

The Effect of Success/Failure Priming on Financial Risk Tolerance

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Abstract

Previous research has demonstrated the effects of unconscious priming on conscious thoughts, behaviours and decisions. The present study was designed to examine the effects of priming individuals with the concepts of success or failure on their subsequent financial risk tolerance. This study also investigated the relationship between financial risk tolerance and dispositional optimism, and assessed the efficacy of using demographic variables to classify investors into risk tolerance categories. Participants for the study were first randomly assigned to one of three groups, and then asked to complete a scrambled sentence test intended to influence their financial risk tolerance. The first group's sentences included words expected to activate the concept of success, the second group's sentences included words expected to activate the concept of failure, while the third group were given random sentences to provide a baseline for comparison. Once primed by the scrambled sentence test, participants completed the Grable and Lytton Risk Tolerance Survey to measure their financial risk tolerance and the Revised Life Orientation Test to measure their dispositional optimism. Although the effects of priming individuals with the concepts of success and failure were not found to be statistically significant, differences were discovered in the way that men and women reacted to the priming intervention, which may help to explain the difference in the way men and women approach risk. The results also suggest that there is a positive correlation between dispositional optimism and financial risk tolerance, particularly for men. This study confirmed the findings of previous research, that men were willing to accept significantly

more financial risk than women, but found no significant relationship between financial risk tolerance and age.

1. Introduction

Financial decision making is a fundamental feature of adult life, and many financial decisions have consequences that are significant and long-lasting. In everyday life, individuals are called upon to make financial decisions and judgements that vary in risks and rewards; choosing between education and employment options, deciding on pension contribution levels, selecting a health insurance package, or planning a home purchase. Many of the inputs to these decisions - time horizon, available funds, expected costs etc. - are objective in nature and can be easily quantified. However, one determinant of financial decision making, financial risk tolerance, has been found to vary under different moods (Grable & Roszkowski, 2008), when options are framed differently (Tversky & Kahneman, 1986), and with changing external conditions (Hirshleifer & Shumway, 2003; Grable, Lytton, O'Neill, Hyun & Klock, 2006). The present study will investigate whether priming men and women with the concepts of success and failure impacts their subsequent financial risk tolerance. The study will also investigate the demographic determinants of financial risk tolerance, assessing the efficacy of using gender and age to classify investors into financial risk tolerance categories. Finally, this study will investigate the relationship between financial risk tolerance and dispositional optimism, particularly whether an individual's tendency to hold positive generalised outcome expectancies for future events will moderate the effects of success and failure priming on their financial risk tolerance.

This chapter is divided into four sections. The first section will outline the importance of correctly assessing financial risk tolerance before making financial decisions, review the latest research findings on the determinants of financial risk tolerance and highlight areas where there is a dichotomy between research findings and financial industry practices. The second section will examine the effects of unconscious priming on risky decision making and behaviours, focusing on a number of gaps in our understanding of the transient determinants of financial risk tolerance. The third section will review the latest research findings on dispositional optimism, focusing on evidence for the proposed relationship between dispositional optimism and financial risk tolerance. The final section will introduce the main hypotheses of the present research, drawing on the gaps and implications outlined in the preceding sections.

1.1 Financial Risk Tolerance

Financial risk tolerance is the maximum amount of uncertainty an individual is willing to accept when making a financial decision (Hallahan, Faff & McKenzie, 2003; Faff, Mulino & Chai, 2008). Financial risk tolerance will vary between investors, so that an investment considered “high risk” by one investor may be considered “low risk” by another. Assigning investors to their appropriate risk tolerance category and thereby suggesting the most suitable investments for them is an essential component of the planning and advisory services provided by the financial industry.

1.1.1 Importance of financial risk tolerance.

Rattiner (2004) proposed that assessing financial risk tolerance is the most critical component of the investment decision making process. International financial regulators have signalled that risk tolerance should be prioritised when providing financial advice or making financial decisions on a client's behalf (Evensky & Moreschi, 2011). In October 2011, the Securities and Exchange Commission and the Financial Industry Regulatory Authority enacted Rule 2310, which requires financial advisers in the United States to obtain an accurate assessment of their client's financial risk tolerance before making any investment recommendations or decisions (Financial Industry Regulatory Authority, 2011). Regulators in the United Kingdom and Australia now also require that financial advisers use a standard procedure to assess their clients' financial risk tolerance before making any investment recommendations or decisions (Britt & Grable, 2011).

It is essential that investors and investment advisers accurately account for financial risk tolerance when making financial decisions. Many financial decisions, such as purchasing a property or saving for retirement, are long-term in nature and so, taking on too much or too little risk can seriously impact future financial stability and satisfaction. The following studies will illustrate how poor financial stability and satisfaction can lead to decreased life satisfaction, a reduction in psychological well-being and a decline in physical health.

Field studies have identified a relationship between positive financial behaviours, financial satisfaction and satisfaction with life. Xiao, Chuanyi and Shim (2009) found

evidence to suggest that positive financial behaviours contribute to financial satisfaction, which in turn contributes to life satisfaction. Archuleta, Britt, Tonn and Grable (2011), in a study of 301 married respondents, identified a positive relationship between financial satisfaction and marital satisfaction.

Researchers have identified links between poor financial stability and reduced performance for students and employees. Joo, Durband and Grable (2008), found a significant relationship between financial stress and reduced credit hours, lower academic performance and increased drop-out rates among students. Kim, Sorhaindo and Carman (2006) found that financial stress was associated with higher levels of absenteeism and lower levels of productivity among office workers. Hassall, Muller and Hassall (2004) found that financial strain contributes to psychological distress for employed low wage earners, while Creed and Macintyre (2001) found that level of financial strain was the strongest predictor of well-being during unemployment.

Researchers have also found a relationship between financial strain and health. Starrin, Åslund and Nilsson (2009) found that the prevalence of anxiety, depression and reduced psychological well-being increased with increasing financial distress. Wang, Schmitz and Dewa (2010) found that financial strain was associated with an increased risk of a major depressive episode in participants who were employed during the previous 12 months. Pu, Huang, Tang and Chou (2011) found that poor financial satisfaction was related to poor health in the elderly. Szanton et al. (2008) found that elderly women who reported financial strain were almost 60% more likely to die within five years than their

counterparts who did not. Bisgaier and Rhodes (2011) found that, compared with patients unexposed to economic deprivation, patients who had experienced adverse financial circumstances had a three-fold increase in poor/fair self-rated health, a 17-fold increase in depressed mood and a 24-fold increase in high stress.

The impacts of financial stability and satisfaction on an individual's productivity, life satisfaction, psychological well-being and physical health highlight the importance of correctly assessing financial risk tolerance when making financial recommendations or decisions.

1.1.2 Demographic determinants of financial risk tolerance.

According to Anbar and Eker (2010), there is a general consensus among financial advisers that demographic characteristics can be used to differentiate among levels of financial risk tolerance and classify investors into financial risk tolerance categories. Gender is one of the most commonly used factors for classifying investors into financial risk tolerance categories, with men assumed to be willing to accept greater financial risks than women. The majority of studies investigating the relationship between gender and financial risk tolerance (e.g. Roszkowski & Grable, 2010; Anbar & Eker, 2010; Ahmad, Safwan, Ali & Tabasum, 2011) have confirmed that men show a greater willingness to accept risk than women. Age is also frequently used to classify investors into financial risk tolerance categories. Financial practitioners assume that investors will show a decreasing willingness to accept financial risks as time to recover

from potential losses declines with age. However, the results from empirical studies investigating the relationship between financial risk tolerance and age have been inconclusive. Finke and Huston (2003) found a negative correlation between age and financial risk tolerance, but Wang and Hanna (1997) identified a positive correlation between age and financial risk tolerance, while Grable and Lytton (1998) found no significant relationship between age and financial risk tolerance. The present study will investigate the efficacy of using demographic variables to classify investors into financial risk tolerance categories.

1.1.3 Unconscious and transient determinants of financial risk tolerance.

Until recently, the cognitively based Expected Utility Theory (von Neumann & Morgenstern, 1944) dominated both the psychological research and financial industry practices surrounding decision making under uncertainty. Von Neumann and Morgenstern proposed that individuals choose between uncertain prospects by comparing their expected utility values i.e. the weighted sums obtained by adding the utility of outcomes multiplied by their respective probabilities. Expected utility theory is based on a number of assumptions regarding an individual's decision making process under uncertainty; namely, the assumptions of completeness, transitivity and invariance. Completeness assumes that the individual has well defined preferences and so can always choose between alternatives. Transitivity assumes that the individual will decide consistently i.e. if an individual prefers A to B and B to C, then the individual will always prefer A to C. Invariance assumes that the individual's preferences will remain consistent and independent of their description. According to Tversky and Kahneman (1986),

expected utility theory was built on normative models of an idealised decision maker, not as a description of the behaviour of real people. In reality, people often have difficulty calculating the probability of outcomes, are forced to make decisions with incomplete information, and can be swayed by the description of alternatives.

As a result of expected utility theory, the assumption of rational investors with static risk tolerance levels permeates the tools and procedures used by financial practitioners (Grable et al., 2006). If risk tolerance is not static, then the basis of many investment plans becomes unstable.

According to Gonzalez, Dana, Koshino and Just (2005), the “framing effect” is observed when the description of options in terms of gains (a positive frame) rather than losses (a negative frame) elicits systematically different choices. A number of researchers have found that risk tolerance shifts when choices are framed differently. McNeil, Pauker, Sox and Tversky (1982) found that when patients, students and physicians were given statistical information about the outcomes of two treatments for lung cancer, 18% of participants favoured radiation treatment when the information was framed in terms of survival rates, while 44% of participants favoured radiation treatment when the information was framed in terms of mortality rates. In the field of financial decision making, Tversky and Kahneman (1981) found that when given a choice between a sure or possible gain, participants were risk averse, but when given a choice between a sure or possible loss, participants were risk seeking. These results would not be predicted by

traditional economic models, which rely on the assumption of rational investors with static risk tolerance levels.

Alhakami and Slovic (1994) found that people's feelings towards an activity can affect their judgement of the risks and benefits related to that activity; if their feelings are favourable, they are moved towards judging the risks as low and the benefits as high; if their feelings are unfavourable, they tend to judge risks as high and benefits as low. There are currently two opposing, yet scientifically supported, theories of how an individual's mood will impact their willingness to accept risk, the Affect Infusion Model and the Mood Maintenance Hypothesis. The Affect Infusion Model (Forgas, 1995) proposes that those who exhibit a positive mood when making a risky decision will be willing to accept more risk than those who exhibit a negative or neutral mood. Grable and Roszkowski (2008) found that being in a happy mood was positively associated with having a higher level of financial risk tolerance, finding that this transient state had an impact on financial risk tolerance that was as strong as many of the environmental and biopsychological variables tested. Conversely, the Mood Maintenance Hypothesis (Isen, 1987) proposes that those who exhibit a positive mood will be willing to accept less risk than those with a negative or neutral mood. According to Hockey, Maule, Clough and Bdzola (2000), under the mood maintenance hypothesis "risky decisions are thought to be rejected under positive moods because the likely loss will upset the good mood state, whereas the likely gain from a low risk decision would serve to enhance or maintain it" (p. 824). Min Young and Kanfer (2009) confirmed that positive mood states were negatively related to risk taking in a judgement task. The outstanding conflict between these two models exposes

the need for additional research into the unconscious and transient determinants of financial risk tolerance.

Field data has indicated that willingness to accept risk increases after periods of market upswing and decreases following periods of market downturn. Grable et al. (2006) found that an increase in a week's aggregate stock prices tends to increase risk tolerance levels during the following week, while a decrease in a week's aggregate stock prices tends to decrease risk tolerance levels during the following week. Field data has also suggested correlations between stock returns and seemingly unrelated external factors, such as weather conditions (Saunders, 1993; Hirshleifer & Shumway, 2003), daylight hours (Kamstra, Kramer & Levi, 2003) and cloud coverage (Kliger & Levy, 2003).

Despite the issues identified by field and laboratory studies, static risk tolerance models are widely accepted in the financial planning industry and one-time risk tolerance questionnaires are commonly used inputs in the investment decision making process (Roszkowski, Davey & Grable, 2005). The recent financial crisis has heightened the need for measures to protect financial consumers from transient changes in their financial risk tolerance and to ensure that recommendations and decisions lead to long-term financial satisfaction. The present study is designed to investigate the impact of priming individuals with the concepts of success and failure on their subsequent financial risk tolerance. These findings should further our understanding of the unconscious, transient

determinants of financial risk tolerance and will test the appropriateness of static risk tolerance models for long-term financial planning.

1.2 Priming Effects on Behaviour and Decision Making

Cramer (1968) defined priming as changes in preliminary conditions which increase the probability that a certain response will follow a specific stimulus. Unconscious priming interventions have been shown to have significant effects on conscious thoughts, behaviours and decisions. Bargh, Chen and Burrows (1996) used a scrambled sentence test to prime participants with the concepts of rudeness and politeness. The researchers found that participants who were primed with the concept of rudeness interrupted a conversation between the researcher and a confederate more quickly and frequently than those who were primed with the concept of politeness. Dijksterhuis and van Knippenberg (1998) primed participants with either the role of professor or soccer hooligan, finding that those who were primed with the role of professor scored significantly higher on a range of general knowledge questions than those who were primed with the role of soccer hooligan. Papies and Hamstra (2010) used a subtle environmental cue to prime restrained eaters with the concept of dieting, finding that this unconscious cue significantly increased their self-regulation, reducing their eating behaviours.

Although there is significant evidence to support the powerful effects of unconscious priming, the research to date has tended to focus on the effects of priming on

social behaviours and simple decision making, with very few studies testing the effects of priming on risk related behaviours and financial decision making. This section will review the small number of experiments that have investigated the effects of priming on risk related behaviours, and propose how the present study will supplement the literature with an experiment designed to specifically test the effects of priming participants with the concepts of success and failure on their subsequent financial risk tolerance.

1.2.1 Priming effects on risk related behaviours and financial risk tolerance.

Priming incidences can occur in the natural course of an individual's financial decision making; a complimentary suite may encourage a novice gambler to stay at the blackjack table for longer, an expensively furnished office may encourage an investor to entrust more money to their financial adviser or the high market value of a consumer's home may encourage them to take on more personal credit card debt. The following experiments have attempted to recreate and measure these unconscious priming effects on financial decision making within a laboratory setting.

In 2000, MacGregor, Slovic, Dreman and Berry tested the accuracy of students' evaluations of the performance of a number of industries in the preceding and current years. They found that the students' evaluations were positively correlated with the image they held of the industries, but only weakly correlated with indicators of actual performance. Mandel (2003) found that individuals whose interdependent selves were activated were more risk-seeking in their financial choices and less risk-seeking in their

social choices than those whose independent selves were activated. Kramer and Block (2008) found that priming participants with the concept Friday the 13th (versus Tuesday the 19th) resulted in their making more risk-averse choices. The researchers found that the effect of the superstitious prime was moderated by the degree of uncertainty, with larger degrees of uncertainty leading to a larger impact of the Friday the 13th prime. Morris, Carranza and Fox (2008) found that when political identities were made salient, Republicans (but not Democrats) became more likely to choose the investment option labelled “conservative”. This shift did not occur when the same options were unlabelled and occurred whether the conservatively labelled options were actually of low or high risk. The researchers hypothesised that the mechanism underlying the effect was the activation of identity-related language, causing “conservative” voters to choose more conservative investments.

Erb, Bioy and Hilton (2002) were successfully able to induce risk-seeking and risk-averse preferences across a range of decision scenarios using a priming procedure. They found that the priming manipulation (an impression formation task) was quite enduring, still exerting strong effects by the end of the second task. As part of a follow up experiment, the researchers found that drawing participants’ attention to the priming event led to an elimination or even reversal of the priming effect. One limitation of Erb et al.’s approach was that risk-seeking and risk-averse preferences were measured using participants’ choices between two options across only four scenarios. Such a small sample of decisions, untested for reliability, likely lacks ecological validity. A potential

improvement would be to use an experimentally proven risk tolerance instrument or to include decision choices with real-world consequences.

The present study will investigate the effects of priming individuals with the concepts of success and failure on their subsequent financial risk tolerance. The effects of priming individuals with success and failure concepts has not been previously tested, however, field data indicates that the concept of success may lead to an increase in financial risk tolerance while the concept of failure may lead to a decrease in financial risk tolerance. As noted earlier, Grable et al. (2006) found that an increase in a week's aggregate stock prices tends to increase risk tolerance levels during the following week, while a decrease in a week's aggregate stock prices tends to decrease risk tolerance levels during the following week. Roszkowski and Davey (2010) found that the 2008 financial crisis led to both a decrease in risk tolerance and an increase in perceptions of the risk inherent in investing among investors. Risk tolerance has also been found to increase with increasing levels of income and wealth (Riley & Chow, 1992; Ahmad et al., 2011; Wong, 2011).

1.3 Dispositional Optimism

Scheier and Carver (1985) defined dispositional optimism as an enduring and stable difference in an individual's tendency to hold positive generalised outcome expectancies for future events. Carver and Scheier (1982, 2001) argue that optimists will continue to pursue their goals in the face of negative information due to the belief that

good things will happen to them in the future, and that pessimists will disengage and withdraw when faced with negative information due to the belief that good things will not happen to them in the future.

Research has indicated a number of ways in which dispositional optimism can have a positive effect on individual behaviour and outcomes. In the health domain, dispositional optimists report better physical well-being (Scheier & Carver, 1985), have lower blood pressure (Räikkönen, Matthews, Flory, Owens & Gump, 1999), have higher immune system functioning during times of stress (Seegerstrom, Taylor, Kemeny & Fahey, 1998), and enjoy a better prognosis in recovery from illness (Schulz, Bookwala, Knapp, Scheier & Williamson, 1996). Optimists are also less likely to become depressed (Bromberger & Matthews, 1996) and are more likely to make healthy psychological adjustments to difficult life events (Aspinwall & Taylor, 1992; Chang & Sanna, 2001). When faced with a potentially negative health outcome, optimists have been found to be more likely to use active coping techniques and take preventative steps to combat their illness (Lin & Peterson, 1990). The tendency to seek information and use active coping techniques when faced with a health scare is a major benefit of optimism, but active coping techniques may have different consequences in situations that involve monetary decisions with financial consequences.

1.3.1 Dispositional optimism, risk related behaviours and financial risk tolerance.

Some researchers have suggested that a potential drawback to dispositional optimism may be a greater tendency to choose risky options (Tennen & Affleck, 1987;

Weinstein, 1980, 1982). Martha, Laurendeau and Griffet (2010) found that men who practiced high-risk sports reported expressed comparative optimism regarding their reflexes while driving and their vulnerability to motor accidents. The researchers found that the same individuals reported that they practiced more risky behaviours while driving and were involved in a greater number of motor accidents than the other groups.

There is a dearth of research regarding the relationship between optimism and financial risk tolerance. One study which did uncover such a relationship (Felton, Gibson and Sanbonmatsu, 2003), found that the difference in financial risk taking between men and women was primarily driven by the risk taking behaviours of optimistic men. The researchers found that optimistic men were active in the options and futures markets, while pessimistic men focused on the more conservative stock market. Dispositional optimism was found to be unrelated to the investment choices made by women, indicating that the effects of dispositional optimism may be different for men and women. One limitation of this study was that the researchers used the choices made by students in a hypothetical stock trading contest as a proxy for financial risk tolerance, rather than a scientifically proven measurement of risk tolerance or investment choices with real world consequences.

The present study will further investigate the relationship between dispositional optimism and risk tolerance. As a number of researchers (Tennen & Affleck, 1987; Martha at al., 2010) have identified a relationship between dispositional optimism and risk tolerance, the current study will test whether this relationship holds for financial risk

tolerance in particular. As Felton et al. (2003) proposed that gender differences in financial risk tolerance were primarily explained by optimistic men, the present study will compare the strength of the relationship between dispositional optimism and financial risk tolerance for both genders. As dispositional optimism is considered an enduring and stable difference in an individual's tendency to hold positive generalised outcome expectancies for future events, the present research will investigate whether dispositional optimism moderates the effects priming individuals with the concepts of success and failure on their financial risk tolerance. The present study will also assess whether there are gender differences in dispositional optimism and whether dispositional optimism changes with age.

1.4 Hypotheses

If an individual's willingness to accept financial risks can be influenced by momentary cues, then the current 'one-off' method of assessing financial risk tolerance may be leading to serious errors in financial planning and decision making. In cases where financial risk tolerance is overestimated, investors will find that the volatility of their portfolio exceeds their willingness to accept risks, leading to decreases in financial stability and satisfaction. In cases where financial risk tolerance is underestimated, investors will find that the rate of return achieved by their portfolio may be insufficient to meet their needs and expectations, leading to decreases in financial stability and satisfaction. Decreases in financial stability and satisfaction can have serious consequences for productivity, life satisfaction, psychological well-being, and health.

The present study will test the effects of priming individuals with the concepts of success and failure on their willingness to accept risks. Based on evidence from field studies on the impact of financial success and failure on financial risk tolerance (Grable et al., 2006; Roszkowski & Davey, 2010; Wong, 2011), it is hypothesised that priming individuals with the concept of success will increase their willingness to accept risk, while priming individuals with the concept of failure will reduce their willingness to accept risk.

Hypothesis 1a (H1a): The financial risk tolerance of participants primed with the concept of failure will be significantly lower than the financial risk tolerance of participants assigned to the neutral priming group.

Hypothesis 1b (H1b): The financial risk tolerance of participants primed with the concept of success will be significantly higher than the financial risk tolerance of participants assigned to the neutral priming group.

Hypothesis 1c (H1c): The financial risk tolerance of participants primed with the concept of success will be significantly higher than the financial risk tolerance of participants primed with the concept of failure.

The majority of studies investigating the demographic determinants of financial risk tolerance have found that men have a greater willingness to accept risk than women (Roszkowski & Grable, 2010; Anbar & Eker, 2010; Ahmad et al. 2011). The strong association found between gender and financial risk tolerance necessitates its inclusion in

the present study, both as a grouping variable for more detailed analysis and to investigate potential gender differences in the priming manipulation. The difference in financial risk tolerance found between men and women in previous studies is expected to be replicated within all groups in the present study.

Hypothesis 2a (H2a): The financial risk tolerance of males primed with the concept of failure will be significantly higher than the financial risk tolerance of females primed with the concept of failure.

Hypothesis 2b (H2b): The financial risk tolerance of males primed with the concept of success will be significantly higher than the financial risk tolerance of females primed with the concept of success.

Hypothesis 2c (H2c): The financial risk tolerance of males assigned to the control group will be significantly higher than the financial risk tolerance of females assigned to the neutral priming group.

The variation in research findings on the relationship between age and financial risk tolerance, and the persistent use of age by financial advisers as a predictive factor for classifying investors into financial risk tolerance categories, requires that age be included for investigation in the present study. It is hypothesised that there will be a negative correlation between financial risk tolerance and age i.e. financial risk tolerance is expected to decrease as age increases for both genders and across all priming groups in the current study.

Hypothesis 3a (H3a): The financial risk tolerance of males primed with the concept of failure will decrease as age increases.

Hypothesis 3b (H3b): The financial risk tolerance of females primed with the concept of failure will decrease as age increases.

Hypothesis 3c (H3c): The financial risk tolerance of males primed with the concept of success will decrease as age increases.

Hypothesis 3d (H3d): The financial risk tolerance of females primed with the concept of success will decrease as age increases.

Hypothesis 3e (H3e): The financial risk tolerance of males assigned to the neutral priming group will decrease as age increases.

Hypothesis 3f (H3f): The financial risk tolerance of females assigned to the neutral priming group will decrease as age increases.

Previous research (Tennen & Affleck, 1987; Weinstein, 1982; Martha et al., 2010) has indicated a potential positive relationship between dispositional optimism and financial risk tolerance. Felton et al. (2003), found that the difference in financial risk taking between men and women was primarily driven by the risk taking behaviours of optimistic men. It is hypothesised, therefore, that there will be a positive correlation between dispositional optimism and financial risk tolerance i.e. financial risk tolerance is expected to increase as dispositional optimism increases for both genders and across all priming groups in the present study.

Hypothesis 4a (H4a): There will be a positive relationship between dispositional optimism and financial risk tolerance for males primed with the concept of failure.

Hypothesis 4b (H4b): There will be a positive relationship between dispositional optimism and financial risk tolerance for females primed with the concept of failure.

Hypothesis 4c (H4c): There will be a positive relationship between dispositional optimism and financial risk tolerance for males primed with the concept of success.

Hypothesis 4d (H4d): There will be a positive relationship between dispositional optimism and financial risk tolerance for females primed with the concept of success.

Hypothesis 4e (H4e): There will be a positive relationship between dispositional optimism and financial risk tolerance for males assigned to the neutral priming group.

Hypothesis 4f (H4f): There will be a positive relationship between dispositional optimism and financial risk tolerance for females assigned to the neutral priming group.

In addition, the present study proposes that an individual's tendency to hold positive generalised outcome expectancies for future events, dispositional optimism, will moderate the effects of priming individuals with the concepts of success or failure on their subsequent financial risk tolerance.

Hypothesis 5 (H5): Dispositional optimism will moderate the effects of the priming intervention on financial risk tolerance.

2. Method

2.1 Materials

Each participant provided their gender and year of birth before participating in the study. The priming manipulation for the experiment took the form of a “Scrambled Sentence Test” (see Srull & Wyer, 1980), represented as a test of language competence. For the scrambled sentence test, participants were presented with 20 five-word scrambled sentences and asked to construct a grammatically correct four-word sentence with the words listed. Three versions of the scrambled sentence test were administered; the first was intended to prime participants with the concept of success, the second was intended to prime participants with the concept of failure, and the third was intended to prime participants with neither (the neutral priming condition). For the success and failure priming versions of the test, 14 of the 20 scrambled sentences contained a word that was semantically linked to the concept in question. For a complete list of the scrambled sentences presented to each group, see Appendix A.

Financial risk tolerance is defined in the present study as the maximum amount of uncertainty an individual is willing to accept when making a financial decision. Levels of financial risk tolerance were measured by a 13-item risk tolerance instrument introduced by Grable and Lytton (1999), the Grable-Lytton Risk Tolerance Scale (GL-RTS). The GL-RTS has been extensively tested for reliability and validity. Grable and Lytton (1999) found a Cronbach’s alpha coefficient score of 0.75 for the GL-RTS. In a follow-up study,

Grable & Lytton (2003) confirmed the validity of the GL-RTS by comparing it to real world financial decisions. They found a significant positive association between risk tolerance, as measured by the GL-RTS, and equity ownership, and a significant negative relationship between risk tolerance, as measured by the GL-RTS, and fixed income or cash ownership. For the purpose of the present study, an overall financial risk tolerance score was computed by summing the scores for all 13-items on the GL-RTS, with a higher score indicating a greater willingness to accept uncertainty when making a financial decision. For a complete list of the GL-RTS items, see Appendix B.

Dispositional optimism is defined in the present study as an individual's tendency to hold positive generalised outcome expectancies for future events. Levels of dispositional optimism were measured by a 10-item instrument introduced by Scheier, Carver and Bridges (1994), the Revised Life Orientation Test (LOT-R). The LOT-R has also been extensively tested for reliability and validity. Scheier, Carver and Bridges (1994) found a Cronbach's alpha coefficient score of 0.78 for the LOT-R. The researchers also found a strong correlation between the revised life orientation test, the original life orientation test and a number of related scales, confirming the validity of the LOT-R as a measure of dispositional optimism. For the purpose of the present study, an overall dispositional optimism score was computed by summing the responses for all scored items on the LOT-R, with a higher score indicating a greater tendency to hold positive generalised outcome expectancies for future events. For a complete list of the LOT-R items, see Appendix C.

2.2 Apparatus

A website (www.psychresearchproject.com) was designed for completion of the scrambled sentence test, and collection of the demographic, risk tolerance and dispositional optimism data. Pre-testing was completed before the experiment to ensure that the user experience would not differ significantly between different devices or web browsers. Data gathered during the pre-testing period was not included in the final analysis and the participants involved in pre-testing did not take part in the final experiment. The format of the scrambled sentence test required participants to drag four of the five words shown on screen into four connected boxes to make up a grammatically correct sentence. For the GL-RTS and LOT-R, participants were required to click on one of the multiple choice responses displayed on screen to indicate their preference.

2.3 Participants

In total, 277 people took part in the study, with 197 people completing all sections. Participants for this study were recruited with the use of snowball sampling through popular online social networks. Over thirty people were sent an email inviting them to complete an online questionnaire for a psychology research project and asked to post a link to the online questionnaire on social networking websites, encouraging others to participate. Potential participants were informed that €1 would be donated to the Jack and Jill foundation for every completed submission. Once directed to the website,

potential participants were notified that all participants for the study should be over 18 years of age and should be fluent in reading and writing English.

2.4 Design

The independent variables for this study were gender, age, dispositional optimism and random assignment to the success, failure or neutral groups for the scrambled sentence test. Participants were assigned to groups by use of a random number generator. The dependent variables for this study were financial risk tolerance, as measured by the GL-RTS, and dispositional optimism, as measured by the LOT-R.

2.5 Procedure

Potential participants were first directed to a welcome page, which indicated that the aim of the study was to “examine links between your language competence and decision making style”. The welcome page reminded participants that €1 would be donated to the Jack and Jill foundation for every completed submission. It also stated that participants should be over 18 years of age, fluent in reading and writing English, and that each participant should only take part in the study once. The page confirmed that the research had been approved by the Dublin Business School's Ethics Committee, and informed potential participants that their participation in the research is voluntary and that they would have the right to withdraw at any time. Finally, each participant was asked to

indicate that they understood the above information and asked to confirm their gender and year of birth before progressing to the language competence task.

Upon submission of their gender and year of birth, participants were randomly assigned to one of three groups (success/failure/neutral) for completion of the scrambled sentence test. A pop-up message appeared on screen instructing participants that “The following task consists of 20 sets of five-word combinations. For each set, please complete a grammatically correct sentence using only four of the five words given.”. Participants were then prompted to complete their grammatically correct sentence by dragging four of the words displayed into four connected boxes, before ticking a box to indicate that they were ready to proceed to the next sentence.

The scrambled sentence test was followed by the GL-RTS, which required participants to indicate their preference in 13 financial risk taking scenarios by clicking on the item that best applies to them. The GL-RTS was followed by the LOT-R, which required participants to answer 10 questions relating to dispositional optimism by clicking on one of five Likert items displayed, ranging from strongly disagree to strongly agree.

After completing all sections, participants were directed to a debriefing page. The debriefing page informed participants of the real purpose of the scrambled sentence test and hypotheses of the experiment i.e. that the contents of the scrambled sentences were hypothesised to influence responses in the financial risk tolerance questionnaire that

followed. Participants were thanked for their participation and asked to share a link to the welcome page with their contacts and on social networking websites, without informing potential participants of the true nature of the research.

2.6 Data Analysis

All of the data collected was converted to a .csv format and exported to the PASW software package for analysis. Descriptive statistics were generated to ensure that financial risk tolerance and dispositional optimism scores were normally distributed. As the main aim of the study was to determine the effects of priming on financial risk tolerance, an analysis of variance was performed to determine differences in financial risk tolerance scores between the priming groups. A correlation was performed to test the relationship between dispositional optimism and financial risk tolerance. As dispositional optimism was predicted to moderate the effects of priming on financial risk tolerance, an analysis of covariance was also conducted to test whether dispositional optimism moderated the effect of success/failure priming on financial risk tolerance. As one hypothesis of the present study was that men would have a greater willingness to accept risk than women across all priming groups, an analysis of variance was performed to determine the differences in financial risk tolerance between men and women among the three priming groups. As financial risk tolerance was predicted to decrease with age, a correlation was performed to test the relationship between age and financial risk tolerance.

3. Results

A total of 277 people progressed past the welcome page of the study, with 80 dropping out before completion of the LOT-R. Participants who did not complete the LOT-R were excluded from the analysis, leaving a total of 197 participants in the final sample. Prior to developing any statistical inferences, descriptive statistics were generated to ensure that the financial risk tolerance and dispositional optimism scores were normally distributed for both genders and across all priming groups.

3.1 Demographic Variables and Financial Risk Tolerance

Of the 197 participants included in the final sample, 54% were female and 46% were male. The age of participants ranged from 19 to 62, with 28% of the sample younger than 30 years of age, 51% between 30 and 40 of age, 15% between 40 and 50 years of age, and 6% older than 50 years of age.

The average GL-RTS score for male participants ($M=28.21$, $SD=5.25$) was considerably higher than the average risk tolerance score for female participants ($M=25.20$, $SD=4.39$) in the present study. To evaluate the impact of gender on financial risk tolerance, gender was entered as an independent variable in a one-way between-subjects analysis of variance for GL-RTS scores. A significant difference ($F(1,195)=19.271$, $p<0.01$) was found between the risk tolerance scores of men and women. When analysed by group, these differences were only significant for participants in the success and neutral priming groups, see table 1 below for further details:

Table 1						
<i>ANOVA in Financial Risk Tolerance Between Genders: Split by Priming Group</i>						
		Sum of Squares	df	Mean Square	F	Sig.
Neutral	Between Groups	125.023	1	125.023	4.095	.049
	Within Groups	1373.828	45	30.530		
	Total	1498.851	46			
Failure	Between Groups	58.989	1	58.989	2.529	.116
	Within Groups	1679.133	72	23.321		
	Total	1738.122	73			
Success	Between Groups	305.329	1	305.329	16.227	.000
	Within Groups	1392.355	74	18.816		
	Total	1697.684	75			

One hypothesis of the present study was that there would be a negative correlation between age and financial risk tolerance. To evaluate the relationship between age and financial risk tolerance, age and GL-RTS scores were entered as variables in a Pearson's correlation. No significant relationship was found between age and financial risk tolerance, $r(195)=0.047$, $p>0.10$. When analysed by gender and priming group, the relationship remained nonsignificant for both genders and across all priming groups.

3.2 Priming and Financial Risk Tolerance

To evaluate the effects of success/failure priming on financial risk tolerance, group assignment was entered as an independent variable in a one-way between-subjects analysis of variance for GL-RTS scores. No significant differences were found ($F(2,194)=0.109$, $p>0.10$). Due to the significant differences found between the risk tolerance of males and females, these results were split by gender to enable a more detailed analysis.

The present study hypothesised that the financial risk tolerance of participants primed with the concept of success would be significantly higher than the financial risk tolerance of participants assigned to the control group, which, in turn, would be significantly higher than the financial risk tolerance scores of participants primed with the concept of failure. Although the average risk tolerance score of the male success priming group ($M=28.72$, $SD=4.787$) was higher than the average for the male neutral ($M=28.30$, $SD=5.652$) and male failure ($M=27.69$, $SD=5.481$) priming groups, a one-way between-subjects analysis of variance for male participants assigned to each priming group revealed no significant differences ($F(2,87)=0.324$, $p>0.10$). Average risk tolerance scores for female participants primed with the concepts of success and failure moved in the opposite direction to the original hypothesis. The average risk tolerance score for the female success priming group ($M=24.66$, $SD=3.982$) was found to be lower than the average of the female neutral ($M=25.04$, $SD=5.401$) and female failure ($M=25.90$, $SD=4.160$) groups, although a one-way between-subjects analysis of variance for female participants assigned to each priming group revealed no significant differences ($F(2,104)=0.839$, $p>0.10$).

3.3 Dispositional Optimism and Financial Risk Tolerance

To evaluate the relationship between dispositional optimism and financial risk tolerance, scores on the GL-RTS and LOT-R were entered as variables in a Pearson's correlation. The two variables were found to be moderately correlated, $r(195)=0.357$, $p<0.01$. The strongest positive correlations were found for males assigned to the success

($r(31)=0.448, p<0.05$) and neutral priming ($r(21)=0.502, p<0.05$) groups. The correlation between dispositional optimism and financial risk tolerance for males assigned to the failure group was positive, weak and not significant ($r(33)=0.257, p>0.05$). The correlation between dispositional optimism and financial risk tolerance for females assigned to the success ($r(42)=0.238, p>0.05$), neutral ($r(22)=0.347, p>0.05$) and failure ($r(37)=0.3, p>0.05$) priming groups were all positive, weak to moderate and not significant.

To evaluate whether dispositional optimism moderates the effects of success/failure priming on financial risk tolerance, an ANCOVA was completed. Score on the GL-RTS was entered as a dependent variable, while priming group assignment was entered as a fixed factor and score on the LOT-R was entered as a covariate. The predicted main effect of priming group assignment was not significant, $F(1,192)=0.127, p>0.10$, while the effect of dispositional optimism was found to be significant, $F(1,192)=25.185, p<0.01$. Overall, the predictive capability of the model was weak, with an R Squared value of 0.196.

3.4 Demographic Variables and Dispositional Optimism

The average dispositional optimism score for male participants ($M=17.10, SD=3.73$) in the present study was higher than the average dispositional optimism score for female participants ($M=16.16, SD=4.146$). To evaluate the impact of gender on dispositional optimism, gender was entered as an independent variable in a one-way between-subjects analysis of variance for LOT-R scores. No significant difference

($F(1,195)= 2.759, p>0.05$) was found between the average dispositional optimism scores of males and females.

However, descriptive statistics revealed that the average dispositional optimism score for male participants in the neutral priming group ($M=17.30, SD=3.795$) was considerably higher than the average dispositional optimism score for female participants in the neutral priming group ($M=14.46, SD=4.160$). When the difference between the dispositional optimism scores of males and females were split by priming group, the differences between males and females were found to be significant for the neutral priming group ($F(1,45)=5.989, p<0.05$) but nonsignificant for both the success and failure priming groups, see table 2 below for further information:

Table 2						
<i>ANOVA in Dispositional Optimism Between Genders: Split by Priming Group</i>						
		Sum of Squares	df	Mean Square	F	Sig.
Neutral	Between Groups	95.130	1	95.130	5.989	.018
	Within Groups	714.828	45	15.885		
	Total	809.957	46			
Failure	Between Groups	8.434	1	8.434	.484	.489
	Within Groups	1254.552	72	17.424		
	Total	1262.986	73			
Success	Between Groups	35.900	1	35.900	2.780	.100
	Within Groups	955.784	74	12.916		
	Total	991.684	75			

To evaluate the relationship between age and dispositional optimism, age and LOT-R scores were entered as variables in a Pearson's correlation. A weak positive correlation was found between age and dispositional optimism, $r(195)=0.162, p<0.05$. When analysed by gender and group, the relationship remained weak for both genders and across all priming groups.

3.5 Priming and Dispositional Optimism

As the results from Table 2 indicated that completion of the scrambled sentence tests intended to prime the concepts of failure and success may have also impacted dispositional optimism scores, a further one-way between-subjects analysis of variance was completed to evaluate the effects of success/failure priming on dispositional optimism. The overall effect was found to be nonsignificant ($F(2,194)=1.237, p>0.10$). However, a split by gender indicated a significant difference in dispositional optimism for females subjected to the different priming interventions ($F(2,104)=3.789, p<0.05$), see table 3 below for further details:

Table 3						
<i>ANOVA in Dispositional Optimism Between Priming Groups: Split by Gender</i>						
		Sum of Squares	df	Mean Square	F	Sig.
Female	Between Groups	123.765	2	61.882	3.789	.026
	Within Groups	1698.534	104	16.332		
	Total	1822.299	106			
Male	Between Groups	11.470	2	5.735	.407	.667
	Within Groups	1226.630	87	14.099		
	Total	1238.100	89			

4. Discussion

The aim of the present study was to investigate the effects of priming individuals with the concepts of success and failure on their subsequent financial risk tolerance.

Statistical analysis determined that the differences in financial risk tolerance found between the success, failure and neutral priming groups were not significant. One unanticipated finding, however, was that the priming interventions appeared to have opposite effects on the financial risk tolerance of men and women. Consistent with the hypotheses of the present study, the average financial risk tolerance for men primed with the concept of success was higher than the average financial risk tolerance for men assigned to the neutral priming group, which in turn was higher than the average financial risk tolerance for men primed with the concept of failure. Conversely, the average financial risk tolerance for women primed with the concept of success was lower than the average financial risk tolerance for women assigned to the neutral priming group, which in turn was lower than the average financial risk tolerance for women primed with the concept of failure. Although the overall effects were not significant, the difference in the reactions of men and women to the priming intervention may provide some insight into the differences in the way men and women approach risk.

Consistent with previous research on the demographic determinants of financial risk tolerance (Roszkowski & Grable, 2010; Anbar & Eker, 2010; Ahmad et al. 2011), the present study found that men had a significantly greater willingness to accept risk than women. This finding lends some support to the practices of financial planners and

advisers who commonly use gender as a method of classifying investors into financial risk tolerance categories. The findings of the present study are also consistent with those of Grable and Lytton (1998), who found that there was no significant relationship between age and financial risk tolerance. The findings are inconsistent, however, with the findings of Wang and Hanna (1997), who identified a positive correlation between age and financial risk tolerance, and Finke and Huston (2003), who identified a negative correlation between age and financial risk tolerance. The present study will add to the literature on the seemingly changeable relationship between age and financial risk tolerance. These findings do not support the practices of financial planners and advisers who commonly use age as a method of classifying investors into financial risk tolerance categories.

Consistent with the findings of Felton et al. (2003), the present study found a moderate positive correlation between dispositional optimism and financial risk tolerance. Upon further analysis, the strongest relationship between dispositional optimism and risk tolerance was found for men assigned to the neutral priming group ($r(21)=0.502, p<0.05$). This relationship was much less pronounced for women assigned to the neutral priming group ($r(22)=0.347, p>0.05$). The stronger positive relationship between financial risk tolerance and dispositional optimism for men lends support to Felton et al.'s (2003) hypothesis, that the gender differences in financial risk tolerance are predominantly driven by optimistic males.

4.1 Implications for researchers and financial practitioners

The failure of the priming procedure to significantly influence financial risk tolerance lends some support for the use of the GL-RTS as a robust measure of financial risk tolerance. Similar priming procedures (e.g. Morris et al., 2008; Erb et al., 2002) have been successful in significantly influencing risk tolerance, as measured by other instruments. One possible explanation for the resistance of the GL-RTS to priming may be the complexity of the questions included. Gilad and Kliger (2008) found that priming was more effective when participants were able to use a more intuitive and less analytic approach in making their decisions. Future research should directly compare the resistance of different financial risk tolerance instruments to the influences of priming.

The GL-RTS was found by Gilliam, Chatterjee and Grable (2010) to be more reliable and have greater construct validity than the most widely used risk tolerance measurement, the Survey of Consumer Finance's single-question instrument. Given the instrument's proven reliability and validity, and its potential resistance to the effects of priming, financial practitioners should consider adopting it as a robust measure of their clients financial risk tolerance. Practitioners should also measure clients' financial risk tolerance periodically to protect against the transient effects of mood, market conditions and unconscious priming.

The findings of the present study lend some support to the practice of using gender to classify investors into financial risk tolerance categories. However, although the financial risk tolerance of men was found to be significantly higher than the financial

risk tolerance of women, both the present study and the findings of Felton et al. (2003) indicate that this difference may be predominantly driven by optimistic men. It is therefore recommended that practitioners supplement any rule-of-thumb judgements regarding the relationship between gender and risk tolerance with scientifically proven measurements of dispositional optimism or financial risk tolerance. The findings of the present study do not support the practice of using age to classify investors into financial risk tolerance categories. Investors should be classified into financial risk tolerance categories based on a robust measurement of their financial risk tolerance, such as the GL-RTS.

Although not significant, one interesting and unexpected finding was the different effects of priming men and women with the concepts of success and failure. These differences were not predicted by the existing literature and may indicate an important difference in the way men and women react to success and failure, or help to explain the difference in the way men and women approach risk. As gender differences in financial risk tolerance are well documented, and are clearly replicated within the control group of present study, it is difficult to separate any potential gender differences in the effects of the priming intervention from the naturally occurring differences in financial risk tolerance found between men and women. Future research should attempt to compare gender differences in the effects of success and failure priming on related variables for which no gender differences would be expected.

Future research should compare the effects of real-world events such as market movements, increases in income and unexpected windfalls on the financial risk tolerance of men and women. If real-world success/failure can result in increased/decreased financial risk tolerance, then such effects may help to explain the boom-bust cycle evident in the global economy. If individuals are susceptible to being unconsciously primed by success and failure then these factors may encourage individuals to take on financial risks that are not in their long-term interests, and should be controlled for when making investment decisions and recommendations.

4.2 Caveats and Limitations

A number of important limitations should also be considered. The results from this study are limited in generalisability as the sample was convenient, non-random, and a number of participants were specifically directed to the site. Replication with a large random sample would provide more conclusive evidence. Also, Google Analytics revealed that almost 10% of those who accessed the website were not using English as their primary browser language, indicating that they may not have been native English speakers. There is a possibility that the scrambled sentence test was not as effective a tool for priming the concepts in non-native speakers. Confirmation of first language should be incorporated into any future research employing a semantic priming tool, to control for possible differences in the strength of priming effects between native and non-native speakers.

Another issue with the present research was the placement of the dispositional optimism measure after the priming condition. The results indicated a significant

difference in the dispositional optimism of women assigned to the various priming groups. If the measure of dispositional optimism, LOT-R, was affected by the priming condition then this could limit the variable's effectiveness as a predictor of financial risk tolerance. Future experimental investigations should avoid such effects by measuring dispositional optimism before the priming intervention and including a larger sample in each group.

4.3 Conclusions

The aim of the present study was to investigate the effects of priming individuals with the concepts of success and failure on their subsequent financial risk tolerance. Although the effects of priming individuals with the concepts of success and failure were not found to be statistically significant, differences were discovered in the way that men and women reacted to the priming intervention, which may help to explain the difference in the way men and women approach risk. The results also suggest that there is a positive correlation between dispositional optimism and financial risk tolerance, particularly for men.

This study confirmed the findings of previous research, that men were willing to accept significantly more financial risk than women, but found no significant relationship between financial risk tolerance and age. It is recommended that researchers continue to investigate the transient determinants of financial risk tolerance and that financial practitioners adopt a scientifically proven method of measuring the financial risk tolerance of their clients

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Appendices

Appendix A: Scrambled Sentences

Success 1 was late often lucky he
 Success 2 first was his older sister
 Success 3 ahead looked straight she form
 Success 4 them sat among sure he
 Success 5 was rich thought the flavour
 Success 6 the is times full hall
 Success 7 together won they more it
 Success 8 barked dog loudly on a
 Success 9 all talked caught they night
 Success 10 at always bold was she
 Success 11 overhead got birds flew the
 Success 12 at they prized came once
 Success 13 everywhere the leaves blew from
 Success 14 made a sort he profit
 Success 15 it turn some their was
 Success 16 air wealth was the warm
 Success 17 progressed slowly train the at
 Success 18 found he soft it rewarding
 Success 19 crowd on loudly cheered the
 Success 20 golden raised meadow the was

Failure 1 quickly moved she past half
 Failure 2 the is times empty hall
 Failure 3 last his was sister older
 Failure 4 crowd on loudly jeered the
 Failure 5 the worry chill felt they
 Failure 6 progressed slowly train the at
 Failure 7 beaten was team his eggs
 Failure 8 ahead looked straight she form
 Failure 9 they far were certainly lost
 Failure 10 south got birds flew the
 Failure 11 he was afraid the not
 Failure 12 it turn some their was
 Failure 13 the night fall dark was
 Failure 14 everywhere the leaves blew from
 Failure 15 was car scratched the broke
 Failure 16 barked dog loudly on a
 Failure 17 it immediately they rejected some
 Failure 18 light collapsed the fabric is
 Failure 19 bounced ball the short he
 Failure 20 declined he comment to fails

Neutral 1 ahead looked straight she form
Neutral 2 barked dog loudly on a
Neutral 3 all talked caught they night
Neutral 4 far got birds flew the
Neutral 5 everywhere the leaves blew from
Neutral 6 it turn some their was
Neutral 7 saw on loudly buzzed the
Neutral 8 progressed slowly train the at
Neutral 9 quickly moved she past half
Neutral 10 show message he a sent
Neutral 11 the box they card opened
Neutral 12 he work made early finished
Neutral 13 from it started rain to
Neutral 14 current the far was strong
Neutral 15 an interesting share story tell
Neutral 16 bounced ball the short he
Neutral 17 to she sang from herself
Neutral 18 the plane delayed flight was
Neutral 19 animals soundly slept the store
Neutral 20 they on for left vacation

Appendix B: Grable & Lytton Risk Tolerance Survey (GL-RTS)

1. In general, how would your best friend describe you as a risk taker?
 - a. A real gambler
 - b. Willing to take risks after completing adequate research
 - c. Cautious
 - d. A real risk avoider

2. You are on a TV game show and can choose one of the following. Which would you take?
 - a. \$1,000 in cash
 - b. A 50% chance at winning \$5,000
 - c. A 25% chance at winning \$10,000
 - d. A 5% chance at winning \$100,000

3. You have just finished saving for a "once-in-a-lifetime" vacation. Three weeks before you plan to leave, you lose your job. You would:
 - a. Cancel the vacation
 - b. Take a much more modest vacation
 - c. Go as scheduled, reasoning that you need the time to prepare for a job search
 - d. Extend your vacation, because this might be your last chance to go first-class

4. If you unexpectedly received \$20,000 to invest, what would you do?
 - a. Deposit it in a bank account, money market account, or an insured CD
 - b. Invest it in safe high quality bonds or bond mutual funds
 - c. Invest it in stocks or stock mutual funds

5. In terms of experience, how comfortable are you investing in stocks or stock mutual funds?
 - a. Not at all comfortable
 - b. Somewhat comfortable
 - c. Very comfortable

6. When you think of the word "risk" which of the following words comes to mind first?
 - a. Loss
 - b. Uncertainty
 - c. Opportunity
 - d. Thrill

7. Some experts are predicting prices of assets such as gold, jewels, collectibles, and real estate (hard assets) to increase in value; bond prices may fall, however, experts tend to agree that government bonds are relatively safe. Most of your investment assets are now in high interest government bonds. What would you do?
 - a. Hold the bonds
 - b. Sell the bonds, put half the proceeds into money market accounts, and the other half into hard assets
 - c. Sell the bonds and put the total proceeds into hard assets

d. Sell the bonds, put all the money into hard assets, and borrow additional money to buy more

8. Given the best and worst case returns of the four investment choices below, which would you prefer?

- a. \$200 gain best case; \$0 gain/loss worst case
- b. \$800 gain best case; \$200 loss worst case
- c. \$2,600 gain best case; \$800 loss worst case
- d. \$4,800 gain best case; \$2,400 loss worst case

9. In addition to whatever you own, you have been given \$1,000. You are now asked to choose between:

- a. A sure gain of \$500
- b. A 50% chance to gain \$1,000 and a 50% chance to gain nothing

10. In addition to whatever you own, you have been given \$2,000. You are now asked to choose between:

- a. A sure loss of \$500
- b. A 50% chance to lose \$1,000 and a 50% chance to lose nothing

11. Suppose a relative left you an inheritance of \$100,000, stipulating in the will that you invest ALL the money in ONE of the following choices. Which one would you select?

- a. A savings account or money market mutual fund
- b. A mutual fund that owns stocks and bonds
- c. A portfolio of 15 common stocks
- d. Commodities like gold, silver, and oil

12. If you had to invest \$20,000, which of the following investment choices would you find most appealing?

- a. 60% in low-risk investments 30% in medium-risk investments 10% in high-risk investments
- b. 30% in low-risk investments 40% in medium-risk investments 30% in high-risk investments
- c. 10% in low-risk investments 40% in medium-risk investments 50% in high-risk investments

13. Your trusted friend and neighbor, an experienced geologist, is putting together a group of investors to fund an exploratory gold mining venture. The venture could pay back 50 to 100 times the investment if successful. If the mine is a bust, the entire investment is worthless. Your friend estimates the chance of success is only 20%. If you had the money, how much would you invest?

- a. Nothing
- b. One month's salary
- c. Three month's salary
- d. Six month's salary

Appendix C: Revised Life Orientation Test (LOT-R)

1. In uncertain times, I usually expect the best.
2. It's easy for me to relax.*
3. If something can go wrong for me, it will.
4. I'm always optimistic about my future.
5. I enjoy my friends a lot.*
6. It's important for me to keep busy.*
7. I hardly ever expect things to go my way.
8. I don't get upset too easily.*
9. I rarely count on good things happening to me.
10. Overall, I expect more good things to happen to me than bad.

* Indicates filler items