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TERROR MANAGEMENT THEORY AND ENTREPRENEURSHIP:
FEAR AND DECISION-MAKING

by

Eric Kinnamon

A Dissertation

Submitted in Partial Fulfillment of the

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Doctor of Philosophy

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ABSTRACT

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Terror management theory is a macropsychological theory that investigates the cognitive processes of individuals exposed to their own mortality. This research suggests that terror management theory could explain a number of decision-making behaviors in entrepreneurs. The central proposition of the current study is that entrepreneurs will respond similarly to firm failure salience as to mortality salience, and will, thereby, make more risk-averse decisions. The second proposition will explore whether the moderating effect of self-esteem between mortality salience and culture worldview posited by terror management theory is in accord with entrepreneurial self-efficacy as a moderator in the relationship between firm failure salience and risk-averse attitudes.

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Chapter 1: Introduction

While the United States economy is evidently cyclical, the magnitude of negative gross domestic product (GDP) growth occurring in 2008–2009 has not been seen since the Great Depression of the 1930s (The Financial Forecast Center, 2012). In 2009, there was a 52% increase in business bankruptcies from 2008, equating to over 60,000 businesses (American Bankruptcy Institute, 2012). The unemployment rate in the United States was 7.7% after the recovery, which is historically high (and only seen during recessionary periods) for the United States. This period of high unemployment rates began in 2009, exceeding 9% in the early period, and averaging 9% from 2009 to 2012. These rates are higher than the rates of any four consecutive year periods in the history of the United States since 1948, which marked the start of the collection of such data (U.S. Department of Labor, 2012). The current economic climate begs for examination of the recession's impacts on human decision-making in the business setting. Of particular interest in the current study is the extent that business-related decisions are influenced by environmental cues and cognitive biases. Specifically, we examine entrepreneurial firms, which are believed to play an important role in growing the economy.

The current study is focused on threat management, particularly entrepreneurial decision-making. Entrepreneurs were selected as the focus of the study due to (a) their inherent and intimate bonds to their entrepreneurial firm, (b) their unique decision-making capabilities, and (c) the importance of entrepreneurial firms in business and in the economy.

Merging firm failure salience and risk averse decision responses in entrepreneurship, the current study is an attempt to bridge multiple fields and expand the importance of behavioral strategy as recently highlighted in a special issue (published in December 2011) of the *Strategic Management Journal*. Behavioral strategy merges cognitive and social psychology with strategic management theory and practice by strengthening the empirical integrity and practical usefulness of strategy theory, and also by grounding strategic management in realistic assumptions about human cognition, emotion, and social interaction (Powell, Lovallo, & Fox, 2011).

The use of psychology is not new in studies of strategic management. As identified by Powell et al. (2011), many perspectives utilize this idea, such as behavioral decision research (Kahneman & Lovallo, 1993), the behavioral theory of the firm (Cyert & March, 1963; Gavetti, Levinthal, & Ocasio, 2007), attention and the attention-based view (Ocasio, 1997), hubris (Bollaert & Petit, 2010), corporate entrepreneurship at the firm level (Barringer & Bluedorn, 1999), and top management teams (Hambrick & Mason, 1984). Examples of the advancement of behavioral strategy into traditional strategy include Tuggle, Sirmon, Reutzel, and Bierman (2010), who studied traditional strategic management theories, such as Eisenhardt's (1989) agency theory, and combined them with the attention-based view (Ocasio, 1997) to better explain the behavior of the members of a firm's board of directors.

The following chapters will elaborate on the topic of this dissertation, provide an empirical investigation of the topic hypotheses, and report on results. Chapter Two will cover an overview of entrepreneurs and their role in the economy, review strategic decision making literature in regard to entrepreneurial decision making, and introduce the

main propositions and findings of Terror Management Theory from the psychology literature. Chapter 3 will follow with hypotheses derived from combining these two literatures. In Chapter 4, I describe the methods and analyses undertaken for the main study. Chapter 5 reports the results from the study. Finally, I conclude this dissertation with a discussion for the findings and recommendations for future research.

Definitions of Terms

The following terms are used throughout the current study. *Entrepreneur*: An individual that in the last seven years (1) is the founder of a start-up company or (2) plans to create a start-up company, which does one or more of the following: introduces new goods or services; introduces new methods of production; operates new markets; finds new sources of raw materials; or carries out new organization of any industry.

Mortality salience: Awareness of an individual's eventual death.

Firm failure salience: Awareness of the potential death of an individual's entrepreneurial firm.

Risk-aversion response: An individual's innate tendency to avoid risk.

Cultural worldview: An individual's existing views, conditions, or beliefs as related to his or her traditional norms of taste, elegance, style, and/or manners.

Self-esteem: Beliefs or attitudes that an individual generally has about himself or herself, which encompasses one's worth, beliefs, emotions, skills, abilities, social relationships, and expected future outcomes.

Self-efficacy: An individual's measure of his or her own competence to complete tasks and reach goals in a specific area.

Entrepreneurial self-efficacy: Beliefs or attitudes that an individual has about himself or herself as related to skills, abilities, and future entrepreneurial outcomes.

The priming received from learning of failing firms by an entrepreneur is referred to as “*firm-failure salience*” throughout the current study. I examine the idea that the unique threat of “death awareness”—a concept covered abundantly in the psychology literature that pertains to the death of persons—may have its own analog as well as similar behavioral consequences when applied to entrepreneurship.

Chapter 2: Literature Review

Entrepreneurship

Economic Benefits from Entrepreneurs

Entrepreneurs are a group of highly sought-after businesspeople, as they enrich the business environment and strengthen the economy. Firm creation via entrepreneurship is important because it replenishes and maintains the population of firms. As empirically supported in the literature, firm creation contributes to the economy in many ways (Reynolds & Curtin, 2007). It is clear that the emergence of new sectors or markets is associated with an initial period in which multiple new firms are developed, competing to provide a new product or service; the later establishment of new sectors is due to new firm creation (Carroll & Hannan, 2000; Hannan & Freeman, 1989; Klepper, 2002). New small firms are also a major source of technical and market innovation. Audretsch (1995) attempted to track the source of technical innovation by firm size, finding that half of the new innovations were produced by small firms.

In addition, a recent study suggests that entrepreneurial firms account for half of all net new job creation; the other half comes from new branches and subsidiaries of existing firms, which reflects the expansion and growth of these firms (Reynolds & Curtin, 2007). Conversely, the net job creation for all firms, branches, and establishments older than one year is negative (Reynolds & Curtin, 2007). Specifically, after being in business for one year, losses emerging from contractions and resignations are greater than the job gains from expansions (Acs & Armington, 2004). Thus, long-term job growth is more likely to develop from entrepreneurial endeavors versus the expansion of existing firms.

Advancements in the collection and analysis of longitudinal data have allowed researchers to estimate the labor-based productivity of new, existing, and discontinuing businesses. These analyses further support the idea that entrepreneurial firms have the highest labor productivity and are responsible for a major share of increases in sector productivity (Reynolds & Curtin, 2007). While this impact varies by sector, entrepreneurial firms are critical to the production of more goods with less labor (Foster, Haltiwanger, & Krizan, 2002; Foster, Haltiwanger, & Syverson, 2005). The efficiency of new firms leads to a displacement of less efficient existing firms.

There have been efforts to consider, at the macro level, the relationships among measures of entrepreneurial firm creation and the economic growth of markets, geographic regions, or countries. Modest positive associations are almost always found between the level of new entries, or firm births, in markets and economic growth in subsequent periods. While the causal mechanisms are not yet clarified, the findings are robust (Acs & Armington, 2006; Audretsch, Keilbach, & Lehmann, 2006; van Stel & Thurik, 2004).

According to Reynolds and Curtin (2007), entrepreneurship represents more than simply the pursuit of economic benefits. Individual participation in the creation of new firms is far more popular than generally realized. Specifically, a substantial number of people in the workforce want to start businesses. According to the Panel Study of Entrepreneurial Dynamics (PSED), in 2006, approximately 12.6 million nascent entrepreneurs in the United States were involved in about 7.4 million new businesses (Reynolds & Curtin, 2007). In addition, Reynolds and White (1997) stated that before retirement, nearly half of all men in the workforce will experience self-employment.

Immigrants in particular often engage in entrepreneurial firm development to integrate into the United States economy (Aldrich & Waldinger, 1990; Light & Bonacich, 1988; Portes & Rumbaut, 2006); this employment route serves as a pathway to status enhancement. According to Reynolds et al. (2004), well-educated, high-energy individuals that may encounter issues related to being promoted in established workplaces—such as women and those from minority groups—have also sought to establish their careers and legitimacy through entrepreneurial means.

The importance of entrepreneurial firms in an economy, along with the high failure rates associated with entrepreneurial firms, continues to prompt additional research in the area of entrepreneurship. In this research, we consider how poor economic conditions could dampen the important regenerative activity of firm foundings, or similarly, speed the demise of existing new firms. In particular, consistent with our increasing understanding of social dynamics as nonlinear interactions (Forrester, 1987) and the direct implications for entrepreneurial activity in ordering market economies (Chiles, Tuggle, McMullen, Bierman, & Greening, 2010), the possibility that entrepreneurial decision-making may be biased in a way that would amplify the negative feedback of poor performance in the economy should be a key concern to policymakers.

Entrepreneurship: A Behavioral Definition

Entrepreneurship, originally a French word, has been defined in many ways (Hobday & Penrini, 2005). Richard Cantillon (circa 1730) defined entrepreneurship as any sort of self-employment while Jean Baptiste Say (1816) considered the entrepreneur an agent “who unites all means of production and who finds in the value of the products...the reestablishment of the entire capital he employs, and the value of the

wages, the interest, and rent which he pays, as well as profits belonging to himself” (p. 5) (as cited by Hobday & Penrini, 2005). Others suggest that an entrepreneur is defined by the organizational life cycle (Smith & Miner, 1983) or through the identification of opportunities within an economic system (Penrose, 1963).

As consideration of entrepreneurship developed from the above very early formulations, theorists more broadly define entrepreneurship by outlining a set of specific traits or actions associated with entrepreneurs. For example, Schumpeter (1936) defined an entrepreneur as “an innovator who (1) introduces new goods or services; (2) introduces new methods of production; (3) operates new markets; (4) finds new sources of raw materials; and/or (5) carries out new organization of any industry” (as cited in Robinson, Stimpston, Huefner, & Hunt, 1991, p. 20). Gartner (1990), on the other hand, identified eight recurring themes in the overall field of entrepreneurship: (1) the entrepreneur (personality traits), (2) innovation, (3) organization creation, (4) creating value, (5) profit or nonprofit, (6) growth, (7) uniqueness, and (8) the role of an owner-manager. These definitions reflect the interest in three major aspects of entrepreneurship: innovation, creativity, and risk taking. However, these three characteristics can be considered the behavioral consequences of entrepreneurship, and do not provide insight on the determinants of such behaviors. As researchers began moving to predict entrepreneurial behavior, the more recent definitions are focused on the psychological traits or processes that influence entrepreneurs.

Psychological Traits

While entrepreneurs and entrepreneurial firms are traditionally defined in behavioral terms (e.g., risk-taking, organized, creative, and innovative), Mitton (1989) takes a slightly different approach by focusing his definition on the unique mindset of an entrepreneur:

Entrepreneurs see ways to put resources and information together in new combinations. They not only see the system as it is, but as it might be. They have a knack for looking at the usual and seeing the unusual, at the ordinary and seeing the extraordinary. Consequently, they can spot opportunities that turn the commonplace into the unique and unexpected. (p. 12)

Inherent in these definitions is an appreciation for the entrepreneur's unique innovative, motivational, and organizational skills. Consequently, we seek to understand, predict, and replicate entrepreneurial behaviors by examining their underlying mental processes. Of particular interest in the literature are entrepreneurs' information processing and decision-making strategies. Researchers have called for an examination of factors that drive attention, memory, categorization, and inferences (Shaver & Scott, 1991), information storage, transformation, and use (Baron, 2004a), judgment and cognition (Shook, Priem, & McGee, 2003), and metacognitive functioning, or the ability to think about thinking (Haynie, Shepherd, Mosakowski, & Early, 2010).

Interestingly, this line of inquiry has brought about some thought-provoking theories and hypotheses regarding the specific cognitive processes employed by entrepreneurs.

Gaglio and Katz (2001) suggest that entrepreneurs engage a special set of cognitive skills, referred to as "entrepreneurial alertness," that help them identify opportunities in their environments. According to Baron (2004a), entrepreneurs have

improved counterfactual thinking, which is the ability to imagine different pasts and outcomes and develop improved task strategies. Similarly, Haynie et al. (2010) suggest that entrepreneurs are uniquely aware of, and in control of, “knowledge structures that are employed to make assessments, judgments, or decisions” (p. 220). This awareness and control over knowledge structures is proposed to allow entrepreneurs to weigh options, predict outcomes, and choose between potential action strategies in a superior manner. Baron (2004a) also suggests that entrepreneurs may be able to switch between quick, effortless information processing (heuristic processing) and effortful, analytical systematic processing; this flexibility in information processing may facilitate decision making. Busenitz (1999) found partial support for this view suggesting that managers in entrepreneurial firms perceive and utilize information differently than their non-entrepreneurial counterparts when making decisions; in fact, entrepreneurs employed heuristics that led to less perceived risk. This may explain why Stewart and Roth (2001) revealed that entrepreneurs have a greater risk propensity than non-entrepreneurs.

“Unconventional” cognitive strategies as listed above have all been associated with the success of entrepreneurs. Accordingly, these mental processes may explain how entrepreneurs “think, reason, and behave such that they create value and wealth through the identification and implementation of market opportunities” (Mitchell et al., 2007, p. 5). The current study extends these insights to examine an alternative question, specifically “are entrepreneur’s cognitive strategies susceptible to unconventional cognitive biases that may alter decision-making, also related to the unique qualities of entrepreneurship?” Of particular interest is whether entrepreneurial cognitions,

especially risk-taking cognitions, may be uniquely affected by heuristics analogous to those that affect decision makers in conventional contexts regarding personal mortality.

Cognition, Threat, and Decision-Making

Bounded rationality theory (Simon, 1947) asserts that in rational decision-making, an individual's rationality is limited by the availability of information, cognitive limitations, and the finite amount of time. A more traditional interpretation (Simon, 1955) suggests that an individual's limited resources (i.e., finite amount of time, cognitive mental limitations) in problem-solving will lead to suboptimal decisions. When introduced, bounded rationality theory was a major change in decision making theory development, as current theory development at the time was extrapolating propositions based on individuals with full rationality developing "optimal" solutions. Bounded rationality is still the underpinning of key assumptions in many macroeconomic and behavioral economic models where suboptimal decisions are investigated.

Consequently, multiple lines of research sought out foreseeable shortcomings in decision making processes due to such boundedness. Researchers, notably Tversky and Kahneman (1981), identified a range of cognitive biases that can affect decisions to take a risk. For example, in a prominent stream of research, Tversky and Kahneman (1981) addressed how framing a question (emphasizing positive or negative ramifications) can predictably bias individuals' decision-making, and thus lead to suboptimal decisions.

Additionally, a considerable body of research indicates that threats existing in the business environment may alter decision-making behaviors. Staw, Sandelands, and Dutton (1981) offered a comprehensive model from various fields (e.g., psychology, sociology, management), which includes an array of attitudes and behaviors (e.g.,

restricted information processing, simplification of information codes, concentration of power, influence, and control) from different levels of analysis (e.g., individual, group, organizational), that all fit comprehensively underneath the larger umbrella of “threat rigidity.”

Threat rigidity is defined by Staw et al. (1981) as the decision making consequences likely to occur when organizations are under threat or in crisis; in particular, organizations are inclined to more firmly focus on the one capability they do well (e.g., their core product or service), and curtail doing other new or ancillary initiatives (Staw et al., 1981). This response was likened to individuals placed in a threatening situation, which drove individual's to emit the most well-learned or dominant response (Staw et al., 1981). Some of the constructs associated with threat rigidity (Staw et al., 1981) are similar to the constructs found in the terror management literature (e.g., psychological stress, anxiety, physiological arousal, disaster response, in-group cohesion). Indeed, in Staw et al.'s model, part of their definition of crisis referenced constructs discussed in the current study, including a “major threat to system survival” (Staw et al., 1981, p. 511). In summary, threat conditions were proposed to lead decision-making groups to “reduce their flexibility under stress” (Staw et al., 1981, p. 502) or induce responses that are “well-learned or habituated” (Staw et al., 1981, p. 505).

In the current study, I suggest that terror management theory provides a unique potential addition to the above insights, as its tenets suggest that risk-averse behaviors can be induced in environments where *other* firms are under the pressure or threat of possibly failing. Similar to the above, terror management theory presents a perspective in which the bias of bounded rationality is central to the behavior of the individuals in the

system. By construing a terror management perspective as a cognitive bias, this research hypothesizes that potentially irrelevant economic environmental information can systematically influence decisions, and individuals do not behave according to tenets of rational choice. Rather, decision-makers are affected by a cognitive bias and show systematic responses in judgment, knowledge, and reasoning.

In terror management, the key cognitive bias is the contextual factor of “mortality salience.” Thus this dissertation provides an extension of the mortality salience concept to the study of entrepreneurship and strategy by positing that firm-level mortality salience could be a potentially important mechanism affecting critical decisions within a given economy. For purposes of the current study, the sample will investigate entrepreneurs — who are argued to strongly identify with their firms — and identifies these decision makers by employing the characteristics identified by Schumpeter (1936). If the individual has not conducted these activities in the previous 7 years, they will not be considered entrepreneur. In addition to using Schumpeter’s characteristics, I expanded the study sample to include respondents who showed evidence of creativity and innovation, to encompassing those respondents evincing an important entrepreneurial characteristic as outlined in Gartner’s themes of organizational creation and innovation. Inherent throughout this study is the assumption that entrepreneurs possess certain unique and desired cognitions that are qualitatively different than the cognitions of traditional employees; exploiting findings indicating that a substantial number of “unconventional” information-processing and decision-making strategies have been associated with successful entrepreneurship.

Terror Management Theory

Terror management theory (Greenberg, Pyszczynski, & Solomon, 1986) is a macropsychological theory that attempts to unify what was considered the highly fragmented state of social psychology theories and mold them into an overarching framework. According to Pyszczynski (2004), social psychology focused so much on the “leaves of the trees” that they “missed the forest” (p. 828). Pyszczynski (2004) also stated that he and his co-authors explored Ernest Becker’s work, which provided insight into the individual’s perception of his or her own mortality. Becker’s goal was to integrate and combine what he considered the best and most enduring insights emerging from human science and humanities over the years—ideas from Darwin, Freud, Rank, Kierkegaard, Nietzsche, Mead, and others. Pyszczynski (2004) further stated that:

What fascinated us about these books was that Becker had some ideas about why some of the motives that we social psychologists took for granted exist—what they do for us, what functions they serve. So we took Becker's ideas and combined them with the ideas that had been coming out of experimental laboratories in social, cognitive, clinical, and developmental psychology and brought in a good measure of the newly emerging field of evolutionary psychology. We then came up with what we referred to as Terror Management Theory. (p. 828)

Central to Terror Management Theory (Greenberg et al., 1986) is that humans differ from all other animals because they can fathom their own eventual mortality. Specifically, humans know that they will die one day. In addition, humans can anticipate the future and imagine dying in old age when their bodies fail. This anticipation and realization of death is believed to be unique in the animal kingdom; it differs markedly from the instinctual “fear” found among other animals.

Pyszczynski, Greenberg, Solomon, and Maxfield (2006) explain that awareness of the inevitability of death is a rather complex type of knowledge of life and reality.

Pyszczynski and colleagues suggest that one aspect of this awareness is that people fight mortality by attempting to live as long as possible. Some think this need to prevent death and prolong life leads to a paralyzing “terror” or “existential terror”—hence, the label “terror management theory” (Pyszczynski et al., 2006). Terror management theorists posit that conscious thoughts of death cause humans cognitive distress because it produces an unbearable terror. This is not a “fight or flight” response as seen in threat of immediate danger, but individuals are terrorized by the thought of eventually dying. Terror management theory has two overarching hypotheses: (1) the mortality salience hypothesis and (2) the anxiety-buffer (see Figure 1).

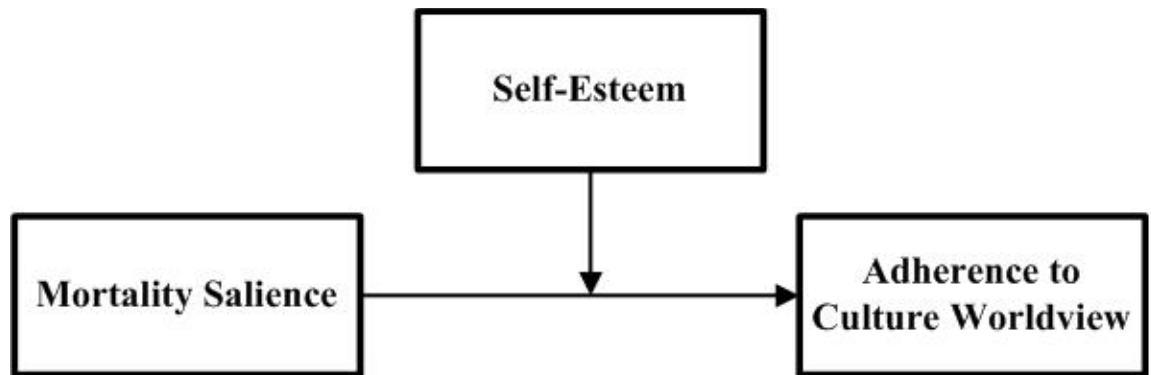


Figure 1. Terror Management Theory Model.

Terror management theory (Greenberg et al., 1986) posits that death awareness, or mortality salience, changes individual behavior in predictable ways. For example, when an individual is made mortality-salient, he or she adheres to a more conservative worldview (Greenberg et al., 1986) and measures lower in cognition tasks pertaining to creativity (Routledge, Arndt, Vess, & Sheldon, 2008). More recently, Grant and Wade-

Benzoni (2009) extended the role of mortality awareness of given individuals to the area of the individuals' work-related behaviors in organizations. They argued that mortality salience could drive both stress-related withdrawal behaviors, as well as prosocial generative behaviors. The literature also indicates that organizational decline (Latham & Braun, 2009) and downsizing (Mellahi & Wilkinson, 2008), in particular, can have a stifling effect on innovation. In the current study, I examine the consequences to entrepreneurship if a similar type of salience—but based on the mortality “of the business”—leads an entrepreneur to biased thoughts and actions toward suboptimal business decisions.

The Mortality Salience Hypothesis

Mortality salience is the first major tenet of terror management theory. Greenberg et al. (1986) used the term mortality salience to describe the awareness of an individual's eventual death. This hypothesis suggests that as death is made salient to individuals (i.e., mortality-salient), individuals will increasingly value their own cultural worldview (Pyszczynski, 2004, p. 828). The most common mortality salience manipulation is supraliminal priming with the use of two short, open-ended questions that make individuals aware of their eventual death (Arndt, Greenberg, & Cook, 2002). Mortality salience has been operationalized over 200 times (Greenberg, Koole, & Pyszczynski, 2004), and over 90 studies have used the effects of the supraliminal priming method (Arndt et al., 2002) (see Appendix 1).

Some researchers (Mandel & Heine, 1999; Pyszczynski, 2004) posit that an individual's adherence to his or her own cultural worldview increases under increasing mortality salience, as a cultural worldview acts to provide purpose, structure, and

meaning to what could be perceived as a chaotic and uncertain existence. Pyszczynski, Greenberg, Solomon, Arndt, and Schimel, 2004 state that terror management theory can be thought to explore how individuals tend to respond to two internal questions: (1) What is the validity of the individual's cultural worldview; and (2) Is the individual living up to the standards that are part of that worldview? For example, adhering to a set of moral standards and being affiliated with a particular religion may alleviate the fear of mortality by ensuring literal and/or symbolic immortality. Alternatively, individuals can find comfort in valuing the idea of leaving an enduring mark on the world through means such as group membership, awards, books, and even tangible symbols of value (Mandel & Heine, 1999).

In sum, it is theorized that during periods of increased mortality salience, there is an increase in the need for cultural structure. Arguably, one outcome of closer adherence to one's cultural worldview is the tendency to engage in more "conservative" behaviors, described as "tending or disposed to maintain existing views, conditions, or institutions; marked by or relating to traditional norms of taste, elegance, style, or manners" (Merriam-Webster, 2010). Alternatively, individuals that cling to cultural worldviews are less likely to take risks, so as to conform with existing views and institutions. As explained by Arndt, Greenberg, Solomon, Pyszczynski, and Schimel, (1999), mortality salience creates an environment in which individuals do not want to deviate from their culturally normal worldviews; those individuals that do deviate, report higher feelings of guilt than the group that was not made mortality salient.

During periods of high mortality salience, then, terror management theory implies that individuals have unusually positive reactions to stimuli that support the cultural

worldview and unusually negative reactions to stimuli that threaten it (Mandel & Heine, 1999); this reaction has been found in a number of empirical settings. Indeed, individuals that violate cultural worldviews in periods of mortality salience are judged more harshly, treated more aggressively, and pushed to socially conform (Arndt et al., 1999). There is even evidence that mortality salience decreases creativity (Arndt et al., 1999).

Because “cultural worldview” is defined subjectively, it is important to recognize that the “conventional” directions taken will be unique to the individual and aligned with his or her idiosyncratic cultural worldview. When an individual’s cultural worldview is generalized to a national culture, the person is thought to respond in accord to a national cultural worldview. For instance, a Mexican American would be expected to revert to a belief system that is more in line with Mexican culture under mortality salience, while a Canadian would show more patriotic or nationalistic beliefs reflective of Canadian culture (Arndt, Greenberg, & Cook, 2002; Arndt, Greenberg, Schimel, Pyszczynski, & Solomon, 2002; Nelson, Moore, Olivetti, & Scott, 1997). Such responses are consistent with findings in both the psychology and strategy literature that suggest that group-focused emotions can be elicited by identification with one’s salient social identities (Arndt, Greenberg, Schimel, et al., 2002; Huy, 2011; Smith, Seger, & Mackie, 2007). For example, dependent upon the prime used, “gender” or “individual,” American women would address the conflict of both *fitting in* and *standing out* differently (Arndt, Greenberg, & Cook, 2002; Walsh, & Smith, 2007). In summary, it has been consistently documented that heightened mortality salience increases the level to which an individual adheres to his or her worldview (Pyszczynski et al., 2006).

The Anxiety-Buffer Hypothesis

The second major tenet of terror management theory relates to the role of the anxiety-buffer hypothesis. In this hypothesis, it is believed that individuals' self-esteem is a short-term buffer that insulates individuals from the fear associated with mortality salience (Pyszczynski, 2004; Schmeichel et al., 2009). Self-esteem refers to individuals' personal beliefs about themselves. This self-assessment encompasses variables relating to one's worth, beliefs, emotions, skills, abilities, social relationships, and future outcomes (Baumeister, 1998; Coopersmith, 1967; Crandall, 1973). This includes Coopersmith's (1967) classic definition of self-esteem:

The evaluation which the individual makes and customarily maintains with regard to himself: it expresses an attitude of approval and indicates the extent to which an individual believes himself to be capable, significant, successful and worthy. In short, self-esteem is a personal judgment of the worthiness that is expressed in the attitudes the individual holds towards himself. (p. 4–5)

Individuals are thought more capable of reaching their long-term goals by enhancing their self-esteem and protecting themselves against the fear associated with mortality salience (e.g., “Bad things happen to bad people; I am a good person thus bad things will not happen to me”; Pyszczynski, 2004).

Consequently, if the psychological structure of self-esteem provides protection against anxiety, it has been hypothesized that strengthening that structure should make an individual less prone to exhibit anxiety or anxiety-related behavior in response to threats (Pyszczynski et al., 2004; Schmeichel & Martens, 2005). Conversely, weakened self-esteem makes an individual more prone to exhibit anxiety or anxiety-related behaviors in response to threats (Harmon-Jones et al., 1997). Pyszczynski et al. (2004) support the anxiety-buffer hypothesis, agreeing that high levels of self-esteem reduce anxiety levels

and anxiety-related defensive behaviors. Greenberg et al. (1992) effectively presented this information, demonstrating that boosting self-esteem by giving positive feedback on a personality test led to lower levels of self-reported anxiety on a state anxiety inventory. Other research (Arndt & Goldenberg, 2002) has shown that mortality salience arouses anxiety, and similarly found that a wide variety of cognitive and behavioral defenses reduce the level of self-reported anxiety back to baseline levels.

Currently, there is extensive support for terror management theory. Pyszczynski (2004) found over 250 articles involving 15 different nations in support of the theory, and by 2008, the number of related studies had risen to over 350 (Greenberg, Solomon, & Arndt, 2008; Pyszczynski et al., 2006). Cox and Arndt (2008) list articles related to terror management theory at <http://www.tmt.missouri.edu/publications.html>. Generally, these studies indicate that when individuals experience mortality salience, they will usually adhere more closely to their personal cultural worldviews (Greenberg et al., 1990; Solomon, Greenberg, & Pyszczynski, 2000). Since risk-taking attitudes and behaviors are important to entrepreneurship theory, I seek to manipulate risk-taking through terror management theory.

In the next chapter, I formulate specific hypotheses to test for behavior for entrepreneurs and “business death” mortality salience analogous to the insights described above from terror management theory.

Chapter 3: Hypothesis Development

The threat rigidity literature clearly develops relationships between threats and decision-making; however, the considerable literature related to terror management theory that identifies unique mortality salience mechanisms has not been examined along with this relationship. Adding mortality salience and anxiety buffering to this body of knowledge can add important depth to the literature; precisely, it would indicate that impending firm death is not necessary to activate an anxiety response; rather cued mortality of other firms could also elicit similar responses to threat rigidity. Several constructs are key to this investigation, e.g., a prime for the behavior (threat of firm death), precise behavioral changes that might be predicted (risk-averse decisions), and a moderator for the behavior (some form of self-esteem). Behavioral strategy further aids an understanding of risk and the choices individuals make (Hu, Blettner, & Bettis, 2011). Key to the contribution possible from terror management theory is the contention that awareness of firm mortality may not be correlated with *actual* risk. The current study is focused on the way firm-failure salience changes the mindset of an entrepreneur such that he or she adheres to a more risk-averse decision state. This risk-averse decision state will likely reduce actual risk-taking although this may not have been the individual's intended (rational or planned) action, but an effect of firm-failure salience.

“My Business is My Baby”: Anthropomorphizing a Firm

The comparison of mortality salience to entrepreneurial behavior is based on the fact that entrepreneurs describe personal, anthropomorphic, and intimate relationships with their firms. A search of the terms “my business is my baby” via Google, a popular internet search engine, conducted in July 2013 results in approximately 943,000 articles

containing this exact phrase. As one small business advisor explained, “I find that many owners have a hard time making the shift to thinking of their business as an asset, rather than as their ‘baby’” (Taylor, 2010, p. 1).

Critically, the examination of a potential anthropomorphizing phenomenon is not new in the strategy literature. The anthropomorphic quality of threat rigidity is central to the more macro-level propositions of Staw et al. (1981) where they proposition theorized that rigidity was the product of parallels found from threat in individual, group, and organizational behavior. Staw et al. (1981) also suggest that anthropomorphism may result from the fact that organizational actions are often initiated by individual and group forces, such that social and psychological effects at these levels of analysis indirectly influence organization-level phenomena (Staw et al., 1981, p. 501).

Since the late 1980s, organizational identification has been recognized as a significant construct in the organizational behavior literature, affecting both the satisfaction of the individual and the effectiveness of the organization (Albert, Ashforth, & Dutton, 2000; Ashforth & Mael, 1989; Bauer, Bodner, Erdogan, Truxillo, & Tucker, 2007). Ashforth and Mael (1989) suggest that the incorporation of a firm into one’s self-identification can be explained by social identity theory. Social identity theory postulates that an individual's self-concept derives from his or her perceived membership in a relevant social group (Tajfel & Turner, 1979).

van Knippenberg and van Schie (2000) similarly indicated that a significant portion of an individual’s identity derives from their employment. More specifically, employment can give an individual their key personal identity (Warr, 1982). In consequence, when individuals strongly identify with an organization, the attributes they

use to define the organization also define them (Dutton, Dukerich, & Harquail, 1994). Indeed, work identity has been found to be an important role that individuals identify with, and that its importance and centrality have impacts on self-esteem (Reitzes & Mutran, 2002).

Entrepreneurial Firm Failure and Threat Management: Risk-Averse Tactics

If an individual's cognitive processes are influenced by a firm's mortality salience, how will entrepreneurial decision-making and business practices be affected? In the current economic climate, there is a higher salience of firm failure, coincidentally, though, entrepreneurs' creativity and innovation are in even higher demand. The current study suggests that entrepreneurs will conform to the conservative, risk-averse consensus and more likely adopt industry norms or best practices. A "best practice" is a method or technique used as a benchmark that has consistently shown results superior to those achieved with other means. Best practices can also improve as discoveries are made, which happens as a new practice is recognized as a better technique. Best practices involve a process of developing and following a standard way of doing things that can be exploited by multiple organizations. Importantly, best practices are thought to become industry standards as competitors replicate them in their own organization, resulting in competitive parity in the industry. Moore (1993) thus argues that this model is outdated when addressing issues of needed co-evolution: either an organization figures out how to self-renew, or it can expect death.

The model proposed in the current study mirrors the terror management theory model to predict the way entrepreneurs' decision-making might change in the face of impending and salient firm death in the environment. Using the terror management

theory paradigm, entrepreneurs facing increased mortality salience of other firms (i.e., firm-failure salience) are likely to increase their risk-averse behaviors. The proposed model is depicted in Figure 2.

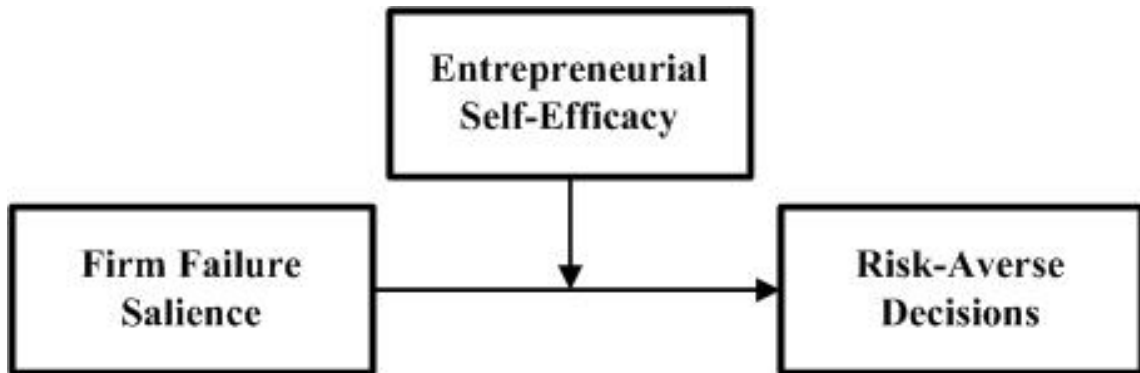


Figure 2. Proposed Firm Failure, Risk-averse Attitudes, and Self-efficacy Model.

Thus, the first hypothesis is:

Hypothesis 1: Entrepreneurs that experience firm-failure salience will have greater risk-averse attitudes than entrepreneurs that are not firm-failure salient (control group).

This hypothesis is tested by the following hypotheses:

Hypothesis 1a: Entrepreneurs that experience firm-failure salience will have lower scores on the risk taking scale than entrepreneurs that are not firm-failure salient (control group).

Hypothesis 1b: Entrepreneurs that experience firm-failure salience will have a greater drop in their change scores on the creativity scale than entrepreneurs that are not firm-failure salient (control group).

Hypothesis 1c: Entrepreneurs that experience firm-failure salience will have a greater drop in scores on the innovation scale than entrepreneurs that are not firm-failure salient (control group).

Hypothesis 1d: Entrepreneurs that experience firm-failure salience will have lower scores on firm expansion activity measures than entrepreneurs that are not firm-failure salient (control group).

This study differs from typical studies of threat rigidity because like mortality salience, the critical component is “death awareness” of any business, but not necessarily an actual threat to the focal business. Also, the “death” analog is especially compelling for business, as the term “death” is often used to describe the unwanted demise of a business (Box, 2008). Understanding phenomena that can impact entrepreneurial decision-making in predictable ways is key to forestalling the negative reinforcement of the poor conditions visible during economic downturns. In the current study, terror management theory is used to explain the entrepreneurial parallel of mortality, business death, or firm failure. I connect these business threats to the existing understanding of behaviors under the psychological condition, as depicted in threat rigidity (Staw et al., 1981). Finally, I argue that such behaviors at the entrepreneurial level are problematic during periods of economic recession, in which they can encourage a vicious circle of economic decline. In particular, I argue that to the extent that business failure leads to a type of analogical effect of mortality salience on entrepreneurs, a firm’s decision-making behavior is likely to shift from risky to excessively conservative. In contrast, to combat economic recession, policy makers should encourage entrepreneurs to manifest an increased willingness to invest in the face of poor business data. Modern organizations

cannot simply copy the competition. As Moore (1993) stated, “the only truly sustainable advantage comes from out-innovating the competition” (p. 75).

Entrepreneurial Self-Efficacy as a Moderator of Firm-Failure Salience

Self-efficacy, a construct related to self-esteem, is a relevant variable in regard to predicting decision-making behaviors. Whereas self-esteem is an individual’s overall personal beliefs about him/herself, self-efficacy is the measure of one’s own competence to complete tasks and reach goals (Bandura, 1977). In the current study, I am specifically interested in entrepreneurial self-efficacy, which Boyd and Vozikis (1994) defined as an individual’s beliefs that he or she can successfully pursue entrepreneurial behavior. The construct of entrepreneurial self-efficacy (Boyd & Vozikis, 1994) encapsulates earlier work by Robinson et al. While there is considerable variance from the definitions of self-esteem, self-control, and self-efficacy that are found in the psychology literature, the definitions used in this study are generally accepted and regularly used. Specifically, this study adopts Robinson et al.’s (1991) characterization of business self-esteem as “the individual’s perceived self-esteem in business, pertaining to the self-confidence and perceived competency of an individual in conjunction with his or her business affairs” – and believes such a depiction is most appropriately similar to entrepreneurial self-efficacy. Entrepreneurial self-efficacy has been established repeatedly as a predictor of entrepreneurial intent and activity (McGee, Peterson, Mueller, & Sequeira, 2009). High levels of entrepreneurial self-efficacy have been found to increase the likelihood of both entrepreneurial intentions and start-up behavior (Sequeira, Mueller, & McGee, 2007), additionally, research indicates entrepreneurial self-efficacy increases entrepreneurial interest and entrepreneurship as a career choice (Wilson, Kickul, & Marlino, 2007).

In terror management theory, an individual's self-esteem operates as a buffer that insulates the individual from the fear associated with mortality salience (Pyszczynski, 2004). For purposes of the current study, instead of an individual's self-esteem serving as the anxiety buffer, I propose the closely related but different concept of entrepreneurial self-efficacy as a moderator. Drawing from the terror management literature, it has been consistently found that the effects of mortality salience are moderated by self-esteem (Harmon-Jones et al., 1997; Pyszczynski, 2004). I also suggest that this moderating effect will be evident for firm-failure salience. Therefore, the entrepreneur's tendency to make risk-averse decisions (as discussed in *Hypothesis 1*) will be decreased if entrepreneurs have high levels of entrepreneurial self-efficacy, and any bias from firm failure salience will be dampened. In contrast, entrepreneurs with low levels of entrepreneurial self-efficacy will respond to firm-failure salience by demonstrating less risk, (i.e., more risk-averse decision-making) when confronted with firm-failure salience. Considering this, the following hypothesis is made:

Hypothesis 2: Entrepreneurial self-efficacy will moderate the relationship between firm-failure salience and risk-averse attitudes such that entrepreneurs with greater entrepreneurial self-efficacy will report less risk-averse attitudes.

This hypothesis will be tested by the following set of hypotheses:

Hypothesis 2a: Entrepreneurial self-efficacy will moderate the relationship between firm-failure salience and risk-averse attitudes such that entrepreneurs with greater entrepreneurial self-efficacy will score higher on the risk tolerance scale than entrepreneurs that have lower entrepreneurial self-efficacy.

Hypothesis 2b: Entrepreneurial self-efficacy will moderate the relationship between firm-failure salience and risk-averse attitudes such that entrepreneurs with greater entrepreneurial self-efficacy will score higher on creativity scale than entrepreneurs that have lower entrepreneurial self-efficacy.

Hypothesis 2c: Entrepreneurial self-efficacy will moderate the relationship between firm-failure salience and risk-averse attitudes such that entrepreneurs with greater entrepreneurial self-efficacy will score higher on the innovation scale than entrepreneurs that have lower entrepreneurial self-efficacy.

Hypothesis 2d: Entrepreneurial self-efficacy will moderate the relationship between firm-failure salience and risk-averse attitudes such that entrepreneurs with greater entrepreneurial self-efficacy will score higher on the firm expansion activity measures than entrepreneurs that have lower entrepreneurial self-efficacy.

The next chapter will describe the methods and analyses that were pursued in this study. That chapter is then followed with a description of our findings on the proposed model.

Chapter 4: Methodology

The purpose of the current study was to examine the decision-making of entrepreneurs and the associated changes in risk-taking in the presence of firm-failure salience. A total of 109 entrepreneurs were recruited from various outlets, including conferences, entrepreneurship assistance organizations, word of mouth, and online social networks. For conferences, a start-up conference in Memphis TN, an innovation conference in Lexington KY, and an entrepreneurship competition in Berea KY were visited and entrepreneurs were recruited for the study. Business individuals and connections from entrepreneurship accelerators were solicited. Entrepreneurship educators (non-profit, profit, and educational settings) and the entrepreneurs themselves were asked if they could help solicit volunteers via word of mouth. Finally, the online social media networks LinkedIn and Facebook were used to advertise the study.

A sample size of 68 was suggested using power analysis; specifically, G*Power was used for calculating the sample size to test the direct effect. This sample size was derived by using these variables in G*Power, α level of .05, β level of .8, and an effect size (*ES*) of $r = .35$ as reported for mortality salience on the reported dependent variables in Burke, Martin, and Faucher's (2010) 20-year meta-analysis of mortality salience research (Faul, Erdfelder, Lang, & Buchner, 2007; Faul, Erdfelder, Buchner, & Lang, 2009; see Figures 3 and 4).

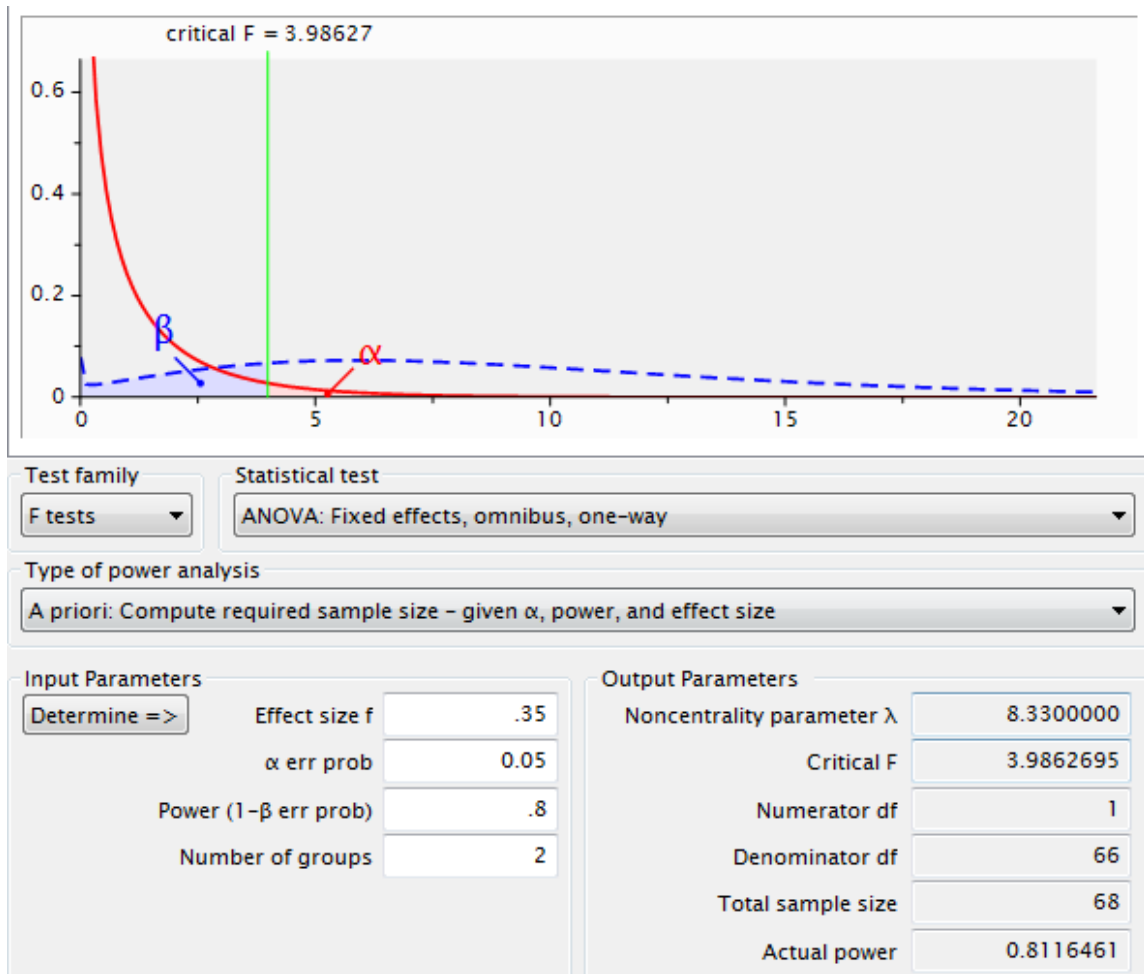


Figure 3. Power analysis (G*Power) settings for main effect (mortality salience).

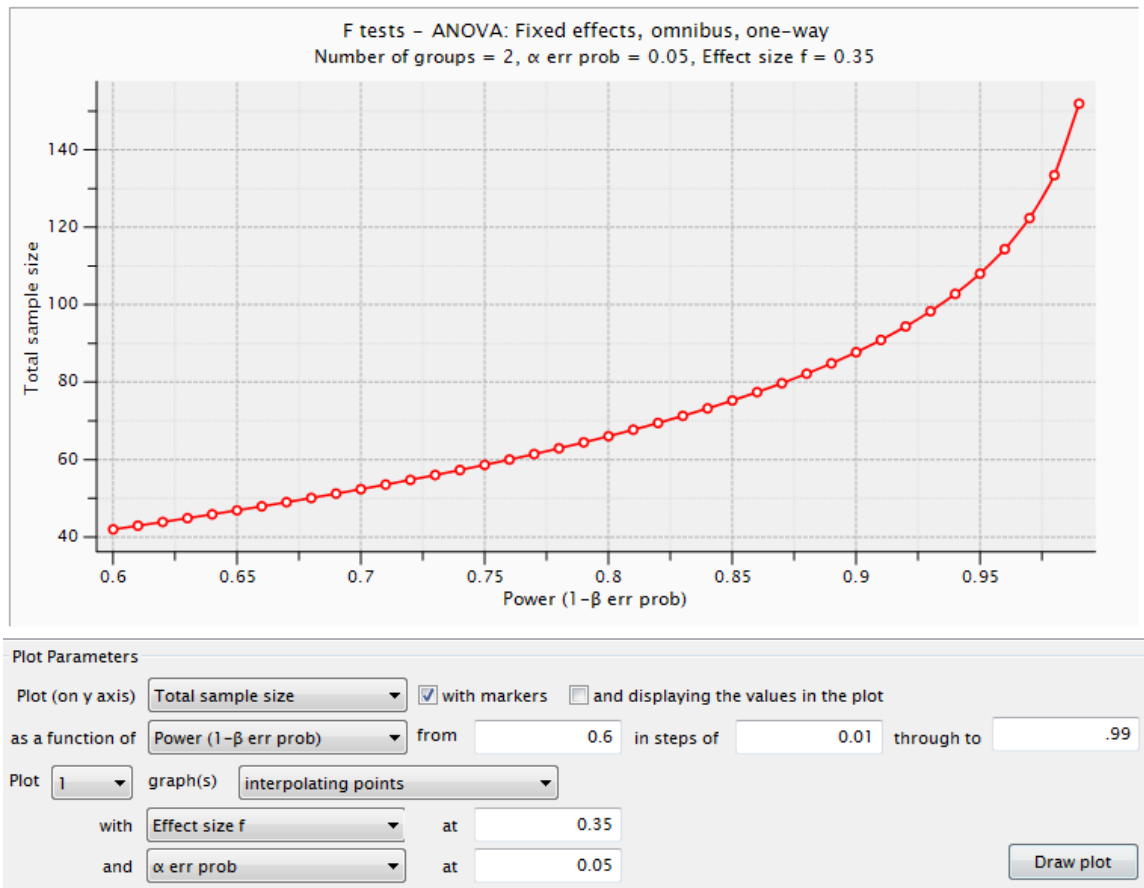


Figure 4. Power analysis (G*Power) sample size plot for main affect (mortality salience).

However, a sample size of 90 was estimated using G*Power, $\alpha = .05$, $\beta = .8$, and the ES of the moderator ($r = .30$), which was reported for the moderator effect of self-esteem on reported dependent variables (Burke et al., 2010; see Figures 5 and 6).

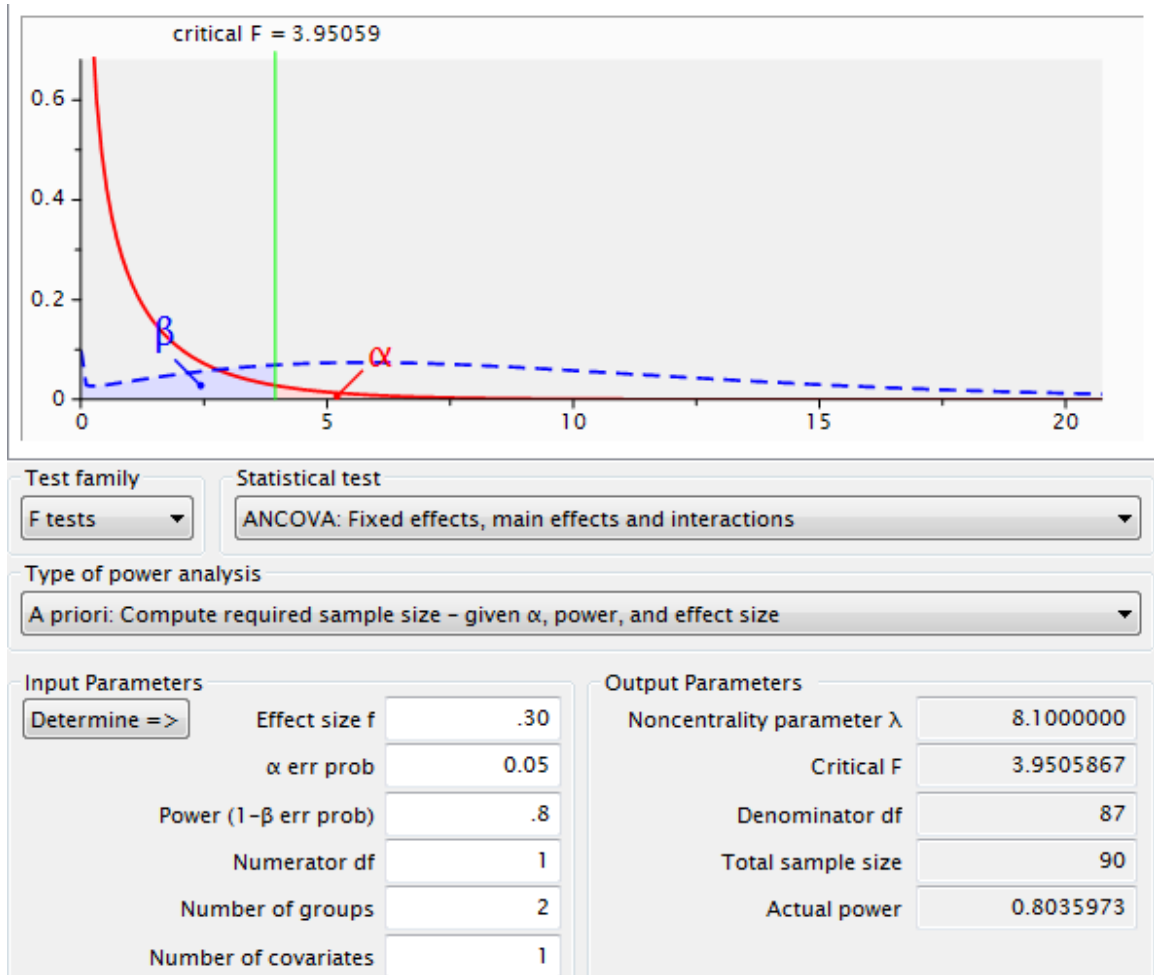


Figure 5. Power analysis (G*Power) settings for moderator effect (self-efficacy).

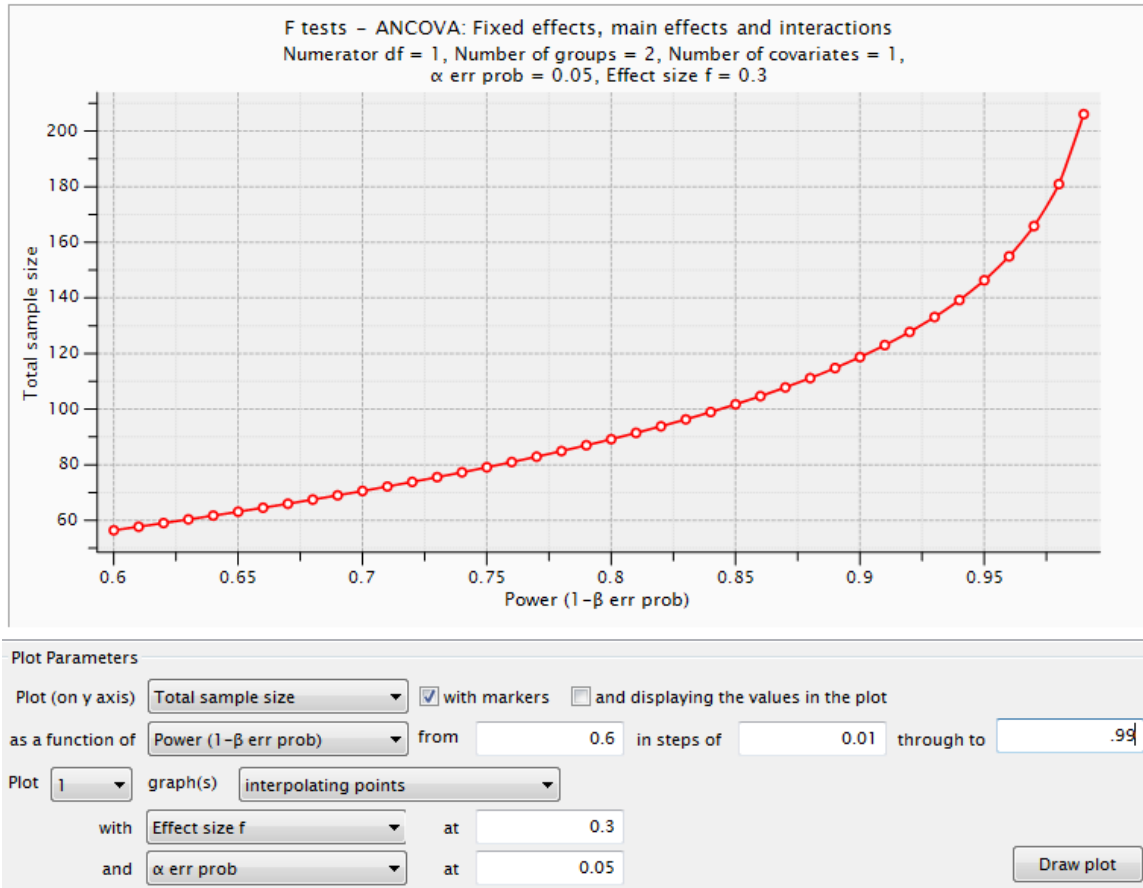


Figure 6. Power analysis (G*Power) sample size plot for moderator effect (self-efficacy).

Details of the Study Participants

There was a total of 189 participants during the data collection phase.

Participants were required to self-identify as entrepreneurs with seven or fewer years of entrepreneurial experience. According to Reynolds (2006), firms have a chance to develop after approximately seven years (from start-up to completion) such that a third of start-up businesses have culminated in the emergence of a successful firm, a third have

exited due to start-up failure, and a third remains in the start-up process. Reynolds (2006) suggests that businesses still in the start-up process after seven years have approached the firm-creation process as “casual hobbyists—not pursuing a new firm as a serious career option” (p. 85). This operationalization of an entrepreneur is aligned with the definition of entrepreneur mentioned earlier. All study participants were entered into a drawing to win 1 of 6 gift certificates (one with a \$50 value, one with a \$25 value, and four with a \$10 value); each participant had a 3.1% chance to win.

Of the 186 study participants, 77 (41.4%) were dropped due to one or more of the following conditions: (1) incomplete data (19, or 10.2%); (2) did not fit the operationalization of entrepreneur (49, or 26.3%); (3) failed manipulation check (31, or 16.6%); (4) excessive time completing the survey (5, or 2.7%); or (5) feedback proving that the study was not appropriate for them 7, or 3.8%). After these initial cuts, 109 (58.6%) participants remained. The outlier calculation method is discussed in the Findings section. Unless otherwise noted, the remaining discussion and the results emerge from the data collected from the 109 individuals referenced above.

Of the final 109 study participants, 88 (80.7%) were male and 21 (19.3%) were female. In terms of ethnicity, 82 (75.2%) participants self-identified as White, 13 (11.9%) self-identified as Black, 4 (3.7%) self-identified as Hispanic/Latin, 4 (3.7%) self-identified as Asian, 1 individual self-identified as American Native, and 5 (4.6%) self-identified as *other*. Since most participants self-identified as White or Black, those participants who considered themselves Hispanic/Latin, Asian, and Native American were categorized as “Other” to clarify results.

Additionally, 70 of the total 109 participants (64.2%) self-identified as employed full-time, 14 (22.9%) self-identified as employed part-time, and the remaining 25 (22.9%) self-identified as unemployed. Overall, study participants had been in the workforce for an average of 19.52 years ($SD = 12.4$ years) and were, on average, 40.6 years of age ($SD = 12.5$ years). The majority of the study participants rated their social economic status (SES) as middle SES. In particular, 52 (47%) participants self-identified as middle SES, 34 (31.2%) self-identified as upper-middle SES, 17 (15.6%) self-identified as lower-middle SES, and only 6 participants self-identified as upper (6 participants, or 5.6%) or lower SES (3 participants, or 2.8%). Study participants were randomly assigned into one of the two experimental conditions: the manipulation (i.e., firm-failure salient) group or the control group.

Manipulation Group

There were 52 participants in the firm-failure salient (FFS) group. These participants were an average age of 42.5 years ($SD = 13.9$ years) and had spent an average of 22 years ($SD = 13.6$ years) in the workforce. Forty-five (86.5%) of the participants were male and 7 (13.5%) were female. In terms of ethnicity, 43 participants (82.7%) were White, 3 (5.8%) were Black, and 6 (11.5%) were other (i.e., Latin/Hispanic, Native American, Asian, or Other). In terms of SES, two participants (3.8%) were upper SES, 19 (36.5%) were upper-middle SES, 26 (50.0%) middle SES, four (7.7%) were lower-middle SES, and one (1.9%) was lower SES. In terms of employment, 35 participants (67.3%) self-identified as employed full-time, 8 (15.4%) were employed part-time, and 9 (17.3%) were unemployed.

Control Group

There were 57 participants assigned to the control group. Participants in the control group were an average age of 39.0 years of age ($SD = 10.9$ years) and had spent an average of 17.3 years ($SD = 10.9$ years) in the workforce. Forty-three (75.4%) of the participants in the control group were male, and 14 (24.6%) were female. In terms of ethnicity, 39 participants (68.4%) were White, 10 (17.5%) were Black, and 8 (14.0%) are categorized as other. In terms of SES, 1 participant self-identified as (1.8%) upper, 15 (26.3%) were upper-middle, 26 (45.6%) were middle, 13 (22.8%) self-identified as lower-middle, and two (3.5%) were of lower SES. Thirty-five (61.4%) of the participants self-identified as employed full-time, 6 (10.5%) self-identified as employed part-time, and 16 (28.1%) self-identified themselves as unemployed.

Measures

Survey Instrument Design

The current study was designed to be completed in 15 minutes or less, thus the purpose and reference to reducing and shoring the measures in the following section was to decrease survey time by making the survey quicker to complete. To make the survey easier wherever possible, all questions were converted to a 7-point Likert-type scale. Additionally, questions inside the scales and instrument were removed to decrease survey time, so only a subset of the entire scale is used. Questions were eliminated in an instrument based on least reduction from the scales' original Cronbach's α levels until a smaller set of questions remained. Some discretion was used so that the reduction of questions did not significantly affect α levels. Once the final set of questions was selected, they became the post-test questions for that instrument. Both the full questions

set and the reduced questions sets are listed in the appendix for each questionnaire unless copyright restrictions issues limited the numbers of items that could be listed.

The pre-test scales and post-test scale were designed to be shorter than the original scales to improve response interest. Using the subset of the original questions, a second process of eliminating questions with the smallest negative impact on the α levels was conducted until a smaller set of questions remained. The second set of questions then became the set of pre-test questions. This process was used on all pre-test/post-test parallel question sets created; specifically, state part of State-Trait Anxiety Index, Creativity Assessment Packet and the four sub-dimensions, and Entrepreneurship Attitude Orientation, Innovation sub-dimension.

The format of the survey consisted of a scenario design for the manipulation, and was completed online. Respondents logged onto a survey website and were randomly assigned to either the control group or the manipulation. The format of the survey provided two different ways to assess whether there exists a firm failure salience response. First, the control/experimental randomization allowed the opportunity to see whether there were population response differences to the scales after the firm failure salience manipulation on the measures of risk and firm expansion. The second method for discerning whether there was an effect was within populations: did the experimental group experience a change in their creativity and EAO innovation scales that was different than changes found in the control group? Thus the four dependent variables were assessed in two different groups, one based on absolute differences and the second based on relative differences in the change from pre to post test results.

All respondents then answered demographic, firm identification, and personality questions that were measured as potential controls for the relationship under investigation, along with pre-test creativity and innovation measures. Respondents were then asked to read a scenario which was either primed with a firm salience text, or with neutral text (independent variable). After reading the scenarios, the respondents were asked again about their entrepreneurial self-esteem, and were tested on the four dependent variable scales: risk tolerance and firm expansion (tested for the first time) and entrepreneurial attitude orientation toward innovation and firm expansion activity. We expand on each of the variables below. Additionally, a list of the SPSS abbreviations and variables are listed in Table 1. Due to copyright restrictions the creativity assessment packet and State-Trait Anxiety Inventory cannot be completely listed.

Table 1

SPSS Abbreviation and Variables Name

SPSS Output	Variable
STAI_T_Avg	Trait Anxiety pretest Average
STAI_S_Avg	State Anxiety pretest Average
EAO_IN_Avg	Entrepreneurial Attitude Orientation Innovation pretest Average
CAP_Avg	Creativity Assessment Packet pretest Average
CAP_Cu_Avg	Creativity Assessment Packet Curiosity pretest Average
CAP_Im_Avg	Creativity Assessment Packet Imagination pretest Average
CAP_Co_Avg	Creativity Assessment Packet Complexity pretest Average
CAP_RiTa_Avg	Creativity Assessment Packet Risk Taking pretest Average
STAI_S_Avg_RT	State Anxiety Retest (post-test) Average
EAO_IN_Avg_RT	Entrepreneurial Attitude Orientation Innovation Retest (post-test) Average
CAP_Avg_RT	Creativity Assessment Packet Retest (post-test) Average
CAP_Cu_Avg_RT	Creativity Assessment Packet Curiosity Retest (post-test) Average
SPSS Output	Variable
CAP_Im_Avg_RT	Creativity Assessment Packet Imagination Retest (post-test) Average
CAP_Co_Avg_RT	Creativity Assessment Packet Complexity Retest (post-test) Average
CAP_RiTa_Avg_RT	Creativity Assessment Packet Risk Taking Retest (post-test) Average
RTQ_Avg	FinaMetrica Risk Tolerance Questionnaire posttest Average
FEAQ_Avg	Firm Expansion Activities Questionnaire Average
FFS_Maslow	Manipulation variable, 0 for control (Maslow) and 1 for manipulation (Firm Failure Salience)
EAO_In_ChangeScore	Entrepreneurial Attitude Orientation Innovation change score
STAI_S_ChangeScore	State Anxiety change score
CAP_Avg	Creativity Assessment Packet change score

Sample Validity Check: Entrepreneurship Status

A 4-part question was created to determine if an individual qualified as an entrepreneur as defined by this study. In the first qualifying question, participants were asked if they had ever started a firm or a nonprofit organization. If participants responded yes to either question, they were prompted to identify how long it had been since the firm/nonprofit organization was started. However, if the participant had answered no to the initial question, he or she was asked whether or not they had ever considered starting an entrepreneurial endeavor (e.g., second qualifying question). Additionally, if participants stated that more than seven years had passed since they had started the firm/nonprofit agency, then participants were directed to the second qualifying question. The second qualifying question was followed by a list of steps needed during the business start-up phase. Participants were asked to identify the steps that had already been completed. Finally, participants identified how long it had been since they had taken these steps. Figure 7 illustrates the questioning process for these four qualifying questions.

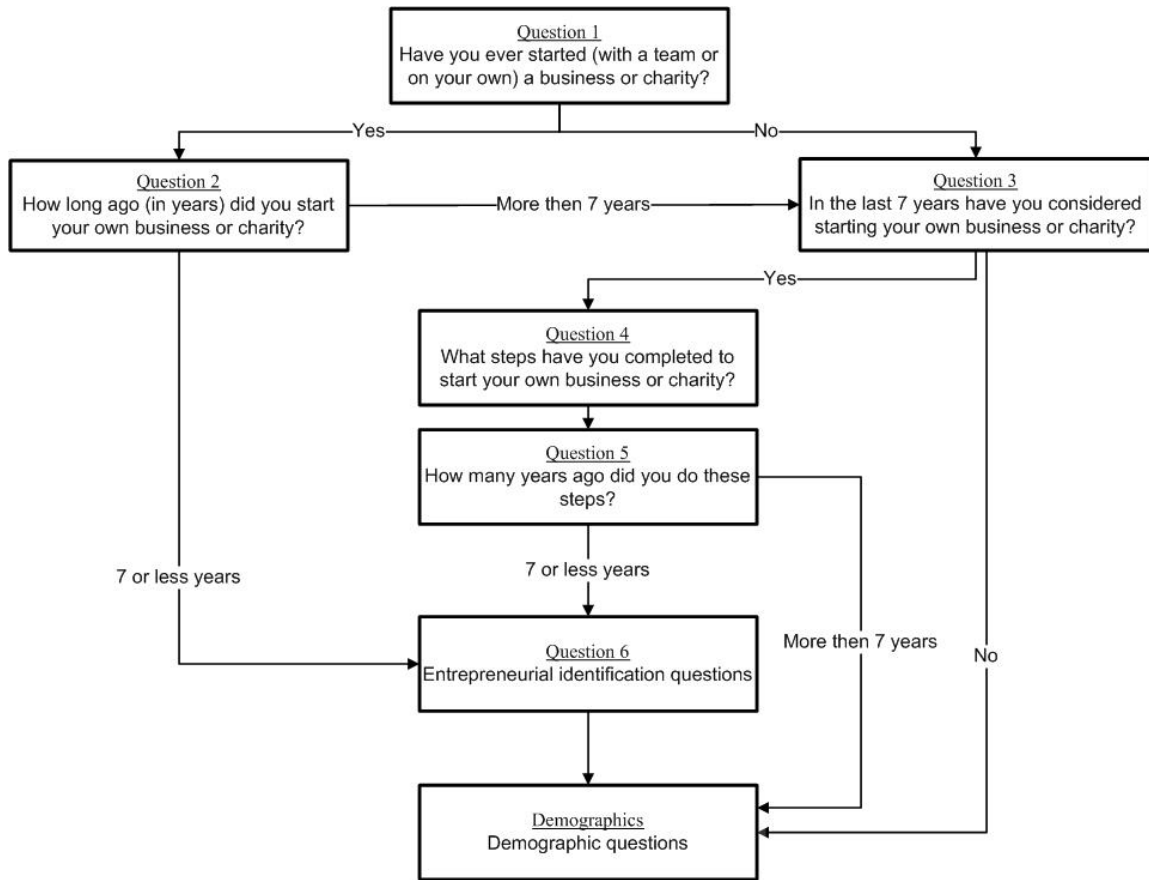


Figure 7. Entrepreneurship Status Question Flow Diagram.

For a study participant to be considered an entrepreneur and able to respond to the rest of the survey, he or she must have indicated that they had started or seriously considered starting a firm or nonprofit agency within the last seven years. For a participant to be rated as having “seriously considered,” at least two of the items from the list of start-up steps must have been selected.

Dependent Variables

The proposed responses to firm failure salience include those attitudes and behaviors that would align with less risk-taking, lower innovation, and lower creativity. Four different scales were adopted to investigate the potential response to firm failure

saliency: risk tolerance, creativity, innovation, and firm expansion activities. I describe each of these below.

Risk Tolerance Scale. The 25-item FinaMetrica Risk Tolerance Questionnaire (Elsayed & Martin, 1998) evaluates how individuals feel toward levels of risk, or their financial risk tolerance (Appendix 2). Elsayed and Martin (1998) reported Cronbach's α level of .91 (from samples of both US and Australia participants). Criterion validity was assessed with correlations of self-reports (.68) and advisors' (.38) estimates of individuals' risk tolerance (Elsayed & Martin, 1998).

For this study the risk tolerance questionnaire was modified and reduced to shorten survey time and was only administered post-manipulation. The 25-item (FinaMetrica Risk Tolerance Questionnaire) was reduced to 7 items that had a Cronbach's α levels of .81 (Table 2). Additionally, the risk tolerance questions selected for inclusion in this survey were questions considered quicker to answer. The seven selected questions were included as they were smaller items that were substantially quicker to answer than other items containing entire paragraphs. The risk tolerance questionnaire is listed in appendix 3.

Table 2

Risk Tolerance Post-test Cronbach's α and Reduced Scale Statistics

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.808	.808	7

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	.000	.000	.000	.000	-1.584	.000	7

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Zscore: Compared to others, how do you rate your willingness to take financial risks?	.0000000	15.753	.757	.623	.743
Zscore: How easily do you adapt when things go wrong financially?	.0000000	18.385	.393	.229	.808
Zscore: When you think of the word 'risk' in a financial context, which of the following words comes to mind first?	.0000000	17.720	.480	.325	.794
Zscore: If you had to choose ..., which would you pick?	.0000000	17.106	.562	.383	.779
Zscore: Imagine ... choose whether to be paid salary, commission or a mix of both. Which would you pick?	.0000000	18.234	.413	.247	.805
Zscore: What degree of risk are you currently prepared to take with your financial decisions?	.0000000	15.780	.752	.598	.744
Zscore: When making an investment... how much of the funds you have available to invest would you be willing to place in	.0000000	17.813	.467	.367	.796

Creativity. A modified version of the creativity assessment packet developed by Williams (1993) was used to measure creativity. The full creativity assessment packet is a generally accepted and widely used instrument (Cropley, 2000) and includes 50 items on a Likert-type scale, and it tests for four different dimensions of creativity: curiosity, complexity, imagination and complexity. Prior testing has reported α levels of .71 and a test-retest coefficient of .76 (Williams, 1993) and the questions for the full assessment cannot be listed due to copyright limitations; however, an example would be “I like to dream about things I want to know or do.” (Williams, 1993, p. 3).

For this dissertation, eighteen questions were adopted to test the four sub-dimensions in order to decrease survey time. Respondents answered the creativity assessment both before and after the manipulation to test for a change in levels due to firm failure salience. The overall scale and each sub dimension was modified to 2 parallel 7-point Likert-type scales and shortened to decrease survey time similar to the process describe previously above. Overall, the pre-test of the reduced Creativity Assessment Packet had a Cronbach's α level of .72 with 18 items (Table 3). The following subscales' reliabilities for Creativity Assessment Packet pre-test questions set are as follows: curiosity, Cronbach's $\alpha = .52$ with 5 items (Table 4); imagination, Cronbach's $\alpha = .78$ with 5 items (Table 5); complexity, Cronbach's $\alpha = .71$ with 3 items (Table 6); and risk-taking, Cronbach's $\alpha = .62$ with 5 items (Table 7). The post-test reliability α level for the creativity is .89 with a total of 12 items for this sample (Table 8). The four sub dimensions for creativity post-test are as follows: 3 items with a .93 Cronbach's α level for curiosity (Table 9); 3 items with a Cronbach's α level of .83 for

imagination (Table 10); 3 items with a Cronbach's α level of .71 for complexity (Table 11); and 3 items with a Cronbach's α level of .67 for risk-taking (Table 12). Due to copyright restrictions the creativity assessment packet questions cannot be completely listed.

Table 3

Creativity Pre-test Cronbach's α and Reduced Scale Statistics

Case Processing Summary

		N	%
Cases	Valid	109	100.0
	Excluded ^a	0	.0
	Total	109	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.723	.753	18

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	5.275	3.505	6.248	2.743	1.783	.589	18

Table 4

Creativity Curiosity Pre-test Cronbach's α and Reduced Scale Statistics

Case Processing Summary

		N	%
Cases	Valid	109	100.0
	Excluded ^a	0	.0
	Total	109	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.523	.550	5

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	5.450	5.009	6.119	1.110	1.222	.224	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I like doing many new things.	21.13	13.687	.353	.274	.451
Creativity Assessment Packet, Curiosity question 12	21.50	12.363	.361	.264	.428
Creativity Assessment Packet, Curiosity question 19	22.24	12.813	.152	.045	.566
Creativity Assessment Packet, Curiosity question 37	22.17	10.769	.406	.218	.385
Creativity Assessment Packet, Curiosity question 47	21.96	12.128	.253	.187	.494

Table 5

Creativity Imagination Pre-test Cronbach's α and Reduced Scale Statistics

Case Processing Summary

		N	%
Cases	Valid	109	100.0
	Excluded ^a	0	.0
	Total	109	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.777	.780	5

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	4.906	3.505	6.248	2.743	1.783	1.522	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I like to dream about things I want to know or do.	18.61	21.961	.587	.490	.729
Creativity Assessment Packet, Imagination question 13	19.45	18.861	.645	.529	.702
Creativity Assessment Packet, Imagination question 23	18.28	25.835	.388	.177	.785
Creativity Assessment Packet, Imagination question 30	21.03	18.138	.591	.415	.727
Creativity Assessment Packet, Imagination question 46	20.75	19.021	.591	.383	.723

Table 6

Creativity Complexity Pre-test Cronbach's α and Reduced Scale Statistics

Case Processing Summary

		N	%
Cases	Valid	109	100.0
	Excluded ^a	0	.0
	Total	109	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.708	.708	3

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	5.817	5.615	5.936	.321	1.057	.031	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I like to find out if things are really true.	11.51	4.900	.361	.134	.792
Creativity Assessment Packet, Complexityquestion 18	11.55	3.694	.658	.476	.464
Creativity Assessment Packet, Complexityquestion 16	11.83	2.880	.609	.462	.518

Table 7

Creativity Risk Taking Pre-test Cronbach's α and Reduced Scale Statistics

Case Processing Summary

		N	%
Cases	Valid	109	100.0
	Excluded ^a	0	.0
	Total	109	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.622	.625	5

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	5.143	4.633	5.927	1.294	1.279	.293	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Creativity Assessment Packet, Risk Taking question 05 Reversed	21.08	16.799	.310	.142	.603
Creativity Assessment Packet, Risk Taking question 08 Reversed	21.00	15.796	.390	.217	.561
Creativity Assessment Packet, Risk Taking question 22 Reversed	20.72	16.479	.396	.191	.557
Creativity Assessment Packet, Risk Taking question 29 Reversed	19.79	17.761	.376	.197	.570
Creativity Assessment Packet, Risk Taking question 34 Reversed	20.27	16.067	.416	.250	.547

Table 8

Creativity Post-test Cronbach's α and Reduced Scale Statistics

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.893	.896	12

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	6.178	5.798	6.431	.633	1.109	.034	12

Table 9

Creativity Curiosity Post-test Cronbach's α and Reduced Scale Statistics

Case Processing Summary

		N	%
Cases	Valid	109	100.0
	Excluded ^a	0	.0
	Total	109	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.926	.930	3

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	6.201	6.153	6.275	.122	1.020	.004	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Creativity Assessment Packet, Curiosity question 02	12.45	3.194	.950	.904	.821
Creativity Assessment Packet, Curiosity question 27	12.43	2.965	.824	.817	.921
Creativity Assessment Packet, Curiosity question 49	12.33	3.360	.792	.754	.938

Table 10

Creativity Imagination Post-test Cronbach's α and Reduced Scale Statistics

Case Processing Summary

		N	%
Cases	Valid	109	100.0
	Excluded ^a	0	.0
	Total	109	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.831	.834	3

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	6.306	6.119	6.431	.312	1.051	.027	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Creativity Assessment Packet, Imagination question 23	12.49	2.845	.710	.582	.745
Creativity Assessment Packet, Imagination question 40	12.80	3.089	.595	.367	.860
Creativity Assessment Packet, Imagination question 45	12.55	2.935	.775	.629	.686

Table 11

Creativity Complexity Post-test Cronbach's α and Reduced Scale Statistics

Case Processing Summary

		N	%
Cases	Valid	109	100.0
	Excluded ^a	0	.0
	Total	109	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.707	.708	3

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	6.144	5.798	6.321	.523	1.090	.090	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Creativity Assessment Packet, Complexityquestion 07	12.63	2.068	.545	.297	.593
Creativity Assessment Packet, Complexityquestion 42	12.12	2.199	.519	.270	.624
Creativity Assessment Packet, Complexityquestion 50	12.11	2.395	.515	.266	.632

Table 12

Creativity Risk Taking Post-test Cronbach's α and Reduced Scale Statistics

Case Processing Summary

		N	%
Cases	Valid	109	100.0
	Excluded ^a	0	.0
	Total	109	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.666	.665	3

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	6.061	5.908	6.183	.275	1.047	.020	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Creativity Assessment Packet, Risk Taking question 21	12.00	3.593	.389	.152	.680
Creativity Assessment Packet, Risk Taking question 36	12.28	2.942	.515	.291	.518
Creativity Assessment Packet, Risk Taking question 43	12.09	3.066	.535	.302	.493

Innovation. Robinson et al. (1991) devised four subscales to measure four aspects of entrepreneurial attitudes: achievement, self-esteem, personal control, and innovation; each with three dimensions (affect, cognition, conation). The original Entrepreneurial Attitude Orientation scale includes 75 items on a Likert-type scale and is designed specifically to measure entrepreneurs' "organizational creation" and

“innovation.” Robinson et al. (1991) found α levels .73 for self-esteem, .90 for innovation, .84 for affect, .84 for cognition, and .84 for conation. Test-retest coefficients are .76 for self-esteem and .85 for innovation. The full question set can be found in appendix 6.

Robinson et al.’s (1991) Entrepreneur Attitudinal Orientation sub-dimension for innovation questionnaire was modified in the survey instrument design section to a shortened parallel 7-point Likert-type subscale for innovation. The innovation pre-test question set had a Cronbach's α level of .88 with 5 items (Table 13). This represents only a .02 reduction from the published scale information. Additionally, 3 items for the innovation post-test questions set had a Cronbach's α level of .82 (Table 14). This level was a .08 reduction from the published scale information. The reduced questions set for innovation scale can be found in appendix 7 and appendix 8.

Table 13

Innovation pre-test Cronbach's α and Reduced Scale Statistics

Case Processing Summary

		N	%
Cases	Valid	109	100.0
	Excluded ^a	0	.0
	Total	109	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.729	.757	5

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	6.073	5.716	6.550	.835	1.146	.126	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I believe that to become successful in business you must spend some time every day developing new opportunities.	24.65	7.840	.383	.222	.748
I believe it is important to continually look for new ways to do things in business.	24.19	8.990	.480	.251	.687
I often approach business tasks in unique ways.	24.64	8.232	.505	.367	.676
I enjoy finding good solutions for problems that nobody has looked at yet.	24.17	7.972	.565	.526	.651
I get really excited when I think of new ideas to stimulate my business.	23.82	9.151	.638	.481	.655

Table 14

Innovation Post-test Cronbach's α and Reduced Scale Statistics

Case Processing Summary

		N	%
Cases	Valid	109	100.0
	Excluded ^a	0	.0
	Total	109	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.819	.831	3

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	6.404	6.284	6.532	.248	1.039	.015	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I get real excited when I think of new ideas to stimulate my business.	12.68	2.239	.686	.498	.757
I believe it is important to approach business opportunities in unique ways.	12.82	1.892	.727	.547	.695
I usually seek out colleagues who are excited about exploring new ways of doing things.	12.93	1.661	.646	.420	.805

Firm Expansion Activities Questionnaire. The firm expansion activities questionnaire (Appendix 9) is a set of 5 questions that allows participants to rank their likelihood of engaging in specific activities. These questions are designed to examine the

respondent's willingness to engage in expansion activities. The firm expansion activities questionnaire was administered post manipulation and consisted of 5 items with a Cronbach's α level of .72 (Table 15). This is a new instrument so no comparison data is available.

Table 15

Firm Expansion Activities Questionnaire Cronbach's α and Scale Statistics.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.721	.777	5

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	5.745	4.807	6.394	1.587	1.330	.412	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I am willing to take out a loan for my firm.	23.92	12.651	.489	.285	.698
I am willing to introduce a new untried product.	22.99	16.361	.406	.238	.704
I am willing to add new personnel.	23.22	14.747	.536	.367	.650
I am willing to expand into new markets.	22.44	17.582	.616	.625	.651
I am willing to try a new method of reaching my customers.	22.33	18.594	.591	.613	.671

Independent variable

Firm Failure Salience. The experimental manipulation was composed of two different vignettes to control or prime for the independent variable of firm failure salience. The scenario methodology is a regular experimental approach, and has long been used for strategic decision making in particular (cf., Fredrickson & Mitchell, 1984; Jackson & Dutton, 1988; Walsh, 1988). The vignette or scenario approach allows researchers to prime for an experimental condition without subjects being made aware of the hypotheses and cognitive biases of interest to the research.

The firm failure salience vignette (Appendix 10) was written to model the traditional mortality salience construct (Appendix 1) in that the subject is being ‘primed’ about death; however, firm failure (not individual mortality) salience was primed. In order to control for questionnaire structure effects, control respondents were also provided a vignette, but this story was designed to have a neutral effect covering business and development (Appendix 11). The control vignette is simply about business and development and is designed to be a distraction and hide the study’s true intent. A brief story depicting firms experiencing financial difficulties and being forced to close permanently were used for a control story. Both vignettes were designed to be deceptive in that neither vignette made it known to the participants that the study sought to test a cognitive bias to firm failure salience. A vignette was chosen because of its ability to keep the investigated hypothesis from the participants’ awareness. Five questions followed the vignette to serve as a manipulation check that the vignette was read and understood; the vignette and check are provided in Appendix 11.

Moderator Variable

Self-Esteem/Self-Efficacy. For this study we adopted the self-esteem subscale, consisting of 14 questions, as a measure of the proposed entrepreneurial self-efficacy moderator. This subscale was adjusted to a 7-point Likert scale. In this study, the self-efficacy subscale had an α levels of .69 (see Table 16). The entrepreneurial self-efficacy subscale can be found in Appendix 12. This represents a difference of .04 lower than what Robinson et al. (1991) found.

Table 16

Entrepreneurial Self-efficacy Cronbach's α and Scale Statistics

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.688	.679	14

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	5.356	4.018	6.239	2.220	1.553	.494	14

Control Variable

Entrepreneurship Identity with their Firms. A 6-item questionnaire (Entrepreneurship self-identity or Ent ID; Appendix 13) was developed to determine the degree to which participants self-identified with their entrepreneurial firm. This

questionnaire examined the degree to which the participant integrated their firm into their self-identity. The firm identification scale had a Cronbach's $\alpha = .56$ (Table 17).

Table 17

Entrepreneur Self-identification Cronbach's α and Scale Statistics

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.564	.654	6

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	6.050	5.535	6.558	1.023	1.185	.220	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
How well do you identify with the statement "My business is my baby".	30.77	15.040	.378	.607	.481
When someone praises my organization, it feels like a personal compliment.	29.91	16.563	.612	.680	.436
When I talk about my organization, I usually say "we" rather than "they".	29.74	18.814	.187	.284	.563
My organization's successes are my successes.	29.84	18.187	.503	.357	.490
If a story in the media criticized my organization, I would feel embarrassed.	30.60	16.864	.178	.048	.586
EntID_Q07R (Would you prefer to be associated with your entrepreneurial firm or your current position?)	30.65	13.661	.286	.103	.554

Demographics Questionnaire. Eight common demographic items associated with interest in pursuing entrepreneurship were measured as controls for the current study. While we did not have directional predictions on their potential impact on the salience to risk-taking relationship, the research literature has repeatedly identified these items with important entrepreneurial processes and outcomes. Specifically, gender (Bruin, Brush, & Welter, 2007; Wilson, Kickul, & Marlino, 2007), age (Arenius & Minniti, 2005; Fairlie, 2005), ethnicity (Aldrich & Waldinger 1990; Jones & Tullous, 2002), SES (Fairlie, 2005; Jones & Tullous, 2002), employment (Delmar & Davidsson, 2000), and work history (Kautonen, Luoto, & Tornikoski, 2011) have all been shown to be related to key entrepreneurial findings (Startiene & Remeikiene, 2009). The 8-item questionnaire included respondents' gender, age, ethnicity, socioeconomic status (SES), current employment status, work history, whether or not they had another job besides the new firm, and the amount of their income that came from the new firm. These items are shown Appendix 14.

Personality. A shortened version of the 240-item NEO PI-R (Appendix 15) is a measure of the interpersonal, motivational, emotional, and attitude styles of adults and adolescents (McCrae, Kurtz, Yamagata, & Terracciano, 2011). The NEO PI-R consists of 5 main facets and 30 traits that each has eight questions associated with them. This inventory measures neuroticism (e.g., anxiety, depression, core self evaluation), extraversion (e.g., warmth, assertiveness), openness to experience (e.g., fantasy, aesthetics), agreeableness (e.g., trust, modesty), and conscientiousness (e.g., competence, self-discipline). Cronbach's α levels of .89, .89, .87, .91, and .93, respectively were found in this particular survey (McCrae et al., 2011). Table 18 contains Cronbach's α levels

from a large cross-cultural sample and test-retest coefficients from a longitudinal study (McCrae et al., 2011).

Table 18

NEO PI-R Cronbach's α and Test-retest Coefficients

Item	Facet	Trait	Cronbach's α	Test-retest Coefficient
N	Neuroticism		0.89	0.83
N1		Anxiety	0.72	0.77
N2		Angry Hostility	0.76	0.80
N3		Depression	0.74	0.73
N4		Self-Consciousness	0.58	0.70
N5		Impulsiveness	0.62	0.67
N6		Vulnerability	0.76	0.81
E	Extraversion		0.89	0.92
E1		Warmth	0.77	0.84
E2		Gregariousness	0.75	0.83
E3		Assertiveness	0.71	0.82
E4		Activity	0.62	0.86
E5		Excitement Seeking	0.70	0.83
E6		Positive Emotions	0.76	0.83
O	Openness		0.87	0.90
O1		Fantasy	0.73	0.80
O2		Aesthetics	0.77	0.86
O3		Feelings	0.65	0.75
O4		Actions	0.53	0.85
O5		Ideas	0.81	0.82
O6		Values	0.50	0.80
A	Agreeableness		0.91	0.87
A1		Trust	0.78	0.78
A2		Straightforwardness	0.73	0.77
A3		Altruism	0.77	0.72
A4		Compliance	0.71	0.77
A5		Modesty	0.76	0.81
A6		Tender-Mindedness	0.57	0.74
C	Conscientiousness		0.93	0.88
C1		Competence	0.70	0.72
C2		Order	0.73	0.80
C3		Dutifulness	0.76	0.69
C4		Achievement Striving	0.72	0.75
C5		Self-Discipline	0.82	0.86
C6		Deliberation	0.79	0.80

This study used the NEO PI-R to measure 2 of the 5 major factors of personality: neuroticism and openness to experience. These two personality traits were included because of their relationship two fundamental parts of the study. Openness is highly related to creativity (Feist, 1998) and neuroticism is related to self-report of self-esteem and self-efficacy (Judge & Bono, 2001; Judge, Erez, Bono, & Thoresen, 2002). Therefore, I used these measures as additional controls. These two dimensions were modified to a 7-point Likert-type scale and number of questions reduced to shorten survey time. The neuroticism question set had a Cronbach's α level of .88 with 4 items (Table 19; .01 Cronbach's α reduction from full neuroticism set). The openness to new experiences question set had a Cronbach's α level of .88 with 5 items (Table 20; .01 reduction from full openness to new experiences set). The questions used in this study that can be shown due to copyright restrictions are listed in appendix 16 and appendix 17.

Table 19

Neuroticism Cronbach's α and Reduced Scale Statistics

Case Processing Summary

		N	%
Cases	Valid	109	100.0
	Excluded ^a	0	.0
	Total	109	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.883	.884	4

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	2.938	2.706	3.220	.514	1.190	.048	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Get upset easily.	8.91	19.843	.651	.475	.885
NEO-PI-R Neuroticism Question 02	8.77	17.623	.827	.857	.819
NEO-PI-R Neuroticism Question 03	9.05	17.452	.791	.846	.832
NEO-PI-R Neuroticism Question 04	8.53	17.640	.724	.556	.860

Table 20

Openness Cronbach's α and Reduced Scale Statistics

Case Processing Summary

		N	%
Cases	Valid	109	100.0
	Excluded ^a	0	.0
	Total	109	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.883	.885	5

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	6.193	5.963	6.422	.459	1.077	.027	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Have excellent ideas.	25.00	7.944	.733	.587	.856
NEO-PI-R Openness Question 02	24.82	8.762	.679	.709	.867
NEO-PI-R Openness Question 03	24.74	8.600	.722	.631	.856
NEO-PI-R Openness Question 04	24.75	8.799	.744	.732	.852
NEO-PI-R Openness Question 05	24.54	8.954	.730	.623	.856

State and Trait Anxiety. A 40-item State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushen, 1970) assesses anxiety symptoms in adults (Appendix 18). This is one of the most frequently used self-report questionnaires in studies of anxiety and has become a standard international measure of anxiety (Spielberger, 2004). Additionally, there are ample normative data regarding this instrument (Spielberger, 2004), and considerable evidence attests to the construct and concurrent validity of the

scale (Spielberger, 1989). The State-Trait Anxiety Inventory contains 2 scales that consist of 20 questions each (i.e., S scale, T scale) following a 4-point Likert-type format. The questions on the S scale are designed to evaluate how participants feel at the moment (e.g., state anxiety), and the questions on the T scale examine how respondents feel in general (e.g., trait anxiety). The α levels for this scale have ranged from .86 to .95; test-retest reliability coefficients have ranged from .65 to .75 over a 2-month interval (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). Test-retest coefficients for this measure in the current study ranged from .69 to .89; however, this was less than 30 minutes where the above test-retest was over 2 months.

Both the trait and state anxiety scales were created using the same process that was used for the innovation scale. The state scale was modified to shorten the survey into two 7 point Likert scales. The state scale was tested twice, once before the reading of the vignette (the pre-test) and this scale was composed of five questions. The state scale was tested again after the vignette, but with the longer seven item scale. This pre-test/post-test procedure was employed in order to evaluate if the manipulation did cause a change in state anxiety, additionally, trait anxiety was used as a possible control variable. These scales were also modified to simplify the study and decrease survey time. The state questions were modified to 2 parallel, 7-point Likert-type scales and the total number of questions reduced to shorten survey time, while the trait questions were modified to 7-point Likert-type scales and the total number of questions reduced to shorten survey time.

Trait anxiety was only measured in the pre-test (Cronbach's $\alpha = .80$) with 5 items (Table 21) and the questions are listed in appendix 19. Pre-test State had a Cronbach's α

level of .80 for 7 items (Table 22) with the questions listed in appendix 20, and the post-test state anxiety had a Cronbach's α level of .91 for 3 items (Table 23) and those questions are listed in appendix 21. Due to copyright restrictions the State-Trait Anxiety Inventory cannot be completely listed.

Table 21

Trait Anxiety Pre-test Cronbach's α and Reduced Scale Statistics

Case Processing Summary

		N	%
Cases	Valid	109	100.0
	Excluded ^a	0	.0
	Total	109	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.796	.806	5

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	5.378	4.743	5.697	.954	1.201	.184	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Trait Anxiety Question 01	21.21	15.390	.663	.497	.735
Trait Anxiety Question 03	21.77	13.697	.624	.396	.742
I am "calm, cool, and collected"	21.24	17.628	.402	.232	.805
Trait Anxiety Question 10	21.19	15.046	.728	.570	.717
Trait Anxiety Question 16	22.15	13.626	.541	.377	.780

Table 22

State Anxiety Pre-test Cronbach's α and Reduced Scale Statistics

Case Processing Summary

		N	%
Cases	Valid	109	100.0
	Excluded ^a	0	.0
	Total	109	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.799	.804	7

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	4.824	4.339	5.771	1.431	1.330	.232	7

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I feel at ease	28.84	36.485	.658	.516	.747
State Anxiety Question 08	29.39	37.165	.615	.593	.756
State Anxiety Question 11	28.00	44.519	.481	.278	.785
State Anxiety Question 12 Reversed	28.83	42.380	.349	.302	.807
State Anxiety Question 16	29.43	39.062	.516	.517	.776
State Anxiety Question 17 Reversed	29.17	39.658	.494	.405	.780
State Anxiety Question 19	28.96	39.443	.654	.460	.753

Table 23

State Anxiety Post-test Cronbach's α and Reduced Scale Statistics

Case Processing Summary

		N	%
Cases	Valid	109	100.0
	Excluded ^a	0	.0
	Total	109	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.912	.915	3

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	5.450	5.211	5.569	.358	1.069	.043	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
State Anxiety Question 10	10.78	5.914	.836	.700	.864
State Anxiety Question 15	11.14	5.046	.835	.698	.872
State Anxiety Question 20	10.78	6.118	.813	.662	.883

The State-Trait Anxiety Index is a particularly important measure for a number of reasons. The measure has two parts, the state and trait portions. The trait portion is important as a control, as individuals with generally 'high' anxiety are going to be less creative (Byron & Khazanchi, 2011), and this would affect the dependant variables (creativity and innovation) under investigation. Additionally, the state portion of the State-Trait Anxiety Index is important. It has been used as a manipulation check for mortality salience (Rządowska, Paracka, & Frankowska, 2010). Also, the moderator

(self-efficacy) for terror management theory is known as the ‘anxiety buffer’, thus would be directly related to this construct.

Procedure

The entire study was conducted online. Survey Monkey was chosen as the survey site because of its ease of use and its availability to survey participants via the web. The participants were directed to enter registration information. Once participants visited the registration site, they were greeted in the virtual environment, and basic information was collected (e.g., name, institutional affiliation); they were given a four-digit reference number; and they were directed to Survey Monkey, which opened with a consent form. To ensure privacy, the only information shared between the two sites was the registration number. The consent form provided participants with a brief description of the study, the study procedures, the researcher’s contact information, and the information that all data are confidential and anonymous, as consistent with IRB standards. Participants were then directed to read and electronically sign the consent form; the electronically signed consent forms are stored digitally, are password protected and encrypted.

After the consent forms were electronically signed, participants were asked to read a brief overview of the study. The date of data collection was recorded by the site. Participants’ answers were not associated with their names; only the four-digit reference number is used.

Participants answered the questions in the following order: entrepreneurial status, demographics, state and trait anxiety, personality, business self-efficacy, innovation, and creativity. Additionally, some data were automatically created and stored, such as the date and time of participants’ entrance into the survey site and completion of surveys.

Following the above questions, participants read (1) the vignette that outlined an entrepreneur’s realization that businesses are currently experiencing financial difficulties and will be forced to close permanently due to financial issues or (b) a neutral article on business process and research. After reading the vignette, study participants were asked to answer reduced versions of the following assessments: state anxiety, innovation, creativity, risk tolerance, firm expansion activities, and manipulation checks (these questions are listed in appendix 22). Finally, participants were given a manipulation check (question listed in appendix 23), a debriefing and allowed to make comments via open-ended questioning (appendix 24). The study architecture is depicted in Figure 8.

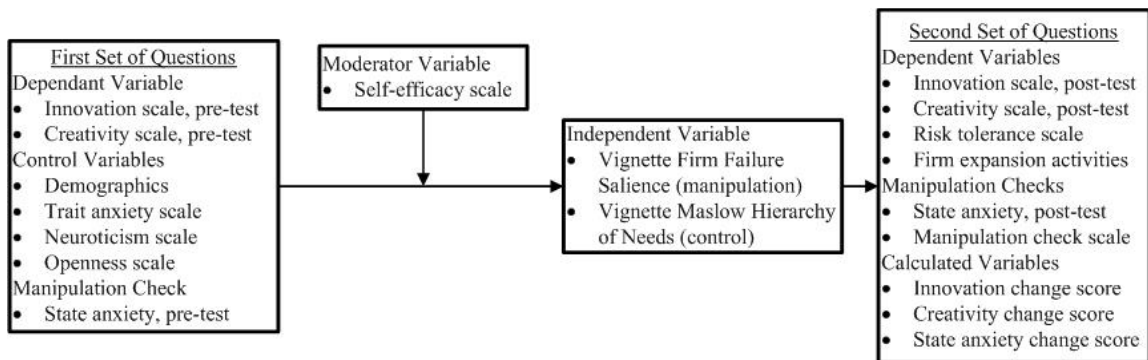


Figure 8. Proposed firm failure, risk-averse decisions, and entrepreneur self-efficacy study.

Data Analyses

The means, standard deviations, and correlations of all variables were computed for the instruments used in the current study; additionally, a change score was calculated for all pre-test and post-test instruments. Change scores are a way to quantify change from one measurement to the second measurement. In an experimental situation like this

study, the change score supports inferences about the validity of the construct under questions. Additionally, since a change score denotes a change in score, any differences in starting values between the groups (e.g., failure of sufficient randomization) can still be calculated and inferences made. To test the hypotheses, the statistical software used in this study was SPSS Version 21, which offers the analysis tools necessary to conduct various statistical analyses such as calculating change scores, factor analysis, and multiple regression analysis as well as creating the parallel scales, correlations, and test-retest correlations. An ANCOVA was used to test the direct relationships within the model, with business mortality salience as the independent variable, innovation and creativity as the dependent variables, and the EAO-ES and select demographic questions as the concomitant continuous covariant variables. The principal aim of the use of ANCOVA was to test for significant differences between group means, which was the basis of all of the study's hypotheses. A major advantage of ANCOVA over other forms of correlational statistics (regressions, correlations, Structural Equation Modeling) is that the ANOVA family of statistics (ANOVA, MAOVA, ANCOVA, and MANCOVA) increase statistical power by reducing the within- group error variance. The specific advantage of the ANCOVA design over the simpler ANOVA is the removal of noise or error that is introduced by the covariants; thus, we were able to control for the effects of the moderator entrepreneurial self-efficacy score and control for the demographic questions (i.e., entrepreneurship identification with the firm, gender, age, years in the workforce, ethnicity, and SES) on the dependent variable. Assumptions for the ANCOVA to be used appropriately were normality, independence of observations,

homogeneity of variances, and homogeneity of covariances. These were tested and are reported in the next chapter.

Chapter 5: Findings

Statistical analyses were conducted to evaluate all assumptions made of the methods used, the scales used, and inferences made from the statistical results. *T*-tests of the pre-test questions were conducted to assess the random assignment of participants. If random assignment was successful, then the null hypothesis stands that there is no statistical difference between the two samples conditions (firm failure salience and control). ANCOVA tests assume homogeneity of variance and was tested with multiple versions of Levene's test. The assumptions of the statistical methods were tested (for ANCOVA) to make sure the method is appropriate. Specifically Levene's test were used to test for homogeneity of variance. Additionally, multiple versions of the Levene's test were utilized to gain a better understanding of the homogeneity of variance. Specifically, the regular Levene's test uses an algorithm which is more sensitive to outliers. The modified Levene tests versions allow the use of the median, and a non-parametric test. The latter two tests provide stronger inferences on if homogeneity of variance present in the data.

Correlations of pre-test, post-test, and changes scores were conducted. These correlations assessed the examined theoretical relationships and results are elaborated in the discussion section.

The hypotheses were tested with ANOVA and ANCOVAs. All scales were converted to z-scores, no normalization was done on the altered (reduced and Likert scaling changed) scales, thus any scalar reference has not been established. Additionally, change score calculations were used in the actual hypothesis testing statistics for innovation and creativity. The pre-test and post-test questionnaires for creativity and

innovation are only presented to assess absolute difference to understand the nature of the research data.

An experimental design was used for the current study. This design resulted in two conditions that study participants could be randomly assigned to: the firm-failure salience (FFS) condition or the control condition. *T*-tests were run on the differences between the two groups as related to demographics to assess the random assignment of participants. Significant differences were noted for socioeconomic status (SES) ($p = .037$, mean difference of .327 on a 5-point Likert-type scale) and years in the workforce ($p = .046$, mean difference of 4.7 years); the other results were $p > .1$ (Table 24).

Table 24

*Pre-test T-test Demographic Questions***Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
What gender are you?	Equal variances assumed	9.228	.003	-1.469	107	.145	-.111	.076	-.261	.039
	Equal variances not assumed			-1.484	105.040	.141	-.111	.075	-.259	.037
Age	Equal variances assumed	4.958	.028	1.493	107	.138	3.55432	2.38056	-1.16485	8.27349
	Equal variances not assumed			1.476	96.400	.143	3.55432	2.40736	-1.22400	8.33263
How would you classify your socioeconomic (SES) standing?	Equal variances assumed	.058	.810	-2.116	107	.037	-.327	.154	-.633	-.021
	Equal variances not assumed			-2.127	106.980	.036	-.327	.154	-.632	-.022
Do you have a job, or multiple jobs, that would add up to	Equal variances assumed	4.439	.037	-1.034	107	.304	-.167	.161	-.486	.153
	Equal variances not assumed			-1.040	106.802	.301	-.167	.160	-.484	.151
How long have you been in the workforce (how many years in which you were able to work, did you work).	Equal variances assumed	4.032	.047	2.017	107	.046	4.737	2.349	.081	9.393
	Equal variances not assumed			1.997	97.765	.049	4.737	2.372	.029	9.445
EntID_Avg	Equal variances assumed	.270	.604	-1.281	107	.203	-.16608	.12965	-.42310	.09094
	Equal variances not assumed			-1.271	100.443	.207	-.16608	.13064	-.42526	.09310
How much of your income is dependent on your entrepreneurship position (0 to 100)?	Equal variances assumed	.745	.390	-.127	107	.899	-1.076	8.448	-17.823	15.672
	Equal variances not assumed			-.128	106.776	.899	-1.076	8.430	-17.787	15.636

In addition, demographics were assessed for equality of variances across groups (homogeneity). As noted in Table 23, two variables were significant for Levene's test of equality of variance: age ($p = .028$) and years in workforce ($p = .047$). For age and years in workforce, I used the Brown-Forsythe test of Levene's Test of Equality of Variance. The Brown-Forsythe uses the median score instead of a mean, thus it makes it less susceptible to outliers. Both age ($p = .027$) and years in workforce ($p = .040$) were still problematic. Finally, a nonparametric Levene's test of equality of variance was conducted, and both items were still significant ($p = .027$ and $p = .027$, respectively; Table 25). Since these differences were significant even in more robust-tests that were less susceptible to extreme data or data with outliers, they violate the assumptions of homogeneity of variance required for ANCOVAs. Keeping these differences in mind for their potential to skew results, the follow up ANCOVAs were performed, with results being limited in regard to these demographic differences. We discuss these limitations in the next chapter.

Table 25

Levene's Test for Homogeneity on Demographic Questions

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Age	4.958	1	107	.028
Age_diff_Median	.616	1	107	.434
RAge_Diff_mean	.177	1	107	.675
How long have you been in the workforce (how many years in which you were able to work, did you work).	4.032	1	107	.047
YearsInWorkforce_diff_M edian	.107	1	107	.744
RYearsIn_Diff_mean	.048	1	107	.828

Outliers, defined as any value greater than three standard deviations from the mean, were assessed for age and years in workforce and dropped, and all three analyses were re-run. During the second set of analyses, participants' ages were still statistically significant for heterogeneity; however, years in the workforce was not (Table 24). Both the data point and the variable were retained, and the heterogeneity is noted when this variable is used in analysis.

Pre-test *t*-test analysis is surprising for the statistically significant difference between the control and manipulation *pre-test* scores on innovation ($p = .21$) and creativity curiosity ($p = .089$) (Table 26).

Table 26

Pre-test T-test on Measures

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
STAI_S_Avg	Equal variances assumed	.033	.856	.632	107	.529	.12570	.19893	-.26866	.52006
	Equal variances not assumed			.632	106.414	.528	.12570	.19876	-.26835	.51975
EAO_In_Avg	Equal variances assumed	.113	.738	2.334	107	.021	.30830	.13207	.04649	.57011
	Equal variances not assumed			2.345	106.997	.021	.30830	.13147	.04767	.56893
CAP_Avg	Equal variances assumed	.146	.703	-1.060	107	.291	-.12391	.11688	-.35561	.10779
	Equal variances not assumed			-1.065	106.999	.289	-.12391	.11639	-.35465	.10683
CAP_Cu_Avg	Equal variances assumed	.106	.746	-1.719	107	.089	-.27126	.15784	-.58416	.04165
	Equal variances not assumed			-1.718	105.882	.089	-.27126	.15792	-.58435	.04183
CAP_Im_Avg	Equal variances assumed	.060	.806	-1.062	107	.291	-.22557	.21250	-.64682	.19567
	Equal variances not assumed			-1.058	104.442	.292	-.22557	.21313	-.64819	.19704
CAP_Co_Avg	Equal variances assumed	.644	.424	-.445	107	.658	-.07816	.17582	-.42670	.27038
	Equal variances not assumed			-.446	106.995	.656	-.07816	.17512	-.42532	.26900
CAP_RiTa_Avg	Equal variances assumed	.113	.738	.424	107	.673	.07935	.18730	-.29195	.45066
	Equal variances not assumed			.422	104.550	.674	.07935	.18783	-.29310	.45180

Post-Test Questionnaire Analysis

T-tests comparing all post-test questionnaire responses for the manipulation and control group, only one statistical item of marginal significance was found; specifically, Firm Expansion Activities Questionnaire showed a mean difference of .340 ($p = .066$; Table 27) with the firm failure salience condition being .340 higher on a normalized scale.

Table 27

*Post-test T-test on Measures***Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
STAI_S_Avg_RT	Equal variances assumed	1.330	.251	-.827	107	.410	-.18545	.22420	-.62991	.25901
	Equal variances not assumed			-.822	102.267	.413	-.18545	.22549	-.63269	.26179
EAO_In_Avg_RT	Equal variances assumed	.720	.398	.290	107	.773	.03711	.12811	-.21686	.29108
	Equal variances not assumed			.288	102.497	.774	.03711	.12881	-.21838	.29260
CAP_Cu_Avg_RT	Equal variances assumed	.014	.907	.170	107	.865	.02868	.16850	-.30535	.36270
	Equal variances not assumed			.170	105.695	.865	.02868	.16864	-.30568	.36303
CAP_Im_Avg_RT	Equal variances assumed	3.085	.082	-1.140	107	.257	-.18027	.15807	-.49363	.13308
	Equal variances not assumed			-1.129	97.337	.262	-.18027	.15973	-.49727	.13672
CAP_Co_Avg_RT	Equal variances assumed	.061	.806	1.250	107	.214	.16644	.13311	-.09743	.43031
	Equal variances not assumed			1.249	105.728	.214	.16644	.13321	-.09767	.43055
CAP_RITa_Avg_RT	Equal variances assumed	.560	.456	-.272	107	.786	-.04341	.15946	-.35952	.27270
	Equal variances not assumed			-.271	102.897	.787	-.04341	.16026	-.36125	.27443
RTQ_Avg	Equal variances assumed	1.845	.177	1.174	107	.243	.15311	.13046	-.10552	.41174
	Equal variances not assumed			1.180	106.897	.240	.15311	.12972	-.10405	.41027
FEAQ_Avg	Equal variances assumed	10.879	.001	1.859	107	.066	.34062	.18326	-.02267	.70391
	Equal variances not assumed			1.890	99.732	.062	.34062	.18025	-.01701	.69825

Additionally, Levene's test of equality of variance was conducted on the Firm Expansion Activities Questionnaire average ($p = .001$) (Table 28).

Table 28

Levene's Test of Homogeneity on Post-test Measures

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
FEAQ_Avg	Between Groups	3.155	1	3.155	3.455	.066
	Within Groups	97.715	107	.913		
	Total	100.870	108			
FEAQ_Avg_Diff_median	Between Groups	2.772	1	2.772	8.769	.004
	Within Groups	33.829	107	.316		
	Total	36.601	108			
RFEAQ_Avg_Diff_mean	Between Groups	41.124	1	41.124	.662	.418
	Within Groups	6646.454	107	62.116		
	Total	6687.578	108			

Similar to above a Brown–Forsythe test of Levene's Test of Equality of Variance conducted; firm expansion activities questionnaire ($p = .004$) was still problematic. Finally, a nonparametric Levene's test of equality of variance was conducted and was non-significant ($p = .418$). The first two types of Levene's tests are more sensitive to outliers, but the nonparametric one is not. Again, since two of these tests were significant, all results inferred from differences between the two groups on Firm Expansion Activities Questionnaire should be suspect. Inferences about Firm Expansion Activities Questionnaire homogeneity of variance is called into question and thus this variable does not meet the one of the assumptions of ANCOVAs.

Outliers on Firm Expansion Activities Questionnaire were assessed and dropped temporarily in this analysis to assess sensitivity, and all three analyses were re-run. During the second round of data analysis, the Firm Expansion Activities Questionnaire was still statistically significant for heterogeneity. The variables were retained; heterogeneity will be noted later in the study when this variable is used in analysis

An examination of post-question correlations do allow for assuring that the theoretical underpinning of the constructs in the current study (Table 29) continue to be coherent for both samples. Specifically, the correlations between scales where there is an expected relationship are present.

Table 29

*Correlation Table for Post-test Measures***Correlations**

		STAI_S_Avg_RT	EAO_In_Avg_RT	CAP_Avg_RT	CAP_Cu_Avg_RT	CAP_Im_Avg_RT	CAP_Co_Avg_RT	CAP_RiTa_Avg_RT	RTQ_Avg	FEAQ_Avg
STAI_S_Avg_RT	Pearson Correlation	1	.346**	.305**	.235*	.152	.194*	.404**	.078	.226*
	Sig. (2-tailed)		.000	.001	.015	.117	.044	.000	.420	.019
	N	108	108	108	108	108	108	108	108	108
EAO_In_Avg_RT	Pearson Correlation	.346**	1	.743**	.719**	.642**	.589**	.462**	.338**	.395**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000	.000
	N	108	108	108	108	108	108	108	108	108
CAP_Avg_RT	Pearson Correlation	.305**	.743**	1	.807**	.846**	.802**	.801**	.321**	.416**
	Sig. (2-tailed)	.001	.000		.000	.000	.000	.000	.001	.000
	N	108	108	108	108	108	108	108	108	108
CAP_Cu_Avg_RT	Pearson Correlation	.235*	.719**	.807**	1	.601**	.522**	.463**	.310**	.390**
	Sig. (2-tailed)	.015	.000	.000		.000	.000	.000	.001	.000
	N	108	108	108	108	108	108	108	108	108
CAP_Im_Avg_RT	Pearson Correlation	.152	.642**	.846**	.601**	1	.576**	.570**	.186	.317**
	Sig. (2-tailed)	.117	.000	.000	.000		.000	.000	.053	.001
	N	108	108	108	108	108	108	108	108	108
CAP_Co_Avg_RT	Pearson Correlation	.194*	.589**	.802**	.522**	.576**	1	.572**	.315**	.330**
	Sig. (2-tailed)	.044	.000	.000	.000	.000		.000	.001	.000
	N	108	108	108	108	108	108	108	108	108
CAP_RiTa_Avg_RT	Pearson Correlation	.404**	.462**	.801**	.463**	.570**	.572**	1	.237*	.314**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.014	.001
	N	108	108	108	108	108	108	108	108	108
RTQ_Avg	Pearson Correlation	.078	.338**	.321**	.310**	.186	.315**	.237*	1	.422**
	Sig. (2-tailed)	.420	.000	.001	.001	.053	.001	.014		.000
	N	108	108	108	108	108	108	108	108	108
FEAQ_Avg	Pearson Correlation	.226*	.395**	.416**	.390**	.317**	.330**	.314**	.422**	1
	Sig. (2-tailed)	.019	.000	.000	.000	.001	.000	.001	.000	
	N	108	108	108	108	108	108	108	108	108

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Specifically, innovation was highly correlated with creativity $r(108) = .74, p = .000$, state anxiety $r(108) = .35, p = .000$, financial risk taking $r(108) = .34, p = .000$, and firm expansion activities $r(108) = .40, p = .000$. These strong correlations persist for both the manipulation and control groups. The splitting of these groups help to isolate and identify the relations and possible effect the firm failure salience manipulation had versus what happened with the control sample (see Table 30 and Table 31 respectively).

Grouping by dependent variable, the manipulation group's innovation is highly correlated with creativity $r(51) = .79, p = .000$, state anxiety $r(51) = .33, p = .02$, financial risk taking $r(51) = .36, p = .01$, and firm expansion activities $r(51) = .44, p = .001$. Similarly, the control group had strong correlations, with innovation correlated with creativity as $r(57) = .70, p = .000$, state anxiety $r(57) = .38, p = .004$, financial risk-taking $r(57) = .33, p = .012$, and firm expansion activities $r(57) = .40, p = .002$.

Table 30

Correlation Table for Post-test Measures Split by Independent Variable, Manipulation Group

TMT v Maslow Manipulation			STAI_S_Avg_RT	EAO_In_Avg_RT	CAP_Avg_RT	CAP_Cu_Avg_RT	CAP_Im_Avg_RT	CAP_Co_Avg_RT	CAP_RITa_Avg_RT	RTQ_Avg	FEAQ_Avg
Jan 2013 - Auditors warn of high failure rate risk for compa	STAI_S_Avg_RT	Pearson Correlation	1	.326*	.317*	.202	.122	.213	.509**	.061	.440**
		Sig. (2-tailed)		.020	.023	.156	.395	.134	.000	.673	.001
		N	51	51	51	51	51	51	51	51	51
	EAO_In_Avg_RT	Pearson Correlation	.326*	1	.778**	.726**	.687**	.668**	.499**	.357*	.440**
		Sig. (2-tailed)	.020		.000	.000	.000	.000	.000	.010	.001
		N	51	51	51	51	51	51	51	51	51
	CAP_Avg_RT	Pearson Correlation	.317*	.778**	1	.835**	.852**	.825**	.800**	.336*	.348*
		Sig. (2-tailed)	.023	.000		.000	.000	.000	.000	.016	.012
		N	51	51	51	51	51	51	51	51	51
	CAP_Cu_Avg_RT	Pearson Correlation	.202	.726**	.835**	1	.678**	.578**	.487**	.361**	.347*
	Sig. (2-tailed)	.156	.000	.000		.000	.000	.000	.009	.013	
	N	51	51	51	51	51	51	51	51	51	
CAP_Im_Avg_RT	Pearson Correlation	.122	.687**	.852**	.678**	1	.584**	.527**	.134	.169	
	Sig. (2-tailed)	.395	.000	.000	.000		.000	.000	.348	.236	
	N	51	51	51	51	51	51	51	51	51	
CAP_Co_Avg_RT	Pearson Correlation	.213	.668**	.825**	.578**	.584**	1	.636**	.331*	.329*	
	Sig. (2-tailed)	.134	.000	.000	.000	.000		.000	.018	.019	
	N	51	51	51	51	51	51	51	51	51	
CAP_RITa_Avg_RT	Pearson Correlation	.509**	.499**	.800**	.487**	.527**	.636**	1	.300*	.321*	
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.032	.022	
	N	51	51	51	51	51	51	51	51	51	
RTQ_Avg	Pearson Correlation	.061	.357*	.336*	.361**	.134	.331*	.300*	1	.424**	
	Sig. (2-tailed)	.673	.010	.016	.009	.348	.018	.032		.002	
	N	51	51	51	51	51	51	51	51	51	
FEAQ_Avg	Pearson Correlation	.440**	.440**	.348*	.347*	.169	.329*	.321*	.424**	1	
	Sig. (2-tailed)	.001	.001	.012	.013	.236	.019	.022	.002		
	N	51	51	51	51	51	51	51	51	51	

Table 31

Correlation Table for Post-test Measures Split by Independent Variable, Control Group.

Jan 2013 - The Soul of a Startup	STAI_S_Avg_RT	Pearson Correlation	1	.378**	.294*	.276*	.176	.200	.281*	.119	.152
		Sig. (2-tailed)		.004	.027	.038	.192	.136	.034	.376	.258
		N	57	57	57	57	57	57	57	57	57
	EAO_In_Avg_RT	Pearson Correlation	.378**	1	.704**	.714**	.603**	.510**	.424**	.331*	.401**
		Sig. (2-tailed)	.004		.000	.000	.000	.000	.001	.012	.002
		N	57	57	57	57	57	57	57	57	57
	CAP_Avg_RT	Pearson Correlation	.294*	.704**	1	.781**	.850**	.792**	.804**	.325*	.503**
		Sig. (2-tailed)	.027	.000		.000	.000	.000	.000	.014	.000
		N	57	57	57	57	57	57	57	57	57
	CAP_Cu_Avg_RT	Pearson Correlation	.276*	.714**	.781**	1	.534**	.472**	.444**	.278*	.436**
		Sig. (2-tailed)	.038	.000	.000		.000	.000	.001	.036	.001
		N	57	57	57	57	57	57	57	57	57
CAP_Im_Avg_RT	Pearson Correlation	.176	.603**	.850**	.534**	1	.613**	.624**	.273*	.498**	
	Sig. (2-tailed)	.192	.000	.000	.000		.000	.000	.040	.000	
	N	57	57	57	57	57	57	57	57	57	
CAP_Co_Avg_RT	Pearson Correlation	.200	.510**	.792**	.472**	.613**	1	.528**	.286*	.321*	
	Sig. (2-tailed)	.136	.000	.000	.000	.000		.000	.031	.015	
	N	57	57	57	57	57	57	57	57	57	
CAP_RITa_Avg_RT	Pearson Correlation	.281*	.424**	.804**	.444**	.624**	.528**	1	.211	.358**	
	Sig. (2-tailed)	.034	.001	.000	.001	.000	.000		.115	.006	
	N	57	57	57	57	57	57	57	57	57	
RTQ_Avg	Pearson Correlation	.119	.331*	.325*	.278*	.273*	.286*	.211	1	.400**	
	Sig. (2-tailed)	.376	.012	.014	.036	.040	.031	.115		.002	
	N	57	57	57	57	57	57	57	57	57	
FEAQ_Avg	Pearson Correlation	.152	.401**	.503**	.436**	.498**	.321*	.358**	.400**	1	
	Sig. (2-tailed)	.258	.002	.000	.001	.000	.015	.006	.002		
	N	57	57	57	57	57	57	57	57	57	

*. Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Hypothesis Testing

The current study was designed by using a change score for innovation and creativity and a post-test score of financial risk-taking between independent groups using an ANCOVA statistical design. Change scores are calculated by subtracting the 1st value from the 2nd value (Change Score = Value 2 – Value 1).

The following results were found:

Hypothesis 1: Entrepreneurs that experience firm-failure salience will have greater risk-averse attitudes than entrepreneurs that are not firm-failure salient (control group).

Hypothesis 1 is partially supported. The specific testing hypotheses are as follows.

Hypothesis 1a: Entrepreneurs that experience firm-failure salience will have lower scores on the risk tolerance scale than entrepreneurs that are not firm-failure salient (control group).

Hypothesis 1a is not supported. Though there is a mean difference of .13 (z score value), the relationship was not statistically significant ($F(1, 107) = 1.38, p = .243$) (Table 32).

Table 32

Hypothesis 1a Results

Tests of Between-Subjects Effects

Dependent Variable: Zscore(RTQ_Avg)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^b
Corrected Model	1.373 ^a	1	1.373	1.377	.243	.013	1.377	.214
Intercept	.003	1	.003	.003	.957	.000	.003	.050
FFS_Maslow	1.373	1	1.373	1.377	.243	.013	1.377	.214
Error	106.627	107	.997					
Total	108.000	109						
Corrected Total	108.000	108						

a. R Squared = .013 (Adjusted R Squared = .003)

b. Computed using alpha = .050

Hypothesis 1b: Entrepreneurs that experience firm-failure salience will have lower scores on the creativity than entrepreneurs that are not firm-failure salient (control group).

Hypothesis 1b is not supported. Although there is a mean difference of .22 (z score value), the relationship was not statistically significant ($F(1, 107) = 1.42, p = .236$) in the hypothesized model. Additionally, the four subscales were investigated, and none of the four were statistically significant (curiosity, $p = .106$, imagination, $p = .811$, complexity, $p = .146$, and risk-taking, $p = .587$) (Table 33).

Table 33

Hypothesis 1b Results

Tests of Between-Subjects Effects

Dependent Variable: Zscore(CAP_Avg_ChangeScore)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^b
Corrected Model	1.412 ^a	1	1.412	1.417	.236	.013	1.417	.219
Intercept	.003	1	.003	.003	.957	.000	.003	.050
FFS_Maslow	1.412	1	1.412	1.417	.236	.013	1.417	.219
Error	106.588	107	.996					
Total	108.000	109						
Corrected Total	108.000	108						

a. R Squared = .013 (Adjusted R Squared = .004)

b. Computed using alpha = .050

Hypothesis 1c: Entrepreneurs that experience firm-failure salience will have lower innovation scores than entrepreneurs that are not firm-failure salient (control group).

This test was based on using the change score from the pre-test to the post test.

Hypothesis 1c is supported $F(1, 107) = 6.21, p = .014$ (Table 34).

Table 34

Hypothesis 1c Results

Tests of Between-Subjects Effects

Dependent Variable: Zscore(EAO_In_ChangeScore)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^b
Corrected Model	5.927 ^a	1	5.927	6.213	.014	.055	6.213	.695
Intercept	.012	1	.012	.013	.909	.000	.013	.051
FFS_Maslow	5.927	1	5.927	6.213	.014	.055	6.213	.695
Error	102.073	107	.954					
Total	108.000	109						
Corrected Total	108.000	108						

a. R Squared = .055 (Adjusted R Squared = .046)

b. Computed using alpha = .050

Hypothesis 1d: Entrepreneurs that experience firm-failure salience will have lower expansion activity scores than entrepreneurs that are not firm-failure salient (control group).

Hypothesis 1d is not supported. There is a mean difference of .34 (z score value) and it was (marginally) statistically significant ($F(1,107) = 3.46, p = .066$); however, the relationship is the inverse of the relationship hypothesized, with the firm failure salience group responding with greater risk taking behavior (Table 35). Additionally, this variable violated the assumption of ANOVAs in that it is heteroskedastic.

Table 35

Hypothesis 1d Results

Tests of Between-Subjects Effects

Dependent Variable: Zscore(FEAQ_Avg)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^b
Corrected Model	3.378 ^a	1	3.378	3.455	.066	.031	3.455	.453
Intercept	.007	1	.007	.007	.932	.000	.007	.051
FFS_Maslow	3.378	1	3.378	3.455	.066	.031	3.455	.453
Error	104.622	107	.978					
Total	108.000	109						
Corrected Total	108.000	108						

a. R Squared = .031 (Adjusted R Squared = .022)

b. Computed using alpha = .050

Hypothesis 2: Entrepreneurship self-efficacy will moderate the relationship between firm-failure salience and risk-averse attitudes such that entrepreneurs with greater entrepreneurial self-efficacy will report less risk-averse attitudes.

Hypothesis 2 was not supported. The specific testable hypotheses are as follows.

Hypothesis 2a: Entrepreneurship self-efficacy will moderate the relationship between firm-failure salience and risk-averse attitudes such that entrepreneurs with

greater entrepreneurial self-efficacy will score higher on the risk tolerance scale than entrepreneurs that have lower entrepreneurial self-efficacy.

Hypothesis 2a was not supported. The moderating interaction term was not significant ($F(1, 105) = .717, p = .399$) in the hypothesized model (Table 36).

Table 36

Hypothesis 2a Results

Tests of Between-Subjects Effects

Dependent Variable: Zscore(RTQ_Avg)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^b
Corrected Model	8.629 ^a	3	2.876	3.039	.032	.080	9.118	.700
Intercept	.013	1	.013	.014	.906	.000	.014	.052
FFS_Maslow	.458	1	.458	.484	.488	.005	.484	.106
ZEAO_SE_Avg	6.935	1	6.935	7.327	.008	.065	7.327	.765
FFS_Maslow * ZEAO_SE_Avg	.679	1	.679	.717	.399	.007	.717	.134
Error	99.371	105	.946					
Total	108.000	109						
Corrected Total	108.000	108						

a. R Squared = .080 (Adjusted R Squared = .054)

b. Computed using alpha = .050

Hypothesis 2b: Entrepreneurship self-efficacy will moderate the relationship between firm-failure salience and risk-averse attitudes such that entrepreneurs with greater entrepreneurial self-efficacy will score higher on the creativity than entrepreneurs that have lower entrepreneurial self-efficacy.

Hypothesis 2b was not supported. The moderating interaction term was not significant ($F(1, 105) = .21, p = .651$) in the hypothesized model (Table 37).

Table 37

Hypothesis 2b Results

Tests of Between-Subjects Effects

Dependent Variable: Zscore(CAP_Avg_ChangeScore)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^b
Corrected Model	2.806 ^a	3	.935	.934	.427	.026	2.801	.250
Intercept	.001	1	.001	.001	.971	.000	.001	.050
FFS_Maslow	.930	1	.930	.928	.338	.009	.928	.159
ZEAO_SE_Avg	1.276	1	1.276	1.274	.262	.012	1.274	.201
FFS_Maslow * ZEAO_SE_Avg	.206	1	.206	.205	.651	.002	.205	.073
Error	105.194	105	1.002					
Total	108.000	109						
Corrected Total	108.000	108						

a. R Squared = .026 (Adjusted R Squared = -.002)

b. Computed using alpha = .050

Hypothesis 2c: Entrepreneurship self-efficacy will moderate the relationship between firm-failure salience and risk-averse attitudes such that entrepreneurs with greater entrepreneurial self-efficacy will score higher on the innovation scale than entrepreneurs that have lower entrepreneurial self-efficacy.

Hypothesis 2c was not supported. The moderating interaction term was not significant ($F(1, 108) = .50, p = .470$) in the hypothesized model (Table 38).

Table 38

Hypothesis 2c Results

Tests of Between-Subjects Effects

Dependent Variable: Zscore(EAO_In_ChangeScore)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^b
Corrected Model	7.595 ^a	3	2.532	2.647	.053	.070	7.942	.633
Intercept	.052	1	.052	.054	.816	.001	.054	.056
FFS_Maslow	4.937	1	4.937	5.163	.025	.047	5.163	.615
ZEAO_SE_Avg	1.010	1	1.010	1.056	.306	.010	1.056	.175
FFS_Maslow * ZEAO_SE_Avg	.502	1	.502	.525	.470	.005	.525	.111
Error	100.405	105	.956					
Total	108.000	109						
Corrected Total	108.000	108						

a. R Squared = .070 (Adjusted R Squared = .044)

b. Computed using alpha = .050

Hypothesis 2d: Entrepreneurship self-efficacy will moderate the relationship between firm-failure salience and risk-averse attitudes such that entrepreneurs with greater entrepreneurial self-efficacy will score higher on the Firm Expansion Activity measures than entrepreneurs that have lower entrepreneurial self-efficacy.

Hypothesis 2d was not supported. The moderating interaction term was not significant ($F(1, 105) = .52, p = .473$) in the hypothesized model (Table 39). In addition, a summary of hypotheses test results are listed in Table 40 with a model of the relationships (Figure 9).

Table 39

Hypothesis 2d Results

Tests of Between-Subjects Effects

Dependent Variable: Zscore(FEAQ_Avg)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^b
Corrected Model	6.790 ^a	3	2.263	2.348	.077	.063	7.044	.575
Intercept	.003	1	.003	.003	.954	.000	.003	.050
FFS_Maslow	2.213	1	2.213	2.296	.133	.021	2.296	.324
ZEAO_SE_Avg	3.125	1	3.125	3.242	.075	.030	3.242	.430
FFS_Maslow * ZEAO_SE_Avg	.499	1	.499	.518	.473	.005	.518	.110
Error	101.210	105	.964					
Total	108.000	109						
Corrected Total	108.000	108						

a. R Squared = .063 (Adjusted R Squared = .036)

b. Computed using alpha = .050

Table 40

Hypotheses Result Summary

Table 35: Summary of Hypotheses Tests Results		
Hypothesis	Results	<i>P</i>
H1	Partially Supported	
H1a	Not Supported	.243
H1b	Not Supported	.236
H1c	Supported	.014
H1d	Not Supported	.066
H2	Not Supported	
H2a	Not Supported	.744
H2b	Not Supported	.651
H2c	Not Supported	.470
H2d	Not Supported	.473

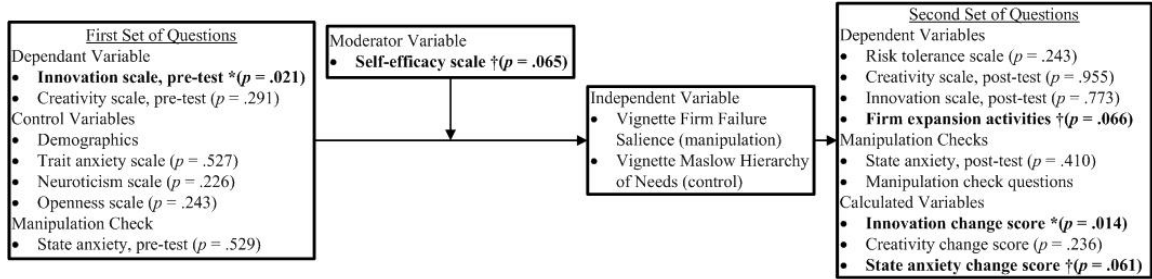


Figure 9. Firm failure salience tested model.

Overall, the application of the terror management theory as an analog for responses by entrepreneurs exposed to a priming of firm failure salience found only limited support. Of the four dependent variables, only one was statistically significant at the $p \leq .05$ level, and one was marginally significant in the opposite direction at the $p \leq .10$ level (however, this variable is suspect). The implications of the findings are discussed in the final chapter.

Chapter 6: Discussion and Conclusion

Discussion of Findings

The results for the hypotheses in the current study seem to be contradictory; however, when further evaluated, the results are theoretically consistent. The first hypothesis was only partially supported in that only one of the four operationalizations (the innovation subscale) that hypothesis was supported. Advances in the discipline and recent publication in the theoretical domain of risk and creativity that this research stems from may help explain why only one operationalization of these findings was significant and help clarify the contradictory implications from the firm expansion measure. The main hypothesis that firm failure salience affects an individual's probability to behave in a less risk averse manner did receive limited, but significant support in relation to the innovation subscale.

The lack of any moderation effect from the second hypothesis requires a more complicated response. Certainly, it may be that entrepreneurial self-efficacy does not buffer the firm failure salience affects. I would caution against making any such conclusions based on the findings in this study due to two major methodological drawbacks in the current study: the likely insufficient power in the sample to find moderation, and the failure in achieving full randomization on important demographic variables.

For example, hypotheses 1b and 2b, which were not supported, the dependent variable of interest was in the impact on creativity. In retrospect, it is critical to determine whether creativity is a state or trait variable in determining expectations of adjustments from a prime that changes the "state." In particular, *states* change with

mental primes; while *traits* should be consistent and persistent. By most operational and theoretical definitions, *creativity* is a trait, with only minor responsiveness to state conditions. Thus, given creativity is conceptualized as predominantly driven as a trait, little movement should be expected in the face of primes. Specifically, terror management theory's mortality salience is a prime for a state. As a parallel, Byron and Khazanchi (2011) recently conducted a meta-analysis of the relationship between state/trait anxiety and creativity. Overall, anxiety had an effect on creativity ($ES = -.166$); however, state anxiety ($ES = -.028$) had a much smaller effect than trait anxiety ($ES = -.166$) on creativity (Byron & Khazanchi, 2011). Taking these numbers for minimal guidance, and using my sample size (109) with the listed effect size numbers ($ES = -.028$) with G*Power Power Analysis software, the power is less than 6% to find support for the creativity hypothesis (Figure 10) at my current sample size.

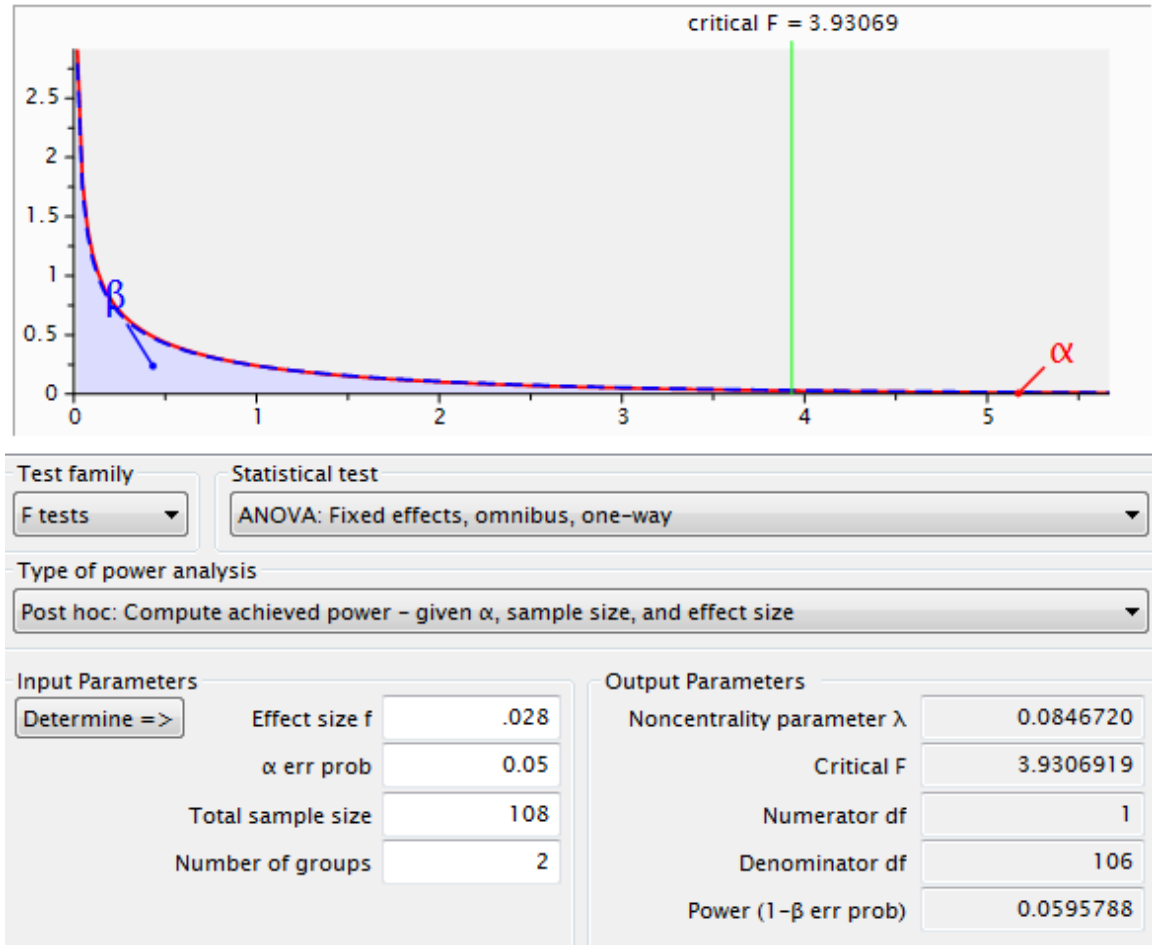


Figure 10. Power analysis (G*Power) plot creativity effect size.

A second major issue that must be addressed is the potential significant impact on the current study from the failure of random assignment to produce actually random samples for the two groups. Tables 25 present the results of a *t*-test comparing the manipulation group versus the control group for the pre-test questions (the innovation subscale) and for the moderator entrepreneurial self-efficacy subscale. The failure of randomization required important adjustments in interpreting the post-test score for innovation. One way to control for the failure of randomization was the use of change scores; however, change scores were not available for the Firm Expansion Activities

scale or Risk Taking scale instruments which were only tested for post manipulation differences. Thus, hypotheses 1a, 1d, and 2a, and 2d were not adequately tested, as the manipulation may have worked, but the pre-test conditions may have been significantly different in such a way as to mask any post-test changes.

Pre-test questions were collected *before* the manipulation, with the assumption of random assignment correcting for any systematic differences; however, many statistically significant differences did appear. For example, in terms of demographics, both SES ($p = .037$) and years in workforce ($p = .046$) were differed significantly between the groups. Additionally, for the pre-test questions from the sets with both pre-test and post-test questions, entrepreneurial self-efficacy (EAO_SE_Avg) was moderately significant ($p = .065$), and the innovation subscale (EAO_In_Avg) is statistically higher ($p = .021$) in the firm failure salient sample; this is particularly troublesome since both of these items are core to all hypotheses in the current study. For the innovation measure, the difference in groups was corrected by use of a z score change score value being utilized versus a single post-test score. However, the two scales with only post-test questions (risk tolerance questionnaire and firm expansion activities questionnaire), which were the measures for testing hypotheses 1a and 1d, could have easily been affected by a similar drawback in the sample.

Further, the test for the moderation of the innovation response likely had insufficient power to find an effect. Considering an *ES* of .234 for the main effect on innovation and a *N* of 109, my estimated Power ($1 - \beta$) was .68 for the main effect (see Table 33). If the *ES* of the interaction was assumed to be similarly high (recognizing that in terror management theory the main effect has generally been .05 stronger than the

moderator *ES*, making this an upwardly biased estimation of effect), then a power analysis for finding the moderation effect would suggest a sample size of 146 to achieve the power of .80, i.e., the test has a higher probability than normally accepted in the discipline, (as .8 is the norm) for conducting a Type II error of failing to reject a false null hypothesis or false negative.

Additionally, due to the heteroscedasticity of two of the control variables (age and years in workforce) and on the dependent variable risk-tolerance, Power again becomes a concern. Violations of the homogeneity assumption distort the shape of the *F*-distribution such that the critical *F*-value no longer corresponds to the correct *p* value. In other words, a $p \leq .05$ might actually be closer to $p \leq .10$ and thus increases Type I errors. Increase in sample size can alleviate this problem as an increase in sample size should (with the assumption of normality) correct for that distortion. However, some caution does have to be used with this assumption, this paper does assume that entrepreneurs are unique from the normal population thus their normality might be restricted to a smaller range than the average non-entrepreneurial individual. This was noted in the range (2.8 to 7) restriction and skewness (average was 5.6) for firm expansion activities on a 1 to 7 point Likert scale.

Although all scales had acceptable α levels in the current study (Table 41), the scales were not pilot tested in the test-retest parallel forms in which they were used. Cronbach's alphas above .70 are acceptable for early research when developing a scale, whereas alphas above .80 indicate that the measure is attenuated by very little error (Nunnally, 1967).

Table 41

Reliability (Cronbach's α) Summary Table

Scale	N	α
Entrepreneurship Identity	6	.564
State-Trait Anxiety Inventory, Trait	5	.796
BFI Neuroticism	4	.883
BFI Openness	5	.883
Entrepreneur Attitude Orientation Self-efficacy	14	.688
State-Trait Anxiety Inventory, State pre-test	7	.799
Entrepreneur Attitude Orientation Innovation	5	.729
Creativity Assessment Packet, pre-test	18	.723
Creativity Assessment Packet, Curiosity pre-test	5	.523
Creativity Assessment Packet, Imagination pre-test	5	.777
Creativity Assessment Packet, Complexity pre-test	3	.708
Creativity Assessment Packet, Risk-taking pre-test	5	.622
State-Trait Anxiety Inventory, State post-test	3	.912
Entrepreneur Attitude Orientation, Innovation post-test	3	.819
Creativity Assessment Packet, post-test	12	.893
Creativity Assessment Packet, Curiosity post-test	3	.926
Creativity Assessment Packet, Imagination post-test	3	.831
Creativity Assessment Packet, Complexity post-test	3	.707
Creativity Assessment Packet, Risk-taking post-test	3	.666
Risk Taking Questionnaire	7	.808
Firm Expansion Activities Questionnaire	5	.721

Examining the above table, the reliability on 5 scales was below the .7 suggested alpha.

Under these conditions, the low scale alphas may have increased the likelihood of committing a Type II error. Simply, because of poor measures I might have failed to find the hypothesized relationships. Due to the failure of the random assignment leading to randomly distributed samples, combined with the poor reliability of the scales, could lead to type II errors.

Additionally, the control manipulation in the current study may be questioned. It is possible that the results in the current study are the results of the control *increasing*

innovation scores for the control group. In the control story, the Maslow’s hierarchy reference included a reference to the word creativity, and may have unconsciously primed greater creativity. I did do a *t*-test to show that both scores are statistically significant in their difference from a zero change. There was a drop in innovation scores of .20 ($p = .078$) for terror management theory and an increase (.18) for innovation with the control ($p = .090$) (Table 42); however, neither one hit the $p = .05$ criteria commonly used in the field.

Table 42

One sample t-test on innovation split by dependent variable

One-Sample Test^a

TMT v Maslow Manipulation	Test Value = 0						
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference		
					Lower	Upper	
Jan 2013 - Auditors warn of high failure rate risk for compa	EAO_In_ChangeScore	-1.797	51	.078	-.20025	-.4239	.0234
Jan 2013 - The Soul of a Startup	EAO_In_ChangeScore	1.726	56	.090	.18268	-.0293	.3947

a. No statistics are computed for one or more split files

Another possibility is that the manipulation did not work as intended. The STAI state anxiety has been used as a proxy or manipulation check for anxiety caused from traditional mortality salience (Rządowska et al., 2010). There was no statistical difference between the pre-test ($p = .529$) or post-test ($p = .410$) state anxiety scores (Table 42); however, there was a moderately statistical ($p = .061$) difference in change score for state anxiety with a mean difference of .280, with the manipulation being the lower score (as expected) (Table 43).

Table 43

STAI state anxiety pre-test, post-test, and change score

Group Statistics

TMT v Maslow Manipulation		N	Mean	Std. Deviation	Std. Error Mean
Zscore(STAI_S_Avg)	Jan 2013 - Auditors warn of high failure rate risk for compa	52	.0635413	.99304144	.13771007
	Jan 2013 - The Soul of a Startup	57	-.0579675	1.01159192	.13398862
Zscore(STAI_S_Avg_RT)	Jan 2013 - Auditors warn of high failure rate risk for compa	52	-.0830683	1.06446050	.14761411
	Jan 2013 - The Soul of a Startup	57	.0757816	.94043071	.12456309
Zscore (STAI_S_ChangeScore)	Jan 2013 - Auditors warn of high failure rate risk for compa	52	-.1879476	.98683604	.13684954
	Jan 2013 - The Soul of a Startup	57	.1714610	.98941981	.13105185

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Zscore(STAI_S_Avg)	Equal variances assumed	.033	.856	.632	107	.529	.12150881	.19230271	-.25970888	.50272651
	Equal variances not assumed			.632	106.414	.528	.12150881	.19213801	-.25940636	.50242399
Zscore(STAI_S_Avg_RT)	Equal variances assumed	1.330	.251	-.827	107	.410	-.15884992	.19204815	-.53956298	.22186314
	Equal variances not assumed			-.822	102.267	.413	-.15884992	.19314733	-.54194474	.22424490
Zscore (STAI_S_ChangeScore)	Equal variances assumed	.074	.786	-1.897	107	.061	-.35940857	.18950219	-.73507455	.01625741
	Equal variances not assumed			-1.897	106.139	.061	-.35940857	.18947925	-.73506394	.01624680

This suggests that there is less strength in the inferences made regarding the very important question that the manipulation did increase state anxiety. Since this did not reach the $p = .05$ threshold, and more importantly the 95% confidence interval (*CI*) contains 0 (lower value = $-.74$ and an upper value = $.02$). I cannot make a statistical conclusion that the statistical parameter is different from zero and that this result is not random chance. As explained later, the extension of mortality salience to the firm has not been researched before, theoretically this comparison might not be accurate; furthermore, this means that the manipulation of the firm failure salience might not be accurate. The differences might be that the manipulation did not have the intended effects and instead the innovation change score could be spurious or random chance. Additionally, the control manipulation might have decreased state anxiety (Figure 11).

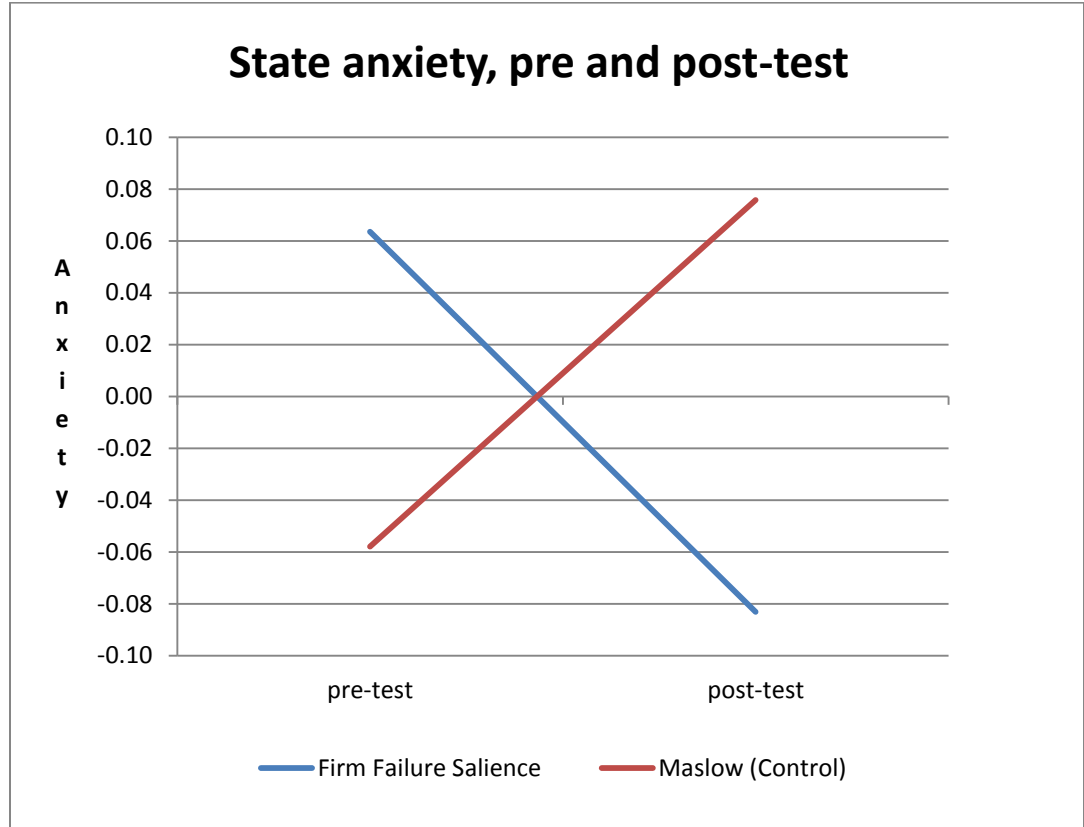


Figure 11. Graphed STAI state anxiety scores pre and post-test.

In addition to power issues, the failure in randomization can also explain the lack of results on the second hypothesis. The entrepreneurial self-efficacy scale was marginally statistically greater ($p = .065$) by .22 (z-score) in the firm failure salient condition sample vs the control condition sample (Table 25, Figure 12).

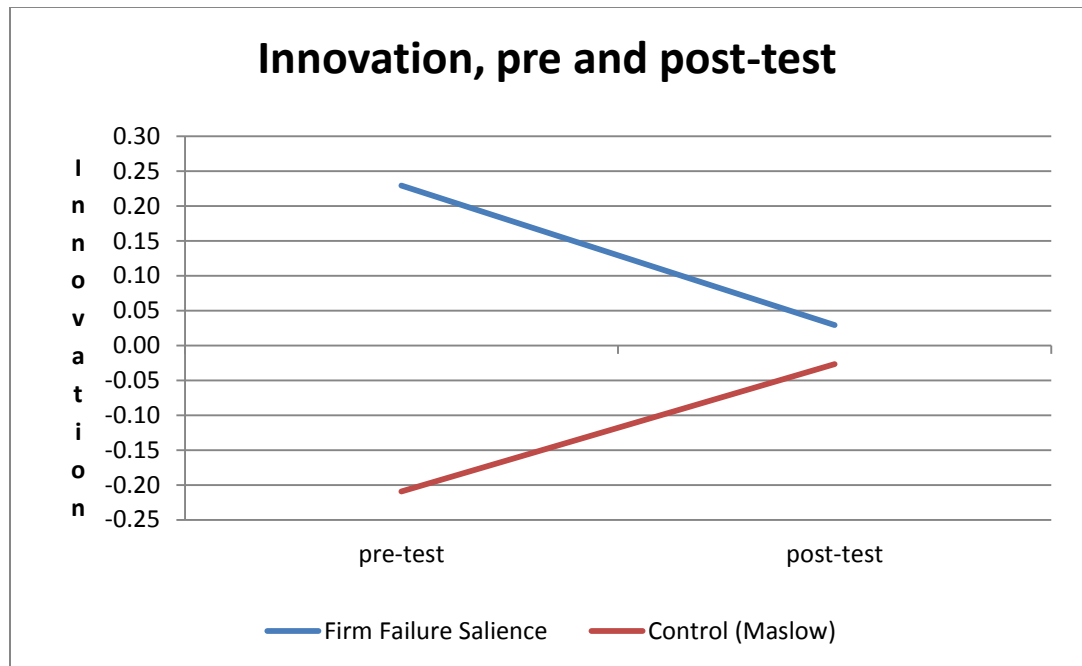


Figure 12. Innovation measure, split by dependent variable pre and post-test.

A larger sample size is needed for an unequal and skewed sample, thus this might contribute to an even larger power issue.

Further, this initial investigation of the potential for a terror management analog for entrepreneurship must continue to spur a re-evaluation of the theoretical adequacy of the perspective. An important assumption investigated in this perspective was that there is not a response difference between firms and individuals in terms of mortality. In fact, firm-failure salience may not have been activated due to individual factors (i.e., skewed or biased beliefs about the firm or the entrepreneur) that diminish firm-failure salience. Whereas terror management theory is premised on the inevitable—death for an individual—firms are unique because they, hypothetically, can live in perpetuity. This is not a limitation of the investigation or methodology, this is a theoretical weakness that says the analogy may truly be wrong. That is not a limitation of the study but a limitation

of the theory, i.e., it is a flawed analogy. It can be argued that such a central difference can impact the analogy in substantive ways: (1) The lack of certitude of a firm's death may mean that "terror" is never activated at all; or (2) The fact that firms "do not have to die" may activate the opposite reaction of even greater efforts to resuscitate a "dead" firm when the entrepreneur is in denial of the economic death. Like the wealthy patron who continuously invests in last-ditch, life-extending technological efforts, such as cryogenics, an entrepreneur may be willing to continue to subsidize avenues for his or her firm and allow it to conservatively meet cash flow until the entrepreneur has fully exhausted all capital.

However, I speculate that although there are potentially different outcomes of firm-failure salience at the individual level, these outcomes would infrequent and are dictated by extreme mental biases that interfere with the cognitive decision-making process (Anson, Pyszczynski, Solomon, & Greenberg, 2009). My findings do not provide any evidence to support that the opposite condition of greater riskiness is likely. As stated in the theory development, van Knippenberg and van Schie (2000) indicated that a portion of an individual's identity derives from their employment. Employment gives an individual personal identity (Warr, 1982). When individuals strongly identify with an organization, the attributes they use to define the organization also define them (Dutton et al., 1994). Therefore, I argued that an individual would treat organizational threat for an organization they strongly identify with as a 'personal' threat. Entrepreneurs should be especially susceptible to just such a strong personal identification. However, these potential outcomes should be investigated, as they would identify and explain

additional mental functions that influence an entrepreneur's decision-making when the firm is under firm threat.

Implications for Practice

Policy-making in entrepreneurship should be sensitive to how macroeconomic conditions may impact the effectiveness and appropriateness of the design of interventions to promote entrepreneurship. In particular, the increasing chances of small business failure may make it difficult for an entrepreneur to comfortably take on their usual load of risk. Unfortunately, it is under such conditions that bold entrepreneurial action is most needed.

Entrepreneurs are esteemed for their innovative perspectives, cognitions, and behaviors, and these unique traits are believed to promote development and success. In fact, the literature (Malaviya & Wadhwa, 2005; Porter, 1990) has frequently linked innovation, technological development, and economic growth. The links between entrepreneurship, innovation, and firm success have prompted practitioners and academics alike to endorse the view that organizations should foster, develop, and use the innovative potential of all of their employees as a means to achieve organizational success (Claver, Llopis, Garcia, & Molina, 1998; Dorenbosch, van Engen, & Verhagen, 2005; Jung, Chow, & Wu, 2003; Porter & Scott, 2001). As such, an increased understanding of an entrepreneur's behavior can help predict and prevent certain behaviors that might negatively affect entrepreneurial firm performance during both prosperous and tough economic times.

Conclusion

To some extent, entrepreneurial research is fragmented. The literature has grown so much and so quickly that academics and practitioners now find themselves with conflicting entrepreneurial data (i.e., risk-taking versus risk-averse decisions during threat). Therefore, although researchers should continue to investigate the entrepreneur's mindset and innovative behaviors, it is also important to attempt to consolidate this information into a broader theory of entrepreneurship. The cognitive perspective is a valuable tool in entrepreneurship, as it can contribute to both scientific understanding of the entrepreneurial process and practical efforts to assist entrepreneurs in their efforts to start new ventures (Baron, 2004b). In addition, an understanding and application of the established cognitive and social cognitive literature to entrepreneurial literature can help us identify and examine patterns in entrepreneurial heuristics and tendencies.

Presumably, this is why Shook et al. (2003) called researchers to integrate psychology and cognition into entrepreneurship scholarship. The current study, like Haynie et al.'s (2010) metacognitive proposal, examines several pieces of the entrepreneurship puzzle. In the current study, I attempted to explain and predict entrepreneur's decisions and behaviors under one negative vignette; however, several threat vignettes should be explored (i.e., firm failure, downsizing, organizational decline, challenging economic environment). Would these different threats follow the same theoretical underpinning as the study above? More research will also be needed to establish the personal self identity and firm identity connection assumed in this study. Certainly issues regarding the anthropomorphizing of the firm may be generalized to other populations that would have strong organizational identification, for example top management – especially as their

own fortunes (in incentive compensation) becomes inextricably linked with the fortunes of their companies.

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APPENDIX

Appendix A. The Projective Life Attitudes Assessment

This assessment is a recently developed, innovative personality assessment. Recent research suggests that feelings and attitudes about significant aspects of life tell us a considerable amount about the individual's personality. Your responses to this survey will be content-analyzed in order to assess certain dimensions of your personality. Your honest responses to the following questions will be appreciated.

1. PLEASE BRIEFLY DESCRIBE THE EMOTIONS THAT THE THOUGHT OF YOUR OWN DEATH AROUSES IN YOU.

2. Please provide in writing below, AS SPECIFICALLY AS YOU CAN, WHAT YOU THINK WILL HAPPEN TO YOU AS YOU PHYSICALLY DIE AND ONCE YOU ARE PHYSICALLY DEAD.

Appendix B. FinaMetrica Risk Tolerance Questionnaire

What if the situation described in a question has never happened to me, or will never happen to me? There are a number of questions that ask you to assume or imagine you are in a certain situation. These questions are designed to gain a picture of what you would do in such circumstances, regardless of whether you have ever been in them or are ever likely to be in them. Please answer as best you can on the available information.

What if a question asks about a situation where, in real life, I would have (or would seek) more information than is given in the question? Some questions require you to make a decision based on limited information. While, in real life, you may wish to obtain more information before making your final decision, these questions are designed to gain an idea of what you would do given the limited information. Please answer as best you can on the available information.

What if none of the choices in a multiple-choice question is my preferred answer? Some questions give you a limited choice of responses and may not include what would be your preferred answer. These are designed to obtain a picture of what you would do given the choices available. Please answer as best you can on the available choices.

1) Compared to others, how do you rate your willingness to take financial risks?

Extremely low risk taker.

Very low risk taker.

Low risk taker.

Average risk taker.

High risk taker.

Very high risk taker.

Extremely high risk taker.

2) How easily do you adapt when things go wrong financially?

Very uneasily.

Somewhat uneasily.

Somewhat easily.

Very easily.

3) When you think of the word 'risk' in a financial context, which of the following words comes to mind first?

Danger.

Uncertainty.

Opportunity.

Thrill.

- 4) **Have you ever invested a large sum in a risky investment mainly for the "thrill" of seeing whether it went up or down in value?**
No.
Yes, very rarely.
Yes, somewhat rarely.
Yes, somewhat frequently.
Yes, very frequently.
- 5) **If you had to choose between more job security with a small pay rise and less job security with a big pay rise, which would you pick?**
Definitely more job security with a small pay rise.
Probably more job security with a small pay rise.
Not sure.
Probably less job security with a big pay rise.
Definitely less job security with a big pay rise.
- 6) **When faced with a major financial decision, are you more concerned about the possible losses or the possible gains?**
Always the possible losses.
Usually the possible losses.
Usually the possible gains.
Always the possible gains.
- 7) **How do you usually feel about your major financial decisions after you make them?**
Very pessimistic.
Somewhat pessimistic.
Somewhat optimistic.
Very optimistic.
- 8) **Imagine you were in a job where you could choose whether to be paid salary, commission or a mix of both. Which would you pick?**
All salary.
Mainly salary.
Equal mix of salary and commission.
Mainly commission.
All commission.
- 9) **What degree of risk have you taken with your financial decisions in the past?**
Very small.
Small.
Medium.
Large.
Very large.

- 10) What degree of risk are you currently prepared to take with your financial decisions?**
Very small.
Small.
Medium.
Large.
Very large.
- 11) Have you ever borrowed money to make an investment (other than for your home)?**
No.
Yes.
- 12) How much confidence do you have in your ability to make good financial decisions?**
None.
A little.
A reasonable amount.
A great deal.
Complete.
- 13) Suppose that 5 years ago you bought stock in a highly regarded company. That same year the company experienced a severe decline in sales due to poor management. The price of the stock dropped drastically and you sold at a substantial loss. The company has been restructured under new management, and most experts now expect it to produce better than average returns. Given your bad past experience with this company, would you buy stock now?**
Definitely not.
Probably not.
Not sure.
Probably.
Definitely.
- 14) Investments can go up or down in value, and experts often say you should be prepared to weather a downturn. By how much could the total value of all your investments go down before you would begin to feel uncomfortable?**
Any fall would make me feel uncomfortable.
10%.
20%.
33%.
50%.
More than 50%.
- 15) Assume that a long-lost relative dies and leaves you a house which is in a poor condition but located in a suburb that's becoming popular. As is, the house would probably sell for \$300,000, but if you were to spend about**

\$100,000 on renovations, the selling price would be around \$600,000. However, there is some talk of constructing a major highway next to the house, and this would lower its value considerably. Which of the following options would you take?

Sell it as is.

Keep it as is, but rent it out.

Take out a \$100,000 mortgage and do the renovations.

- 16) Most investment portfolios have a spread of investments - some of the investments may have high expected returns but with high risk, some may have medium expected returns and medium risk, and some may be low-risk/low-return. (For example, stocks and real estate would be high-risk/high-return whereas cash and CDs (certificates of deposit) would be low-risk/low-return.) Which spread of investments do you find most appealing? Would you prefer all low-risk/low-return, all high-risk/high return, or somewhere in between?**

Spread of Investments in Portfolio

	High Risk/Return	Medium Risk/Return	Low Risk/Return
Portfolio 1	0	0	100
Portfolio 2	20	30	70
Portfolio 3	10	40	50
Portfolio 4	30	40	30
Portfolio 5	50	40	10
Portfolio 6	70	30	0
Portfolio 7	100	0	0

- 17) You are considering placing one-quarter of your investment funds into a single investment. This investment is expected to earn about twice the CD (certificate of deposit) rate. However, unlike a CD, this investment is not protected against loss of the money invested. How low would the chance of a loss have to be for you to make the investment?**

Zero, i.e. no chance of any loss.

Very low chance of loss.

Moderately low chance of loss.

50% chance of loss.

- 18) With some types of investment, such as cash and CDs (certificates of deposit), the value of the investment is fixed. However inflation will cause the purchasing power of this money value to decrease. With other types of investment, such as stocks and real estate, the value is not fixed. It will vary. In the short term it may even fall below the purchase price. However over the long term, the value of the stocks and real estate should certainly increase by more than the rate of inflation. With this in mind, which is more**

important to you - that the value of your investments does not fall or that it retains its purchasing power?

Much more important that the value does not fall.

Somewhat more important that the value does not fall.

Somewhat more important that the value retains its purchasing power.

Much more important that the value retains its purchasing power.

19) In recent years, how have your personal investments changed?

Always toward lower risk.

Mostly toward lower risk.

No changes or changes with no clear direction.

Mostly toward higher risk.

Always toward higher risk.

20) When making an investment, return and risk usually go hand-in-hand.

Investments which produce above-average returns are usually of above-average risk. With this in mind, how much of the funds you have available to invest would you be willing to place in investments where both returns and risks are expected to be above average?

None.

10%.

20%.

30%.

40%.

50%.

60%.

70%.

80%.

90%.

100%.

21) Think of the average rate of return you would expect to earn on an investment portfolio over the next ten years. How does this compare with what you think you would earn if you invested the money in one-year CDs (certificates of deposit)?

About the same rate as from CDs.

About one and a half times the rate from CDs.

About twice the rate from CDs.

About two and a half times the rate from CDs.

About three times the rate from CDs.

More than three times the rate from CDs.

22) People often arrange their financial affairs to qualify for a government benefit or obtain a tax advantage. However a change in legislation can leave them worse off than if they'd done nothing. With this in mind, would you

take a risk in arranging your affairs to qualify for a government benefit or obtain a tax advantage?

I would not take a risk if there was any chance I could finish up worse off.

I would take a risk if there was only a small chance I could finish up worse off.

I would take a risk as long as there was more than a 50% chance that I would finish up better off.

23) Imagine that you are borrowing a large sum of money at some time in the future. It's not clear which way interest rates are going to move - they might go up, they might go down, no one seems to know. You could take a variable interest rate that will rise and fall as the market rate changes. Or you could take a fixed interest rate which is 1% more than the current variable rate but which won't change as the market rate changes. Or you could take a mix of both. How would you prefer your loan to be made up?

100% variable.

75% variable, 25% fixed.

50% variable, 50% fixed.

25% variable, 75% fixed.

100% fixed.

24) Insurance can cover a wide variety of life's major risks - theft, fire, accident, illness, death etc. How much coverage do you have?

Very little.

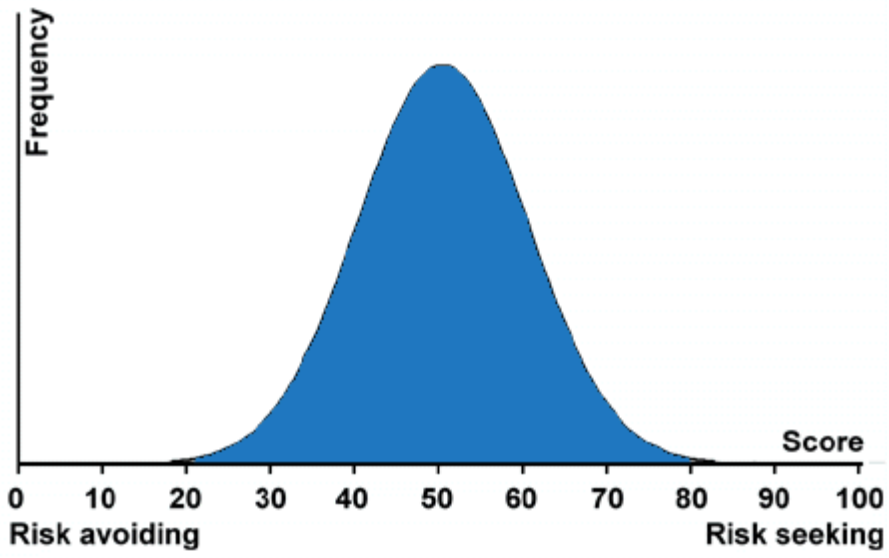
Some.

Considerable.

Complete.

25) This questionnaire is scored on a scale of 0 to 100. When the scores are graphed they follow the familiar bell-curve of the Normal distribution shown below. The average score is 50. Two-thirds of all scores are within 10 points of the average. Only 1 in 1000 is less than 20 or more than 80.

What do you think your score will be?



Appendix C. Risk Tolerance Questionnaire

What if the situation described in a question has never happened to me, or will never happen to me? There are a number of questions that ask you to assume or imagine you are in a certain situation. These questions are designed to gain a picture of what you would do in such circumstances, regardless of whether you have ever been in them or are ever likely to be in them. Please answer as best you can on the available information.

What if a question asks about a situation where, in real life, I would have (or would seek) more information than is given in the question? Some questions require you to make a decision based on limited information. While, in real life, you may wish to obtain more information before making your final decision, these questions are designed to gain an idea of what you would do given the limited information. Please answer as best you can on the available information.

What if none of the choices in a multiple choice question is my preferred answer? Some questions give you a limited choice of responses and may not include what would be your preferred answer. These are designed to obtain a picture of what you would do given the choices available. Please answer as best you can on the available choices.

1. Compared to others, how do you rate your willingness to take financial risks?
2. How easily do you adapt when things go wrong financially?
3. When you think of the word 'risk' in a financial context, which of the following words comes to mind first?
4. If you had to choose between more job security with a small pay rise and less job security with a big pay rise, which would you pick?
5. Imagine you were in a job where you could choose whether to be paid salary, commission or a mix of both. Which would you pick?
6. What degree of risk are you currently prepared to take with your financial decisions?
7. When making an investment, return and risk usually go hand in hand. Investments which produce above average returns are usually of above average risk. With this in mind, how much of the funds you have available to invest would you be willing to place in investments where both returns and risks are expected to be above average?

Appendix D. Entrepreneur Attitudinal Orientation Questionnaire

Indicate how much you agree with each of the following statements by circling a number between "1" and "10" where "1" indicates that you strongly disagree with the statement and "10" indicates you strongly agree with the statement. A "5" indicates you only slightly disagree and a "6" shows only slight agreement. Work as quickly as you can, don't stop to think too deeply about any one question, but mark down your first thought. Please answer all of the questions.

*indicates reverse scored

- 1) I get my biggest thrills when my work is among the best there is. (achievement—
affect)
- 2) I seldom follow instructions unless the task I am working on is too complex.
(innovation—behavior)
- 3) I never put important matters off until a more convenient time. (achievement—
behavior)
- 4) I have always worked hard in order to be among the best in my field. (personal
control—behavior)
- *5) I feel like a total failure when my business plans don't turn out the way I think they
should. (self-esteem—
affect)
- 6) I feel very energetic working with innovative colleagues in a dynamic business
climate. (innovation—
affect)
- 7) I believe that concrete results are necessary in order to judge business success.
(achievement—
cognition)
- 8) I create the business opportunities I take advantage of. (personal control—
behavior)
- 9) I spend a considerable amount of time making any organization I belong to function
better. (achievement—
behavior)
- 10) I know that social and economic conditions will not effect my success in business.
(personal control—
cognition)
- 11) I believe it is important to analyze your own weaknesses in business dealings.
(achievement—
cognition)
- 12) I usually perform very well on my part of any business project I am involved with.
(self-esteem—
behavior)
- 13) I get excited when I am able to approach tasks in unusual ways. (innovation—
affect)
- *14) I feel very self-conscious when making business proposals. (self-esteem—
affect)
- 15) I believe that in the business world the work of competent people will always be
recognized. (personal control—
cognition)
- 16) I believe successful people handle themselves well at business gatherings. (self-
esteem—
cognition)
- 17) I enjoy being able to use old business concepts in new ways. (innovation—
affect)
- * 18) I seem to spend a lot of time looking for someone who can tell me how to solve all
my business problems. (self-esteem—
behavior)
- 19) I feel terribly restricted being tied down to tightly organized business activities, even
when I am in control. (innovation—
affect)

- 20) I often sacrifice personal comfort in order to take advantage of business opportunities. (achievement—behavior)
- *21) I feel self-conscious when I am with very successful business people. (self-esteem—affect)
- 22) I believe that to succeed in business it is important to get along with the people you work with. (self-esteem—cognition)
- 23) I do every job as thoroughly as possible. (achievement—behavior)
- 24) To be successful I believe it is important to use your time wisely. (achievement—cognition)
- 25) I believe that the authority I have in business is due mainly to my expertise in certain areas. (self-esteem—cognition)
- 26) I believe that to be successful a businessman must spend time planning the future of his business. (achievement—cognition)
- 27) I make a conscientious effort to get the most out of my business resources. (achievement—behavior)
- *28) I feel uncomfortable when I'm unsure of what my business associates think of me. (self-esteem—affect)
- *29) I often put on a show to impress the people I work with. (self-esteem—behavior)
- 30) I believe that one key to success in business is to not procrastinate. (achievement—cognition)
- 31) I get a sense of pride when I do a good job on my business projects. (achievement—affect)
- 32) I believe that organizations which don't experience radical changes now and then tend to get stuck in a rut. (innovation—cognition)
- *33) I feel inferior to most people I work with. (self-esteem—affect)
- 34) I think that to succeed in business these days you must eliminate inefficiencies. (achievement—cognition)
- 35) I feel proud when I look at the results I have achieved in my business activities. (achievement—affect)
- 36) I feel resentful when I get bossed around at work. (personal control—affect)
- *37) Even though I spend some time trying to influence business events around me every day, I have had very little success. (personal control—behavior)
- *38) I feel best about my work when I know I have followed accepted procedures. (innovation—behavior)
- 39) Most of my time is spent working on several business ideas at the same time. (innovation—behavior)
- 40) I believe it is more important to think about future possibilities than past accomplishments. (achievement—cognition)
- 41) I believe that in order to succeed, one must conform to accepted business practices. (innovation—cognition)
- 42) I believe that any organization can become more effective by employing competent people. (personal control—cognition)
- 43) I usually delegate routine tasks after only a short period of time. (innovation—behavior)
- 44) I will spend a considerable amount of time analyzing my future business needs before I allocate any resources. (achievement—behavior)

- 45) I feel very good because I am ultimately responsible for my own business success. (personal control—affect)
- 46) I believe that to become successful in business you must spend some time every day developing new opportunities. (innovation—cognition)
- 47) I get excited creating my own business opportunities. (personal control—affect)
- 48) I make it a point to do something significant and meaningful at work every day. (achievement—behavior)
- 49) I usually take control in unstructured situations. (innovation—behavior)
- *50) I never persist very long on a difficult job before giving up. (self-esteem—behavior)
- 51) I spend a lot of time planning my business activities. (personal control—behavior)
- 52) I believe that to arrive at a good solution to a business problem, it is important to question the assumptions made in defining the problem. (innovation—cognition)
- 53) I often feel badly about the quality of work I do. (self-esteem—affect)
- 54) I believe it is important to continually look for new ways to do things in business. (innovation—cognition)
- 55) I believe it is important to make a good first impression. (self-esteem—cognition)
- 56) I believe that when pursuing business goals or objectives, the final result is far more important than following the accepted procedures. (innovation—cognition)
- 57) I feel depressed when I don't accomplish any meaningful work. (achievement—affect)
- 58) I often approach business tasks in unique ways. (innovation—behavior)
- 59) I believe the most important thing in selecting business associates is their competency. (achievement—cognition)
- 60) I take an active part in community affairs so that I can influence events that affect my business. (personal control—behavior)
- 61) I feel good when I have worked hard to improve my business. (achievement—affect)
- 62) I enjoy finding good solutions for problems that nobody has looked at yet. (innovation—affect)
- 63) I believe that to be successful a company must use business practices that may seem unusual at first glance. (innovation—cognition)
- 64) My knack for dealing with people has enabled me to create many of my business opportunities. (personal control—behavior)
- 65) I get a sense of accomplishment from the pursuit of my business opportunities. (achievement—affect)
- *66) I believe that currently accepted regulations were established for a good reason. (innovation—cognition)
- 67) I always feel good when I make the organizations I belong to function better. (achievement—affect)
- 68) I get real excited when I think of new ideas to stimulate my business. (innovation—affect)
- 69) I believe it is important to approach business opportunities in unique ways. (innovation—cognition)
- 70) I always try to make friends with people who may be useful in my business. (achievement—behavior)
- 71) I usually seek out colleagues who are excited about exploring new ways of doing things. (innovation—behavior)

- 72) I enjoy being the catalyst for change in business affairs. (innovation—affect)
- *73) I always follow accepted business practices in the dealings I have with others.
(innovation—behavior)
- *74) I rarely question the value of established procedures. (innovation—behavior)
- 75) I get a thrill out of doing new, unusual things in my business affairs. (innovation—
affect)

Appendix E. Innovation Pre-test Questionnaire

Innovation:

1. I believe that to become successful in business you must spend some time every day developing new opportunities.
2. I believe it is important to continually look for new ways to do things in business.
3. I often approach business tasks in unique ways.
4. I enjoy finding good solutions for problems that nobody has looked at yet.
5. I get really excited when I think of new ideas to stimulate my business.

Appendix F. Innovation Post-test Questionnaire

Innovation:

1. I get excited when I am able to approach tasks in unusual ways.
2. I believe it is important to approach business opportunities in unique ways.
3. I usually seek out colleagues who are excited about exploring new ways of doing things.

Appendix G. Firm Expansion Activities Questionnaire.

Indicate how much you agree with each of the following statements by checking a box between Strongly Disagree and Strongly Agree (1 to 7). Work as quickly as you can, don't stop to think too deeply about any one question, but mark down your first thought. There are no right or wrong answers.

Place a check in the column which you feel is most accurate.

- 1) I am willing to take out a loan for my firm.
- 2) I am willing to introduce a new untried product.
- 3) I am willing to add new personnel.
- 4) I am willing to expand into new markets.
- 5) I am willing to try a new method of reaching my customers.

Appendix H. Manipulation Vignette

Firm Failure Salience Vignette

There has been a worrying increase in the number of auditors' reports warning of the possibility that companies could fail in the next 12 months. Several firms went into voluntary bankruptcy administration last quarter, less than a year after auditors warned of the firm's ability to continue operating as a going concern. The several accounting firms yesterday released a review of several company accounts lodged for the 2012 reporting season, covering balance dates from June 2011 to Jan this year. The review sampled 1042 listed companies, representing 52 per cent of the listed companies. It found that 15 per cent of audit reports included going concern related issues. This follows a similar report from June 2012, where just 6 per cent of the reports sampled a smaller survey of 315 companies included going concern related issues. The phrase 'going concern' refers to the likelihood that a company will continue to operate for at least the next year. A director of a major auditing firms said the rise in the number of auditor reports emphasizing going concern related issues was worrying because it could indicate a higher failure rate for companies. He also said he was concerned that the number of audit reports could increase to 20 per cent in the next two years.



Appendix I. Control Vignette

Control Vignette

In 1943, American psychologist Abraham Maslow organized a hierarchy of human needs. The foundation of his pyramid laid out the most basic essentials: food, water and sleep. Climb a little higher, and you'll find safety, higher and you'll see love and friendship, and above that self-esteem and confidence. But the highest point, the ultimate accomplishment of human beings, is self actualization – which Maslow said includes things like creativity, morality, spontaneity, problem solving and acceptance of facts. It's a recipe for culture. The elements that constitute the highest level of human needs are the elements that make for an excellent startup culture. Startups have their own pyramid of needs, but the majestic spot at the top is the same. The goal of an entrepreneur should be to build an electric culture that sends sparks of positive energy pulsing throughout the company. There must be passion, collaboration, inspiration, dedication and so many more “ions” to keep the pulse strong. We see so many strong examples of culture in successful companies – from the hacker ethos at Facebook with 24 hour hackathons and coding mantras, to the welcome box Square CEO Jack Dorsey gives to each employee, to the free perks and free time to explore new ideas that are part of the fabric of Google.



Appendix J. Entrepreneurial Attitude Orientation Subscales: Self-esteem

Please indicate the degree to which you agree that the statement describes you.

*indicates reverse scored

1. I feel like a total failure when my business plans don't turn out the way I think they should.
2. I usually perform very well on my part of any business project I am involved with.
3. I feel very self conscious when making business proposals.
4. I believe successful people handle themselves well at business gatherings.
5. I seem to spend a lot of time looking for someone who can tell me how to solve all my business problems.
6. I feel self conscious when I am with very successful business people.
7. I believe that to succeed in business it is important to get along with the people you work with.
8. I believe that the authority I have in business is due mainly to my expertise in certain areas.
9. I feel uncomfortable when I'm unsure of what my business associates think of me.
10. I often put on a show to impress the people I work with.
11. I feel inferior to most people I work with.
12. I never persist very long on a difficult job before giving up.
13. I often feel badly about the quality of work I do.
14. I believe it is important to make a good first impression.

Appendix K. Entrepreneurial Self-identification with Firm

1. How well do you identify with the statement “My business is my baby”.
2. When someone praises my organization, it feels like a personal compliment.
3. When I talk about my organization, I usually say “we” rather than “they”.
4. My organization’s successes are my successes.
5. If a story in the media criticized my organization, I would feel embarrassed.
6. The below is a rating question between two options. If you are being introduced to somebody, would you prefer to be associated with your entrepreneurial firm or your current position?

Appendix L. Demographic Questionnaire.

1. What year were you born?
2. What is your ethnicity? (set list is provided with an 'other' and space to describe other)
3. What gender are you?
4. How would you classify your **socioeconomic** (SES) standing?
 1. Upper SES (very well off financially, well beyond financially stable)
 2. Upper-Middle SES (well off financially, somewhat beyond financially stable)
 3. Middle SES (stable financially)
 4. Lower-middle SES (less financially stable)
 5. Lower SES (not well off financially at all, less financially stable)
5. Do you have a job, or multiple jobs, that would add up to
 1. Full time employment
 2. Part time employment
 3. Would consider self un-employed
6. How long have you been in the workforce (how many years in which you were able to work, did you work).
7. Do you have a job/position outside of your entrepreneurship job?
8. How much of your income is dependent on your entrepreneurship position (0 to 100)?

Appendix M. Manipulation Check.

Please answer the questions below on how well you agree with the statement.

1. The article describes a situation where other firms are going out of business?
2. The article describes a situation where my firm is going to go out of business.
3. The article you have read is compelling?
4. The article you have read is realistic?
5. The article you have read is sensible?

Appendix N. Feedback

Please provide any feedback below. There were two slight manipulations in this study.

Randomly assigned, you were selected to read a economic article or an article about team work.