. (2001). Entrepreneurship as a field of research: a response to Zahra and Dess, Singh, and Erikson. *Academy of Management Review, 26*, 13-16.

Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review, 25*, 217-226.

Shaver, K. G., & Scott, L. R. (1991). Person, process, choice: The psychology of new venture creation. *Entrepreneurship Theory and Practice, 16*(2), 23-45.

Short, J. C., Ketchen Jr, D. J., Combs, J. G., & Ireland, R. D. (2010). Research methods in entrepreneurship. Opportunities and challenges. *Organizational Research Methods, 13*, 6-15.

Singh, R. P. (2001). A comment on developing the field of entrepreneurship through study of opportunity recognition and exploitation. *Academy of Management Review, 26*, 10-12.

Sitkin, S. B., & Weingart, L. R. (1995). Determinants of risky decision-making behavior: a test of the mediating role of risk perceptions and propensity. *Academy of Management Journal, 38*, 1572-1592.

Stewart Jr., W. H., & Roth, P. L. (2001). Risk propensity differences between entrepreneurs and managers: a meta-analytic review. *Journal of Applied Psychology, 86*, 145-153.

Stewart Jr., W. H., Watson, W. E., Carland, J. C., & Carland, J. W. (1999). A proclivity for entrepreneurship: a comparison of entrepreneurs, small business owners and corporate managers. *Journal of Business Venturing, 14*, 189-214.

Tan, W-L., Long, W. A., & Robinson, P. (1996). Entrepreneurship attitude orientation and the intention to start a business. *Journal of Small Business and Entrepreneurship, 13*(4), 50-61.

Timmons, J. A. (1978). Goal setting and the entrepreneur. *Journal of Small Business Management, 16*(2), 1-9.

Townsend, D. M., Busenitz, L. W., & Arthurs, J. D. (2010). To start or not to start: outcome and ability expectations in the decision to start a new venture. *Journal of Business Venturing, 25*, 192-202.

Utsch, A., Rauch, A., Rothfuss, R., & Frese, M. (1999). Who becomes a small scale entrepreneur in a post-socialist environment: on the differences between entrepreneurs and managers in east germany. *Journal of Small Business Management, 37*(3), 31-42.

Van de Ven, A. H. (1993). The development of an infrastructure for entrepreneurship. *Journal of Business Venturing, 8,* 211-230.

Wales, W., Monsen, E., & McKelvie, A. (2011). The organizational pervasiveness of entrepreneurial orientation. *Entrepreneurship Theory and Practice, 35,*895-923.

Wallach, M. A., & Kogan, N. (1959). Sex differences and judgment processes. *Journal of Personality, 27*, 555-564.

Weber, E. U., Blais, A.-R., & Betz, N. E. (2002). A domain-specific risk-attitude scale: measuring risk perceptions and risk behaviors. *Journal of Behavioral Decision Making, 15*, 263-290.

Wickham, P. A. (2003). The representative heuristic in judgments involving entrepreneurial success and failure. *Management Decision, 41*, 156-167.

Willebrands, D., Lammers, J., & Hartog, J. (2012). A successful businessman is not a gambler. Risk attitudes and business performance among small enterprises in Nigeria. *Journal of Economic Psychology*, *33,* 342-354.

Zachary, R. K., & Mishra, C. S. (2010). Entrepreneurship research today and beyond: hidden in plain sight. *Journal of Small Business Management, 48*, 471-474.

Zahra, S., & Dess, G. G. (2001). Entrepreneurship as a field of research: encouraging dialogue and debate. *Academy of Management Review, 26*, 8-10.

Zhao, H., & Seiber, S. E. (2006). The big five personality dimensions and entrepreneurial status: a meta-analytic review. *Journal of Applied Psychology, 91*, 259-271.

APPENDIX A. ENTREPRENEURSHIP

Entrepreneurship

Please read the following questions and mark your response.

1. Do you own a business by yourself?
   Yes _____ No _____
2. Do you actively manage a business?
   Yes _____ No _____
3. Are you involved in ownership decisions (e.g. financial and personnel decision)?
   Yes _____ No _____
4. Do you consider yourself self-employed?
   Yes _____ No _____

For each of the following items, please indicate the extent to which you agree or disagree with each item. Provide a rating from *Strongly Disagree* to *Strongly Agree*, using the following scale:

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

1. I consider myself an entrepreneur.
2. Most people who know me would consider me an entrepreneur.
3. I engage in entrepreneurial business activities.

APPENDIX B. DOMAIN-SPECIFIC RISK TAKING SCALE (DOSPERT)

Domain-Specific Risk Taking Scale
(Blais and Weber, 2006)

Risk Taking Scale

For each of the following statements, please indicate the likelihood that you would engage in the described activity or behavior if you were to find yourself in that situation. Provide a rating from *Extremely Unlikely* to *Extremely Likely,* using the following scale:

Risk Taking Scale Responses

1	2	3	4	5	6	7
Extremely Unlikely	Moderately Unlikely	Somewhat Unlikely	Not sure	Somewhat Likely	Moderately Likely	Extremely Likely

1. Admitting that your tastes are different from those of a friend.
2. Going camping in the wilderness.
3. Betting a day's income at the horse races.
4. Investing 10% of your annual income in a moderate growth mutual fund.
5. Drinking heavily at a social function.
6. Taking some questionable deductions on your income tax return.
7. Disagreeing with an authority figure on a major issue.
8. Betting a day's income at a high-stake poker game.
9. Having an affair with a married man/woman.
10. Passing off somebody else's work as your own.
11. Going down a ski run that is beyond your ability.
12. Investing 5% of your annual income in a very speculative stock.
13. Going whitewater rafting at high water in the spring.
14. Betting a day's income on the outcome of a sporting event.
15. Engaging in unprotected sex.
16. Revealing a friend's secret to someone else.
17. Driving a car without wearing a seat belt.
18. Investing 10% of your annual income in a new business venture.
19. Taking a skydiving class.
20. Riding a motorcycle without a helmet.
21. Choosing a career that you truly enjoy over a more secure one.
22. Speaking your mind about an unpopular issue in a meeting at work.
23. Sunbathing without sunscreen.
24. Bungee jumping off a tall bridge.
25. Piloting a small plane.
26. Walking home along at night in an unsafe area of town.
27. Moving to a city far away from your extended family.
28. Starting a new career in your mid-thirties.
29. Leaving your young children along at home while running an errand.
30. Not returning a wallet you found that contains $200.

APPENDIX C. SUCCESS, FIRM CREATION, AND SURVIVAL

Success

For each of the following items, please indicate the extent to which you agree or disagree with each item. Provide a rating from *Strongly Disagree* to *Strongly Agree*, using the following scale:

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

1. Relative to other businesses in my field, I am successful.
2. I am more profitable than other business in my field.
3. I am more successful than my competitors.

Firm Creation and Survival

How many different business ventures have you personally started? _____
In months, how long has your current business survived? _____ months
If you have started multiple businesses, indicated how long, in months, each business survived:

Previous Business 1: _____ months
Previous Business 2: _____ months
Previous Business 3: _____ months

APPENDIX D. MINI-IPIP

Mini-IPIP
(Donnellan, Oswald, Baird, & Lucas, 2006)

Please use the rating scale below to describe how accurately each statement describes you. Describe yourself as you generally are now, not as your wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your same age. So that you can describe yourself in an honest manner, your responses will be kept in absolute confidence. Please read each statement carefully and then identify your choice.

1	2	3	4	5
Very Inaccurate	Moderately Inaccurate	Neither Inaccurate nor Accurate	Moderately Accurate	Very Accurate

1. Am the life of the party
2. Sympathize with others' feelings
3. Get chores done right away
4. Have frequent mood swings
5. Have a vivid imagination
6. Don't talk a lot*
7. Am not interested in other people's problems*
8. Often forget to put things back in their proper place*
9. Am relaxed most of the time*
10. Am not interested in abstract ideas*
11. Talk to a lot of different people at parties
12. Feel others' emotions
13. Like order
14. Get upset easily
15. Have difficulty understanding abstract ideas*
16. Keep in the background*
17. Am not really interested in others*
18. Make a mess of things*
19. Seldom feel blue*
20. Do not have a good imagination*

* Indicates reverse scored item

APPENDIX E. HSRB FORM

BGSU.
BOWLING GREEN STATE UNIVERSITY
Office of Research Compliance

DATE:	March 18, 2013
TO:	Joshua Curry
FROM:	Bowling Green State University Human Subjects Review Board
PROJECT TITLE:	[435640-2] A Closer Look at Entrepreneurship and Attitude toward Risk.
SUBMISSION TYPE:	Revision
ACTION:	APPROVED
APPROVAL DATE:	March 18, 2013
EXPIRATION DATE:	March 6, 2014
REVIEW TYPE:	Expedited Review
REVIEW CATEGORY:	Expedited review category # 7

Thank you for your submission of Revision materials for this project. The Bowling Green State University Human Subjects Review Board has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

The final approved version of the consent document(s) is available as a published Board Document in the Review Details page. You must use the approved version of the consent document when obtaining consent from participants. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Federal regulations require that each participant receives a copy of the consent document.

Add the stamp equivalent of the HSRB IRBNet approval/expiration date stamp to the "footer" area of the electronic consent document.

Comment to Researcher: If the email distribution lists of the entrepreneur and small business owner clubs are not public information, the researcher is required to submit to the HSRB documentation that permission to recruit using their email lists has been granted from the respective heads of the each club. Documentation of approval is required prior to the collection of data.

Please note that you are responsible to conduct the study as approved by the HSRB. If you seek to make any changes in your project activities or procedures, those modifications must be approved by this committee prior to initiation. Please use the modification request form for this procedure.

You have been approved to enroll *500* participants. If you wish to enroll additional participants you must seek approval from the HSRB.

All UNANTICIPATED PROBLEMS involving risks to subjects or others and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office. All NON-COMPLIANCE issues or COMPLAINTS regarding this project must also be reported promptly to this office.

This approval expires on March 6, 2014. You will receive a continuing review notice before your project expires. If you wish to continue your work after the expiration date, your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date.

Generated on IRBNet

BGSU
Bowling Green State University

Department of Psychology
Bowling Green State University
Bowling Green, OH 43403

Informed Consent

The purpose of this study is to examine and gain a better understanding of the attitudes and personalities of business professionals. This study is being conducted by Joshua Curry, a graduate student in the psychology department at Bowling Green State University (BGSU), for his Master's thesis. This project is being advised by Dr. Scott Highhouse, a psychology professor at BGSU.

This study will benefit you because it will provide a better examination of business professionals as well as their attitudes and personalities, a topic that is not fully understood in the literature. By understanding these attitudes and tendencies better, future researchers may be able to identify success based on attitudes and researchers will gain a better understanding of the general attitudes held by business professionals. In short, while you will not receive any direct benefits for participating in this research, you will be helping to increase our understanding of business professionals, which is beneficial to society in general. The risks associated with participating in this study are no greater than those encountered in daily life. Your completion of this survey will directly lead to a donation to the Dallas Hamilton Center for Entrepreneurial Leadership at Bowling Green State University.

In this study, you will be asked to answer several questions about yourself, your work situation, and your attitudes. It will take approximately 15-20 minutes to finish the survey. The information you provide in the survey, as well as your identity, will be completely anonymous and the obtained data will be confidential and only the principal investigator, Joshua Curry, and/or his advisor, Dr. Scott Highhouse, will have access to your answers. For your security, after you finish making and submitting your choices, please clear your browser history and page cache; in addition, you may want to complete the survey on a personal (non-public) computer. You must be 18 years or older to participate in this study.

Your participation in this study is completely voluntary, and you may refuse to answer any or all questions without penalty or explanation. You are free to withdraw consent and to discontinue participation in this study at any time. Your decision to participate, or not participate, will not affect your relationship to Bowling Green State University. Completing the survey indicates your consent to participate in this study.

If you have any questions or comments regarding this study or your participation in it, you may contact Joshua Curry, the principal investigator, at jgcurry@bgsu.edu or (419) 372-4397. You can also contact Dr. Scott Highhouse, the project advisor, at shighho@bgsu.edu or (419) 372-8078. If you have questions about the conduct of this study or your rights as a research participant, you may contact the Chair of Bowling Green State University's Human Subjects Review Board at (419) 372-7716 or hsrb@bgsu.edu.

By clicking "next," you are consenting to participate in this study.

BGSU HSRB - APPROVED FOR USE
IRBNet ID # 436840
EFFECTIVE 03/18/2013
EXPIRES 03/08/2014

Table 1: *Descriptive Statistics, Intercorrelations, and Scale Alphas*

		M	*SD*	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
1.	SR Ent	2.89	1.16	(.93)	.26**	.32**	.21**	.21**	.08	.01	.13**	.18**	-.002	-.16**	-.06	.25**	.17**	.19**	.27**	.07
2.	DOSPERT	3.10	.67		(.82)	.57**	.81**	.67**	.74**	.45**	.16**	.21**	-.11*	-.18**	.07	.30**	.18**	-.24**	.25**	-.02
3.	Social	5.21	.95			(.64)	.36**	.31**	.19**	-.02	.26**	.13**	.06	-.05	.02	.41**	.17**	-.03	.09	.09
4.	Recreational	3.06	1.38				(.77)	.39**	.47**	.20**	.13**	.16**	-0.03	-.15**	0.02	.23**	.13**	-.17**	.26**	-0.02
5.	Financial	2.79	.92					(.67)	.34**	.21**	0.07	.11*	-0.09	-.14**	0.01	.20**	.18**	-0.10	.24**	0.02
6.	Health/Safety	2.68	1.09						(.62)	.39**	.12*	.21**	-.12*	-.11*	.10*	.10*	.10*	-.30**	.17**	-.10*
7.	Ethical	1.75	.64							(.42)	-.10*	0.03	-.26**	-.19**	.11*	-0.01	-0.02	-.24**	0.03	-0.06
8.	IPIP	3.45	.36								(.61)	.66**	.50**	.31**	.28**	.55**	.14**	-.12*	-0.09	0.07
9.	Extraversion	3.20	.95									(.82)	.21**	-0.02	-0.08	.23**	.22**	-0.03	0.01	-0.02
10.	Agreeableness	3.94	.63										(.70)	0.09	-.13**	.12*	-0.01	-0.04	-.18**	.13**
11.	Conscientiousness	4.00	.68											(.66)	-0.09	-.12*	.16**	0.03	-.10*	0.02
12.	Neuroticism	2.39	.74												(.64)	-0.03	-.15**	-.20**	-.16**	0.00
13.	Intellect/Imagination	3.69	.79													(.73)	0.06	-0.04	.14**	0.06
14.	SR Success	3.60	.67														(.86)	0.00	.16**	-.10*
15.	Age	51.12	12.03															-	.21**	-0.10
16.	Sex	.70	.46																-	-0.07
17.	Race	1.11	.57																	-

Note. SR Ent=Self-Reported Entrepreneurship; SR Success=Self-Reported Success

Scale alphas in parentheses.

* = p<.05. ** = p<.01.

Table 2: DOSPERT Norms

	Study Results		Blais & Weber (2006)			
	M	*SD*	*M*	*SD*	*t*	Cohen's *d*
Social	31.25	5.71	32.42	6.44	2.13*	.19
Recreational	18.28	8.25	23.01	9.4	5.92**	.53
Financial	16.76	5.52	20.67	8.51	5.66**	.55
Health and Safety	16.04	6.51	21.8	7.84	8.73**	.80
Ethical	10.53	3.83	17.97	7.16	13.05**	1.30

** = p <.05; ** = p <.01*

Table 3: Comparison of Entrepreneurs and Nonentrepreneurs

	Percent who responded "Yes"		
	Entrepreneurs (N=137)	Nonentrepreneurs (N=405)	Z value
Do you own a business by yourself?	70%	13%	12.84**
Do you actively manage a business?	87%	35%	10.62**
Are you involved in ownership decisions?	90%	43%	9.46**
Do you consider yourself self-employed?	61%	12%	11.37**

** = p <.05; ** = p <.01*

Table 4: T test of Entrepreneurs and Nonentrepreneurs on the DOSPERT and the IPIP

	Mean			
	Nonentrepreneur	Entrepreneur	*t*	Cohen's *d*
DOSPERT	(N=405)	(N=137)	(*df*=540)	
Social	5.06	5.65	6.57**	.65
Recreational	2.91	3.51	4.48**	.44
Financial	2.73	2.96	2.56*	.25
Health/Safety	2.61	2.88	2.44*	.24
Ethical	1.75	1.76	0.23	.02
IPIP	(N=324)	(N=125)	(*df*=447)	
Extraversion	3.11	3.44	3.29**	.35
Agreeablness	3.93	3.96	0.50	.05
Conscientiousness	4.04	3.92	-1.77	.19
Neuroticism	2.39	2.39	-0.03	.003
Intellect/Imagination	3.61	3.91	3.60**	.38

** = p <.05; ** = p <.01*

Table 5: Financial Risk taking as a predictor of Success among Entrepreneurs

	Model 1		Model 2	
Variable	B	β	B	β
Step 1: control variables				
Age	0.00	0.01	0.00	0.01
Sex	0.29	0.20	0.22	0.13
Step 2: main effect				
Financial Risk Taking			0.14	0.18
R^2		0.03		0.06
R^2 change				0.03

** = p <.05; ** = p <.01*

Table 6: Financial Risk taking as a Predictor of Firm Creation among Entrepreneurs

	Model 1		Model 2	
Variable	B	β	B	β
Step 1: control variables				
Age	0.04	0.20	0.04	0.16
Sex	1.05	0.68	1.07	0.18
Step 2: main effect				
Financial Risk Taking			-0.04	-0.02
R^2		0.07		0.07
R^2 change				0.00

** = p <.05; ** = p <.01*

Table 7: Financial Risk taking as a Predictor of Firm Survival among Entrepreneurs

	Model 1		Model 2	
Variable	B	β	B	β
Step 1: control variables				
Age	4.04	0.24*	4.10	0.24*
Sex	62.23	0.12	73.97	0.15
Step 2: main effects				
Financial Risk Taking			-25.16	-0.11
R^2		0.07		0.08
R^2 change				0.01

** = p <.05; ** = p <.01*

Table 8: Predictors of Self-Reported Entrepreneurship

	Model 1		Model 2	
Variable	B	β	B	β
Step 1: control variables				
Age	0.01	0.13**	0.01	0.15**
Sex	0.65	0.25**	0.55	0.22**
Step 2: main effects (DOSPERT)				
Social Facet			0.33	0.27**
Recreational Facet			0.03	0.04
Financial Facet			0.08	0.06
Health/Safety Facet			-0.05	-0.05
Ethical Facet			0.01	0.01
R^2		0.10**		0.19**
R^2 change				0.09**

** = p <.05; ** = p <.01*

Table 9: Using DOPSERT to Predict Self-Reported Entrepreneurship above Big 5

	Model 1		Model 2		Model 3	
Variable	B	β	B	β	B	β
Step 1: control variables						
Age	0.01	0.13*	0.02	0.16**	0.01	0.15**
Sex	0.65	0.25**	0.50	0.20**	0.49	0.19**
Step 2: main effects (Big 5)						
Extraversion			0.13	0.11*	0.13	0.10
Agreeablness			0.00	0.00	0.00	0.00
Consientiousness			-0.16	-0.09	-0.18	-0.11*
Neuroticism			0.00	0.00	-0.02	-0.01
Intellect/Imagination			0.37	0.25**	0.24	0.16**
Step 3: main effects (DOSPERT)						
Social Facet					0.27	0.22**
Recreational Facet					0.01	0.01
Financial Facet					0.06	0.05
Health/Safety Facet					-0.06	-0.05
Ethical Facet					0.01	0.00
R^2		0.10**		0.20**		0.24**
R^2 change				0.10**		0.04**

** = p <.05; ** = p <.01*