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**Explanatory Style and the Financial Markets:
Individual Risk Preference and Response to Financial Loss Situations**

Matthew G. Sorley

Carleton University

**Masters Thesis submitted to the Faculty of Graduate Studies and Research in partial
fulfilment of the requirements for the degree Masters of Arts**

Department of Psychology

Carleton University

July, 1999

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The undersigned recommend to the Faculty of Graduate Studies and Research acceptance
of the thesis:

Explanatory Style and the Financial Markets:

Individual Risk Preference and Response to Financial Loss Situations

Submitted by Matthew G. Sorley in partial fulfilment of the requirements for the degree
Master of Arts

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Abstract

Prospect theory proposes that individual decision-makers exhibit risk-seeking when confronted with a loss situation and risk-aversion when facing a gain situation. However, prospect theory offers predictions that run contrary to those implied by research on explanatory style and optimism. This project posits that explanatory style systematically affects the risk preferences and decision-making processes of individuals who find themselves in an investment loss situation. Seventy psychology students ($N = 70$) were administered the Expanded Attributional Style Questionnaire (Peterson & Villanova, 1988), a six-item measure of investment risk attitudes, a series of positively (gain) and negatively-framed (loss) prospects, and a single-item question designed to assess subject response to an investment loss situation. Compared with their optimistic counterparts, individuals with a pessimistic explanatory style: 1) exhibited increased levels of risk aversion in the domain of losses; 2) held more risk-averse attitudes about investing; and, 3) were more likely to liquidate their investment positions when faced with a loss. This project represents an attempt to clarify prospect theory and to extend the research on explanatory style into the domain of economic decision-making.

Acknowledgements

In 1996, the International Society of Political Psychology held its Annual Meeting in Vancouver, British Columbia. A couple of days after giving my first presentation, Tamara and I had the opportunity to enjoy a lovely meal with Dr. Lloyd Strickland and his wife Pat. We were seated in a restaurant on top of Grouse Mountain, overlooking the city. A couple of Lloyd's friends from Harvard joined us and one of them offered a comment that has stuck with me. Lloyd was telling us of a recent trip to Israel, when his friend turned to me and said, "Always listen to Lloyd. He is Yoda." For those unfamiliar with Star Wars, Yoda is virtually synonymous with wisdom (he is also two-feet tall and green). I would like to thank Lloyd for his guidance and encouragement through my time at Carleton. Lloyd has always shown a great deal of enthusiasm for all of my projects, and for that I am grateful. While our professional relationship has been of great value in my development as a researcher, it is the personal relationship that I value most.

I would also like to thank Dr. Kim Matheson for showing faith in my abilities and providing an opportunity for me to teach at the university level. The experience has been a delight. I also wish to thank Kim for an enjoyable methods class. This class helped to broaden my definition of research and indirectly led to a number of fun projects. Specifically, after completing the methods class I spent a year as an academic subversive, conducting discourse analytic work on important economic events. Thank you to Dr. Fran Cherry who provided many suggestions leading to a refinement of the original proposal. I also extend my gratitude to Dan Mesrobian for agreeing to join the committee as an external member. In the future, I look forward to being Dan's pen pal.

In general, I would like to thank the members of my committee for establishing a stimulating and collaborative environment. I appreciate their earnest approach in considering my project, the thoughtful and provocative questions raised during the prospectus defense, and their attention to detail. When I began my studies at Carleton I was told many stories that painted an unflattering picture of the graduate committee. The belief was that time spent with the committee was nothing more than an academic enema. My experience fails to resonate with these stories.

Some words of appreciation to Shawn Boucher, a long-time friend and whimsical original in his own right, who recently entered the financial planning business. Our weekly visits to Burger King were dominated by our mutual fascination with the markets (and some old fashioned Whopper goodness). I hope the internet plays work out for Shawn. An unqualified thank you to Sean Kidd at the University of Windsor for his unique brand of experimental comedy that helped to lighten my load when this project was getting heavy. Sean and I appear to interpret the world through the same filter, a fact I intend to deny under oath. I would like to thank his parents, Ryan and Eleanor Kidd for their interest in my project and concern for my well-being. A couple of days after completing the project, I was invited to their cottage and Ryan brought out the old shotgun and let me fire a celebratory round into the air (another fact I intend to deny under oath). I won't even start about the stuffed muskrat named "Mr. Giggles." Strange things happen in their home. Thanks to my partner, Tamara Proulx, for listening to my ideas and offering the support that really helps when you are navigating your way through a graduate program. Now that my project is over, Tamara hopes I will surrender the remote and stop switching to CNBC. It's important to have hope.

Negative financial events have always been of extreme fascination for me. I suppose it all started during a high school economics course. The class was conducting a stock market simulation game, and I had the chance to read a book entitled, “The Great Crash” by John Kenneth Galbraith. The book captured me, as Galbraith described the bursting of the speculative bubble and the search for answers that lasted a generation. More importantly, my father must accept some of the credit (or blame) for my preoccupation with all things market-related. Discussions of the investment world dominated our dinner conversation and I caught the investment bug in this environment.

Given my area of research, it should come as no surprise that I find October to be an exciting month. The month has witnessed a number of important market downturns, including the crashes of 1929 and 1987, and the correction of 1997. However, midway through the completion of this project, October was given an entirely different meaning. In October 1998, my mother suffered a massive brain hemorrhage and died. Less than one week before her passing, my parents and I were enjoying a barbecue when I mentioned that my first publication had come out. My mother insisted that I return home to fetch the book so she could see my name in print. When I returned she was beaming and could hardly wait to see the chapter. It was one of the last times I saw her alive. She never read any of my work because she didn’t have to. No matter what I decided to do, my mom was there with unconditional love and support. When I had to say goodbye I promised that I would continue to do the things that would make her proud. I hope this project counts among these things.

Matthew G. Sorley

June 1999

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Explanatory Style and the Financial Markets:

Individual Risk Preference and Response to Financial Loss Situations

Background

The Dow Jones Industrial Average, arguably the world's most identifiable and quoted statistic, recently celebrated 15 years of largely uninterrupted advances (see Figure 1). Having begun its ascent slightly below the 1000 level, this basket of prominent American companies recently traded above 11000. No doubt aided by the bullish trend, the financial markets have come to occupy an increasingly prominent space in Western consciousness. Financial information floods the media landscape like never before, as one can obtain market information from an increasing number of sources. A variety of newspapers, magazines, internet sites, newsletters, and television networks are dedicated to disseminating financial information. As noted by Snow and Parker (1984), "with the exception of the weather and sports, few if any other domains of activity receive such extensive media coverage" (p. 153).

Figure 1. Performance of the Dow Jones Industrial Average, 1984-1998.

However, this collective preoccupation with market matters is a recent phenomenon. In years past, investing was the providence of the elite segments of society and market activity was dominated by prominent individual investors (Lowry, 1984). Investing was considered a luxury and financial speculation a highly esoteric pursuit. A handful of powerful families controlled the vast majority of capital and were able to exert a powerful influence on the behaviour of financial markets. However, in a demographic phenomenon known as the 'baby boom', the post-World War II era witnessed a population explosion in Canada, the United States, Australia, and New Zealand. This dramatic population expansion may be directly responsible for an increase in available capital and subsequent demand for investment products and services. As a result, the market underwent a series of structural changes. Mutual and pension funds paved the way for professional investing to supplant prominent individual investing as the dominant market force. As noted by Foot (1998), by the start of 1992, Canadians had invested over \$28 billion in equity mutual funds. By the middle of 1998, this number had swollen to \$254 billion. This 900% increase provides dramatic evidence of increasing investment levels and may hold some explanatory power in accounting for the recent market advances. Put simply, when units of a mutual fund are purchased, the fund manager is responsible for making effective use of the capital. Typically, this involves making purchases of the appropriate investment options. The more money a fund manager has at his/her disposal, the more purchases can be made. Therefore, as investors pour money into mutual funds, they are having a direct impact on the balance between supply and demand for investment products. Many commentators predict the trend will continue and that Canadian mutual fund assets should top the \$500 billion level by 2002 (Foot, 1998).

As impressive as these statistics may be, they clearly illustrate that most Canadian investors have only recently entered the market. Given the behaviour of the broad market indices, the vast majority of invested capital has yet to experience a significant market downturn. Recent North American market corrections have been brief, functioning as little more than speed bumps. Nonetheless, “speculative excess, referred to concisely as a mania, and revulsion from excess in the form of a crisis, crash, or panic can be shown to be, if not inevitable, at least historically common” (Kindleberger, 1978, p. 4). Antiquity is littered with the building and bursting of speculative bubbles. High profile examples include the Dutch-tulip mania of 1634, the stock market crashes of 1929 and 1987, and the real-estate speculation of the 1980’s. Indeed, the recent clamoring for internet-related stock issues may be a candidate. However, these examples involve entire financial markets or sectors within those markets. In reality, declines in individual issues occur everyday, even in the midst of an unprecedented market ascent. However, the broad market is what attracts the most attention and serves as a barometer of financial health and optimism. These indices, such as the Dow Jones Industrial Average, the Standard and Poor’s 500, and the TSE 300 have recently been able to avoid a massive correction. Given increasing levels of investment and the historical inevitability of market corrections, it is vital to understand how people interpret and react to a market decline. Through this understanding we might be able to predict who is apt to liquidate their holdings in a declining market and who is likely to maintain a buy and hold strategy.

This project examines the contributions of two streams of research to our understanding of how individuals interpret and react to negative investment (loss)

situations. Both of these streams are cognitively-based and pertain to the information processing biases that individuals may bring to a decision-making situation. Prospect theory (Kahneman & Tversky, 1979) represents an alternative to traditional models of economic decision-making, while explanatory style (Abramson, Seligman, & Teasdale, 1978) represents a psychological model of attribution processes. With respect to investment decisions, prospect theory offers predictions that run contrary to those implied by research on optimism and explanatory style. It is proposed here that explanatory style represents an important variable that systematically affects the risk preferences and decision-making processes of individuals who find themselves in an investment loss situation. Therefore, it is deemed that explanatory style furnishes a significant caveat to prospect theory. This assertion has practical implications, and the paper begins with a discussion of the applied context in which this research is situated. In considering how people respond to loss situations, the central tenets of prospect theory will be outlined. The concept of risk is central to any understanding of investment decisions and a consideration of investor risk preference as an individual difference variable is presented. The role of optimism in shaping investor risk perception will be examined and the concept of explanatory style will be introduced.

An applied context

With respect to the gyrations of the financial marketplace, it is understood that contained within each investment choice is an element of risk. The inverse relationship between risk and return indicates that as one exposes an investment portfolio to greater risk, the sheer magnitude of profits (and losses) is exaggerated. A portfolio comprised of relatively low-risk investment choices sacrifices higher potential returns for the

preservation of capital and is afforded greater protection in the event of a severe market correction. Conversely, a portfolio containing relatively high-risk investment choices sacrifices security of capital in favor of potentially greater returns. Individual investors differ in their willingness to accept risk, and virtually every financial service provider classifies investors according to three general types: conservative, balanced, and aggressive.¹ Conservative investors are considered relatively risk averse. Such individuals shy away from volatility, which magnifies gains and losses. These investors tend to gravitate towards relatively safe investments such as government bonds, guaranteed investment certificates (GIC's), and income mutual funds. Balanced investors assume greater risk than their conservative counterparts, preferring a mixture of secure investments and growth related vehicles, such as stock mutual funds. The aggressive investor enjoys a more speculative flavor in his/her investments and is willing to assume greater risk in the hopes of obtaining higher returns. These investors seek maximum capital appreciation and are willing to endure significant market fluctuations. Mutual fund companies and financial advisors routinely employ investor profile questionnaires to channel investors into investment classes that resonate with self-reported risk preference (as luck would have it, providers of financial products just happen to have the appropriate vehicle to match one's investor profile). Examples of such devices include Mackenzie Financial's Strategic Asset Allocation Client Investor Profile (Garmaise Investment,

¹ For example, Bank of Montreal Investment Management utilizes security, balanced, and growth-oriented investor types (Bank of Montreal, 1995). Many investment firms have sought to further differentiate investors and have used additional categories. For example, the Toronto-Dominion Bank identifies six investor profiles, including safety, income, income/moderate growth, balanced growth, aggressive growth,

1995), Bank of Montreal's MatchMaker Strategic Investment Self-Test (Bank of Montreal, 1995), and London Life's Voyager Investment Allocation Workbook (London Life, 1997). Many sales representatives utilize these tools to gain a broad perspective regarding the client's risk preferences, but often prefer to use their personal knowledge and experience in making recommendations. Assessments of risk preference like these are typically completed during the initial phases of investment, and they provide the salesperson with a crude measure of investor personality. In administering such risk tolerance questionnaires, the financial advisor is utilizing the tools of economic psychology and behavioral finance.² Researchers considering the role of individual characteristics in risk-taking behavior have developed these assessment devices.

Prospect theory

In order to understand how people deal with financial loss situations, we can appeal to various economic models of decision-making. VonNeumann and Morgenstern (1944) proposed expected utility theory, which viewed decision-makers as rational economic actors who, when presented with alternatives, consistently select the option with the highest expected utility or value. Though conceptually attractive, this

and maximum equity growth (Toronto-Dominion, 1998).

² These domains of inquiry have made a relatively recent appearance on the research landscape. Researchers of behavioral finance have sought to establish a niche in the unfriendly terrain between economics and psychology. As Stroebe and Frey (1979) note, the reluctance of economists to acknowledge the role of psychological factors in economic phenomena stems from, "the one-sided and distorted view most economists seem to have of psychology. The thought of introducing psychological factors into the economic model appears to arouse something akin to castration anxiety among large sections of the economic community" (p.2). More recently, Lopes (1994) commented that, "if it goes too far to say that psychologists and economists view one another with fear and loathing, there is at least suspicion and distaste" (p.198).

normatively based theory of economic decision-making has been attacked as descriptively inaccurate (e.g., Kahneman & Tversky, 1979). Thaler (1991) suggests that economic actors are neither rational, nor irrational, but quasi-rational. That is, individuals consistently utilize cognitively-based heuristics to guide themselves through economic decision making situations. Despite the reluctance of many economists to admit a role for psychology in economics, a number of theories of human decision making have proposed psychological models of decision behavior. Without question, the most influential of these works has been Kahneman and Tversky's (1979) prospect theory. While expected utility theory is based on the decisions people ought to make, prospect theory describes the decisions people actually make.

The central principle of prospect theory is that individuals' risk-taking behaviour will differ depending on whether they perceive themselves to be in the negative domain (the domain of losses) or the positive domain (the domain of gains). Specifically, the theory proposes that individuals will be risk-seeking when faced with a loss and risk-averse when facing a gain.³ Subjects in the Kahneman and Tversky (1979) study were presented with a number of economic choice dilemmas and asked for each to indicate which option they prefer. In one situation, subjects were faced with a one-time gain

³ Kahneman & Tversky (1979) noted that when the probabilities of a gain or loss are extremely low, the predictions of expected utility and prospect theory appear contrary to what is observed in actual decision making. Specifically, when the probability of a large gain is very small, individuals appear willing to engage in risk seeking. For example, line-ups at the lottery counter become longer as the potential jackpot increases. Simply, individuals are willing to spend more on the lottery as the payoff increases and the probability of winning declines. Similarly, when faced with an extremely low probability of a large loss, individuals often engage in risk averse behaviour. Insurance companies capitalise on this tendency.

situation. Option A would pay 1000 units with .50 probability, while option B would pay 500 units with absolute certainty. Under these conditions, 84% of participants opted for the sure thing (option B), exhibiting risk aversion in a gain situation. Participants were then asked to indicate a preference between two sure-losses. Option A was a 1000 unit loss with .50 probability, while option B was a sure loss of 500 units with complete certainty. When faced with a loss situation, 69% of the subjects chose the risky option (option A). The authors concluded that individual decision-makers exhibit risk-seeking when confronted with a loss situation and risk-aversion when facing a gain situation. In other words, While their study dealt with situations in which the probabilities of outcomes were known, Kahneman and Tversky (1979) contend that prospect theory can be extended to the typical situation of choice, where the probabilities of outcomes are not explicitly given. When individuals are faced with real investment choices, the probabilities of gain and loss are unknown and are the subject of considerable speculation.

While receiving widespread empirical support, prospect theory has deeply influenced research in behavioural decision-making (e.g., Payne, Bettman, & Johnson, 1993; Thaler, 1991).⁴ A number of researchers have used prospect theory to account for companies that escalate a commitment to a losing strategy. For example, Bowman

⁴ While the majority of studies concerning prospect theory have focussed on individual decision-making, a number of researchers have utilized the theory to explain group decision-making. For example, Whyte (1989) asserts that prospect theory may have been an important contributing factor in the groupthink phenomenon (Janis, 1972) in which groups were faced with a negative deviation from a neutral reference point. More generally, Hartman and Nelson (1996) outline a research agenda for the synthesis of prospect theory and group decision-making in the negative domain.

(1982) notes that economically troubled firms often make riskier business decisions than economically solid firms. When the firm is experiencing difficulties, risk-taking is deemed as necessary in order to preserve the viability of the firm. In some instances, investors who have already committed money to a given investment will buy more units if the price declines. This strategy, known as dollar-cost-averaging, is an attempt to lower the average cost of the investment by accumulating units at lower prices. Therefore, it becomes easier to make money should the investment start to recover. On the other hand, it may also be evidence of an escalating commitment to a losing investment strategy; in essence, throwing good money after bad.

The overwhelming majority of research on prospect theory has been concerned with economic gambles. However, risk-taking is often conceptualized as a multidimensional construct that can be extended far beyond a single domain of human activity. In a study of foreign policy decision-making, Kowert and Hermann (1997) presented subjects with medical and political gambles in addition to the usual economic gambles. For the medical gambles, subjects were asked to respond to two hypothetical situations. The first scenario involved a surgeon who must decide how to treat patients with lung cancer, while another scenario involved a doctor who must decide between two experimental drugs in treating a usually fatal disease. The political gambles consisted of deciding how to provide for the victims of an earthquake and deciding how to supervise a democratic election in an unstable country. Risk-seeking in the domain of losses and risk-aversion in the domain of gains was observed for all three dilemma categories. The effect was strong for economic gambles, but was even more pronounced for the medical and political gambles. Similarly, Fagley and Miller (1997) presented subjects with

decision-making scenarios involving human life and money. Across positive and negative situations, people made riskier choices when human life was involved. In any event, prospect theory is clearly inspired by the cognitive revolution and represents the establishment of a vital beachhead for psychology in the discipline of economics. In an effort to assess the predictions of prospect theory, the research on risk-taking must be consulted.

Individual characteristics and risk-taking

Risk-taking as an individual difference variable has received considerable research attention (see for example Yates, 1992), with recent efforts being directed towards the personality attributes of Everest climbers (Breivik, 1996), foreign policy leaders (Kowert & Hermann, 1997), and those involved in driving accidents (Trimpop & Kirkcaldy, 1997). The search for variables that mediate investor risk preference has also garnered research focus. For example, Evans, Holcomb, and Chittenden (1989) studied the relationship between investor knowledge of financial products and risk-return preference in financial markets. Participants were placed in a decision environment that duplicated the essential features of 3 financial markets (i.e., stock, bond, option). No significant relationship was found between either knowledge or confidence and risk-return preference, and the authors concluded that knowledge cannot be used to change an investor's risk-return preference toward investment products. In an examination of individual characteristics and portfolio choice, Lewellen, Stanley, Lease, and Schlarbaum (1978) investigated the relationship between age, gender, and risk assumption. It was found that older investors and female investors hold less risky portfolios. Several researchers have investigated the relationship between investment

objectives and investor characteristics. For example, Lewellen, Lease, and Schlarbaum (1977) related investor goals (short-term capital gains, intermediate-term capital gains, long-term capital appreciation, and dividend income) to a number of demographic and financial characteristics and attitudes toward risk. Older investors were found to be less interested in capital gains and more interested in dividend income than younger investors. As one approaches the age of retirement, it is obviously financially prudent to pare down the percentage of portfolio resources allocated to risky investment choices. McInish, Ramaswani, and Srivastava (1993) examined the relationship between attitudes toward risk and both net worth and income. Their results indicate that both net worth and income are negatively related to risk aversion. Less risk-averse investors choose more risky portfolios and this results in greater wealth. However, when controlling for age and gender, the results failed to reach statistical significance.

Lopes (1987) describes the motives that dispose people to being either risk averse or risk seeking. She notes that risk-averse people appear to be motivated by a desire for security, whereas risk-seeking persons appear to be motivated by a desire for potential. A security motivation corresponds to weighting the worst outcomes in a lottery more heavily than the best outcomes, and potential motivation corresponds to the opposite orientation. Therefore, an investor with a security motivation would be unlikely to allocate financial resources to high-risk financial assets. Lopes (1987) asserts that “the security/potential factor is conceived to be a dispositional variable, reflecting the way individuals typically respond to risks” (p.270). Similarly, Highhouse and Yuce (1996) assert that the degree to which an individual will engage in risk-seeking behaviour is related to the degree to which he/she perceives risk taking as an opportunity for gain or as

a threat for losses. If an individual attends to the opportunity aspect of risk-taking, he/she is more apt to focus on potential gains and engage in risk-taking behaviour. On the other hand, one may focus on the potential losses associated with risk taking, regarding risky activity as a threat to the current position. Under such circumstances, one is less likely to take risks. As noted by Highhouse and Yuce (1996), "...one person's threat can be another person's opportunity" (p.166). Kowert and Hermann (1997) conducted an analysis of personality predictors of generalized risk taking. Subjects were asked to complete a variety of personality inventories and respond to a series of hypothetical scenarios. It was noted that individuals high in anxiety were apt to be risk averse, while persons low in anxiety were disposed to taking greater risks.

In a study of affect in decision-making, Josephs, Larrick, Steele, and Nisbett (1992) noted that people want to maintain a positive self-image when they make a decision. Once the outcome of the decision is known, people compare the outcome of the alternative they chose with the outcome that "might have been" if they had chosen another alternative. This comparison will lead to either feelings of regret - if the unchosen alternative would have turned out better - or celebration if the other alternative had turned out worse. Regret represents a threat to self-image because it can lead an individual to question the wisdom of his/her original decision. Josephs et al (1992) note that people are differentially susceptible to threats to their self-image, and it is people who are vulnerable to feeling regret who will make decisions that minimize the possibility of regret.

Optimism, health, and risk perception

Of particular relevance to the current project is the research on optimism and its relationship with risk perception. In recent years, there has been considerable research attention by health psychologists to the effects of optimism on psychological and physical well-being. Specifically, an optimistic orientation to life has been linked with a variety of positive health outcomes (Scheier & Carver, 1992; Peterson & Bossio, 1991). For example, optimistic subjects present fewer depressive symptoms (Peterson & Seligman, 1984) and face decreased risk for morbidity and mortality (Peterson & Seligman, 1987) than their pessimistic counterparts. In fact, individuals with an optimistic outlook are more likely to engage in health-promoting activities than those who are pessimistic (Peterson, Maier, & Seligman, 1993).

Perhaps a synthesis between the literature on risk perception and that concerning optimism may be found in the work of Leahy (1997). Using modern portfolio theory, Leahy (1997) develops a functional model of depressive resistance that compares the cognitions and behaviours of depressed and non-depressed persons.⁵ Individuals are constantly in the position of having to decide how to allocate their resources (e.g., time, money, emotions). When approaching a decision-making situation, each of us has to estimate our available resources, our tolerance for risk, and the likelihood of success/failure. Our personal portfolio combines these elements and serves to shape our cognitions and direct our behaviour. Leahy (1997) uses this economic model to compare

⁵ According to modern portfolio theory, individuals make decisions about how to allocate their resources based on their risk tolerance, probability of gains and losses, and estimate of present and future resources available.

the assumptions guiding optimistic and pessimistic decision-makers. Optimists view themselves as possessing many assets and moderate to high earning potential.

Conversely, the pessimist recognizes few resources in his/her portfolio and believes the likelihood of future gains is remote. The composition of the personal portfolio helps to determine how an individual approaches risky situations. The optimist may be considered risk-neutral to risk-positive, whereas the pessimist is clearly risk-averse.

When facing decision-making situations, the pessimist is constantly focused on potential losses. Therefore, the goal in any situation is to minimize these losses by minimizing risk exposure. The optimist approaches the same situation by focusing on possible gains and seeks to maximize these gains. Recognizing the inverse relationship between risk and return, the optimist believes risk must be assumed if gains are to be earned. In sum, optimists seek to maximize their gains, while pessimists wish to minimize their losses. Depressives are viewed as having an especially low threshold for defining loss as even the slightest loss is interpreted as significant and a threat to self-esteem. This liberal definition of loss, when combined with the depressives' strategy of loss minimization, results in a hypersensitivity to losing situations. Drawing on the attributional reformulation of the learned helplessness model (Abramson, Seligman, & Teasdale, 1978) and Beck's schematic model of depression (Beck, Rush, Shaw, & Emery, 1979), Leahy (1997) notes, "losses for the depressive have added negative utility because they are overgeneralized, exaggerated, and personally internalized" (p. 9). While optimists may view losses as temporary setbacks, the pessimist looks upon losses as permanent drains on already depleted resources. Given the negative cognitions that characterize the pessimist, one loss is viewed as predictive of future losses. Given this orientation to loss,

the pessimist is unable to maintain an investment position for very long. The horizon is constantly being monitored for signs of loss and as soon as the market obliges, the pessimistic investor believes his/her predictions have been realized. Therefore, the slightest decline in the market is perceived as significant and a problem to be immediately remedied. In an attempt to avoid any further losses, the depressive implements a high 'stop-loss' strategy. In the parlance of the market, a stop-loss order is an order to sell a position if the stock issue trades at or below a specified price. The depressive is viewed as possessing high stop-loss criteria, indicating that he/she is apt to terminate a behavior at the first sign of loss. This orientation to loss makes it virtually impossible to invest for the long-term. Leahy (1997) used the example of a client who feared being rejected by others. The fear was so strong that she constantly monitored her relationships for signs of disinterest (real or imagined). When the slightest sign of rejection appeared, she would immediately terminate the relationship. With therapy, she learned not to 'stop-out' and was able to give her relationships a chance to grow. Leahy (1997) concludes that depression may be regarded as a functional risk-management strategy. Risk aversion is viewed as a self-protective device, buffering the self-esteem of the depressive from the full impact of losses. While Leahy (1997) employed an investment choice model to explain depressive resistance, the current project will utilize a model of depressive resistance to explain investment choices. Curiously enough, this approach involves as literal interpretation of Leahy's model and extends it far beyond its original subject area.

The notion that optimism and pessimism may be used to explain economic phenomena is not a new one. Katona (1975) noted that a complete understanding of the

economy must include a consideration of consumer attitudes. Positing a direct link between economic beliefs and economic behaviour, Katona (1975) developed an index of consumer sentiment, hybrids of which are routinely employed by modern economists. He believed that long-term prosperity could not be assured unless consumers were confident and optimistic about their economic prospects. If one believes that good times lie ahead, one is more apt to purchase goods and services, helping to fuel economic growth. If bad times are believed to be on the horizon, consumers may hold off making certain purchases, leading to a contraction in economic activity. Katona (1975) believed that if we could assess the level of optimism in consumers, we could gain some predictive power regarding future economic activity.

More recently, Furnham (1997) noted that our beliefs about work could have a direct impact on whether we are optimistic or pessimistic about our future economic prospects. It was asserted that optimists and pessimists are relying on dramatically different belief systems. Subjects were asked to complete a questionnaire designed to assess their degree of economic optimism and their work values. A left-wing orientation was associated with economic pessimism, while optimism was associated with a right-wing approach. Specifically, it was noted that a Marxist orientation (the belief that we are exploited through work) and disdain for the status quo were associated with higher levels of pessimism. By contrast, subjects who were pro-capitalist, trusting of business, anti-union, against governmental interference in the economy, and who adopted a leisure ethic (the belief that work furnishes us with the tools for leisure) were optimistic about the economic future. Furnham (1997) speculates that perhaps a self-fulfilling prophecy may account for these results. Simply, individuals who experience success “in a

predominantly capitalist society feel optimistic while those with less success are pessimistic and prefer an alternative system” (p. 203). In addition, the results demonstrated strong age effects, with older age being associated with economic optimism rather than pessimism. It was noted that perhaps with age people are able to obtain higher salaries, positions, and feelings of economic control.

However, optimism is sometimes unwarranted and unrealistic. Weinstein (1989) noted the existence of an over-optimist bias, whereby individuals will underestimate their susceptibility to a variety of health problems. For example, cigarette smokers have unrealistic perceptions of their heart attack, cancer, and stroke risks (Strecher, Kreuter, and Kobrin, 1995). In an economic context, Madsen (1994) examined the production expectations offered by the manufacturing industry and noted the existence of an over-optimist bias. Simply, firms were consistently over-optimistic about expected production levels. This represents a direct violation of traditional economic expectation models. Modern economic literature assumes that economic expectations are rational; that is, economic actors utilize all available information when generating expectations and do not make systematic prediction errors. Such models clearly illustrate the gulf between traditional economics and cognitive psychology.

Schwarzer (1994) contrasts defensive optimism, which functions as a form of denial, with functional optimism, which includes optimistic explanatory style, dispositional optimism, and self-efficacy. Similarly, Taylor and Brown (1988) assert that people who are mentally healthy are characterized by positive illusions. In particular, healthy people hold a variety of self-aggrandizing perceptions about their abilities and prospects for the future. Illusions of personal control and unrealistic optimism are

viewed as adaptive responses that actually foster mental health. Notions of optimism, pessimism, and control are at the very heart of explanatory style, a concept to which we now turn.

Explanatory style

The attributional reformulation of the learned helplessness model (Abramson, Seligman, & Teasdale, 1978), provides a theoretical framework in which to view optimism and pessimism. Explanatory style may be regarded as a cognitive personality variable that represents how people recurrently explain the causes of events.⁶ An explanation for any occurrence may be examined along three dimensions. Internality examines the degree to which the explanation is internal (“It’s me”) versus external (“It’s someone else”); stability focuses on stable (“It’s going to last forever”) versus unstable (“It’s short-lived”) attributions; globality examines global (“It’s going to undermine everything I do”) versus specific (“It’s only going to affect this”) interpretations.

An optimist may be regarded as a person who provides external, unstable, and specific attributions for negative events. As noted, optimism has the potential to alter one’s perception of risk. Peterson and DeAvila (1995) found that individuals with an optimistic explanatory style see themselves as less at risk for health problems including arthritis, skin cancer, and alcohol problems. The authors suggest that an optimistic

⁶ Much debate surrounds the existence of a truly habitual way of explaining events. Many theorists have advanced explanations that focus on the power of the situation in shaping the attributions that we make (e.g., Ross & Nisbett, 1991). Peterson, Buchanan, and Seligman (1995) note that often the situation itself determines the nature of our attributions and that explanatory style enters the picture only when the situation lacks a clearly specified attribution. Given the ambiguity that most situations present, people tend to gravitate towards their habitual way of explaining events.

explanatory style represents a unique form of optimism, one that is characterized by feelings of agency and personal control. However, it is not synonymous with a pathologically unrealistic view of the future. As noted by Peterson and DeAvila (1995), “an optimistic explanatory style is not to be confused with the blithe expectation of a rosy tomorrow. Instead, an optimistic explanatory style leads one to expect a better world by enhancing his or her personal control” (p. 129).

A pessimist is defined as one who explains negative events in terms of internal, stable, and global causes. Therefore, the attributional search after a negative event yields an interpretation that one is personally responsible for the failure, the cause will always be present, and it is going to undermine everything the person tries to accomplish. Individuals with a pessimistic explanatory style present more depressive symptoms (Peterson & Seligman, 1984), lower levels of school and work achievement (Schulman, 1995), and lower levels of athletic performance (Rettew & Reivich, 1995) than their optimistic counterparts. This orientation is associated with a lack of personal agency and control.

Hypotheses

The proposed project will examine the effect of explanatory style on investor risk preference and decision-making. While explanatory style has much to say on the attributions made by individuals facing a negative situation, prospect theory pertains to the actual decisions made by individuals in a loss situation. Extending the attributional reformulation of the learned helplessness model (Abramson, Seligman & Teasdale, 1978) to economic decision-making, it is predicted here that prospect theory best characterizes those utilizing an optimistic explanatory style, but is less accurate when accounting for

the decisions made by pessimists. Specifically, three hypotheses are investigated:

1. Compared with their optimistic counterparts, individuals with a pessimistic explanatory style are expected to exhibit increased levels of risk aversion in the domain of losses. Individuals who explain negative events in terms of external, unstable, and specific causes (i.e., optimists) are expected to exhibit risk-seeking in the domain of losses.
2. Compared with optimists, it is predicted that pessimists will express attitudes that are more risk-averse about investing.
3. Compared with optimists, it is predicted that pessimists are more likely to liquidate their investment positions when faced with a loss.

The attributional reformulation of the learned helplessness model is concerned only with how an individual responds to negative circumstances. The theory is silent with respect to how an individual interprets the positive events of life. In addition, research involving explanatory style and positive events has yielded inconsistent results, and therefore, no predictions are made regarding pessimist decision-making in the domain of gains (Peterson, Buchanan, & Seligman, 1995).

To date, no study has investigated the effects of explanatory style on economic decision-making. This project is an attempt to address the impoverishment of the literature in this area. In addition, the project aims to further examine the central tenets of prospect theory and furnish an important clarification. In keeping with the previously conducted research, hypothetical risk situations are employed.

Method

Subjects

Seventy respondents ($N = 70$) participated in this study (53 women and 17 men, mean age = 27.3 years). Thirty-eight participants were drawn from the introductory psychology subject pool at Carleton University (see Appendix A for subject solicitation form). Their participation was in partial fulfilment of course credit. The remaining 32 participants were enrolled in a human relations course in the Crisis Management Human Psychology Program at Algonquin College. The selection of introductory psychology students is appropriate for this study; given the unquestionable relationship between education and income, it is likely that many of these students will be facing investment decisions in the future.

Materials and Procedure

After reading and signing the informed consent forms (see Appendix B), all subjects were presented with a questionnaire that can be divided into five sections. The first section prompted respondents for basic demographic information such as age and gender. A second section prompted subjects to choose between a series of positively-framed and negatively-framed prospects. The third section utilized two questions of rating-scale format to assess reactions to short-term investment gains and losses. A fourth task required participants to complete a six-item measure of investor risk attitude. Finally, the Expanded Attributional Style Questionnaire (EASQ) was utilized to assess explanatory style; attitude. Each of these items will be examined in turn. No deception was involved. Respondents had one hour in which to complete the questionnaire. At the

conclusion of the questionnaire, all participants were debriefed and provided with summary and debriefing form (see Appendix C).

The Expanded Attributional Style Questionnaire (EASQ). To assess explanatory style, subjects were asked to complete the Expanded Attributional Style Questionnaire (EASQ; Peterson & Villanova, 1988; see Appendix D). The EASQ is a self-report measure that presents subjects with 24 hypothetical situations that are considered to be negative (e.g., “You are fired from your job” and “You go out on a date and it goes badly”). For each situation, subjects are instructed to imagine vividly its happening to them and to provide what they believe would be the major cause of the situation. A space is provided on the questionnaire for subjects to record this information in their own words. These subjects are then asked to rate each cause along 7-point rating scales designed to assess internality, globality, and stability, with each dimension being rated separately (1 = completely external/unstable/specific; 7 = completely internal/stable/global).

The reliance on hypothetical events raises a variety of questions regarding the reliability, validity, and generalizability of the results. However, Wiseman and Levin (1996) have examined whether the preference between two options involving the investment of time and effort would depend on whether the consequence of a decision was real or hypothetical. No differences emerged between the two conditions.

As the project relies on self-report measures, issues of response set such as social desirability must be addressed. Schulman, Seligman, and Amsterdam (1987) addressed the issue of transparency in the original ASQ by assigning participants to one of three conditions. In an incentive group, participants were told that the subject with the most

optimistic score would earn \$100 (i.e., offer external, unstable, and specific attributions for negative events and internal, stable, and global attributions for positive events). Members of an incentive plus coaching group were offered the same incentive and were told what types of responses would generate the highest score. Finally, a control group was created to which the incentive groups were compared. No significant differences were obtained between the control and incentive groups, leading the authors to conclude that subjects were unable to figure out how to answer the questionnaire in the most desirable manner. The individual dimensions of the EASQ have been found to possess satisfactory internal consistencies, with alphas ranging from .7 to .9 (Peterson & Villanova, 1988). Each dimension of explanatory style correlates with depressive symptoms as measured by the Beck Depression Inventory (Peterson & Villanova, 1988). Test-retest reliability assessments have noted the stability of explanatory style (Reivich, 1996).

The EASQ presents subjects with situations that are simple, ambiguous, and hypothetical. Further, it combines an open-ended format (subjects are invited to provide the major cause of the event) with a closed-ended structure (the rating of the cause along three dimensions). The respondent creates the context surrounding each of the situations and this increases the likelihood that the subject will project his or her subjective interpretations onto the ambiguous situation. The negative character of the situations raises the possibility that some subjects might experience a shift in mood after completing the EASQ. To counteract this possibility, the EASQ was always presented last.

The EASQ generates three individual dimension scores: one for internality, one for stability, and one for globality. Each of these scores represents the average of the ratings for each dimension. In addition, summing across the internal, stable, and global dimensions and dividing by the number of events generates a composite explanatory style score.

Deciding on Investment Risk. To assess investor risk preference, each respondent was asked to respond to six attitude statements (e.g., “I want to be certain that my investments are safe”) and rate their degree of agreement along a 7-point rating scale (1 = I strongly agree; 7 = I strongly disagree; see Appendix E). This measure of risk attitude was employed by Warneryd (1996) and demonstrated satisfactory internal consistency ($\alpha = 0.67$). Subject ratings are summed across the six items, yielding an index of investment risk attitude. Higher values of this index are associated with greater levels of risk aversion.

Assessing decision preference in gain and loss situations. In order to assess choices made in gain and loss situations, participants were presented with six pairs of positively framed prospects (gain situations) and six negatively framed prospects (loss situations). Each prospect pair consists of a sure thing (100% chance of occurrence) and an uncertain outcome (less than 100% chance of occurrence) of greater expected value. A subject is deemed to exhibit risk aversion if he/she expresses a preference for the certain outcome over the risky outcome. Risk seeking is demonstrated if the participant selects the uncertain option over the sure outcome. The order of presentation was randomized. This procedure is in keeping with that employed in prospect theory research (e.g., Kahneman and Tversky, 1979). Respondents were asked to imagine they are actually faced with the

choice described in the problem, and to indicate the decision they would have made in such a case (for a complete list of the prospects, see Appendix F). It is commonplace for researchers of economic decision making to generate their own prospects from which subjects are expected to choose. Therefore, the field lacks a clearly defined standard or protocol for prospect construction. Researchers have utilized a myriad of unit values and probabilities. Several forms of the questionnaire were constructed so that subjects were exposed to the problems in different orders. In addition, two versions of each problem were used in which left-right position of the prospects was reversed.

Response to short-term investment situation. In an effort to assess reaction to short-term losses and gains, two questions employing rating-scale format were utilized (see Appendix G). Participants were informed that their mutual fund had declined (or appreciated) by 15% over the last year and were asked to indicate how they would react given this set of circumstances along a 7-point rating scale (1 = sell all my shares to 7 = buy more shares). In using self-report scales, it has been noted that single-item assessment devices yield approximately the same results as such multi-item measures as the Likert and Thurstone (Jaccard, Weber & Lundmark, 1975). External validity is expected to be high, as this measure is virtually identical to items that have appeared on the private-sector questionnaires cited previously.

Results

In keeping with previously conducted research, a median split was performed on the composite scores generated from the EASQ (Peterson, Buchanan, & Seligman, 1995). Those subjects scoring above the median were classified as pessimists and deemed to exhibit a pessimistic explanatory style, while those scoring below the median will be referred to as optimists, exhibiting an optimistic explanatory style. For the purposes of statistical analyses, all tests were conducted using an alpha level of .05. Therefore, the probability of committing a Type I error was held constant at .05. In an effort to be conservative, all tests were two-tailed. It should be noted that no differences emerged between the respondents from Carleton University and the students from Algonquin College. Therefore, this consideration is excluded from the presented analyses.

Test of prospect theory

Before testing the hypotheses, the central predictions of prospect theory were examined. Recall that risk-seeking is predicted for losses and risk-aversion for gains. The mean number of risky prospect selections for loss situations were calculated and compared with the mean number of risky prospect selections for gain situations. The t -test was employed to analyze for differences between the two situations. Respondents made significantly fewer risky prospect selections for gain situations ($M = 1.73$, $SD = 1.56$) than they did for loss situations ($M = 2.07$, $SD = 1.41$), $t(68) = 2.52$, $p < .02$. This result replicates the findings of Kahneman and Tversky (1979) and the predictions of prospect theory. However, as respondents were presented with six positive prospects and six negative prospects, the midpoint between risk-seeking and risk-aversion is equal to three. Therefore, respondents exhibited risk aversion across both prospect types.

Explanatory style and risky prospect selection

In order to test the hypothesis that pessimists are more likely than optimists to exhibit risk-aversion in the domain of losses, the mean number of risky prospect selections were calculated and compared across explanatory style and decision frame. The t -test was utilized to test for differences between groups (optimists vs. pessimists). As predicted, when faced with a losing situation, those exhibiting a pessimistic explanatory style made significantly fewer risky choices ($M = 1.60$, $SD = 1.43$) than those with an optimistic explanatory style ($M = 2.54$, $SD = 1.22$), $t(68) = 2.96$, $p < .005$ (see Figure 2).

Figure 2. Mean number of risky prospects selected by ES.

This result was additionally supported by a significant interaction in a 2 (optimist/pessimist) X 2 (gain and loss prospect) analysis of variance (ANOVA) with prospect type as the repeated measures variable, $F(1,68) = 6.03$, $p < .02$. Collapsed across the loss prospects, pessimists were significantly less risk-seeking than their optimistic counterparts, $F(1,68) = 8.73$, $p < .004$. Collapsed across the gain prospects, no risk-seeking differences as a function of explanatory style emerged. This is in keeping

with previous results indicating that explanatory style is not a useful concept when we are dealing with positive events (e.g., Buchanan & Seligman, 1995). In sum, optimists became more risk seeking when the situation switched from a gain to a loss (in accordance with prospect theory), while there was no significant difference in the behaviour of pessimists between gain and loss situations; they were extremely risk-averse all the time. No age or gender differences emerged.

Test for a random decision strategy

With hypothetical choice problems there is always the possibility that respondents will utilize a random decision strategy. Even with the procedural controls set in place, there is always a danger that subjects will fail to earnestly consider the choice problems before them. If this were the case, one would anticipate the selection, on average, of three risk averse choices and three risk seeking choices. In order to test for this possibility, a series of one-group t tests were conducted to examine the mean differences between degree of risk assumption and the mean that one would expect given a random decision strategy (for the purposes of this experiment, this mean is equal to 3). For both positive and negative prospects the responses differed significantly from chance, $t(69) = 6.82, p < .001$ and $t(69) = 5.52, p < .001$ respectively. Therefore, it is reasonable to assume that subjects were not employing a random decision strategy when selecting between prospects.

Explanatory style and investment risk attitude

In order to test the hypothesis that pessimists are more likely than optimists to hold risk-averse attitudes about investing, the mean index score on the investment risk attitude measure was compared across explanatory style. It was predicted that pessimists

would report a lower mean level of risk preference than their optimistic counterparts.

The t-test was utilized to test the prediction. As predicted, respondents with a pessimistic explanatory style indicated significantly lower levels of investment risk preference ($M = 17.45$, $SD = 5.82$) than those with an optimistic explanatory style ($M = 20.31$, $SD = 4.68$), $t(68) = 2.26$, $p < .03$. In keeping with the previously conducted research, males indicated higher levels of investment risk preference ($M = 22.7$, $SD = 4.88$) than females ($M = 17.66$, $SD = 5.06$), $t(68) = 3.67$, $p < .001$ (see Figure 3). It should be noted that no significant age effects were obtained during the course of this study. However, given the previously conducted research, it is reasonable to assume that age is accounting for variance and should be statistically controlled. Given the preliminary nature of this research, it is better to err on the side of caution.

Figure 3. Gender and risk preference

In addition, the composite scores of the EASQ and the investment risk attitude index were examined using regression analysis. When controlling for the effects of age and gender, a significant partial correlation was detected between explanatory style and

risk preference, $r(66) = .31, p < .01$. Increasing levels of optimism are associated with higher levels of investment risk preference.

Explanatory style and short term investment situations

To test the hypothesis that pessimists are more likely than optimists to exhibit selling in the domain of short-term investment losses, the responses of optimists and pessimists to the mutual fund rating-scale question (loss situation) were compared using the t-test. As predicted, respondents with a pessimistic explanatory style were significantly more likely to liquidate their investment position when faced with a loss ($M = 3.40, SD = 1.31$) compared to respondents with an optimistic explanatory style ($M = 4.14, SD = 1.15$), $t(68) = 2.16, p < .04$.

Significant gender effects were obtained as males were less likely to express selling intentions ($M = 4.64, SD = 1.69$) than females ($M = 3.49, SD = 1.29$), $t(68) = 2.97, p < .005$. The composite measure of explanatory style and the ratings for the short-term investment loss situation were examined by regression analysis. When controlling for the effects of age and gender, a significant relationship was noted between explanatory style and response to a short-term investment loss, $r(66) = .29, p < .01$. As predicted, decreasing levels of optimism are associated with increasing levels of investment selling.

Recall that these ratings were obtained using a 7-point scale, the midpoint (equal to 4) indicating that a subject doesn't want to buy more shares or sell any shares. Therefore, a midpoint response indicates the desire to maintain the status quo and hold the present course. Across the entire sample, subjects exhibited selling preferences in the domain of losses ($M = 3.77, SD = 1.47$). However, when compared with the midpoint,

this result did not achieve statistical significance. When faced with a gain situation, respondents displayed buying preferences ($\underline{M} = 4.81$, $\underline{SD} = 1.52$). When compared to the midpoint of the scale, this result achieved statistical significance, $t(69) = 4.47$, $p < .001$. This indicates that subjects were increasing their holdings in an investment alternative that had demonstrated a short-term gain. No gender effects were obtained.

Power

Given the sample size of the current project ($\underline{N} = 70$), the regression analyses were afforded over 70% power to detect a moderate correlation of .30. This indicates that the analyses were provided adequate sensitivity and the result compares favorably with the power conventions identified by Cohen (1988). During the initial stages of the project, estimations of sample size and power considerations assumed the employment of one-tailed analyses. Given this circumstance, the anticipated analyses were afforded 80% power ($\underline{N}=70$) to detect a moderate correlation. There is ample justification for proceeding along one-tailed lines. The hypotheses are clearly directional and the project represents a foray into a relatively new area of research. However, given the common perception of one-tailed tests are less legitimate, it was decided to switch to the more conservative two-tailed analyses. This alteration to the project decreased the sensitivity of the statistical analyses but may have enhanced perceptions of legitimacy.

Discussion

Overview

The results of this study provide support for all of the original hypotheses. In order to interpret the results, the following discussion has been structured around four general categories: 1) implications for explanatory style, 2) implications for prospect theory, 3) implications for the investor/financial advisor relationship, and 4) methodological issues. To begin, these results have a number of implications for the concept and study of explanatory style. When exploring a new area, a key aspect of the learning process is to discover if the project was warranted and if future research is advisable. The results clearly demonstrate that research of explanatory style and economic decision-making is a fruitful line of inquiry. However, many questions remain and a number of alternatives for future researchers will be outlined. Second, the results provide an important qualification to prospect theory. It will be argued that people are differentially susceptible to investment loss situations and prospect theory may be more appropriate in accounting for the intentions of optimists, rather than pessimists. Third, the results of this study have a number of implications for the investor/financial advisor relationship. It will be asserted that a financial advisor may be conceived as a counsellor, especially during times of economic upheaval. Finally, a number of methodological issues are addressed. Specifically, the gender breakdown of the sample, the lack of age effects, and the use of the median split as an analytic tool will be discussed.

Implications for the study of explanatory style

Risk-seeking and risk-aversion. When faced with a losing situation, those exhibiting a pessimistic explanatory style made significantly fewer risky choices than

those with an optimistic explanatory style. Similarly, respondents with a pessimistic explanatory style were more likely to liquidate their investment position when faced with a loss. In fact, a significant relationship was noted between explanatory style and response to a short-term investment loss. The pessimist appears to view the proverbial glass as half-empty, while the optimist views the glass as half-full. This result provides some empirical support for the predictions offered by Leahy (1997) in his investment model of depressive resistance. For pessimists, a losing situation is personally internalized, overgeneralized, and exaggerated to such an extent that maintaining an investment position is simply not an option. The fear of further losses becomes the primary motivator and an attempt is made to eliminate the source of risk. The pessimist may be regarded as hypersensitive to losses, terminating an investment position at the first hint of trouble. Respondents with a pessimistic explanatory style appear to exhibit Leahy's (1997) high stop-loss criteria. This short-term focus is unlikely to generate positive returns and may help to fuel continued pessimism. The optimist approaches the same situation quite differently, viewing the loss as a short-term phenomenon. In anticipation of future gains, a selling response is replaced by a buy and hold strategy. The focus is on the long term, which is littered with gain opportunities. The loss is conceptualized as little more than an inconvenience, having little or no implications for self-esteem.

Future directions for explanatory style research. Explanatory style is a theoretical product of the attributional reformulation of the learned helplessness model. As such, the overwhelming majority of studies have focused on depression and depressive symptomology. A number of researchers have utilized the theory in decidedly non-

clinical topic areas such as academic and athletic performance. This project provides some initial evidence that explanatory style may be extended to a consideration of economic decision-making. As a pessimistic explanatory style may be regarded as a risk factor for depressive symptoms and other health problems, it can also be viewed as a risk factor for premature liquidation of investment products and lower levels of net worth. The next step is to address a number of additional questions. To begin, does explanatory style affect actual portfolio composition? On the basis of this study, it is reasonable to suggest that a pessimistic explanatory style may be associated with more conservative investment choices. Pessimists may be looking for investments that guarantee a predictable return on their capital. Therefore, pessimists may be drawn toward savings bonds and GIC's. Given the short-term horizon of the pessimist, investments that provide income should be preferred to those that focus on capital returns over the long haul. Conversely, an optimistic style might be associated with a less conservative approach. This could be assessed using actual portfolio statistics, or subjects could be asked to complete a series of asset allocation questions.

Another issue for researchers to address revolves around monetary commitment to an investment strategy. Is there an impact of explanatory style on dollar amounts invested? It is possible that individuals with a pessimistic explanatory style would invest a smaller percentage of disposable income to investments (especially higher risk investments). Such individuals attend to the risks associated with investing and may decide to expose lower levels of net worth to the investing enterprise. Optimists attend to the possibilities and should allocate more funds for investment purposes.

While this project noted a linear relationship between explanatory style and investor risk preferences, it is possible that using a different source of data might yield different results. Explanatory style is derived from the attributional reformulation of the learned helplessness model, a model stressing that depressed persons feel helpless in handling stress and therefore cease trying to master their environments. Future research could compare clinical and non-clinical populations. If the learned helplessness theory holds true, clinically depressed individuals should exhibit neither selling nor buying behaviour. Rather, the belief, “it doesn’t really matter what I do” may become internalized and affect investment decision-making. If this were the case, the relationship between explanatory style and investor preferences in a clinical population would fail to be linear. This line of theorizing raises a curious possibility: clinically depressed persons might exhibit less frequent selling behaviour than people who are slightly more optimistic. Of course, it is reasonable to suggest that individuals within a clinical population might lack the motivation to invest at all. The initial stages of investment require activity and the assumption of some risk, neither of which may be appealing.

Another avenue open to researchers is to explore any possible relationship between explanatory style and seeking professional financial advice. Optimists are imbued with feelings of personal agency and self-efficacy. Perhaps this translates into self-reliance with respect to investment strategy and implementation. Conversely, pessimists who make the internal, stable, and global attributions for negative events might seek the assistance of a professional planner, because they believe they cannot invest successfully when left to their own devices. While recent technological advances have enhanced access to financial information, many prefer to solicit the advice of

professionals. However, this advice comes at a significant cost. If pessimists are more likely to pay for services, this may result in lower levels of overall portfolio performance. Investment professionals manage mutual funds, and yet the majority of these funds fail to meet the performance of even the most basic benchmarks (e.g., for U.S. equity funds, the Standard and Poor's 500 Index). One explanation for this pervasive phenomenon focuses on the management fees associated with running a fund. The same can be said of professional financial advisors who have overhead costs that are passed on to the consumer. These fees may contribute to lower levels of portfolio performance, which leads to relatively lower levels of overall net worth. Even though the pessimist is acting on the advice of another, the negative outcome is apt to be personally internalized, indicative of stable causes, and generalizable to other situations. If this is in fact the case, the relationship between advisor and client takes on added significance (an issue to dealt with in further detail, see below).

Explanatory style and 'day-trading.' Technological advances such as the internet have not only made financial information more accessible, but have dramatically altered the methods of conducting financial business. In the past, investors relied heavily on the traditional brokerage houses, which charged substantial commissions for their advice and the execution of trades. With the growth of discount brokerages and on-line trading services, investors are able to save considerable amounts of money as they conduct financial business. Simply, many investors prefer to conduct their own research, place their own trades, and save money in the process. Growing competition between on-line trading firms has served to further lower the costs of trading. In addition, the internet has significantly enhanced the speed at which business can be transacted. The low-cost,

expeditious manner of on-line trading is directly responsible for a new breed of investor known as the 'day trader.' This type of investor attempts to capitalise on small stock price movements and navigates in and out of an investment position several times a day. Their computer screens are littered with stock graphs, charts, and real-time quotations. This strategy involves a high degree of risk and has more in common with gambling than it does with investing. Researchers could compare the day trader and ordinary investor in terms of explanatory style. Presumably the day trader has a higher risk tolerance and would exhibit an optimistic explanatory style. However, these investors liquidate their holdings on the basis of extremely small price movements and are willing to assume a certain loss rather than maintain a position that could easily change fortunes later in the day. The approach is focused exclusively on the short-term and may be considered the antithesis of the traditional buy and hold approach. Therefore, the day-trader is exhibiting many of the behaviours one would expect from an investor with a pessimistic ES. This is curious, given that day trading is perhaps the most risky type of investing. As noted, extremes in explanatory style may significantly affect results noted in this project; the same can be said for extremes in risk tolerance. As this line of inquiry is relatively new, it is important for researchers in this area to explore the fringes of the data for new research ideas and possibilities. Researchers should consider explanatory style and any possible associations with day trading behaviour.

When the markets CAVE. The EASQ is the primary means for assessing explanatory style. However, sometimes a desired subject is unavailable to complete a questionnaire and one must search for other means of securing explanatory style data. Peterson, Luborsky, and Seligman (1983) developed a content analytic method for

assessing explanatory style called Content Analysis of Verbatim Explanations (CAVE). This method may be applied to any archival source as long as causal explanations are indicated. Judges pour over archival information to uncover the attributions offered by participants. These attributions are then coded for their internality, stability, and globality. In this manner, explanatory style can be assessed for individuals who cannot complete the EASQ. The method has been used to examine a variety of documents, including diaries, interviews, newspaper articles, and therapy transcripts (see Reivich, 1995). In a classic application of the method, the relationship between explanatory style and electoral success was investigated (Zullow, Oettingen, Peterson, & Seligman, 1988). The prediction was that Americans were more likely to vote for presidential candidates who proffered an optimistic view of the future than for pessimistic candidates. The researchers examined 20 nomination acceptance speeches from the Republican and Democratic national conventions that occurred from 1948 to 1984. The assessments of explanatory style were examined with respect to the subsequent election results. In 9 out of 10 presidential elections, the candidate indicating higher levels of optimism was the victor.

Rettew and Reivich (1995) wanted to know if assessments of explanatory style could be used to predict athletic performance among professional baseball teams. Newspaper articles that contained National League player comments were included in the analytic archive and subjected to the CAVE procedure. The extractions from 1986 were used to predict 1987 performance. Even after controlling for team ability, teams with an optimistic explanatory style won more games than teams with a pessimistic explanatory style ($r = .49, p < .05$). If player comments can be used to predict team performance, why

can't CEO comments be used to predict the direction of a company? The financial world has a wealth of archival data sources that could be examined for explanatory style. Annual reports, company press releases, financial press accounts, newsletters, CEO speeches at annual meetings, and analyst commentaries represent a limited selection of what is available. An ambitious project could examine the speeches of U.S. Federal Reserve Chairman Allan Greenspan to see if explanatory style can be used to predict Federal Reserve action. Another project might investigate the role of optimism and pessimism in salesperson pitches. Future studies of explanatory style can use the CAVE methodology to examine a host of archival sources in the financial world.

Implications for prospect theory

Prospect theory predicts that people treat gain situations differently than loss situations. Specifically, decision-makers are apt to be risk-averse when faced with a gain, and risk seeking when faced with a loss. The results of the current project provide equivocal support for this prediction, as respondents were more risk averse for gains than they were for losses. The equivocation lies in the fact that risk aversion was noted across gain and loss situations. Several researchers have achieved similar results and concluded that the relationship between gains and losses is central to the theory, rather than absolute risk seeking or risk aversion. Without question, prospect theory represents a landmark achievement for research in behavioral finance. However, it cannot account for the intentions and behaviour of all decision-makers. When faced with a losing situation, people reach different conclusions about what caused the negative event. Simply, the attributional search yields many possibilities. Some people attribute causation to internal, stable, and global causes. These people are deemed to exhibit a pessimistic explanatory

style and are referred to as pessimists. Others find external, unstable, and specific causes and possess an optimistic explanatory style. Such persons are regarded as optimists. These tendencies appear to be relatively stable and represent a fairly robust dispositional consideration. Prospect theory achieves remarkable accuracy when accounting for the decisions of those with an optimistic explanatory style. However, the results of this project indicate that pessimists do not behave in accordance with the theory. Rather, they appear to behave in the opposite manner. Pessimists are significantly more risk averse when faced with a loss than their optimistic counterparts. Therefore, pessimists may be regarded as providing an exception to the rule and furnish an important clarification to prospect theory. Future researchers are well-advised to note the differential susceptibility of decision makers to risk seeking across losing situations.

Issues regarding the investor/advisor relationship

Know your client. In an applied context, explanatory style may be an important consideration for purveyors of financial advice. With an abundance of investment options and stiff competition for assets under management, service providers must be attentive to the needs of their customers. A vital piece of information may be realized through a consideration of explanatory style. Research of this variety provides an opportunity for us to speculate on how individual investors might behave in the event of a market downturn. A commonly noted rule-of-thumb for investors is that a buy and hold strategy is preferable and more profitable than frequent buying and selling. Knowledge of explanatory style would assist the financial industry in the identification of individuals who are at risk for premature portfolio liquidation. These persons are apt to experience lower levels of return on their investments, which could contribute to continued

pessimism. This is not to suggest that financial advisors should carry around a pocket version of the EASQ, handy for quick explanatory style assessments. However, knowledge of explanatory style might enhance the ability of a financial service provider to adequately respond to the needs of the client. Perhaps such individuals could be encouraged to purchase back-end-load mutual funds, which levy a redemption charge that declines over a period of seven years (in Lewinian terms, the elimination of a selling 'channel'). Under such an arrangement, the pessimist would have to sustain a significant charge if he/she decided to sell. If the goal is to maintain an investment position rather than sell at the first sign of trouble, this strategy may have some merit. While deferred sales charge funds have recently come under attack as benefiting the fund companies more than investors, it is possible that such investment products might be useful for those utilizing a pessimistic explanatory style. Another investment possibility lies with segregated mutual funds that afford a capital guarantee. The protection of capital is apt to be an important investment objective for the pessimist and these funds address this concern. Unfortunately, the fees associated with segregated mutual funds are more expensive than those attached to most non-segregated funds. In any event, financial advisors are charged with the responsibility of identifying options that keep the pessimist in the market and curtail high 'stop-loss' decision-making. In addition, the ethical implications of this strategy are worthy of consideration, as the idea involves a financial advisor trying to protect a client from him/herself. In the final analysis, the decision-making power must rest squarely on the shoulders of the client.

This is not to suggest that investors with an optimistic explanatory style are guaranteed to be more successful investors than their pessimistic counterparts. An over-

abundance of optimism may result in excessive risk-taking, reckless behaviour, and avoidable losses. In addition, it is possible to imagine circumstances during which a pessimistic orientation may have some benefit. Not all investments should be maintained for the long-term and the short-term orientation of the pessimist may be advantageous. However, our assessments of appropriate strategy can only be made in hindsight, once the performance data has been obtained.

For the sample as a whole, subjects expressed a preference for adding to investment positions that had experienced a short-term gain. This is hardly surprising given that past performance data is weighted so heavily when people are making investment decisions. One can hardly be expected to commit an initial asset position to a struggling mutual fund (unless of course one believes the fund to represent a relative bargain). However, many investors will chase after a 'hot' fund with impressive short-term performance numbers. Rather than stay the course and commit to a sound investment strategy, these investors are seen to rotate in and out of funds on the basis of limited information. While the presentation of past performance data is regulated, mutual fund companies make extensive use of this information. Reliance on historical information is problematic for it rests on a fallacious premise: past performance is predictive of future performance. When advertising historical rates of return, mutual fund companies are compelled to indicate (in small print) that past performance is not necessarily predictive of future returns. In reality, individuals tend to overweight recent information and underweight prior data. DeBondt and Thaler (1985) believe that reliance on short-term information is, in part, responsible for the tendency of investors to overreact to unexpected or dramatic financial news. The current study employed a

single-item to assess subject response to short-term performance data. This measure utilized a one-year time frame. Future researchers could use a variety of time frames to more accurately assess the impact of explanatory style on investment behavior. The pessimist may regard the one-year time frame as long-term and may be at risk for premature portfolio liquidation at a much earlier date.

Investment advisor as counselor. As noted, expected utility theory views decision-makers as rational self-maximizing agents who are able to survey the field of alternatives and arrive at decisions that maximize value. Many investors are able to distance themselves emotionally from the cycles of market action and are able to exercise calm, rational judgement. However, it is suggested that most market players and in fact the fortunes of the entire market rest precariously on a fulcrum between fear and greed. When greed dominates the investment landscape, the market rises as investors pour increasing levels of disposable income into various investment products. The role of the investment advisor becomes one of allocating client resources into the appropriate channels, maintaining accounts, and competing with other advisors for a piece of the capital pie. On occasion, advisors may be confronted with curious investors who wonder why their investment returns have failed to match or exceed their expectations. As the market tops, the last few buyers have added their money to the pot and are eagerly awaiting a quick return on their investment. As noted, market corrections, crashes, and panics are historically common and every speculative bubble is ripe for the bursting. The market quickly reverses direction and greed is immediately replaced by fear. The selling pressure mounts and the fear intensifies. Trading volume swells and financial advisors may be inundated with calls from customers. Under such circumstances, the advisor

must wear the hat of a counsellor, attempting to soothe the concerns raised by increasingly nervous investors. Typically, investors are reminded of their investment objectives, the advantages of a long-term approach, and the merits of a buy and hold strategy. During this time period, inflows to mutual funds decline, as investors are reluctant to commit new funds to the losing market (some bargain hunters may survey the landscape for value plays, but most investors stay on the sidelines). Can we identify who is most apt to contact their advisor during a declining market? Perhaps investors with a pessimistic explanatory style are most apt to look to their advisor for reassurance and counsel. The pessimist might initiate the high 'stop-loss' protocol early in the market decline and the advisor could play a prominent role in reversing this tendency. It is the responsibility of the psychological counselor to assist a client in the identification and elimination of maladaptive behavior. A financial advisor serves a similar function, albeit in a different context. If premature portfolio liquidation and extremely conservative asset allocation is deemed maladaptive, the advisor could be regarded as a counselor with a variety of adaptive alternatives.

Methodological issues

Gender effects. Male respondents indicated significantly higher levels of investment risk preference than their female counterparts. In addition, when faced with a short-term investment loss, males were less likely to express selling intentions than females. The sample was overweighted with female representation (75% female, 25% male) and would have benefited from a more equal gender breakdown.

On the subject of gender and investing, the literature is remarkably quiet. Estes and Hosseini (1988) conducted a study on investment decision-making and investor

confidence. It was discovered that women express significantly lower levels of investor confidence than men. This was the case even when age, business experience, credit hours in accounting and finance courses, portfolio values, investment experience, and knowledge of common stocks were statistically controlled. Even when men and women were found to make the exact same investment decision, the female investor exhibited lower levels of confidence. According to Estes and Hosseini (1988), women are often perceived as lacking the financial acumen to invest successfully, and therefore do so less confidently. However, in their study, females invested at a success rate equal to that of men. Baker (1971) found that women were in fact more successful investors than men. In a study conducted to determine if personality differences existed between successful and unsuccessful investors, Baker (1971) administered a series of personality tests to his subjects. The personality characteristics associated with successful investing were dominance, flexibility, tolerance, psychological mindedness, self-acceptance, sense of well-being, and intellectual efficiency. Overall, these personality characteristics were more representative of the women in the study than of the men. The lack of self-confidence among female investors may provide a clue as to why women invest at a rate lower than men. Sorley (1996) notes that the media may be implicated in the production of this arrangement through the differential presentation of male and female investors. In a discourse analytic examination of media accounts of the 1987 stock market crash, it was noted that the financial press affords females a speaking space characterised by dependence, passivity, and a lack of financial knowledge. In contrast, an active discourse that stresses independence, activity, and market savvy dominates the male speaking space. Many service providers have recognised the crisis in confidence among some

female investors and have developed a series of financial information sessions exclusively for women. Future research efforts might assess the effectiveness of these seminars and search for additional factors that promote confidence among female investors.

A number of recent research projects have tried to account for differential risk taking preferences between men and women. In a study of boredom, Watt and Vodanovich (1999) identified significant gender differences in terms of external stimulation. Apparently, males require higher levels of external stimulation and have difficulty dealing with structured environments and monotony. As a result, males are more prone to boredom and more likely to engage in risk-taking behaviour. The financial markets may be considered a highly structured environment with very clear norms and procedures. Perhaps in an effort to reduce the boredom associated with this structure, males are willing to assume higher levels of risk for their investments. This need for stimulation and risk-taking may be central to the previously discussed phenomenon of 'day trading'

Lack of age effects. A comment should be made about the lack of age effects obtained in this study. An early proposal of this project focused exclusively on introductory psychology students at Carleton University. It was noted that a sample of this variety would be problematic as the majority of first year students are under the age of twenty. Previously conducted research has noted the powerful effect of age on risk taking, and a project of this variety would benefit from a diverse sample. It was decided to include students enrolled in the Crisis Management Human Psychology Program at Algonquin College, a program designed primarily for adult learners. This effort to

improve the age diversity of the sample appeared to meet with little success. While the Algonquin students were considerably older than the Carleton students, the overall sample was still overwhelmingly focused on persons in their twenties and thirties. . Advertisers speak of the 18-34 demographic and assert that people in this age cohort exhibit similar attitudes and purchasing patterns. This project appears to support this assertion as age accounted for a miniscule proportion of data variance. In effect, age had already been controlled for given the nature of the sample. In sum, this project would have been enhanced with a more diverse age sample.

Median split. It should be remembered that this study employed a median split to distinguish respondents with an optimistic ES from those with a pessimistic ES. While acceptable research practice, a median split is rarely an ideal method of analyzing data. For the purposes of the present study, the split was performed on the composite measure of ES, a continuous variable. The median split procedure permits a continuous variable to be analyzed as if it were categorical. This is somewhat artificial, especially when considering the responses of subjects who score near the demarcation line between the artificially created categories. In recognition of these statistical issues, this study utilized regression analysis to supplement the median split procedure. Future researchers are advised to utilize a variety of analytic procedures in addition to the median split. Given that a split was performed and is in keeping with the previously conducted research in this area, it is advisable to focus on the data quartiles. A larger sample size would permit the employment of a quartile, rather than median split. This would allow researchers to more clearly differentiate between the preferences of optimists and pessimists. In addition, a larger sample size would afford the statistical analyses with additional power.

While over 70% power is certainly acceptable and approaches the convention level of 80% identified by Cohen (1988), it can be improved with fairly minimal effort.

Future directions. While the current study utilized psychology students as a data source, it would be provocative to conduct similar research using a population of current investors. Such investors have trading records that could serve as an important source of archival data. The benefit of trading records is that they represent actual decisions and can serve as a concrete measure of behavior. This project used hypothetical situations that may not resonate with the respondents. While presenting subjects with hypothetical prospects is the standard in decision-making research, these situations are fairly sterile and require very limited involvement on behalf of the respondent. In reality, people don't invest in hypothetical companies in anticipation of imaginary profits while avoiding illusory losses. The financial markets utilize a fairly clear system of distributive justice to allocate rewards, and the incentives are quite real. Future research in this area could employ stock market simulation exercises with a specific reward allocation procedure. Simulation exercises represent an attempt to enhance external validity and therefore should replicate the essential features of any financial market. Simulation games typically involve a respondent seated before a computer that presents options, records decisions, and calculates results. In the past, computer simulations were criticized as fairly benign and quite artificial. However, given the emergence of on-line trading as a dominant market force, computer simulations may play an increasingly prominent role in market research. The interface could be similar to that used by on-line traders and would be quite familiar to today's investor.

One feature of the marketplace that is often neglected by researchers involves feedback. In an actual market, an investor is constantly provided with numerical feedback. One can obtain real-time stock quotations that provide an investor with an opportunity to instantaneously evaluate the merit of a previously made investment decision. Mutual funds are updated daily and the entire investment industry is almost obsessed with performance data. As noted by Josephs, Larrick, Steele, and Nisbett (1992), persons of low self-esteem are especially sensitive to feelings of regret when receiving feedback. Leahy (1997) echoes this sentiment, arguing that depressives possess a regret orientation and always believe they should have known better. This fallacy of perfection adds to the negative impact of losses. In any event, feedback is central to the construction of any stock market simulation.

The notion of feedback is central to an additional methodological issue that confronts researchers of decision-making processes. When faced with a decision, each of us has a past that undoubtedly influences the direction of our present and future behaviour. Therefore, decision-making situations are dynamic in nature and this presents a number of methodological challenges for researchers. Presenting subjects with a series of prospects may be ignoring the dynamic contexts in which decisions are actually made. Classical considerations of prospect theory have made extensive use of the one-stage method of gamble presentation, which asks subjects to choose between a number of gambles. By contrast, the two-stage model attempts to establish a past by presenting subjects with past performance information. Prospect presentation format can have a powerful impact on decision making (see for example, Hollenbeck, Ilgen, Phillips, & Hedlund, 1994; Thaler & Johnson, 1990). Future researchers are well-advised to

investigate the effects of dynamic decision-making scenarios and investor choice.

General theoretical implications

The model of depressive resistance offered by Leahy (1997) utilized market terminology to account for the cognitions common to depression. While he used an economic model, his theory was not intended for an economic audience. Rather, his work was primarily intended for clinicians and represents a novel approach to depressive symptomology. However, as the results of this study indicate, there is some merit to a literal interpretation of this model. The reluctance of traditional economics to acknowledge a role for psychology has been noted. Perhaps psychological models that possess a decidedly economic flavor have the best chance of achieving acceptance among economists. This project was accomplished in the spirit of interdisciplinary theoretical exchange and borrowed heavily from cognitive psychology, clinical psychology, and the psychology of economics. The fruits of the research may be returned to each of these disciplines. Clinicians have some empirical support for a model through which depressive symptomology can be understood. Cognitivists have something of interest in the extension of explanatory style, a cognitive personality variable, into a new arena of research. Economists and financial experts have another theory in which to understand investors and their responses to market downturns. This multidimensional orientation to research is characteristic of the emerging field of behavioral finance. Kahneman and Tversky (1979) helped to pioneer the field by challenging the normatively based predictions of traditional economic theory. By considering the social and psychological factors involved in investor behavior, the descriptive accuracy of our predictions may be enhanced. Richard Thaler (1991), an economist intrigued with the psychology of

decision-making and market phenomena, commented that he only discussed his work in this area with "close friends and colleagues I wanted to annoy" (p. xii). However, as long as its own disciplinary barriers remain permeable, behavioral finance will continue to serve as an interface between psychology and economics.

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Appendix A

Subject Solicitation Form

Experiment Title: Explanatory Style and the Assumption of Financial Risk

Experimenter's Name & Room#: Matthew Sorley & TBA

Experimenter's Phone No. TBA

Location of Experiment: TBA

Experiment Number: TBA

Faculty Advisor: Dr. L.H. Strickland

Brief Description

The purpose of this study is to examine the relationship between explanatory style and the financial risks that we take. Explanatory style is the way in which we make sense of the events that happen to us. This study involves the completion of a questionnaire.

During this study, you will be asked to respond to a series of hypothetical events and then make a series of economic decisions. Your participation will take about 45-60 minutes.

All responses will remain confidential and your participation is anonymous. You will receive one (1) experimental credit for your participation. There is no deception

involved. The Research Ethics Committee of the Psychology Department has approved this study (#). Are you willing to participate? Sign-up sheets for this study are underneath. Please provide the information requested.

Appendix B

Informed Consent Form

The purpose of an informed consent form is to insure that you understand the purpose of the study and the nature of your involvement. The informed consent form must provide sufficient information such that you have the opportunity to determine whether you wish to participate in the study.

Present Study

Explanatory Style and the Assumption of Financial Risk is part of a Master's Thesis project in psychology.

Research Personnel

The following people are involved in this research project and may be contacted at any time: Matthew Sorley (Principal Investigator, phone number TBA), Dr. L. H. Strickland (Faculty Advisor, 520-2600, ext. 2703). Should you have any ethical concerns about this study, please contact Dr. M. Gick, (Chair, Department of Psychology Ethics Committee, 520-2600, ext. 2664) or Dr. K. Matheson (Chair, Department of Psychology, 520-2600, ext. 2648).

Purpose and Task Requirements

The purpose of this study is to examine the relationship between explanatory style and the financial risks that we take. Explanatory style is the way in which we make sense of the events that happen to us. During this study, you will be asked to respond to a series of hypothetical events and then make a series of economic decisions. It will take approximately 60 minutes to complete the questionnaire. Testing will take place at Carleton University. You will be given a Summary and Debriefing form upon

completing the questionnaire. We will be happy to provide you with a statistical summary of the results when the project is completed.

Potential Risk/Discomfort

There are no potential physical or psychological risks in this study. There is no deception involved.

Anonymity/Confidentiality

The data collected in this study is confidential. All data is coded such that your name is not associated with the data. The coded data is made available only to the researchers associated with this project.

Right to withdraw

You have the right to withdraw from the study at any time without academic penalty.

Signatures

I have read the above description of the study, Explanatory Style and the Assumption of Financial Risk and understand the conditions of my participation. My signature indicates that I agree to participate in the study.

Participant's Name: _____

Participant's Signature: _____

Researcher's Name: _____

Researcher's Signature: _____

Date: _____

Appendix C

Summary and Debriefing Form

Thank you for participating in this study. As mentioned, the research is being conducted as part of a Master's Thesis project in psychology. The purpose of this study is to examine the relationship between explanatory style and the financial risks that we take. Explanatory style is the way in which we make sense of the events that happen to us. Many people offer optimistic interpretations of events that focus on external, specific, and unstable causes. Meanwhile, pessimists typically explain negative events in terms of internal, global, and stable forces. This study seeks to understand the different types of economic decisions that optimists and pessimists make.

Once the completed questionnaires are collected, statistical analyses will be conducted in order to test our hypotheses. We hope to complete the analyses by the end of 1998, and will be happy to provide you with a summary of the results at that time.

Please keep this debriefing form for your records. If you have any questions, comments, or concerns about this study, please feel free to contact any of the following people:

Matthew Sorley, Principal Investigator: Phone: TBA

Dr. Lloyd H. Strickland, Faculty Advisor: 788-2600, ext. 2703.

Dr. M. Gick, Chair of Psychology Dept. Ethics Committee: 788-2600, ext. 2664.

Dr. Kim Matheson, Chair, Psychology Department: 788-2600, extension 2648.

Appendix D

Expanded Attributional Style Questionnaire

INTERPRETATIONS OF EVENTS

Please try to imagine yourself in the situations that follow. If such a situation happened to you, what would you feel would have caused it? While events have many causes, we want you to pick only one – THE MAJOR CAUSE IF THIS EVENT HAPPENED TO YOU.

Please write the cause in the blank provided after each event. Next we want you to answer three questions about the cause you provided. First, is the cause of the event something about you or something about other people or circumstances? Second, is the cause of the event something that will persist across time or something that will never again be present? Third, is the cause of this event something that affects all situations in your life or something that just affects this type of event?

To summarize, we want you to: Read each situation and vividly imagine it happening to you.

2. Decide what you feel would be the one major cause of the situation if it happened to you.
3. Write the cause in the blank provided.
4. Answer three questions about the cause.

Appendix E

Investment Risk Attitude

Following are a number of statements concerned with how you feel about financial affairs. Please indicate your degree of agreement with each of the following statements. There are no right or wrong answers.

1. I think it is more important to have safe investments and guaranteed returns, than to take a risk to have a chance to get the highest possible returns. (circle one number)

I strongly	1	2	3	4	5	6	7	I strongly
disagree								agree

2. I would never consider investments in stocks, because I find this too risky. (circle one number)

I strongly	1	2	3	4	5	6	7	I strongly
disagree								agree

3. If I think an investment will be profitable, I am prepared to borrow money to make this investment. (circle one number)

I strongly	1	2	3	4	5	6	7	I strongly
disagree								agree

4. I want to be certain that my investments are safe. (circle one number)

I strongly disagree 1 2 3 4 5 6 7 I strongly agree

5. I get more and more convinced that I should take greater financial risks to improve my financial situation. (circle one number)

I strongly disagree 1 2 3 4 5 6 7 I strongly agree

6. I am prepared to take the risk to lose money when there is also a chance to gain money. (circle one number)

I strongly disagree 1 2 3 4 5 6 7 I strongly agree

Appendix F

Risky Prospects

Following are a set of choices involving money. Imagine you are actually faced with the choice described in each situation. Please indicate the decision you would make in each case. There are no right or wrong answers. We are only interested in your preferences.

Problem 1: Which of the following would you prefer? Circle A or B.

- A: 50% chance to win \$200 B: A sure gain of \$100
 50% chance to win nothing;

Problem 2: Which of the following would you prefer? Circle A or B.

- A. 50% chance to win \$500 B: A sure gain of \$100
 50% chance to win nothing;

Problem 3: Which of the following would you prefer? Circle A or B.

- A. 50% chance to win \$1000 B: A sure gain of \$500
 50% chance to win nothing;

Problem 4: Which of the following would you prefer? Circle A or B.

- A. 50% chance to win \$2500 B: A sure gain of \$500
 50% chance to win nothing;

Problem 5: Which of the following would you prefer? Circle A or B.

- A. 50% chance to win \$4000 B: A sure gain of \$2000
 50% chance to win nothing;

Problem 6: Which of the following would you prefer? Circle A or B.

- A. 50% chance to win \$10000 B: A sure gain of \$2000
 50% chance to win nothing;

Problem 1': Which of the following would you prefer? Circle A or B.

- A: 50% chance to lose \$200 B: A sure loss of \$100
 50% chance to lose nothing;

Problem 2': Which of the following would you prefer? Circle A or B.

- A: 50% chance to lose \$500 B: A sure loss of \$100
 50% chance to lose nothing;

Problem 3': Which of the following would you prefer? Circle A or B.

- A: 50% chance to lose \$1000 B: A sure loss of \$500
 50% chance to lose nothing;

Problem 4': Which of the following would you prefer? Circle A or B.

A: 50% chance to lose \$2500 B: A sure loss of \$500
 50% chance to lose nothing;

Problem 5': Which of the following would you prefer? Circle A or B.

A: 50% chance to lose \$4000 B: A sure loss of \$2000
 50% chance to lose nothing;

Problem 6': Which of the following would you prefer? Circle A or B.

A: 50% chance to lose \$10000 B: A sure loss of \$2000
 50% chance to lose nothing;

Appendix G

Short-term investment situations

Try to imagine you have sufficient money and have decided to invest some of it.

Following are two hypothetical investment situations. Try and say what you would do in each, all other considerations equal.

1. Last year, you purchased shares in a fund that invests in a variety of stocks and bonds (a mutual fund). Since then, the value of the fund has declined by 15 per cent. What would be your reaction? (circle one number)

Sell all my	1	2	3	4	5	6	7	Buy more
shares								shares

2. Assume your investment in a mutual fund has returned 15 per cent in the last year. What would be your reaction? (circle one number)

Sell all my	1	2	3	4	5	6	7	Buy more
shares								shares