An Examination of Economic Stress and its Impact on Financial Risk-taking Through Perceptions of Control

Joana Katherine Quimpo Katter

Graduate Program in Psychology
York University, Toronto, Canada

A Dissertation submitted to the Faculty of Graduate Studies in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

November 2017

Abstract

The current project consists of two studies that explore the theoretical framework linking economic stress and financial risk-taking, with a focus on the importance of perceived control. Specifically, it was hypothesized that economic stress would influence financial risk-taking behaviour by first influencing an individual's sense of personal control over their own situation, which would, in turn, influence their perceived control over risky behaviours. The role of related personality traits in influencing perceptions of control and risk-taking behaviours are also considered. Study 1 explored the effect of an economic stress manipulation on the extent that an individual perceives his or her own financial situation to be under his or her personal control, and how control perceptions are associated with perceived risk in gambling and investing activities. Study 2 expanded on the exploration of control perceptions to include perceptions of both personal internal control and control by outside forces, to fully capture how perceptions of control shift under economic stress. Partial support for the hypothesized model is found. Theoretical and practical implications of the study findings are discussed.

Dedication

To my parents, Jane and Ricardo, and to my siblings, Barbara and Ricky; none of this would have been possible without your love and support. Thank you for being there for me, and for helping me to make it through the tough times.

Acknowledgements

Table of Contents

List of Tables

List of Figures

Introduction

Though economic conditions in many countries have improved since the peak of the financial crisis of

2007/2008, many individuals continue to experience significant levels of economic hardship, financial

threat, debt, and an associated decline in feelings of financial well-being (Greenglass, Marjanovic, &

Fiksenbaum, 2013). Even in the absence of changes to employment status and income level, fear of the

economic crisis alone has been shown to impact individual wellbeing (Giorgi, Arcangeli, Mucci, & Cupelli,

2015), as do general concerns about job instability (Libby, Ghushchyan, McQueen, & Campbell, 2010).

Past experimental research has shown economic stress to increase financial risk-taking (Wohl,

Branscombe, & Lister, 2014), a result that mirrors findings on the relation between socio-economic-

status (SES) and risk-taking. Understanding how economic stress influences risky financial behaviours

like investing and gambling is thus important both to ensure the conservation of current resources and

to limit additional losses. The current research seeks to better understand how economic stress

influences financial risk-taking by integrating research on the importance of personal control, especially

work on the concept of secondary control (Rothbaum, Weisz, & Snyder, 1982) and the compensatory

control theory (Kay, Sullivan, and Landau, 2015; Kay, Whitson, Gaucher, & Galinsky, 2009), as well as

theoretical perspectives from the stress and coping literature, in particular the importance of control

perceptions in the transactional model of stress and coping (Folkman, 1984; Lazarus & Folkman, 1984).

Economic Stress in Young Adults

Despite the continued economic recovery in countries affected by the Great Recession, income

inequality remains a key global concern (Greenglass et al., 2014). Though research has shown that

individuals of all social classes continue to experience significant economic stress, current life stage has a

significant effect on the amount of economic stress individuals will experience (Whelan, Russell, & Maitre, 2016). Students and young adults are particularly vulnerable to the negative effects of difficult economic conditions. The increased financial threat that young adults experience has well-established links to negative psychological outcomes, including heightened psychological distress, depression, anxiety and mood disturbance (Marjanovic, Greenglass, Fiksenbaum, & Bell, 2013). A Statistics Canada report exploring youth labour market participation in Canada from 1976 to 2015 found that young adults not currently in full-time studies typically experience 2.3 times the level of unemployment compared to the general population, currently at 12.3% (Morissette, 2016). Though youth unemployment levels have been relatively stable over recent years, the proportion of youth employed in permanent or full-time jobs has continued to fall, with a large proportion of those who are currently employed full-time in temporary or contract positions (Morisette, 2016). Underemployment, where individuals may be employed in low-quality jobs relative to their education and training level (Abel, Deitz, & Su, 2014), and unemployment during an individual's early adulthood can have lifelong consequences, influencing long-term earning potential even after employment has been found (Mroz & Savage, 2006). Long periods of unemployment during young adulthood can impede full integration into society, resulting in being excluded on an economic, social, institutional, and cultural level (Kieselbach, 2003). Graduating during a time with negative labour market conditions can have serious short and long-term consequences, influencing both initial job availability and the ability of individuals to transition to higher paying positions over time (Oreopoulos, Von Wachter, & Heisz, 2012). Those who graduate into negative economic circumstances tend to remain in lower level occupations compared to those who graduate in better conditions, despite having higher overall educational attainment (Kahn, 2010). While their income and employment prospects are decreasing, young adults simultaneously face increased costs, including tuition rates that have more than doubled since the 1990s, rising at a rate that outpaces inflation (Carlson, 2011). Data from the American Federal Reserve showed that young adults

today had lower total income, assets, net wealth, and retirement savings, and were less likely to own a home than young adults in 1989 (Allison, 2017).

The Role of Status in Economic Stress

The stressors associated with difficult economic times extend, far beyond the difficulties associated with financial loss, to damage done to an individual's sense of identity and status. A taxonomy developed by Voydanoff (1990) on economic stress defined it as comprising two components: employment stressors, associated with one's employment status, and income stressors, associated with one's ability to meet financial demands. Though most research in this area has focused on the importance of employment stressors only as far as they relate to earning potential, it is important to consider that employment status is important independent of its influence on income. In general, work is a key component of personal identity so an inability to find meaningful work influences both physical and mental wellbeing, and family functioning (Price, Friedland, & Vinokur, 1998). This suggests that a job that is high in status or meaning may then protect the individual from some of the damage resulting from reduced income. For example, many young adults may complete an internship in their field of study, that while frequently unpaid or low paying, may be beneficial in terms of career development both in terms of personal development (Brooks, Cornelius, Greenfield, & Joseph, 1995), and in the increased likelihood of gaining full-time employment in their field post-graduation (Gault, Leach, & Duey, 2010). Conversely, income may not be sufficient to prevent the negative effects of underemployment (Abel et al., 2014). In sum, the expectation of finding a job in one's chosen field, including an internship that may be low-paid nevertheless holds the promise of improved income and status in the future. This is to be contrasted with a low-status job which though similar in terms of salary holds little hope for advancement in the future.

Understanding the effect that status-related components of economic stress may be particularly important when considering economic stress in young adults, as young adults may be particularly vulnerable to economic stress of this nature in difficult economic times. Research has shown that underemployment is a growing problem for recent college graduates, where those graduates who manage to find employment after graduation are increasingly likely to be in low quality and low paying positions that often don't require a bachelor's degree (Abel et al., 2014). The difficulties that young adults face, including problems finding stable employment, declining earnings, and increasing debt result in delayed economic independence and residential autonomy (Aassve, Cottini, & Vitali, 2013). Failure to reach culturally important milestones like buying one's own home can negatively impact an individual's sense of identity. A report from the Bank of America identified shifts in young adults away from traditional priorities, including getting married, becoming a parent, and saving for retirement, attributing this to a shift in priorities to living in the moment (Merril Edge, 2017). This shift in priorities is due, at least in part, to shifts in the current employment market – as young adults can no longer expect to find a stable career, they prioritize their current situation over planning for a long distant future. Consequently, it is theoretically important in research on economic stress in young adults to consider both financial and status-related aspects of economic stress.

Economic Stress and Financial Risk-taking

Exposure to stress is known to influence risk-taking in financial decision making, such that individuals under stress make riskier choices in behavioural decision-making tasks, attributed to an increased reliance on biases and lower level processing during decision making under stress when the resources needed for more effective decision making are depleted (Porcelli & Delgado, 2009). Though, in general,

individuals are found to reduce their spending in difficult economic times (McCully, 2011), the impact of economic stress on financially risky expenditures is mixed. For example, data from Statistics Canada indicate that while at the onset of the recession the number of households that engaged in gambling activities decreased falling to 52% in 2007 from 73% in 2006, the average expenditure of households that did engage in gambling increased by $250 over the same period (Marshall, 2011). So, while some households may have ceased gambling, evidence suggests that a certain portion of the population not only continued to gamble during the recession but intensified their spending in this area. This response is in line with experimental research demonstrating that economic stress is associated with increased financial risk-taking, such that likelihood to gamble and bet size increase within a gambling task (Wohl et al., 2014).

Engaging in financially risky behaviours such as gambling and investing may appear attractive in the face of financial difficulties, as it provides the possibility, no matter how unlikely, of financial gain (Callan, Ellard, Shead, & Hodgins, 2008). This is particularly true for those with lower SES, who may lack alternate immediate means of increasing their income, particularly in the short-term. More reliable means of increasing income level, such as pursuing additional education and training, may take years to make a significant impact (Carnevale, Rose, & Cheah, 2013). Individuals already experiencing economic difficulties may more likely make poor financial decisions, as low SES has been shown to be associated with an increased use of emotion-focused financial coping strategies (reducing the negative emotions associated with economic stress), in contrast to problem-focused coping strategies whose effects may not be as immediate but are more effective in the long-term (Caplan & Schooler, 2007). The lowest earning households tend to spend a significantly higher proportion of their total income on gambling activities, with those with an after-tax income of under $20,000 dollars spending 2.7% of their income on gambling, while those that earn $80,000 and overspend only 0.5% (Marshall, 2011). Fully

understanding the influence of stress on financial risk-taking is important since engaging in financially

risky behaviours such as gambling can lead to additional economic stress, including unmanageable debt

and, in extreme cases, suicide (Wong, Chan, Conwell, Conner, & Yip, 2010).

The Importance of Control Perceptions

The importance of personal control perceptions, the belief that individuals can achieve the outcomes

they desire, on psychological functioning is well established (see Kay et al., 2015 for a review).

Substantial research supports the importance of control coming from both within the individual, where

a primary motivation is to see one's self as in control of one's life, rooted in work from Alfred Adler (as

cited in Kay et al., 2015), and a sense of control from external societal structures, where an orderly and

structured environment allows for proper behaviour, rooted in work by George Herbert Mead (as cited

in Kay et al., 2015). Both of these sources of control perceptions are vulnerable in difficult economic

conditions. Early psychological research on control perceptions as a motivational source focused on

locus of control (Rotter, 1954), initially conceptualized as a continuum from having either an internal

locus of control, where individuals believed they had the power to influence desired outcomes, to the

other extreme of having an external locus of control, where they felt that they had little power to

influence outcomes that were instead seen to be determined by external forces (Rotter, 1966; Kay et al.,

2015). More recent theoretical perspectives on trait locus of control have determined perceived control

to be multidimensional in structure, where internal and external factors varied independently

depending on domain (Lachman, 1986; Levenson, 1981). Though the initial conceptualization of the

concept of locus of control was situational in nature, a large proportion of work focused on internal and

external locus of control looks at them as individual difference variables (Kay et al., 2015).

The importance of situational perceptions of control is clear within the context of stress and coping research, as the lack of perceived control engendered by experiencing a stressful event is associated with negative psychological and physical outcomes (Agrigoroaei & Lachman, 2010). According to the transactional theory of stress and coping (Folkman, 1984; Lazarus & Folkman, 1984), stress does not occur upon exposure to a specific situation but is a complex relational process between individuals and the circumstances they face. The way individuals choose to deal with a situation and the outcomes they will eventually experience first depend on how they cognitively appraise a situation. Thus, in order to understand the decisions that individuals will make in the face of an economic stressor, it is necessary first to consider how they perceive the situation. The extent to which individuals perceive the situation they face as controllable is one of the factors that determine how they will respond to a potential stressor. The Stress Appraisal Measure (SAM; Peacock & Wong, 1990), assesses the way an individual perceives a potential stressor based on the transactional theory of stress and coping, and differentiates between three different control perceptions that influence the stress and coping process; the extent to which individuals consider the situation to be controllable by the self, similar to the concept of personal control described above, the extent to which individuals see the situation as being controlled by others, and the extent to which an event is perceived as being uncontrollable. These appraisals depend both on characteristics of the potential stressor, on individuals and the resources available to them. Both internal resources, such as personality traits, and external resources, including available social support, are known to influence perceptions of control (Folkman, 1984). For example, personality traits such as resilience are associated with the ability to thrive in the face of difficult situations, and an increased likelihood to view potential stressors as a obstacles that can be overcome (Connor & Davidson, 2003; Katter, 2010), and may subsequently be associated with an increased likelihood of perceiving a situation as being under one's own personal control. Other relevant personality traits that influence the amount of control an individual will perceive over potentially stressful situations include an individual's trait

locus of control, a general tendency to perceive the situations they face as being either under their own

internal control or subject to external control (Rotter, 1954).

Economic stress and control perceptions.

Though little work has focused on the link between perceptions of control and economic stressors, the

link between economic circumstances and control perceptions is well-established. Perceptions of

personal control are seen as a key mechanism linking socio-cultural conditions such as structural

inequality (in terms of income, educational attainment, and employment), and key psychological health

outcomes including depression, anxiety, and anger (Ross & Mirowsky, 2013). Both objective and

subjective indices of SES are associated with perceptions of diminished personal control (Kraus, Piff, &

Keltner, 2009; Lachman & Weaver, 1998; Ojha, 2008). These perceptions are seen as being at least in

part an accurate reflection of reality. Those with lower SES generally have lesser access to coping

resources and a reduced ability to control certain aspects of their lives, compared to individuals with

higher SES (Kay et al., 2015), though the relationship between socioeconomic factors and perceptions of

control is fairly complex. For example, early life exposure to economic difficulty is known to influence

responses to uncertainty and threat as an adult, independent of current SES, where low SES in childhood

is associated with perceived lower control in adulthood (Mittal & Griskevicius, 2014). Also, beyond the

conceptualization that economic status influences perceptions of control, research indicates that the

negative effects of economic status are in fact moderated by perceptions of control, such that

perceiving high personal control buffers against the negative effects of economic stress on outcomes

including physical and psychological well-being (Lachman & Weaver, 1998).

Control perceptions under threat.

When individuals' sense of personal control is under threat, they may turn to alternate secondary sources of control, where they instead gain a sense of control that is attributed to sources outside the self (Kay et al., 2015). Secondary control allows individuals the ability to maintain a certain level of perceived controllability in threatening situations, where if they cannot be in control of the outcomes, some known entity is, essentially substituting who holds control. For example, in the two-process model of perceived control by Rothbaum and colleagues (1982), when individuals are unable to achieve primary personal control over their environment, they will then attempt to gain a sense of control through secondary control processes, placing themselves under the control of their environment. They outline three types of secondary control mechanisms; predictive control, where individuals choose situations which are predictable in nature to reduce the possibility of unexpected outcomes, as well as illusory and vicarious control, where individuals perceive either fate and chance or powerful others as being in control of the outcomes they will experience. Endorsing these external secondary sources of control is hypothesized to reflect not that a situation is uncontrollable, but instead allow for individuals to gain a sense of interpretive control over their environment, where they attempt to derive meaning from what they face, in order to maintain perceptions of control in difficult situations.

The idea that the need for internal personal control can be met by alternate external sources is also a central component of more recent work on the compensatory control theory (Kay et al., 2015; Kay, et al., 2009). According to this theory, when an individual's sense of personal control is threatened, he or she may substitute damaged personal control with the idea of control by outside forces. This may include perceiving patterns in random information, increased belief in superstitions or conspiracies, and increased belief in powerful others, both in terms of socio-political and religious institutions. Notably, according to compensatory control theory, the alternate source of control need not be agentic in

nature, nor be directly related to the situation that threatened individuals' sense of personal control. Endorsing these compensatory control mechanisms is specifically tied to the lack of personal control experienced when under stress, and not the associated level of threat or general negativity (Kay et al., 2009).

Of particular relevance to understanding the relationship between perceptions of control and risk-taking behaviour is the idea that these external sources of control can be illusory in nature. Perceiving an illusion of control involves a belief that the personal likelihood of success is inappropriately high considering objective probability (Langer, 1975). Previous research has shown that under high stress, individuals have demonstrated an increased preference for gambling tasks that allow for an illusion of control to bolster their sense of internal control (Friedland, Keinan, & Regey, 1992). Combined with the idea that a source of control can be substituted, this may then suggest that the preference for these illusory control tasks may be driven by a damaged sense of control in response to stress.

Theoretical Model

Significant research suggests that economic stress, in terms of an experimentally manipulated economic stressor (Wohl et al., 2014), work on reduced SES (i.e. Caplan & Schooler, 2007), and wide-scale sociological trends (Marshall, 2011), is associated with increases in financial risk-taking behaviours. The current research seeks to better develop the theoretical framework linking economic stress to financial risk-taking providing an integrative model by drawing on research on personal control and theoretical perspectives from the stress and coping literature. In merging these literatures, the proposed theoretical framework allows for a deeper understanding of how negative economic conditions influence financial

behaviour while simultaneously extending our knowledge of control perceptions, stress, and coping by examining existing knowledge of these constructs in a new domain.

The transactional model of stress and coping (Folkman, 1984; Lazarus & Folkman, 1984) posits that the experience of stress and subsequent reactions depend on how an individual perceives the situation he or she faced, including perceptions of control. In terms of understanding how economic stress influences financial risk-taking, it is proposed that economic stress will impact later actions by first influencing perceptions of personal control over financial matters. The role of personality traits as potential moderators of the effects of stress on perceptions of control will also be considered, as perceptions of control are known to depend not only on characteristics of the situation but on an individual's personal resources, including personality traits (Folkman, 1984; Lazarus & Folkman, 1984). The potential for individual differences such as personality traits to serve as protective factors and buffer against the negative effects of economic stress may account in part for variations in responses to economic stress in past research, such as those observed in Canadian households, whereby some individuals halted their gambling expenditures during the recession, while others increased their level of expenditures (Marshall, 2011).

Reduced perceptions of personal control over one's own situation in response to economic stress are then hypothesized to influence perceived control over financially risky behaviours. Research on the concept of secondary control (Rothbaum, et al., 1982) and the substitutive nature of control in the compensatory control theory (Kay et al. 2015; Kay et al., 2009), suggest that when an individual's sense of personal control is damaged, he or she will seek alternate sources of control. Thus, reduced personal control over one's own financial situation may then result in perceiving an illusion of control over potentially risky behaviours, such that individuals may perceive financially risky behaviours to be more

controllable, and thus less risky. Perceiving these behaviours to be less risky would then be associated with increased risk-taking behaviour (Weber, Blais & Betz, 2002).

The proposed model linking economic stress to financial risk-taking through control perceptions (Figure 1) will be examined within an experimental framework. Study 1 will examine the effects of stress on perceptions of personal control over one's financial situation, and subsequently on prospective financial risk-taking in both investing and gambling. Study 2 will build on the results of Study 1, broadening the conceptualization of control perceptions to better understand the effect of economic stress.
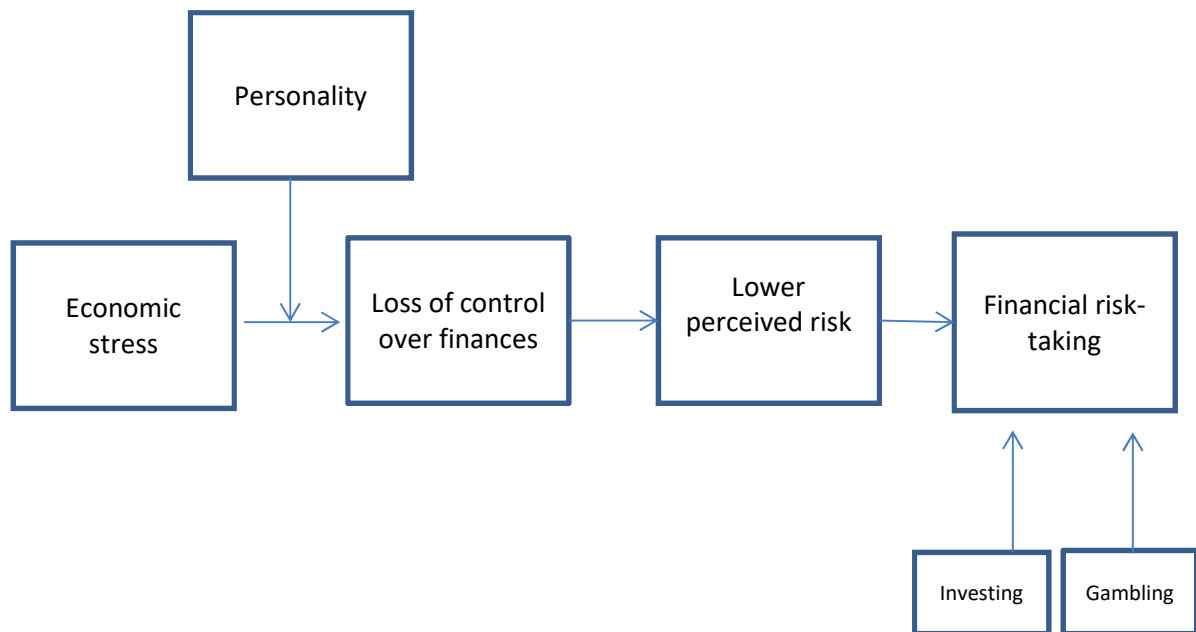
Figure 1 - Proposed theoretical model linking economic stress and risk-taking.

Study 1

Study 1 serves as a preliminary exploration of the proposed model in an experimental framework, where the effect of an economic stress manipulation on perceptions of control and prospective financial risk-taking was examined. It was hypothesized that economic stress would influence prospective financial risk-taking, in terms of both prospective investing and gambling, by first influencing perceptions of control over one's own financial situation, and subsequently, perceived control over risky financial behaviours.

Specifically, the participants in the high economic stress conditions were hypothesized to report lower perceived personal control over their own financial situations, as compared to the control condition. To better account for the complexity of economic stress, both income deprivation and status were considered. This resulted in examining the effect of two high economic stress conditions that were equal in terms of income but differed in terms of status, to consider the possibility that status would provide some protection from the stress associated with income deprivation.

Perceptions of control were then hypothesized to influence perceptions of control over risky financial behaviours, such that lower perceived control over one's financial situation would be associated with lower risk perceptions. Perceived risk in risky behaviours was then hypothesized to be negatively associated with prospective risk-taking, such that the less risk a participant perceived the more prospective risk-taking they would report. The effect of personality, specifically resilience and internal locus of control, as a moderator of the effect of economic stress on perceptions of control was also considered.

Methods

A between-subjects design was employed, with participants randomly assigned to one of three conditions; high economic stress high-status, high economic stress low-status, or control. Participants then evaluated their perceived control over their own financial situation, and the amount of risk they perceived over potentially risky financial behaviours in terms of both gambling and investing. Participants then reported their prospective likelihood of engaging in those behaviours. Along with a demographics section, participants also completed related measures of personality, including resilience and trait locus of control. All measures were administered online (Appendix A).

Participants.

Two-hundred-ninety-six participants completed Study 1 in exchange for course credit. Participants took a mean of 36.68 minutes (*SD*=74.25) to complete the study, ranging from 5.42 minutes to 1191.78 minutes. Participants who took less than 10 minutes or more than 90 minutes were eliminated[1] (*n* = 26) from the final sample, resulting in a final N of 270, with 85 participants in the control condition, 90 in the high-stress high-status condition, and 95 in the high-stress low-status condition. The final sample was predominantly female (71.9%), with a mean age of 20.5 (*SD*=3.6). Most of the sample were single (92.2%), and were full-time students (91.1%) in their first (60.0%) or second (22.6%) year of study.

---

[1] Exclusion criteria were set per recommendations from R. Cribbie (personal communications, November 2015), where reasonable criteria were set for survey completion time based on the survey design. The lower limit of 10 minutes was decided as the lowest reasonable amount of time to go through the survey based on pilot testing, while the upper limit of 90 minutes was decided on based on the distribution of completion times, and as being roughly twice the original mean completion time. Similar criteria were used for the other studies in this project.

Measures.

Psychometric information for key study variables is found in Table 1, with correlations between key

study variables divided by condition found in Table 2, Table 3, and Table 4.

Economic stress manipulation.

An economic stress manipulation was designed based on a manipulation used by Wohl et al. (2014)

where participants were asked to read a fictitious article that was purported to come from a major

magazine. The content of the original articles used by Wohl et al. (2014) was updated, and a writing task

following the article was added, resulting in three distinct conditions; high-stress high-status, and high-

stress low-status, and control. In the two high-stress conditions, participants read the same article about

negative economic conditions, developed to create economic threat by highlighting the precarious

nature of participant's financial position (Wohl et al., 2014). Immediately after reading the article

participants were asked to write about graduating into such conditions and being able to find a

minimum wage job that was either high in status (an internship in their own field of study) or low in

status (job unrelated to their field of study). The writing exercise was designed to heighten the impact of

the article by forcing participants to make the information personally relevant. In the control condition,

participants read an article about visiting the Mint and were then asked to write about taking the tour

described in the future. Pilot testing of the economic stress manipulation, including both quantitative

and qualitative manipulation checks, is outlined in Appendix B.

Given the findings from pilot testing, the manipulation check administered immediately following the

writing exercise was modified in two key ways. First, the instructions for the manipulation check

measures for the present study were modified to refer specifically to the situation in the article and

writing exercise, rather than asking about a participant's feelings more generally. Second, two additional

scales were added; a measure of positive affect, to account for the possibility that the manipulation may function in part by reducing positive affect, and a measure of threat, to more directly assess negative perceptions related to the situation they were asked to write about.

The Positive and Negative Affect Schedule (PANAS; Watson, Clark & Tellegen, 1988) was used to assess both positive and negative affect. It is comprised of 20-items, 10 in the negative affect subscale (sample item: upset) that was used in the pilot testing, and 10 in the newly added positive affect subscale (sample item: enthusiastic). Participants were asked to rate their feelings as if they were in the situation they had been asked to write about. As in the pilot test, anxiety was assessed using the tension-anxiety subscale of the Profile of Mood States (Shacham, 1983), a 6-item measure where participants were asked to report their feelings as if they were in the situation they had been asked to write about (sample item: anxious). Finally, participants were asked to report their level of threat associated with the situation they were asked to write about, using the Financial Threat Scale (Marjanovic et al., 2013). The scale is comprised of 5-items, modified to refer to the situation that participants were asked to write about in the writing exercise, rather than their finances specifically (sample item: How much would you feel threatened?).

To control for a participant's current level of economic stress independent of the manipulation, the Economic Hardship Scale (Lempers, Clark-Lempers, & Simonds, 1989) was administered. This is a 10-item subjective measure of economic stress, where participants are asked to report on changes in their lifestyle in the past year (sample item: How often have you had to postpone major household purchases), and was designed for use in younger populations where reporting of objective income and debt levels can be inconsistent.

Perceived control and personality moderators.

A participant's perceived control over their financial situation was assessed using the controllable-by-self subscale of the SAM (Peacock & Wong, 1990). The measure consists of 4-items, with the instructions specifically asking for a participant to evaluate their perceptions of control over their own financial situation (sample item: Do I have the skills necessary to achieve a successful outcome to this situation?).

To assess the role of personality as a potential moderator of the effect of economic stress on control perceptions, measures of resilience and internal locus of control were administered. Trait resilience was measured using a 10-item version of the Connor-Davidson Resilience Scale (CD-RISC; Campbell-Sills & Stein, 2007), based on the original 25-item CD-RISC (Connor & Davidson, 2003). The 10-item version corrects for factorial instability in the original scale, uniting previously disparate measures of hardiness and persistence (Campbell-Sills & Stein, 2007). It provides a trait measure of an individual's ability to thrive in the face of adversity (sample item: I can deal with whatever comes my way). Internal locus of control was assessed using the internal locus of control subscale of Levenson's (1981) multidimensional locus of control scale, an 8-item measure that assesses the extent to which participants find events to be under internal control in general (sample item: Whether or not I get to be a leader depends mostly on my ability).

Risk perceptions.

To assess the extent to which participants perceive an illusion of control over risky financial behaviours, two subscales of the Risk Attitudes Scale (Weber et al., 2002) on financial risk-taking were administered, using the perceived risk instructions. This included a 4-item measure of perceived risk in investing (sample item: Investing 5% of your annual income in a very speculative stock), and a 4-item measure of perceived risk in gambling (sample item: Betting a day's income on the outcome of a sporting event),

such that higher scores reflect perceiving those behaviours as more risky. A participant's risk

perceptions are hypothesized to be inversely associated with their perceived control over those risky

behaviours, such that an illusion of control would be associated with perceiving less risk.

Prospective risk-taking.

Prospective financial risk-taking was measured using the prospective risk-taking instructions of the

previously mentioned Risk-Attitude Scale (Weber et al, 2002), where participants self-reported

likelihood to engage in risk-taking will be measured in both investing and gambling. Participants rated

their likelihood to engage in the same behaviours for which they previously reported their risk

perceptions.

Results

Manipulation check.

A MANOVA was conducted with condition as the predictor, and anxiety, negative affect, positive affect,

and threat as the dependent variables (Table 5). Multivariate tests show a significant effect of condition

on the outcome measures (*Wilk's* Λ = 0.37, $F(8,522)=42.14$, $p<0.001$), with univariate tests showing that

condition has a significant effect on anxiety, negative affect, and threat, but not positive affect (Table 5).

Pairwise comparisons showed that for both anxiety and threat, the control condition differed

significantly from the two high-stress conditions, though the high-status and low-status conditions did

not differ from each other. In terms of negative affect, all three groups differed from each other, such

that those in the control condition had the lowest level of negative affect, and those in the low-status

condition had the highest level of negative affect, as predicted (Table 5). These results indicated that

the manipulation functioned as designed, such that the two high-stress conditions resulted in higher

feelings of stress relative to the control for all three measures of negative emotion. Further, in line with our theorizing regarding the importance of status, the data provided some indication that status protects from the negative effects of income deprivation, such that those in the high-stress high-status condition experienced significantly lower levels of negative affect compared to those in the high-stress low-status condition. Though a significant difference between the high-status and low-status condition was only found in terms of negative affect, the trends were in the same direction for anxiety and threat.

Structural equation model to test proposed hypothetical model.

The proposed theoretical model was tested within the framework of a multigroup structural equation analysis (Figure 2), where the proposed path diagram is evaluated for each condition. The analysis was conducted using maximum likelihood estimation using SPSS Amos (version 21). The overall model demonstrated poor fit (X^2= 155.13, *df*=42, *p*<.001, *CFI*=.59, *NFI*= .57, *RMSEA* = .10). The sample size of 270 participants was adequate for a multigroup structural equation model according to recommendations from Prindle and McArdle (2012). Path coefficients for the proposed model in all three conditions are in Table 6.

In order to test the hypothesis that condition influences perceptions of control over financial situations, a model with the mean level of perceived control across the three conditions constrained to be equal was evaluated. A nested model comparing the original model to the one with the constraint was significant (X^2 = .34, *df*=2, *p*=.843), suggesting that the model with constraints has improved fit compared to the original model, and that perceived control is equal across all three conditions.
To evaluate the hypothesis that personality moderated the effect of condition on perceptions of control over one's situation a model that constrained the effect of internal locus of control and resilience to perceived control to be equal amongst all three conditions. The nested model comparison shows the

chi-square test to be significant (X^2 = .25, *df*= 3, *p*=.52), suggesting that the model with constraints has improved fit compared to the original model, suggesting that the effect of personality on perceived control was equal across the three conditions.
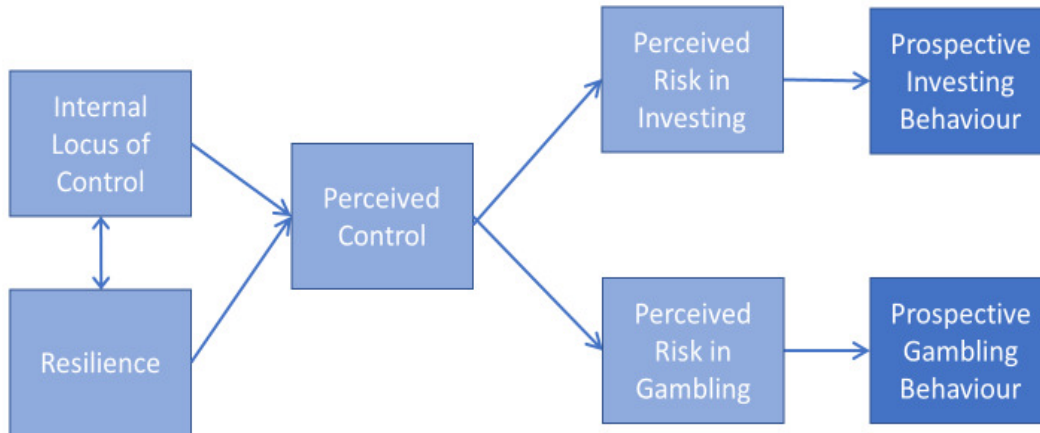
Figure 2 - Path diagram outlining the proposed theoretical model as a structural equation model for a multi-group analysis where the proposed model is tested in each condition separately.

Given the lack of support found for the full proposed theoretical model, a series of exploratory analyses were conducted to systematically examine the individual components of the proposed model. Specifically, analyses were conducted to examine the effect of economic stress on perceived control, the link between perceived control and risk perceptions, and finally, the association between economic stress, perceived control, risk perceptions, and prospective risk-taking. The resulting regressions were evaluated within a general linear modelling framework using SPSS (Version 21), which allows for the specification of a complex multivariate regression model with multiple dependent variables, as well as the estimation of the omnibus effect of categorical variables.

Effect of economic stress on control perceptions.

To examine the effects of economic stress on perceptions of control over one's own financial situation a multivariate regression was conducted, with condition, personality (resilience and trait internal locus of control), and the interactions of condition with personality as potential predictors, along with a continuous measure of economic hardship, to control for the effect of existing economic difficulties. Results indicated that the proposed model was significant, accounting for 15.3% of the variance in levels of perceived control over one's financial situation ($F(9,252)=5.06$, $p<0.001$). In line with the findings from the structural equation model, condition did not emerge as a significant predictor of perceived control ($F(2,252)=.13$, $p=.88$), nor did the continuous measure of economic hardship ($F(1,252)=.02$, $p=.87$). Again confirming the findings from the structural equation model, neither resilience ($F(2,252)=1.45$, $p=.24$), nor internal locus of control ($F(2,252)=.63$, $p=.53$) moderated the effect of condition on perceptions of control. Conversely, resilience does emerge as a significant predictor of perceived control ($B=.56$, $SE=.13$, $F(1,252)=25.44$, $p<0.001$) as a main effect, such that higher levels of resilience are associated with increased perceptions of control over one's financial situation. The effect of internal locus of control on perceptions of control over one's financial situation was in the same direction, but only of marginal significance ($B=.03$, $SE=.14$, $F(1,252)=3.76$, p=.054).

Perceptions of control and risk perceptions.

The next step in the proposed theoretical model to be considered was the link between perceptions of control over one's financial situation and risk perceptions over risky financial behaviours. It was hypothesized that perceived control would be positively associated with risk perceptions, such that lower perceived control over one's financial situation would be associated with lower risk perceptions, reflecting an illusion of control over risky financial behaviours. To test this model, a multiple regression was tested to examine the effect of perceived control over one's own financial situation on perceived

risk in potentially risky financial behaviour, separately for investing and gambling. In line with the

proposed theoretical model, where the hypothesized pattern of association between perceived control

and risk perceptions was hypothesized to occur when economic stress was high, condition, and the

interaction between condition and perceptions of control were entered as predictors. Personality,

specifically resilience and trait internal locus of control, along with the interaction between personality

and condition were also entered as predictors, to account for the possibility that the personality traits

moderated the effect of condition on risk perceptions. Finally, the continuous measure of economic

hardship was included as a predictor to control for the effect of existing economic difficulties.

The model predicting perceived risk in investing was significant, accounting for 18.2% of the variance in

risk perceptions in investing (F(12,249)=4.63, p<.001; Table 7). As hypothesized, the interaction between

condition and perceptions of control over one's own financial situation emerged as a significant

predictor of perceived risk in investing. Probing the interaction with the control condition as a reference

group showed that the effect of perceived control is significant in the high-status condition (B=-.36,

SE=.14, t=-2.50, p=.013), but not in the low-status condition (B=-.12, SE=.14, t=-.87, p=.39). Notably, the

association between perceived control and risk perceptions in the high-stress high-status condition was

opposite to the hypothesized direction, where the less control one perceives over one's own financial

situation, the higher the perceived risk in investing. Neither internal locus of control, nor trait resilience

moderated the effect of condition on risk perceptions, though the main effect of both personality traits

was significant, such that higher levels of resilience or internal locus of control were associated with

perceiving less risk in investing. The model with perceived risk in gambling as a dependent variable was

not significant (F(12,249)=.86, p=.59), accounting for 4.0% of the variance in risk perceptions in gambling

with no significant predictors identified (Table 7).

Economic stress, perceptions of control, and prospective risk-taking.

Finally, multiple regressions were conducted to examine the impact of economic stress, perceptions of control, and perceived risk on prospective financial risk-taking, separately for investing and gambling. Condition, economic hardship, perceived control over one's financial situation, resilience, and an internal locus of control were included as predictors. The interaction of condition and the personality traits were also considered as predictors, to account for the possibility that personality may moderate the effect of economic stress on prospective risk-taking directly, as was the interaction between condition and economic hardship, as it is possible that existing economic hardship would moderate the effect of the economic stress manipulation. Perceived risk in investing and perceived risk in gambling were also included as predictors, in the models predicting prospective investing and gambling respectively.

For prospective risk-taking in investing, the overall model was significant (F(13,248)=9.04, p<0.001), accounting for 32.2% of the variance in prospective risk-taking (Table 8). As hypothesized, perceived risk in investing was negatively associated with prospective investing behaviour (B=-.66, SE=.08, t=-8.77, p<0.001). Economic hardship and resilience also emerged as significant predictors of prospective risk-taking in investing, such that economic hardship was positively associated with prospective risk-taking in investing (B=.23, SE=.17, t=1.38, p=.17), as was resilience (B=.27, SE=.14, t=1.91, p=.07). Further, there was a marginal interaction between condition and economic hardship, at p=.07. Probing the interaction showed the effect of economic hardship is stronger in the high-stress high-status condition (B=.47, SE=.16, t=3.01, p=.004), than in either the control condition (B=.24, SE=.16, t=1.46, p=.15), or the low status condition (B=-.08, SE=.17, t=-.48, p=.63).

In terms of prospective risk-taking in gambling, the overall model was significant ($F(13, 248)=5.98$, $p<0.001$), accounting for 23.9% of the variance in prospective gambling behaviour (Table 8). Only perceived risk in gambling emerged as a significant predictor of prospective risk-taking, such that perceived risk was negatively associated with prospective risk-taking ($B=-.39$, $SE=.05$, $t=-8.41$, $p<0.001$).

Study 1 Discussion

The proposed theoretical model posited that economic stress would influence financial risk-taking by first influencing perceptions of control over one's own financial situation, which would in turn influence risk perceptions in potentially risky behaviours. Though a structural equation model of the full proposed model demonstrated poor fit, overall, the pattern of results found in the subsequent exploratory analyses provides some support for the hypotheses underlying the proposed model, particularly in terms of investing behaviour.

A foundational hypothesis of the proposed model is that economic stress would influence perceptions of control. Counter to expectations, economic stress was found to have no effect on perceptions of personal control over one's own financial situation, neither directly, nor moderated by personality. Rather, the exploratory analyses found perceptions of control were driven by a participants' personality, namely, their level of resilience and internal locus of control. The fact that economic stress was unrelated to perceptions of personal control was particularly surprising given the large body of literature linking stress to control perceptions (Kay et al., 2015). As it is believed that the link between economic stress and perceptions of control is theoretically valid, the failure to demonstrate that relationship in the current study may then be due to deficits in the methodology and conceptualization employed. In particular, it is important to consider both the nature of the economic stress manipulation that was

administered and the specific operationalization and assessment of control perceptions that was employed. The economic stress manipulation involved reading an article in which participants were informed about negative economic conditions, including increasing levels of debt, tuition, and unemployment. Participants were then asked to imagine graduating into such conditions, only able to find a minimum wage job. The fact that the article is about external economic conditions, means that participants' attributions of what factors controlled their ability to find only a minimum wage job may also be external in nature, suggesting that the conceptualization of control perceptions to be assessed needs to be broadened in subsequent studies. Also, the writing exercise was explicitly future-oriented, while the target that participants were asked to rate their perceived control over, their 'financial situation', was temporally ambiguous. It is then possible that participants varied in the extent that they considered their future circumstances when responding to the control perceptions measure, and that improving the scale instructions may increase the likelihood of observing an effect.

The current study also did not find the expected association between perceptions of control over one's own financial situation and perceived risk in risky financial behaviours. Specifically, it was predicted that perceived risk in risky behaviour would decrease when perceived control decreased in response to stress, suggesting that perception of control over risky behaviour may serve as a compensatory control mechanism. Only a weak negative association was observed between perceived control and risk perceptions in the exploratory analyses, where the more control a participant perceives over their own financial situation, the less risk they perceive in risky financial behaviours, counter to the hypothesized positive relationship between the variables. This suggests that perceptions of control over one's own situation and perceptions of control over risky behaviours may be directly linked rather than in a compensatory relationship. The findings of the current study suggest that the more control you feel over your own situation, the more in control you feel over the risky activities. The possibility that

measures of perceived control and risk perceptions are more closely associated than initially

hypothesized is supported by the similar pattern of association observed between both perceived

control and risk perceptions and personality. That this effect occurred only in the high-stress high-status

condition can be interpreted as general support for the broad idea that economic stress influences

perceptions of control.

The current study found partial support for the hypothesis that economic stress would influence risk-

taking. Though the economic stress manipulation did not influence prospective risk-taking in either

investing or gambling, participants' level of economic hardship was found to be associated with

prospective investing behaviour, such that higher levels of economic hardship were associated with

increased levels of prospective investing behaviour. This parallels the past finding of economic stress

being associated with increased expenditures in gambling (Marshall, 2011; Wohl et al., 2014). In being

specifically tied to investing but not gambling, this finding may reflect societal perceptions of investing

as a responsible means of improving one's finances, whereas negative societal views towards gambling

may have resulted in a reporting bias. Research has shown that the same risky financial decision, when

framed as an investment rather than a gamble, is viewed more positively (Deck, Lee, & Reyes, 2014).

Similarly, research on gambling task preference under stress has found individuals to demonstrate a

preference for tasks that allowed for an illusion of control (Friedland et al., 1992). In the current study,

while both the investing and gambling behaviours may have been risky, a preference for investing may

reflect investing being seen as more controllable. If not due to personal control, at least outcomes in

investing are being controlled by external market forces, as opposed to gambling, where outcomes are

due to random chance. The marginal interaction found between the economic hardship measure and

condition, where the effect of economic hardship was strongest in the high-stress high-status condition,

provides some evidence that there may have been an additive effect; those already experiencing high levels of economic hardship were most influenced by the economic stress manipulation.

The current study provided some evidence supporting the distinction between the high-stress high-status condition and the high-stress low-status condition, though it did not seem to be a simple case of high status providing protection from the negative effects of economic stress. Rather, some effects of high stress were found only in the high-status condition. Further work is needed to better understand the role of status in the stress and coping process.

In summary, the current study provided some support for the proposed theoretical model, where economic stress was hypothesized to influence risk-taking by first influencing perceptions of control and risk perceptions. Though some suggestion of the hypothesized link between economic stress and risk perceptions, and between economic stress, risk perceptions and prospective risk-taking were found, the current study failed to support the full proposed model, and the role of perceived control in this process remains unclear.

Study 2

The purpose of Study 2 was to provide a more in-depth exploration of the relationship between economic stress, perceptions of control, and risk-taking behaviour by using the pattern of results from Study 1 to refine the theoretical model and make associated changes to the methodological protocol. In particular, this involved updating the conceptualization of perceived control, simplifying the hypothesized link between perceived control and risk perceptions, and reconsidering the role of personality resources within the economic stress and financial risk-taking relationship.

That economic stress was not associated with participants' perceptions of personal control over their own financial situation was the most anomalous finding from the first study. In Study 2 the target of appraisal was changed from perceived control over 'their financial situation' in Study 1 to their 'future financial prospects'. This was done to eliminate ambiguity in the temporal aspect of their financial situation and to make it more specifically related to the future orientation of the experimental manipulation Further, in Study 2, perceived control was assessed both before and after the economic stress manipulation, to more directly assess its effects, and to rule out the possibility that baseline differences in control perceptions contribute to subsequent results.

In addition, Study 2 expands on the conceptualization of control perceptions to be considered. Drawing on classical definitions of personal control in the literature (Kay et al., 2015), the first study focused on the extent to which individuals perceived themselves to have personal control of a potentially stressful situation. In considering the nature of the economic stress manipulation used in the first study, which focused on the role of economic conditions, the second study assesses how changes in perceived control

may be reflected in changes in perceptions of control by outside forces. That economic stress might function by influencing perceptions that one's financial circumstances were under the control of outside forces is congruent with work of secondary control (Rothbaum, et al., 1982) and the substitutive nature of control in the compensatory control theory (Kay et al. 2015; Kay et al., 2009), where the perception that a situation is under the control of societal forces is one potential reaction to control threat, though notably according to theorizing in compensatory control theory. Notably, according to compensatory control theory, this endorsement of external sources of control is specifically associated with damage to one's personal control. However, taking into account the complexity of control perceptions in the face of a potential stressor, where the transactional theory of stress and coping posit that complex appraisals of the situation are occurring concurrently (Folkman, 1984), it may be that the presence of a threat in the absence of any measured drop in personal control may still be associated with an increased endorsement of control by outside forces. In a related way, the updated theoretical model put forth in Study 2 simplified the proposed relationship between the measures of perceived control and risk perceptions, and changed the role of personality variables. Findings from Study 1 suggest that perceived control and risk perceptions, at least as measured within the current framework, seemed to be more closely related than expected, and may thus jointly be a product of participants' general sense of control in response to an economic stressor. As the transactional theory of stress and coping (Folkman, 1984) suggests that these evaluations may be occurring simultaneously, both control perceptions and risk perceptions will be considered in as independent mediators of economic stress on financial risk-taking. Essentially, the initial model proposed serial mediation, where economic stress would first influence perceived control which would then in turn influence risk perceptions. The updated model instead shifted to a multiple mediation framework, where the measures of perceived control and risk perceptions were jointly considered as potential mediators of the effect of economic stress on financial risk-taking.

In terms of the role of personality variables in the model, results from Study 1 showed that personality did not moderate the effect of economic stress on perceived control as initially hypothesized, nor did the exploratory analyses conducted suggest that personality moderated the effect of economic stress on risk perceptions or prospective risk-taking directly. However, as personality was found to have important direct main effects on the key variables of interest in the current study, personality variables were included in the model as controls.

In summary, the purpose of the present study was to better understand the influence of economic stress on perceptions of control, and subsequently, to evaluate the effect of economic stress on prospective risk-taking through control perceptions. It was hypothesized that in the high economic stress conditions, levels of perceived internal personal control over one's future financial prospects will be lower after the manipulation, as compared to baseline, while levels of perceptions that one's future financial prospects are under outside control will increase. No changes in perceptions of control were expected in the control condition. Finally, perceived control and perceived risk were hypothesized to mediate the effect of economic stress on prospective risk-taking behaviour in a multiple mediation framework.

Methods

At the onset of the study, participants reported their baseline levels of perceived control over their future financial status and then completed a series of personality measures. Participants were then randomly assigned to one of three conditions; high economic stress high-status, high economic stress low-status, or control, where they were asked to read an article and completed a related writing

exercise. Following the manipulation check, participants would again rate their level of perceived control over their future financial prospects, and then report their perceived risk in financial behaviours and their prospective financial risk-taking. All measures were administered online (Appendix C).

Participants.

Three hundred and fifty-eight participants recruited from York University's Undergraduate Research Participant Pool completed Study 2 in exchange for study credit. Participants took a mean of 44.64 minutes (*SD*= 52.43) to complete the survey, with a minimum completion time of 5.60 minutes and a maximum time of 838.05 minutes. Based on the criteria determined from Study 1[2], 38 were cut from the sample for completing the survey outside the cut-off times, resulting in a final *N* of 320, with 112 participants in the control condition, 109 in the high-stress high-status condition, and 99 participants in the high-stress low-status condition. After removing participants based on these criteria, the mean completion time was 36.35 minutes (*SD*=16.18). Participants were primarily female (n=206, 64.4%), with a mean age of 19.62 (*SD*=3.11). Participants in the final sample were primarily single (*n*=306, 95.6%), and full-time students (*n*=296, 93.1%) in their first (*n*=196, 61.3%) or second (*n*=81, 25.3%) year of study.

Measures.

Psychometric information for key study variables is found in Table 9, with correlations between key study variables divided by condition found in Table 10, Table 11, and Table 12.

---

[2] Exclusion criteria were again set per recommendations from R. Cribbie (personal communications, November 2015), where reasonable criteria were set for survey completion time based on the survey design. As for Study 1, The lower limit of 10 minutes was decided as the lowest reasonable amount of time to go through the survey based on pilot testing, while the upper limit of 90 minutes was decided on based on the distribution of completion times, and as being roughly twice the original mean completion time.

Economic stress manipulation.

The same economic stress manipulation with three conditions, control, high-stress high-status and high-stress low-status, from Study 1 was administered, with the same anxiety, negative affect and threat measures as a manipulation check. To assess a participant's level of current economic stress, the Economic Hardship Scale (Lempers et al., 1989) was again administered.

Perceived control.

Several changes were made to the assessment of perceived control used in Study 1. First, the target of control appraisals was changed from "financial situation" (Study 1) to "future financial prospects", (Study 2) to remove ambiguity regarding the extent that participants included their current versus future states in their rating, focusing their appraisal on the future in line with the economic stress manipulation which was also oriented to the future. Second, perceptions of control were assessed both before and after the economic stress manipulation. Finally, in addition to the measure of perceived internal control administered in Study 1, namely the controllable-by-self subscale from Peacock and Wong's (1990) SAM, an additional measure of control was created to assess the extent to which participants perceived outside forces to be in control of their future financial prospects (sample item: Are the outcomes of this situation mainly due to outside forces?) was adapted from the SAM scale that assesses perceptions of control by others (Peacock & Wong, 1990). The factor analysis evaluating the psychometric properties of this newly created measure and its suitability for inclusion in further analyses is summarized in Appendix D.

As in the first study, to control for the effect of personality on perceptions of control, the internal locus of control subscale of Levenson's (1981) multidimensional locus of control scale and the 10-item version of the Connor-Davidson Resilience Scale (CD-RISC; Campbell-Sills & Stein, 2007) were administered.

Risk perceptions.

In addition to the two subscales of the Risk Attitudes Scale (Weber et al., 2002) focusing on financial risk-taking that were used in Study 1, a more general measure of financial risk tolerance was also administered to provide a measure of how financial risk perceptions may shift in response to the manipulation. The Risk Tolerance Questionnaire (Grable & Lytton, 1999) is a 13-item scale assessing a participant's risk preferences in a variety of scenarios (sample item: You are on a TV game show and can choose one of the following. Which would you take?   a. $1,000 in cash; b. A 50% chance at winning $5,000; c. A 25% chance at winning $10,000; d. A 5% chance at winning $100,000). Risk tolerance is associated with, though distinct from, impulsivity (Grable & Lytton, 1999). Scale instructions were modified to assess a participant's current risk tolerance, rather than their risk tolerance in general.

A trait measure of an individual's desire for control was also administered, the 20-item Desirability of Control Scale (Burger & Cooper, 1979; sample item: I enjoy having control over my own destiny), as desire for control is believed to be a key predictor of an individual's susceptibility to illusions of control in gambling tasks (Burger & Schnerring, 1982).

Prospective risk-taking.

Prospective financial risk-taking was again measured using the prospective risk-taking instructions of the previously mentioned Risk-Attitude Scale (Weber et al., 2002), where participants self-reported likelihood to engage in risk-taking will be measured in both investing and gambling. A trait measure of

impulsivity was also administered, as impulsivity is believed to be a key influence on risk-taking

behaviour, and was assessed using the short form of the Barrat Impulsivity Scale (Patton, Stanford, &

Barratt, 1995), which is comprised of three subscales, attentional impulsivity (sample item: I am restless

at lectures or talks), and non-planning impulsivity (sample item: I plan for job security)[3].

Results

Manipulation check.

To determine if there were differences in the manipulation check variables a MANOVA was conducted

with condition as the predictor, and anxiety, negative affect, and threat as the dependent variables

(Table 13). Multivariate tests showed a significant effect of condition on the manipulation check

variables (*Wilk's Λ* = .47, *F(*8,626)=48.15, *p*<0.001), with significant differences found in terms of anxiety,

negative affect and financial threat based on condition (Table 13). Post-hoc tests yielded the same

pattern of results for all three variables, whereby anxiety, negative affect, and financial threat are higher

in the two high-stress conditions compared to the control, though the high-stress high-status condition

and the high-stress low-status condition do not differ from each other (Table 13). This pattern of results

is similar to the results observed in Study 1.

Effect of condition on perceptions of future financial prospects.

In order to further assess the impact of the economic stress manipulation on perceptions of control, an

analysis was conducted to examine change in perceptions of control from before the manipulation to

after. It was hypothesized that in the high economic stress conditions, levels of perceived internal

---

[3] The motor impulsivity subscale from the Barrat Impulsivity Scale was also administered (sample item: I act on impulse), but was dropped from the study due to unacceptably low internal consistency with a Cronbach's alpha of .24

personal control over one's future financial prospects will be lower after the manipulation, as compared to baseline, while levels of perceptions that one's future financial prospects are under outside control will increase. No changes in perceptions of control were expected in the control condition.

To test this hypothesis, a repeated measures MANCOVA was conducted to examine the effect of condition on perceptions of a participant's future financial prospects as being under their internal control, and under the control of outside forces at two-time points - before and after the economic stress manipulation. Condition and Time were included as predictors, along with a participant's level of economic hardship, and levels of trait internal locus of control and resilience, which were shown to influence control perceptions in Study 1.

Results from multivariate tests are shown in Table 14, with the within-participant and between participant univariate effects found in Table 15 and Table 16 respectively. Notably, the hypothesized interaction between time and condition was found, though only in terms of perceptions of *outside control*. Follow-up results revealed that as hypothesized, in the two high-stress conditions perceptions of outside control increased from before the manipulation to after the manipulation, while no difference was found in the control condition (Table 17). Perceptions of outside control were also predicted by main effects of resilience and economic hardship, which were positively associated with perceptions of outside control, and trait internal locus of control, which was negatively associated with perceptions of outside control (Table 16).

In terms of the predictors of internal control perceptions, a main effect of resilience was found, such that higher levels of resilience were associated with increased perceptions of internal control over one's future financial prospects. Further, interactions of time and economic hardship, and time and internal

locus of control, were found. Economic hardship was found to be negatively associated with internal control before the manipulation (B=-.17, SE=.06, p=.01) but not after (B=.04, SE=.08, p=.66). Conversely, trait internal locus of control only predicts internal control perceptions following the manipulation (B=.22, SE=.07, p<.001) but not before (B=.05, SE=.05, p=.34). Follow-up tests show no evidence that these effects are moderated by condition.

The divergence in the predictors of internal control and outside control suggest that the two control dimensions are distinct, which is in line with the weak association between the two measures of control perceptions following the manipulation, which were not correlated in any of the condition (Table 10, Table 11, Table 12). Subsequent analyses focused on perceptions of control following the economic stress manipulation.

Theoretical model linking economic stress to prospective risk-taking.

To test the primary hypothesis of this program of research, that is, that economic stress influences prospective risk-taking by first influencing perceptions of control over one's own financial situation and perceived risk in risky behaviour, a multiple mediation model was constructed, with the proposed mediators considered in parallel, rather than serially as initially conceptualized. The model was tested separately for prospective gambling behaviour and prospective investing behaviour, using the Process Macro (Hayes, 2012) in SPSS (Version 21). Recommendations from Fritz and MacKinnon (2007) suggest that the sample size of 320 participants in the present study would have had adequate power to detect a mediated effect using bias-corrected bootstrapped confidence intervals. Condition was the focal predictor, with perceptions of internal control over one's own financial prospects, perceptions of outside control over one's financial prospects, and risk tolerance, as potential mediators, along with perceived risk in investing and gambling, in the models predicting prospective investing and gambling

respectively (Figure 3). Also included as statistical controls in the model were economic hardship, resilience, trait internal locus of control, desire for control, attentional impulsivity and non-planning impulsivity. The model predicting prospective risk-taking in investing was significant, accounting for 32.4% of the variance in prospective risk-taking in investing (F(12, 291)=11.61, $p<.001$). The model predicting prospective risk-taking in gambling was also significant, accounting for 30.3% of the variance in prospective risk-taking (F(12,292)=10.56, $p<0.001$). The model results, describing the link between economic stress and the proposed mediators, the mediators and prospective risk-taking, and an analysis of the indirect effect through the proposed mediators are outlined below.
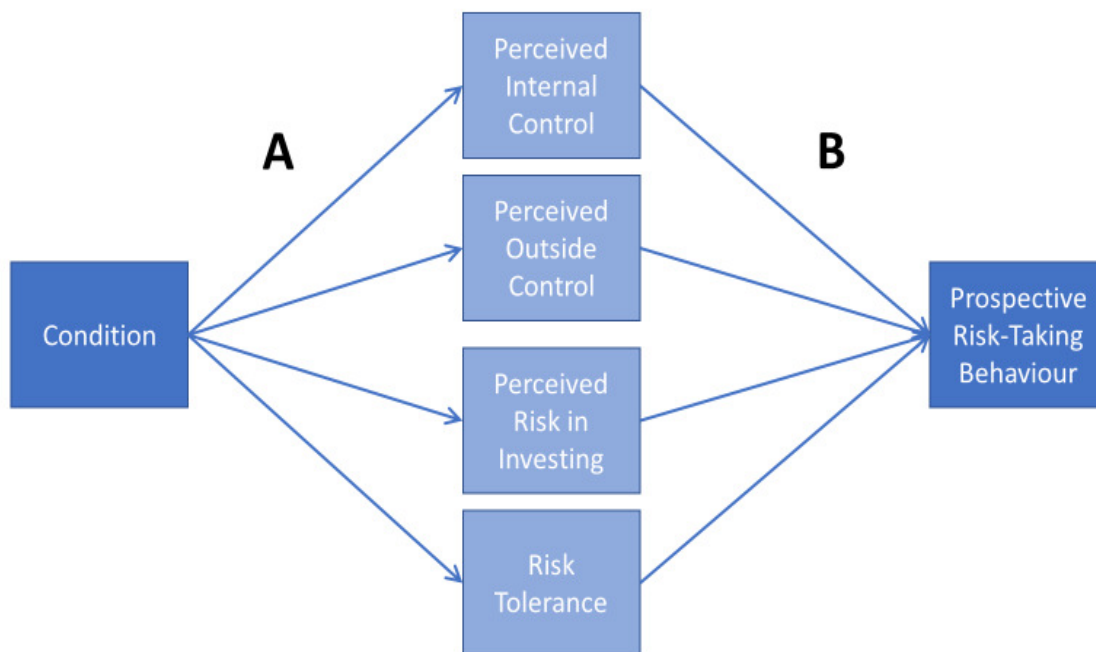
Figure 3- Proposed multiple mediation model predicting prospective risk-taking.

A path: Economic stress to proposed mediators.

The first path in the proposed theoretical model was the link between economic stress and the proposed mediators, considering the influence of the proposed control variables. Results for the model predicting prospective investing behaviour are shown in Table 18, while results for the model predicting prospective gambling behaviour are in Table 19. In terms of a link between condition and the proposed mediators, in both the model predicting prospective investing and that predicting prospective gambling, only the path linking condition to perceived outside control over future financial prospects was significant, such that the high-stress conditions were associated with higher perceptions that one's future financial prospects are under the control of outside forces, relative to the control condition. Perceived outside control over future financial prospects was also negatively associated with trait internal locus of control, and positively associated with attentional impulsivity and economic hardship, in both the models predicting investing and gambling.

In terms of the other proposed mediators, risk tolerance was positively associated with non-planning in impulsivity, and marginally related to economic hardship and trait internal locus of control, while perceptions of internal control over future financial prospects were associated with resilience and trait internal locus. Neither the model predicting perceived risk in investing nor the model predicting perceived risk in gambling was significant.

B path: Proposed mediators to prospective risk-taking.

The next step in the proposed mediation framework was examining the link between the proposed mediators and prospective risk-taking. Results in terms of the model predicting prospective investing are found in Table 20, while results for the model predicting gambling are found in Table 21. Perceived risk in investing, risk tolerance, and perceived outside control over one's future financial prospects emerged

as significant predictors of prospective risk-taking in investing, as did level of economic hardship, such that perceived risk in investing was negatively associated with prospective risk-taking, while risk tolerance and perceived outside control over one's future financial prospects were positively associated with prospective investing behaviour. Though no direct effect of condition on prospective risk-taking was found, economic hardship also emerged as a significant predictor of prospective investing behaviour, such that higher levels of economic hardship were associated with increased prospective investing.

In terms of prospective gambling behaviour, risk tolerance, perceived risk in gambling emerged as significant predictors, such that risk tolerance was positively associated with prospective gambling behaviour, while perceived risk in gambling was negatively associated with prospective gambling behaviour. The effect of perceived internal control and perceived outside control were marginal at the p=.10 level. Additionally, trait internal locus of control was negatively associated with prospective investing, while non-planning impulsivity was positively associated with prospective gambling.

C path: Effect of economic stress on prospective risk-taking through proposed mediators.

The omnibus total effect of condition on prospective risk-taking in investing, that is, considering the joint effect of the high-stress high status and high-stress low-status conditions, was not significant (F(2, 295)=.99, p=.38), nor was the direct effect of condition on prospective investing (F(2, 291=1.20, p=.30). The indirect effects of condition on prospective investing behaviour through the proposed mediators are summarized in Table 22. Results indicated a significant indirect effect of condition on prospective risk-taking in investing through perceptions of outside control in one's future financial prospects. In line with the information described above, economic stress was associated with increased perceptions of outside control, which were in turn associated with increased investing behaviour.

In terms of prospective gambling behaviour, the omnibus total effect of condition was not significant (F(2,296)=.34, p=.71), nor was the direct effect of condition on prospective gambling (F(2,292)=.72, p=.49). Evidence of a weak indirect effect through perceived risk in gambling was found (Table 23), though notably the path linking condition to perceived risk in gambling was not significant.

Study 2 Discussion

The goal of Study 2 was to deepen our understanding of the relationship between economic stress and financial risk-taking, specifically highlighting the role of perceptions of control. Overall, the results of the study demonstrated a clear effect of economic stress on perceptions of control and demonstrated partial support for the proposed theoretical model linking economic stress to financial risk-taking, with evidence that perceptions of control by outside forces mediated the effect of economic stress on prospective risk-taking in investing. Notably, counter to Study 1, no evidence was found of a distinction between the two high-stress conditions.

As hypothesized, a significant link between economic stress and perceptions of control over one's future financial prospects was found, specifically in terms of the newly developed measure of perceptions of control by outside forces. Perceptions of outside control were also associated with economic hardship, such that higher economic hardship was positively associated with outside control perceptions, as well as being linked to personality. As in Study 1, neither the economic stress manipulation nor the economic hardship measure was associated with perceptions of internal control, suggesting that the lack of effect in Study 1 cannot be attributed to methodological issues in the assessment of control. Instead, the data suggested that perceptions of internal control were largely driven by personality. That situational

perceptions of internal control and situational perceptions of outside control emerged as independent factors mirrors findings from the locus of control literature regarding the relationship between internal and external locus of control. Trait measures of internal and external locus of control are known to vary independently, counter to traditional conceptualizations where internal and external control were part of a single dimension (Rotter, 1966).

In terms of the proposed theoretical model linking economic stress to prospective financial risk-taking, partial support for the proposed mediation model was found. Perceptions that one's future financial prospects were under the control of outside forces were found to mediate the effect of economic stress on prospective risk-taking in investing. Overall, the proposed model better accounted for the effect of financial risk-taking in investing, as opposed to gambling. In addition to the mediated effect of economic stress through perceptions of outside control, results indicate that the economic hardship measure and several of the control related measures significantly influenced prospective investing behaviour. Conversely, prospective risk-taking in gambling was related to risk tolerance, perceived risk in gambling, and impulsivity. That economic stress did not influence prospective risk-taking in gambling contrasts with past work in this area, most notably work by Wohl and colleagues (2014) linking a similar economic stress manipulation to gambling behaviour.

General Discussion

The two studies conducted sought to better develop the theoretical framework linking economic stress and financial risk-taking by focusing on the role of control perceptions as a mediation construct. Initially, it was hypothesized that economic stress would influence perceptions of control over financial situations, and then lead to increased risk-taking by creating an illusion of control over risky financial behaviours. Though support for the full model as evaluated in Study 1 was not found, evidence of the proposed mediated effect is observed in the simplified model examined in Study 2. Along with the overall pattern of results, significant support was found for the underlying theoretical framework linking economic stress to risk-taking through perceptions of control.

Economic Stress and Investing Behaviour

The current study, linking economic stress to increased financial risk-taking in investing, extends the literature on stress and financial risk-taking, where the majority of past work was concerned exclusively with gambling behaviour (ex. Wohl et al., 2014). Expanding the theoretical conceptualization of financial risk-taking to include both gambling and investing allows for a better understanding of how economic stress influences financial decision making more broadly. That the proposed theoretical framework was a better fit for investing as opposed to gambling highlights the need to consider the specific characteristics of the financially risky behaviours under study, and how they relate to the stressor being examined. In the current study, the article read by participants in the high economic stress conditions described external economic forces that could influence the outcomes participants would experience, an interpretation confirmed by the fact that participants' perceptions of outside control over their future financial prospects increased. As the outcomes of investing decisions can be viewed as being due

to the same external market forces, it may be that an increase in investing behaviour may be a form of

system justification, whereby individuals are placing their trust in the same market forces that caused

their economic stress. Conversely, the outcomes of gambling would be viewed as being largely due to

chance. Similarly, it may then be that the preference for investing over gambling may be due to the

outcomes of risks in investing are viewed as more controllable than the outcomes of risks in gambling,

independent of the objective risk involved, where past research has shown that even when the

mathematical odds are identical, investing is perceived to be less risky than gambling (Deck et al., 2014).

As such, the preference for investing under stress could be due to a sort of preference for an illusion of

control. The overall more negative perception of gambling compared to investing is also reflected in the

comparatively lower levels of prospective gambling reported in the current sample.

Economic Stress and Perceptions of Control

The current project extends the existing stress and coping literature on the importance of control

perceptions by providing an experimental demonstration of how economic stress influences perceptions

of control over future financial prospects. That the effect of stress on control occurred not by influencing

perceptions of internal personal control, but instead by influencing perceptions that outside forces

control one's future financial prospects, is of theoretical significance. The economic stress manipulations

used in the current study can be interpreted as having influenced personal control by increasing

awareness that outside economic forces influence the outcomes individuals will experience. Counter to

previous theorizing (Kay et al., 2009; Kay et al., 2015), it does not appear that shifts in external control

perceptions occurred to compensate for diminished personal control. Rather, stress may reduce

perceptions of personal control not in an absolute sense, but in a relative sense: while perceptions of

internal control may remain constant, perceptions of outside control may increase under stress. The

incorporation of outside forces into perceptions of personal control coincides with theoretical

perspectives by Lachman and Weaver (1998). According to their theory, personal control consists of

both perceptions of personal mastery in the ability to carry out goals as well as perceived external

constraints that influence goal achievement. Future research could be directed to further the

investigation of the conditions that influence the relationship between internal and external control

perceptions over financial circumstances, and the resulting implications for risk perceptions and risk-

taking, mirroring a similar body of research on the multidimensionality of trait locus of control (Kay et

al., 2015; Lachman, 1986; Levenson, 1981).

That economic stress seemed to influence subsequent outcomes largely by influencing perceptions of

outside control rather than internal control may also depend on the specific nature of the economic

stress manipulation used in the current study. As discussed in Study 1, the article that participants in the

high-stress conditions were asked to read focused largely on external economic conditions. Thus, it is

logical that subsequent economic stress would be attributed to the influence of external factors rather

than personal failings. If the nature of the economic stressor was changed, it is possible that a different

pattern of effects would be observed. For example, if the writing exercise that participants did were to

emphasize that his or her inability to find a job was not simply due to a high unemployment rate but was

due to his or her own qualifications, we may then see an effect on internal control perceptions. This

finding also has implications for the distinction between the effects of an acute stressor to a chronic

one. Drawing on theorizing regarding the development of self-efficacy and the reaction of self-efficacy

to acute and chronic stressors (Bandura, 1982; Benight & Bandura, 2004), it is possible that a

participant's sense of internal control is based on long-term patterns of experiences, and thus would be

resistant in the face of any single acute stressor. So, it may be that only long-term exposure to economic

stress, and not an acute and artificial manipulated stressor would be sufficient to influence perceptions

of internal control. This hypothesis is in line with work by Mittal and Griskevicius, (2014), which found that childhood economic circumstances had a stronger impact on perceived control above and beyond current SES.

Personality and perceptions of control.

The current studies found situational perceptions of internal control to be more strongly predicted by an individuals level of trait resilience and trait internal locus of control, than by the economic stress manipulation. That perceptions of internal control were largely determined by personality traits rather than exposure to economic stress, might be due to two reasons relating to the nature of the target that participants were appraising: its ambiguity, and its realism. In the first study, "financial situation" was ambiguous: as to whether "situation" referred to the immediate situation or to a future situation, and as to what exactly "situation" included – earnings, debt, employment, etc. In the second study, "future financial prospects" may have been ambiguous due to temporal distance, in that the appraisal target is at some unspecified future date where participants may have differed in how far into the future they forecasted, and also due to differences in conceptualisations of what "prospects" entail. Difficulty in determining what exactly participants are reporting control over is a known difficulty in research on control perceptions (Folkman, 1984). In cases where the situation or appraisal target is unclear, personal traits are known to be more relevant factors than situational information (Folkman, 1984; Rotter, 1975). So, an individual's general ability to respond to stressors, assessed by their level of trait resilience, and their general tendency to perceive their environment to be under their internal control, assessed by their trait internal locus of control, would then be a key predictor of their appraisals of their own financial situation.

The second potential explanation for why internal control perceptions were related mainly to personality and not economic stress may have been due to the realistic nature of the economic threat used. In the current study, though the article was fictitious the economic circumstances described were a moderately accurate reflection of the current economic climate. The threat in the writing task, where participants were asked to imagine having difficulty finding a job following graduation, was an issue that the majority of the participants in the study were likely to have actually considered when they decided to pursue a university degree during negative economic times. It is then possible that the continued high perceptions of control following the economic stress manipulation reflect not true control perceptions, but are a form of what Lazarus described as "defensive reappraisal" (as cited in Folkman, 1984), where participants report higher than actual perceptions of control as an emotion-focused coping strategy involving illusory control over the stressor. Overall, maintaining high personal control is considered to be adaptive, and is associated with persisting when facing difficult circumstances (Folkman, 1984; Kat et al., 2015). It might be that the study population, in having chosen to go to university in negative economic conditions, may be particularly high in personal control and the overall tendency to engage in this sort of defensive reappraisal is reflected in their level of trait resilience and trait internal locus of control.

The role of status in economic stress

Though there were some indications of a distinction between the two high economic stress conditions in the first study, overall, there was little influence of status on both perceptions of control and subsequent risk-taking behaviour found. Contrary to past findings regarding the importance of status and the protective effect that high-status roles should have on the negative effects of economic stress (Brooks et al., 1995; Gault et al., 2010), the current study suggests that any beneficial effects of status are overshadowed by financial considerations. Where differences did exist in terms of the high status

and low-status conditions, they do not appear to be simple cases of status buffering against the negative effects of economic stress. In fact, some stress effects appeared to be stronger in the high-status condition. Though evidence from the manipulation checks suggested that the low-status condition was at least marginally more stressful than the high-status condition, increased difficulties associated with the high-status condition may have reflected the over-riding importance of financial concerns as they relate to the specific nature of internships. While internships are higher in status and are considered to provide long-term benefits, they are also temporary with no guarantee of future employment. As the difference between the two high-stress conditions did not seem to be in terms of the level of stress, further study is needed to better understand the difference between the two status conditions. Future research on the role of status in economic stress could draw on the literature of the conservation of resources theory (Hobfoll, 1989), where status might be a potential resource in the face of an economic stressor and may be associated with additional resources like increased availability of support.

Future Directions

Valuation of economic achievement as a moderator.

The extent to which individuals value economic achievement could be an important moderator of the effect of the manipulation on control perceptions and subsequent risk-taking. The greater the domain that is threatened is valued, the greater the potential threat response, and the greater the degree that control perceptions would be a relevant and meaningful predictor of behaviour (Folkman, 1984). This creates an interesting situation wherein highly valuing economic achievement would mean that the influence of economic stress on control perceptions would be greater, but also that the effect of control perceptions on outcome measures would change. Future studies should consider the role that valuing

economic achievement has on both: an appraisal of one's financial situation, and on the impact that control perceptions have on risky behaviour.

Social support.

Given the relative youth of our sample, future studies should also include additional information on the social support available to participants, especially in terms of practical support. Parental support that university students may be receiving is an important moderator of stress in light of previous work showing that social support moderates the effects of stressors on burnout components (Greenglass, Fiksenbaum, & Burke, 1996). In the context of our threat manipulation, if participants expect continued parental support, financial and otherwise, after they graduate and are unable to find meaningful employment, the threat would be less effective. However, it is important to consider that students and young adults are also subject to the same financial difficulties facing their parents and family members, experiencing reduced health in response to parental unemployment (Bacikova-Sleskova, Bena, & Orosova, 2015). For some young adults, this may mean that uncertainty in the availability of parental support may be an additional source of stress that needs to be considered. Also, receiving social support from others is not always beneficial, particularly when an independent self-concept is valued (Uchida, Kitayama, Mesquita, Reyes, & Morling, 2008). Though the availability of parental resources is becoming increasingly important in the transition to adulthood, research suggests that the provision of financial assistance is associated with increased depressive symptoms, and lower levels of self-esteem (Kirkpatrick Johnson, 2013).

Prospective behaviour.

Future research should extend the research paradigm past prospective risk-taking, to include the assessment of actual risk-taking behaviour. Though behavioural forecasting is known to significantly

influence future behaviour, the link between forecasted behaviour and actual behaviour is moderate (Diekmann, Tenbrunsel, & Galinsky, 2003). To balance the need for ecological validity and experimental control, a multi-method approach could be employed. First, the effect of stress and control on artificial laboratory-based gambling tasks could be examined, using a framework based on the current study design. Subsequently, a longitudinal study examining the link between stress and perceived control and real-world gambling behaviour over time could be prepared.

Conclusions

The current research provides several meaningful contributions to the existing literature. In establishing that the effect of economic stress on financial risk-taking occurs at least in part by influencing situational perceptions of control over financial circumstances, it successfully integrates theoretical perspectives regarding control theory, the stress and coping literature, and work on economic psychology, to successfully deepen our understanding of the theoretical linkage between economic stress and risk-taking. It also extends existing knowledge in these disparate domains, by evaluating theoretical constructs in a new domain, such as extending our knowledge regarding stress and coping to understanding the effects of economic stress on the appraisal of financial circumstances, including the development of a new measure of perceived control. Also, in raising additional questions regarding the importance of considering the specific nature of economic stress and control perceptions, it expands the field of research in these areas by highlighting the importance of previously underappreciated aspects of established constructs.

References

Aassve, A., Cottini, E., & Vitali, A. (2013). Youth prospects in a time of economic recession. *Demographic Research*, *29*, 949-962.

Abel, J. R., Deitz, R., & Su, Y. (2014). Are recent college graduates finding good jobs?. *Federal Reserve Bank of New York: Current Issues in Economics and Finance, 20(1).*

Agrigoroaei, S., & Lachman, M. E. (2010). Personal control and aging: How beliefs and expectations matte*r*. In J. C. Cavanaugh, C. K. Cavanaugh, J. Berry & R. West (Eds.), *Aging in America* (pp. 177-201). Santa Barbara, CA, US: Praeger/ABC-CLIO.

Allison, T. (2017). Financial health of young America: Measuring generational declines between baby boomers and millennials. *Young Invincibles*. Retrieved from: http://younginvincibles.org/wp-content/uploads/2017/04/FHYA-Final2017-1-1.pdf

Bacikova-Sleskova, M., Benka, J., & Orosova, O. (2015). Parental employment status and adolescents' health: the role of financial situation, parent-adolescent relationship and adolescents' resilience. *Psychology & Health*, *30*(4), 400-422.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American psychologist*, *37*(2), 122.

Benight, C. C., & Bandura, A. (2004). Social cognitive theory of posttraumatic recovery: The role of perceived self-efficacy. *Behaviour research and therapy*, *42*(10), 1129-1148.

Brooks, L., Cornelius, A., Greenfield, E., & Joseph, R. (1995). The relation of career-related work or internship experiences to the career development of college seniors. *Journal of Vocational Behavior*, *46*(3), 332-349.

Burger, J. M., & Cooper, H. M. (1979). The desirability of control. *Motivation and emotion*, *3*(4), 381-393.

Burger, J. M., & Schnerring, D. A. (1982). The effects of desire for control and extrinsic rewards on the illusion of control and gambling. *Motivation and Emotion*, *6*(4), 329-335.

Callan, M. J., Ellard, J. H., Shead, N. W., & Hodgins, D. C. (2008). Gambling as a search for justice: Examining the role of personal relative deprivation in gambling urges and gambling behavior. *Personality and Social Psychology Bulletin*, 34, 1514–1529.

Campbell-Sills, L., Stein, M. B. (2007). Psychometric analysis and refinement of the Connor-Davidson resilience Scale (CD-RISC): Validation of a 10-item measure of resilience. *Journal of Traumatic Stress, 20*, 1019-1028.

Caplan, L. J., & Schooler, C. (2007). Socioeconomic status and financial coping strategies: The mediating role of perceived control. *Social Psychology Quarterly, 70*(1), 43-58.

Carlson, K.B. (2011, June 13). Is joblessness 'new normal' for grads. *The Montreal Gazette*. Retrieved from:

http://www.montrealgazette.com/business/joblessness+normal+grads/4929608/story.html

Carnevale, A. P., Rose, S. J., & Cheah, B. (2013). The college payoff: Education, occupations, lifetime earnings. *Centre on Education and the Workforce Report*: George Town University.

Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor–Davidson Resilience Scale (CDRISC). *Depression and Anxiety,* 18, 76–82.

Deck, C., Lee, J., & Reyes, J. (2014). Investing versus gambling: experimental evidence of multi-domain risk attitudes. *Applied Economics Letters*, *21*(1), 19-23.

Diekmann, K. A., Tenbrunsel, A. E., & Galinsky, A. D. (2003). From self-prediction to self-defeat: Behavioral forecasting, self-fulfilling prophecies, and the effect of competitive expectations. *Journal of Personality and Social Psychology*, *85*(4), 672.

Folkman, S. (1984). Personal control and stress and coping processes: A theoretical analysis. *Journal of personality and social psychology*, *46*(4), 839.

Friedland, N., Keinan, G., & Regev, Y. (1992). Controlling the uncontrollable: Effects of stress on illusory perceptions of controllability. *Journal of Personality and Social Psychology, 63*(6), 923-931.

Fritz, M. S., & MacKinnon, D. P. (2007). Required sample size to detect the mediated effect. *Psychological science*, *18*(3), 233-239.

Gault, J., Leach, E., & Duey, M. (2010). Effects of business internships on job marketability: the employers' perspective. *Education and Training*, *52*(1), 76-88.

Giorgi, G., Arcangeli, G., Mucci, N., & Cupelli, V. (2015). Economic stress in the workplace: the impact of fear of the crisis on mental health. *Work*, *51*(1), 135-142.

Grable, J., & Lytton, R. H. (1999). Financial risk tolerance revisited: the development of a risk assessment instrument. *Financial services review*, *8*(3), 163-181.

Greenglass, E., Marjanovic, Z., & Fiksenbaum, L. (2013). Impact of the recession and its aftermath on individual health and well-being. In C. Cooper & A. S. G. Antoniou (Eds.), *The Psychology of the Recession in the Workplace,* (pp. 42-58). Cheltenham, UK.

Greenglass, E., Fiksenbaum, L., & Burke, R.J. (1996). Components of social support, buffering effects and burnout: Implications for psychological functioning. *Anxiety, Stress, and Coping: An International Journal*, *9*, 185-197.

Greenglass, E., Antonides, G., Christandl, F., Foster, G., Katter, J. K.Q. & Kaufman, B. E. (2014). The financial crisis and its effects: Perspectives from economics and psychology. *Journal of Behavioral and Experimental Economics, 50*, 10-12.

Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling [White paper]. Retrieved from http://www.afhayes.com/ public/process2012.pdf

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American psychologist*, *44*(3), 513.

Kahn, L. B. (2010). The long-term labor market consequences of graduating from college in a bad economy. *Labour Economics*, *17*(2), 303-316.

Katter, J.K.Q. (2010). The influence of resilience on stress and appraisals of threat and challenge. *Unpublished Manuscript*.

Kay, A.C., Sullivan, D. & Landau, M.J. (2015). Chapter 10 - Psychological Importance of Beliefs in Control and Order: Historical and Contemporary Perspectives in Social and Personality Psychology. In Mikulincer, M., & Shaver, P. R. (Eds) *APA Handbook of Personality and Social Psychology: Volume 1. Attitudes and Social Cognition* (309-337).

Kay, A. C., Whitson, J. A., Gaucher, D., & Galinsky, A. D. (2009). Compensatory control: Achieving order through the mind, our institutions, and the heavens. *Current Directions in Psychological Science*, *18*(5), 264-268.

Kieselbach, T. (2003). Long-term unemployment among young people: The risk of social exclusion. *American Journal of Community Psychology*, *32*(1-2), 69-76.

Kirkpatrick Johnson, M. (2013). Parental financial assistance and young adults' relationships with parents and well-being. *Journal of Marriage and Family*, *75*(3), 713-733.

Kraus, M. W., Piff, P. K., & Keltner, D. (2009). Social class, sense of control, and social explanation. *Journal of Personality and Personality and Social Psychology*, 97(6), 992-1004.

Lachman, M. E. (1986). Locus of control in aging research: A case for multidimensional and domain-specific assessment. *Psychology and aging*, *1*(1), 34.

Lachman, M. E., & Weaver, S. L. (1998). The sense of control as a moderator of social class differences in health and well-being. *Journal of Personality and Social Psychology*, 74(3), 763-773.

Langer, E. J. (1975). The illusion of control. *Journal of Personality and Social Psychology*, 32(2), 311-328.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer Pub. Co.

Lempers, J. D., Clark-Lempers, D., & Simons, R. L. (1989). Economic hardship, parenting, and distress in adolescence. *Child development*, 25-39.

Levenson, H. (1981). Differentiating among internality, powerful others, and chance. *Research with the locus of control construct*, *1*, 15-63.

Libby, A. M., Ghushchyan, V., McQueen, R. B., & Campbell, J. D. (2010). Economic grand rounds: Psychological distress and depression associated with job loss and gain: The social costs of job instability. *Psychiatric Services, 61*(12), 1178-1180.

Marjanovic, Z., Greenglass, E. R., Fiksenbaum, L., & Bell, C. M. (2013). Psychometric evaluation of the Financial Threat Scale (FTS) in the context of the great recession. *Journal of Economic Psychology*, 36, 1-10.

McCully, C. P. (2011). Trends in consumer spending and personal saving, 1959–2009. *Survey of Current Business*, *91*(6), 14-23.

Marshall, K. (2011). Gambling 2011. *Perspectives on Labour and Income*. Statistics Canada Product 75-001-X. Retrieved from: www.statcan.gc.ca/pub/75-001-x/2011004/article/11551-eng.pdf

Merril Edge. (2017). *Merrill Edge Report, Spring 2017*. Bank of America. Retrieved from: https://olui2.fs.ml.com/Publish/Content/application/pdf/GWMOL/Merrill_Edge_Report_Spring _2017.pdf

Mittal, C., & Griskevicius, V. (2014). Sense of control under uncertainty depends on people's childhood environment: a life history theory approach. *Journal of Personality and Social Psychology,* 107, 4, 621-637.

Morissette, R. (2016). Perspectives on the youth labour market in Canada, 1976 to 2015. *The Daily,* December 5, 2016. Statistics Canada Product 11-631-X. Retrieved from: www.statcan.gc.ca/pub/11-631-x/11-631-x2016002-eng.htm

Mroz, T. A., & Savage, T. H. (2006). The long-term effects of youth unemployment. *Journal of Human Resources*, *41*(2), 259-293.

Ojha, H. (2008). Social origin of locus of control. *Social Science International, 24*(1), 26-33.

Oreopoulos, P., Von Wachter, T., & Heisz, A. (2012). The short-and long-term career effects of

graduating in a recession. *American Economic Journal: Applied Economics*, *4*(1), 1-29.

Patton, J. H., & Stanford, M. S., &Barratt, E. S. (1995). Factor structure of the Barratt impulsiveness scale.

Journal of Clinical Psychology, *51*(6), 768-774.

Peacock, E.J., & Wong, P.T.P. (1990). The stress appraisal measure (SAM): A multidimensional approach

to cognitive appraisal. *Stress Medicine 6*, 227-236. DOI: 10.1002/smi.2460060308

Porcelli, A. J., & Delgado, M. R. (2009). Acute stress modulates risk-taking in financial decision making.

Psychological Science, *20*(3), 278-283.

Price, R. H., Friedland, D. S., & Vinokur, A. D. (1998). Job loss: Hard times and eroded identity.

Perspectives on loss: A sourcebook, 303-316.

Prindle, J. J., & McArdle, J. J. (2012). An examination of statistical power in multigroup dynamic

structural equation models. *Structural Equation Modeling: A Multidisciplinary Journal*, *19*(3),

351-371.

Ross, C. E., & Mirowsky, J. (2013). The sense of personal control: Social structural causes and emotional

consequences. In *Handbook of the Sociology of Mental Health* (pp. 379-402). Springer

Netherlands.

Rothbaum, F., Weisz, J. R., & Snyder, S. S. (1982). Changing the world and changing the self: A two-

process model of perceived control. *Journal of Personality and Social Psychology*, *42*(1), 5.

Rotter, J. B. (1954). *Social Learning and Clinical Psychology.* New York, NY: Prentice-Hall.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement.

Psychological Monographs, 80, 1–28.

Rotter, J. B. (1975). Some problems and misconceptions related to the construct of internal versus

external control of reinforcement. *Journal of Consulting and Clinical psychology*, *43*(1), 56.

Shacham, S. (1983). A shortened version of the Profile of Mood States. *Journal of Personality Assessment*, *47*(3), 305-306.

Uchida, Y., Kitayama, S., Mesquita, B., Reyes, J. A. S., & Morling, B. (2008). Is perceived emotional support beneficial? Well-being and health in independent and interdependent cultures. *Personality and Social Psychology Bulletin*, *34*(6), 741-754.

Voydanoff, P. (1990). Economic distress and family relations: A review of the eighties. *Journal of Marriage and the Family*, 1099-1115.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, *54*(6), 1063.

Weber, E. U., Blais, A. R., & Betz, N. E. (2002). A domain-specific risk-attitude scale: Measuring risk perceptions and risk behaviors. *Journal of Behavioral Decision Making*, *15*(4), 263-290.

Whelan, C. T., Russell, H., & Maître, B. (2016). Economic stress and the great recession in Ireland: Polarization, individualization or 'middle class squeeze'?. *Social Indicators Research*, *126*(2), 503-526.

Wohl, M. J. A., Branscombe, N. R., & Lister, J. J. (2014). When the going gets tough: Economic threat increases financial risk-taking in games of chance. *Social Psychological and Personality Science*, 5, 211 – 217.

Wong, P. W. C., Chan, W. S. C., Conwell, Y., Conner, K. R., & Yip, P. S. F. (2010). A psychological autopsy study of pathological gamblers who died by suicide. *Journal of Affective Disorders, 120*(1-3), 213-216.

Tables

Table 1- Study 1: Psychometric information for study variables

Variable	α	Range	Total Sample N=270		Control N=85		High Status N=90		Low Status N=95	
			Mean	SD	Mean	SD	Mean	SD	Mean	SD
Perceptions of Control	.90	1-5	3.4	.9	3.3	.9	3.6	.9	3.4	.9
Perceived risk in Investing	.73	1-5	2.9	.8	2.8	.7	3.0	.9	2.8	.8
Perceived risk in Gambling	.85	1-5	4.0	.9	3.9	.9	4.2	.8	4.0	.5
Prospective Investing Behaviour	.90	1-5	2.4	1.0	2.4	1.0	2.3	1.1	2.5	1.0
Prospective Gambling Behaviour	.84	1-5	1.5	.7	1.6	.7	1.4	.6	1.5	.7
Economic Hardship	.93	1-4	1.5	.6	1.5	.6	1.5	.6	1.5	.6
Resilience	.89	1-5	3.5	.7	3.4	.7	3.5	.7	3.5	.7
Trait Internal Locus of Control	.70	1-6	4.1	.7	4.1	.7	4.2	.6	4.0	.8

Table 2- Study 1: Correlations between study variables for control condition.

Variable		1	2	3	4	5	6	7	8
1 – Perceptions of Control	R	1							
	P								
2 – Perceived Risk in Investing	R	.11	1						
	P	.34							
3 - Perceived Risk in Gambling	R	.20	.41	1					
	P	.07	<.001						
4 - Prospective Investing Behaviour	R	.18	-.50	-.13	1				
	P	.10	<.001	.26					
5 - Prospective Gambling Behaviour	R	-.09	-.15	-.52	.33	1			
	P	.44	.19	<.001	.002				
6 – Economic Hardship	R	-.04	.22	.19	-.01	-.01	1		
	P	.74	.04	.09	.95	.91			
7 – Resilience	R	.49	-.13	.14	.28	-.04	-.15	1	
	P	<.001	.22	.21	.01	.74	.18		
8 – Trait Internal Locus of Control	R	.05	-.19	.04	.17	-.04	-.07	.09	1
	P	.63	.09	.73	.12	.74	.54	.41	

Table 3- Study 1: Correlations between study variables for the high-status condition.

Variable		1	2	3	4	5	6	7	8
1 – Perceptions of Control	*R*	1							
	P								
2 – Perceived Risk in Investing	*R*	-.28	1						
	P	.01							
3 - Perceived Risk in Gambling	*R*	-.14	.27	1					
	P	.19	.01						
4 - Prospective Investing Behaviour	*R*	.13	-.58	-.09	1				
	P	.21	<.001	.42					
5 - Prospective Gambling Behaviour	*R*	-.10	-.13	-.43	.32	1			
	P	.36	.21	<.001	.002				
6 – Economic Hardship	*R*	.07	-.02	.00	.27	.13	1		
	P	.53	.84	1.0	.01	.24			
7 – Resilience	*R*	.35	-.23	.01	.25	.02	-.07	1	
	p	.001	.03	.94	.02	.85	.54		
8 – Trait Internal Locus of Control	*R*	.26	-.34	-.06	.12	-.06	-.16	.31	1
	p	.01	.001	.61	.26	.58	.13	.003	

Table 4- Study 1: Correlations between study variables for the low-status condition.

Variable		1	2	3	4	5	6	7	8
1 – Perceptions of Control	R	1							
	p								
2 – Perceived Risk in Investing	R	-.04	1						
	p	.68							
3 - Perceived Risk in Gambling	R	-.00	.26	1					
	p	.99	.01						
4 - Prospective Investing	R	.07	-.40	.13	1				
	p	.48	<.001	.22					
5 - Prospective Gambling	R	-.00	.10	-.34	.24	1			
	p	.98	.34	.001	.02				
6 – Economic Hardship	R	-.20	.23	-.07	-.16	.04	1		
	p	.06	.03	.52	.14	.73			
7 – Resilience	R	.21	-.17	.08	.10	.02	-.08	1	
	p	.05	.12	.47	.34	.88	.44		
8 – Trait Internal Locus of Control	R	.20	-.47	-.14	.21	-.14	-.18	.18	1
	p	.05	<.001	.19	.05	.18	.08	.08	

Table 5- Study 1: Means and standard deviations of manipulation check measures based on condition, along with MANOVA univariate test results.

Variable	α	Total Sample		Control		High-status		Low-status		Univariate Test		
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	df	F	p
Anxiety	.97	3.21	1.35	1.69[A]	.80	3.82[B]	9.9	3.98[B]	.82	2, 264	184.67	<.001
Negative Affect	.95	2.70	1.21	1.41[A]	.60	3.14[B]	.95	3.44[C]	.86	2,264	153.57	<.001
Positive Affect	.85	2.40	.77	2.40[A]	.93	2.43[A]	.67	2.38[A]	.71	2, 264	0.10	.91
Threat	.94	3.44	1.26	2.05[A]	.84	3.98[B]	.86	4.17[B]	.80	2, 264	171.11	<.001

[A B C] – Different letters denote significant differences between groups for the variable in question.

Table 6 – Study 1: Regression coefficients for the paths in the proposed structural equation model, separately for each of the three conditions.

Path	Control		High Status		Low Status	
	Estimate	P	Estimate	P	Estimate	P
Internal Locus of Control to Perceived Control	.01	.92	.23	.10	.20	.10
Resilience to Perceived Control	.59	<.001	.37	.004	.24	.10
Perceived Control to Perceived Risk in Investing	.09	.33	-.278	.01	-.04	.68
Perceived Control to Perceived Risk in Gambling	.20	.07	-.13	.18	-.001	.99
Perceived Risk in Investing to Prospective Investing	-.70	<.001	-.72	<.001	-.51	<.001
Perceived Risk in Gambling to Prospective Gambling	-.43	<.001	-.35	<.001	-.26	<.001

Table 7- Study 1: Regression models examining the effect of economic stress, personality, and perceived control over one's financial situation on risk perceptions.

Predictor	Risk Perceptions in Investing			Risk Perceptions in Gambling		
	df	F	p	df	F	p
Condition	2, 249	1.80	.17	2, 249	1.00	.37
Economic Hardship	1, 249	2.31	.13	1, 249	.29	.59
Resilience	1, 249	4.55	.03	1, 249	1.06	.30
Internal Locus of Control	1,249	19.66	<.001	1,249	.24	.62
Perceived Control	1,249	.031	.860	1,249	.00	.99
Condition * Perceived Control	2, 249	3.34	.04	2, 249	1.39	.25
Condition * Internal Locus of Control	2,249	1.52	.22	2,249	.99	.38
Condition * Resilience	2, 249	.42	.66	2, 249	.22	.81

Note: Multiple regression models were conducted separately for investing (p<0.001) and gambling (p=.59).

Table 8- Study 1: Regression models testing the effect of economic stress, perceived control, risk perceptions, and personality on prospective financial risk-taking.

Predictor	Prospective Risk-Taking in Investing			Prospective Risk-Taking in Gambling		
	df	F	p	df	F	P
Economic Hardship	1,248	4.83	.03	1,248	.86	.35
Resilience	1,248	4.59	.03	1,248	1.82	.18
Internal Locus of Control	1,248	.06	.80	1,248	2.55	.11
Perceived Control	1,248	.29	.59	1,248	.83	.36
Risk Perceptions$^\$$	1,248	76.85	<.001	1,248	70.80	<.001
Condition	2,248	1.99	.14	2,248	.59	.56
Condition * Economic Hardship	2,248	2.70	.07	2,248	.72	.49
Condition * Resilience	2,248	.95	.39	2,248	.11	.90
Condition * Internal Locus of Control	2, 248	.81	.45	2, 248	1.17	.31

Note: Multiple regression models were conducted separately for investing (p<0.001) and gambling (p<.001).

$^\$$ - Risk perceptions in investing in the model predicting prospective risk-taking in investing, and risk perceptions in gambling in the model predicting prospective risk-taking in gambling.

Table 9- Study 2: Psychometric Information for study variables.

Variable	α	Range	Total Sample N=320 Mean	SD	Control N=112 Mean	SD	High-status N=109 Mean	SD	Low-status N=99 Mean	SD
Perceptions of Internal Control (Post manipulation)	.92	1-5	3.6	.9	3.5	.9	3.5	1.0	3.6	.9
Perceptions of Outside Control (Post manipulation)	.81	1-5	2.9	.9	2.6	.9	3.0	1.0	3.0	.8
Perceived risk in Investing	.85	1-5	2.9	.9	3.0	1.0	2.9	.8	2.9	1.0
Perceived risk in Gambling	.86	1-5	4.0	.9	4.0	.9	3.9	1.0	4.0	.9
Risk Tolerance	.62	13-39	26.9	4.5	27.4	4.4	26.8	4.9	26.6	4.2
Prospective Investing Behaviour	.90	1-5	2.5	1.0	2.5	1.1	2.4	1.0	2.5	1.0
Prospective Gambling Behaviour	.86	1-5	1.7	.9	1.7	.9	1.6	.9	1.6	.8
Economic Hardship	.90	1-4	1.6	.6	1.6	.5	1.7	.6	1.6	.6
Resilience	88	1-5	3.5	.7	3.6	.7	3.5	.8	3.5	.7
Trait Internal Locus of Control	.68	1-6	4.13	.7	4.2	.7	4.1	.8	4.1	.6
Attentional Impulsivity	.71	1-4	2.2	.6	2.2	.5	2.3	.6	2.2	.5
Non-Planning Impulsivity	.77	1-4	2.2	.6	2.2	.6	2.3	.6	2.2	.6
Desire for Control	.82	1-7	4.8	.8	4.7	.7	4.8	.8	4.8	.8

Table 10- Study 2: Correlations of key study variables in the control condition

Variable		1	2	3	4	5	6	7	8	9	10	11	12	13
1 – Perceptions of	r	1												
Internal Control	p													
2 – Perception of	r	.07	1											
Outside Control	p	.49												
3 – Perceived Risk	r	.09	-.06	1										
in Investing	p	.37	.52											
4 - Perceived Risk	r	.25	.04	.10	1									
in Gambling	p	.01	.66	.28										
5 – Risk Tolerance	r	.08	.13	-.27	-.42	1								
	p	.39	.18	.004	<.001									
6 - Prospective	r	-.11	.20	-.49	-.06	.36	1							
Investing	p	.26	.04	<.001	.50	<.001								
7 - Prospective	r	-.04	.12	.05	-.47	.31	.32	1						
Gambling	p	.69	.20	.59	<.001	.001	.001							
8 – Economic	r	.01	.24	-.06	-.06	.07	.07	-.02	1					
Hardship	p	.93	.02	.56	.52	.48	.50	.80						
9 – Resilience	r	.30	-.04	-.13	.12	.04	.03	-.01	-.00	1				
	p	<.001	.70	.18	.22	.69	.73	.91	.97					
10 – Internal Locus	r	.26	-.19	-.07	.15	.09	.14	.03	-.14	.26	1			
of Control	p	.007	.05	.45	.13	.36	.14	.73	.15	.01				
11- Attentional	r	-.09	.26	.04	.02	.10	-.03	-.17	.20	-.28	-.30	1		
Impulsivity	p	.38	.01	.72	.87	.30	.74	.08	.05	.003	.001			
12 – Non Planning	r	-.11	-.01	.12	.02	.05	-.06	.01	.09	-.31	-.17	.16	1	
Impulsivity	p	.24	.94	.22	.87	.63	.56	.92	.36	.001	.09	.10		
13 – Desire for	r	.22	-.07	-.13	.16	-.02	.11	-.16	-.11	.46	.22	-.01	-.25	1
Control	p	.02	.45	.17	.10	.84	.26	.10	.26	<.001	.02	.92	.01	

Table 11- Study 2: Correlations of key study variables in the high-status condition.

Variable		1	2	3	4	5	6	7	8	9	10	11	12	13
1 – Perceptions of	r	1												
Internal Control	p													
2 – Perception of	r	-.13	1											
Outside Control	p	.18												
3 – Perceived Risk in	r	.001	.09	1										
Investing	p	1.00	.34											
4 - Perceived Risk in	r	.14	.08	.29	1									
Gambling	p	.15	.44	.002										
5 – Risk Tolerance	r	.18	-.08	-.09	-.07	1								
	p	.06	.41	.37	.47									
6 - Prospective	r	.13	.09	-.37	-.01	.18	1							
Investing	p	.17	.38	<.001	.96	.07								
7 - Prospective	r	-.03	.06	.08	-.35	.27	.43	1						
Gambling	p	.74	.52	.43	<.001	.01	<.001							
8 – Economic	r	.07	.12	.03	-.07	.12	.15	.07	1					
Hardship	p	.51	.22	.80	.48	.23	.14	.50						
9 – Resilience	r	.56	-.02	.12	.19	.12	.11	-.06	.16	1				
	p	<.001	.83	.20	.05	.21	.25	.51	.11					
10 – Internal Locus of	r	.24	-.28	-.15	-.01	.10	-.13	-.31	-.07	.11	1			
Control	p	.01	.004	.12	.91	.32	.20	.001	.50	.28				
11- Attentional	r	-.34	.26	-.05	.06	-.08	.15	.08	-.01	-.33	-.20	1		
Impulsivity	p	<.001	.01	.62	.53	.41	.12	.44	.94	<.001	.04			
12 – Non Planning	r	-.33	.02	-.15	-.12	.10	.03	.32	-.19	-.45	-.12	.20	1	
Impulsivity	p	<.001	.83	.11	.22	.30	.77	.001	.06	<.001	.21	.03		
13 – Desire for	r	.38	-.04	.20	.24	.22	.03	.04	-.01	.48	.18	-.12	-.17	1
Control	p	<.001	.70	.04	.01	.02	.73	.66	.91	<.001	.13	.21	.08	

Table 12- Study 2: Correlations of key study variables in the low-status condition.

Variable		1	2	3	4	5	6	7	8	9	10	11	12	13
1 – Perceptions of Internal Control	r	1												
	p													
2 – Perception of Outside Control	r	.04	1											
	p	.68												
3 – Perceived Risk in Investing	r	.09	.12	1										
	p	.41	.24											
4 - Perceived Risk in Gambling	r	.01	.23	.12	1									
	p	.94	.02	.26										
5 – Risk Tolerance	r	.06	-.24	-.28	-.27	1								
	p	.58	.02	.01	.01									
6 - Prospective Investing	r	-.04	.07	-.49	-.19	.29	1							
	p	.71	.51	<.001	.06	.003								
7 - Prospective Gambling	r	.15	-.03	.03	-.47	.33	.38	1						
	p	.13	.78	.79	<.001	.001	<.001							
8 – Economic Hardship	r	.04	.11	.15	-.00	.12	.18	.30	1					
	p	.72	.26	.14	.98	.24	.08	.003						
9 – Resilience	r	.52	.16	-.08	.07	.09	.02	.01	-.02	1				
	p	<.001	.11	.42	.47	.37	.86	.96	.89					
10 – Internal Locus of Control	r	.25	-.13	-.04	.02	.17	.09	-.07	-.05	.27	1			
	p	.01	.21	.71	.86	.09	.41	.48	.64	.01				
11- Attentional Impulsivity	r	-.23	.00	.07	-.15	.12	.09	.14	.04	-.26	-.01	1		
	p	.02	.98	.51	.13	.25	.41	.17	.67	.01	.92			
12 – Non Planning Impulsivity	r	-.36	-.09	-.02	-.08	.16	-.14	.05	-.14	-.43	-.18	.21	1	
	p	<.001	.40	.88	.43	.12	.18	.64	.19	<.001	.08	.04		
13 – Desire for Control	r	.28	-.09	-.12	.02	.09	-.03	-.04	-.03	.60	.28	-.17	-.38	1
	p	.01	.39	.26	.88	.36	.75	.68	.79	<.001	.01	.10	<.001	

Table 13- Study 2: Means and standard deviations for manipulation check measures based on condition, along with univariate tests from the MANOVA.

		Total Sample		Control		High-status		Low-status		Univariate Test Results		
Variable	α	Mean	SD	Mean	SD	Mean	SD	Mean	SD	df	F	p
Anxiety	.966	3.2	1.3	1.9[A]	.9	3.8[B]	1.1	3.8[B]	1.0	2, 315	137.26	<.001
Negative Affect	.676	2.4	0.7	2.1[A]	.7	2.6[B]	.6	2.6[B]	.50	2, 315	29.05	<.001
Threat	.950	3.3	1.3	2.0[A]	.9	3.9[B]	1.0	4.0[B]	.9	2, 315	157.35	<.001

[A B] – Different letters denote significant differences between groups for the variable in question.

Table 14- Study 2: Multivariate Wilk's Lambda test for the effect of time, condition, economic hardship, and personality on perceptions of internal and outside control over future financial prospects.

Variable	Wilk's Λ	F	df	p
Economic Hardship	.96	6.09	2, 298	.003
Resilience	.66	76.20	2,298	<.001
Internal Locus of Control	.91	14.06	2,298	<.001
Condition	.96	2.88	4,596	.02
Time	.97	5.17	2,298	.01
Time * Economic Hardship	.97	3.90	2, 298	.02
Time * Resilience	.99	1.67	2,298	.19
Time * Internal Locus of Control	.98	3.05	2,298	.05
Time * Condition	.93	5.92	4596	.00

Table 15- Study 2: Univariate Test for the within-subject effects of time, condition, economic hardship, and personality on perceptions of control over future financial prospects.

Predictor	Measure	Df	F	p
Time	Internal Control	1, 299	5.84	.02
	Outside Control	1, 299	3.37	.07
Time * Economic Hardship	Internal Control	1, 299	6.17	.01
	Outside Control	1, 299	.99	.32
Time * Resilience	Internal Control	1, 299	1.01	.32
	Outside Control	1, 299	2.67	.10
Time * Internal Locus of Control	Internal Control	1, 299	6.09	.01
	Outside Control	1, 299	.02	.90
Time * Condition	Internal Control	2, 299	1.15	.32
	Outside Control	2, 299	10.99	<.001

Note: Univariate followup of the multivariate models outlined in Table 14

Table 16- Study 2: Univariate test results for between participant effects of condition, economic hardship, and personality on perceptions of control over future financial prospects.

Source	Measure	Df	F	p
Economic Hardship	Internal Control	1, 299	1.29	.26
	Outside Control	1, 299	11.52	.001
Resilience	Internal Control	1, 299	143.33	<.001
	Outside Control	1, 299	4.18	.04
Internal Locus of Control	Internal Control	1, 299	7.51	.01
	Outside Control	1, 299	22.76	<.001
Condition	Internal Control	2,299	.34	.71
	Outside Control	2,299	5.22	.01

Note: Univariate followup of the multivariate models outlined in Table 14

Table 17- Study 2: Pairwise comparisons for perceptions of outside control over future financial prospects, based on condition and time (pre and post manipulation).

Condition	Mean Difference (pre-post)	*SE*	*P*
Control	.12	.08	.14
High-status	-.31	.08	<.001
Low-status	-.37	.08	<.001

Note: Pairwise follow up relating to the multivariate models outlined in Table 14

Table 18 – Study 2: Multiple mediation model results for the model predicting prospective investing, outlining predictors of the proposed mediations, including 'A' paths from condition to the mediators. Predictors of proposed mediators in the model predicting prospective investing behaviour.

Mediator	Predictor	B	SE	T	P
Perceived Risk in Investing 12.5%, F(8,295)=.55, p=.82	A: Dummy Condition: High-status	-.07	.13	-.56	.58
	A: Dummy Condition: Low-status	-.14	.13	-1.08	.28
	Resilience	-.06	.10	-.58	.56
	Trait Internal Locus of Control	-.10	.08	-1.28	.20
	Desire for Control	.01	.08	.12	.91
	Economic Hardship	.07	.09	.78	.43
	Attentional Impulsivity	.01	.10	.15	.88
	Non-Planning Impulsivity	-.05	.09	-.50	.62
Risk Tolerance 25.4%, F(8,295)=2.54, p=.01	A: Dummy Condition: High-status	-.91	.61	-1.48	.14
	A: Dummy Condition: Low-status	-.75	.62	-1.20	.23
	Resilience	.61	.45	1.34	.18
	Trait Internal Locus of Control	.69	.38	1.83	.07
	Desire for Control	.48	.40	1.21	.23
	Economic Hardship	.85	.44	1.91	.06
	Attentional Impulsivity	.32	.47	.67	.51
	Non-Planning Impulsivity	1.32	.43	3.02	.002
Perceived Outside Control in Future Financial Prospects 39.7%, F(8,295)=6.88, p<0.001	A: Dummy Condition: High-status	.43	.11	3.74	<.001
	A: Dummy Condition: Low-status	.54	.12	4.61	<.001
	Resilience	.14	.09	1.67	.09
	Trait Internal Locus of Control	-.24	.07	-3.33	.001
	Desire for Control	-.05	.07	-.72	.47
	Economic Hardship	.16	.08	1.96	.051
	Attentional Impulsivity	.29	.09	3.23	.001
	Non-Planning Impulsivity	-.05	.08	-.61	.54
Perceived Internal Control in Future Financial Prospects 50.0%, F(8,295)=12.29, p<.001	A: Dummy Condition: High-status	.04	.11	.39	.69
	A: Dummy Condition: Low-status	.09	.12	.76	.45
	Resilience	.45	.08	5.40	<.001
	Trait Internal Locus of Control	.19	.07	2.72	.007
	Desire for Control	.08	.08	1.16	.25
	Economic Hardship	.05	.09	.58	.56
	Attentional Impulsivity	-.12	.09	-1.44	.15
	Non-Planning Impulsivity	-.11	.08	-1.34	.18

Table 19- Study 2: Multiple mediation model results for the model predicting prospective gambling, outlining predictors of the proposed mediations, including A path from condition to the mediators.

Mediator	Predictor	B	SE	T	P
Perceived Risk in Gambling 17.5%, F(8,296)=1.17, p=.32	A: Dummy Condition: High-status	-.07	.13	-.52	.60
	A: Dummy Condition: Low-status	-.00	.13	-.00	1.00
	Resilience	.13	.10	1.06	.29
	Trait Internal Locus of Control	.01	.08	.10	.92
	Desire for Control	.14	.09	1.66	.10
	Economic Hardship	-.08	.10	-.79	.43
	Attentional Impulsivity	.07	.10	.68	.50
	Non-Planning Impulsivity	-.01	.09	-.12	.90
Risk Tolerance 26.09%, F(8,296)=2.70, p=.01	A: Dummy Condition: High-status	-.91	.61	-1.48	.14
	A: Dummy Condition: Low-status	-.85	.63	-1.36	.18
	Resilience	.62	.46	1.35	.18
	Trait Internal Locus of Control	.81	.38	2.15	.03
	Desire for Control	.44	.40	1.11	.27
	Economic Hardship	.85	.45	1.91	.06
	Attentional Impulsivity	.40	.48	.84	.40
	Non-Planning Impulsivity	1.31	.44	2.99	.003
Perceived Outside Control in Future Financial Prospects 39.7%, F(8,296)=6.93, p<0.001	A: Dummy Condition: High-status	.43	.11	3.74	.002
	A: Dummy Condition: Low-status	.54	.12	4.63	<.001
	Resilience	.14	.09	1.67	.09
	Trait Internal Locus of Control	-.24	.07	-3.38	.001
	Desire for Control	-.05	.07	-.72	.47
	Economic Hardship	.16	.08	1.96	.05
	Attentional Impulsivity	.29	.09	3.23	.001
	Non-Planning Impulsivity	-.05	.08	-.61	.54
Perceived Internal Control in Future Financial Prospects 50.0%, F(8,296)=12.33, p<.001	A: Dummy Condition: High-status	.04	.11	.39	.70
	A: Dummy Condition: Low-status	.08	.11	.72	.47
	Resilience	.45	.08	5.40	<.001
	Trait Internal Locus of Control	.20	.07	2.83	.005
	Desire for Control	.08	.07	1.14	.26
	Economic Hardship	.05	.08	.58	.56
	Attentional Impulsivity	-.12	.09	-1.40	.16
	Non-Planning Impulsivity	-.11	.08	-1.34	.18

Table 20- Study 2: Multiple mediation model results for the model predicting prospective investing, outlining predictors of prospective risk-taking in investing, including B path from the proposed mediators to prospective risk-taking.

Predictor	B	SE	T	P
B: Perceived Risk in Investing	-.52	.06	-9.34	<.001
B: Risk Tolerance	.04	.01	3.80	<.001
B: Perceived Outside Control in Future Financial Prospects	.16	.06	2.55	.01
B: Perceived Internal Control in Future Financial Prospects	-.01	.06	-.12	.90
Dummy Condition: High-status	-.18	.12	-1.45	.15
Dummy Condition: Low-status	-.04	.13	-.29	.77
Resilience	-.01	.094	-.075	.94
Trait Internal Locus of Control	.01	.08	.18	.86
Desire for Control	.01	.08	.07	.95
Economic Hardship	.21	.09	2.43	.02
Attentional Impulsivity	.14	.09	1.44	.15
Non-Planning Impulsivity	-.12	.09	-1.44	.15

Table 21- Study 2: Multiple mediation model results for the model predicting prospective gambling, outlining predictors of prospective risk-taking in gambling, including 'B' paths from the proposed mediators to prospective risk-taking.

Predictor	B	SE	t	p
B: Risk Tolerance	.04	.01	4.05	<.001
B: Perceived Risk in Gambling	-.36	.05	-7.83	<.001
B: Perceived Internal Control in Future Financial Prospects	.09	.05	1.66	.10
B: Perceived Outside Control in Future Financial Prospects	.08	.05	1.66	.10
Dummy Condition: High-status	-.12	.10	-1.19	.24
Dummy Condition: Low-status	-.05	.11	-.48	.63
Resilience	-.00	.08	-.04	.97
Trait Internal Locus of Control	-.16	.06	-2.47	.01
Desire for Control	.03	.06	.50	.61
Economic Hardship	.11	.07	1.52	.13
Attentional Impulsivity	-.00	.08	-.06	.95
Non-Planning Impulsivity	.15	.07	2.02	.04

Table 22- Study 2: Multiple mediation model results for the model predicting prospective investing, of the indirect omnibus effect of condition on prospective risk-taking through the proposed mediators.

Mediator	C: Omnibus Indirect Effect on Prospective Investing *B, SE, (95% Bias Corrected Confidence Interval)*
Perceived Internal Control over Future Financial Prospects	*B*=.00, *SE*=.00, (-.0004, .0011)
Perceived Outside Control over Future Financial Prospects	*B*=.01, *SE*=.01, (.0013, .0276)
Perceived Risk in Investing	*B*=.00, *SE*=.01, (-.0058, .0042)
Risk Tolerance	*B*= .00, *SE*=.00, (-.0004, .0011)

Note: Significant results found when 95% confidence interval does not include 0. Omnibus results consider the joint influence of the dummy coded high-status and low-status economic stress conditions.

Table 23- Study 2: Multiple mediation model results for the model predicting prospective gambling, of the indirect omnibus effect of condition on prospective risk-taking through the proposed mediators.

Mediator	Omnibus Indirect Effect on Prospective Gambling *B, SE, (95% Bias Corrected Confidence Interval)*
Perceived Internal Control over Future Financial Prospects	*B*=-.00, *SE*=.00, (-.0010, .0000)
Perceived Outside Control over Future Financial Prospects	*B*=.01, *SE*=.00, (-.0009, .0181)
Perceived Risk in Gambling	*B*=.00, *SE*=.00, (.0011, .0031)
Risk Tolerance	*B*=.00, *SE*=.00, (-.0003, .0011)

Note: Significant results found when 95% confidence interval does not include 0. Omnibus results consider the joint influence of the dummy coded high-status and low-status economic stress conditions.

Appendix A: Study 1 Protocol
Demographics/ induction to focus on self

Item	Response Options
What is your sex?	1=Male 2=Female 3=Other
What is your age?	Written, numeric, in years
What is your marital status?	1=Married or common law 2=Separated or divorced 3=Single 4=Widowed
Are you a student?	Yes No
If yes, are you	Part- time Full-time
If you are a student, what is your year of study	First year undergraduate Second year undergraduate Third year undergraduate Fourth year undergraduate Fifth year undergraduate Graduate student
If yes, What program are you in?	Fill in Blank
If yes, What is your expected graduation date?	Fill in Blank

Stress Manipulation
Adapted from Wohl et al. (2014)
High Economic Stress Conditions.

Please read the following article.

No Financial Safe Haven for University Students in Ontario

Students attending university in Ontario may have more than grades to worry about next year. Recently released information suggests that effects of the global financial crisis will continue to be felt by students across the province.

Effective September 2013, students will be hit with additional tuition fees, accompanied by a drastic drop in the amount of financial aid. To make matters worse, there will be a continued decrease in Federal and Provincial funding, which typically provides several million dollars to students each year. If the lack of funding was not enough, there will be an increase in interest rates for student loans provided by the Ontario Student Assistance Program (OSAP). Jane Carmichael, an administrator with OSAP stated, "it is going to become increasingly difficult for students to obtain provincial student loans. Less available money, higher tuition fees looming and an increase in applications, just does not add up for the student." Some have speculated that it may take years for tuition rates and funding to return to their previous levels.

With youth unemployment rates projected to continue to increase from their current 13.6%, in the foreseeable future, higher education, though once considered an investment, may not even be enough to secure the few positions available in this unstable economic climate. The employment situation means that students who graduate over the next few years will face a job market upon graduation where they are unlikely to find the jobs they are training for.

<u>High Financial Deprivation, Low Status:</u> Please imagine that when you graduate, you find yourself in the negative economic circumstances described in the article above. You are only able to get a minimum wage job, and have no prospects in the area you have chosen to specialize in. How do you feel? What would your life be like?

<u>High Financial Deprivation, High Status:</u> Please imagine that when you graduate, you find yourself in the negative economic circumstances described in the article above. You are only able to find a minimum wage internship in the area you have chosen to specialize in. How do you feel? What would your life be like?

Control Condition
Please read the following article.

Change is Good (and Shiny)!

Getting to know the Royal Canadian Mint - Canadian Mint to make guided tours of the Mint available to university students interested in the industry.

The Winnipeg site of the Mint produces all of Canada's circulation coins, as well as circulation coins for other nations.

The Mint has the capacity to produce over 2 billion circulation coins per year for foreign governments; its patented coin plating technology helps minimize coin cost for foreign governments. The Royal Canadian Mint provides its proven expertise to foreign markets to develop, produce, package and market custom commemorative coins. For example, the 1997 commission from the Hong Kong Monetary Authority to produce a $1,000 22-karat gold coin to mark the historic transfer of the territory to the People's Republic of China.

In addition to the production of circulation coins, the Winnipeg branch of the Mint provides storage services for branded precious metals in its vaults. The Royal Canadian Mint operates one of the most technically advanced and respected gold refineries in the world, producing bars, wafers and custom products. Every gold bar and wafer is struck with the Royal Canadian Mint hallmark, an internationally recognized guarantee of weight and purity.

Winnipeg's high-speed circulation presses can produce 20 million coins each day. That's 750 coins per second! Via their collaboration with U of W, these and other interesting facts will be among the information gathered by young minds interested in their nation's money-making industry in Winnipeg.

Imagine you were to take the tour described in the future. How do you feel? What would it be like?

Manipulation Check

POMS – Anxiety (Shacham, 1983): Imagine yourself in the situation you just read about in the article. Using the scale below, please indicate what your feelings would be if you were really in that situation.
(1)very slightly/or not at all (2) a little (3) moderately (4)quite a bit (5)extremely
On edge
Restless
Anxious
Tense
Uneasy
Nervous

PANAS Negative Affect(Watson et al., 1988): This scale consists of a number of words that describe different feelings and emotions. Imagine yourself in the situation you just read about in the article. Using the scale below, indicate what your feelings would be if you were really in that situation.

(1)very slightly/or not at all (2) a little (3) moderately (4)quite a bit (5)extremely

distressed
upset
guilty
scared
hostile
irritable
ashamed
nervous
jittery
afraid

Threat (Based on Marjanovic et al, 2013): Please indicate how you would feel if you were really in the situation you were asked to write about by answering the following questions

1. How uncertain would you feel? 1 = Not At All to 5 = Extremely Uncertain
2. How much would you feel at risk? 1 = Not At All to 5 = A Great Deal
3. How much would you feel threatened? 1 = Not At All to 5 = Extremely Threatened
4. How much would you worry about it? 1 = Not At All to 5 = A Great Deal
5. How much would you think about it? 1 = Not At All to 5 = A Great Deal

Perceptions of Control over Own Financial Situation
Stress Appraisal Measure (Controllable by Self Subscale; Peacock & Wong, 1990): The following questions are related to your thoughts about your <u>financial situation</u>. There are no right or wrong answers. Please respond according to how you view your financial situation right NOW.

Not at all	slightly	moderately	considerably	Extremely
1	2	3	4	5

1. Do I have the ability to do well in this situation?
2. Do I have what it takes to do well in this situation?
3. Will I be able to overcome problems with this situation?
4. Do I have the skills necessary to achieve a successful outcome to this situation?

Risk Perceptions

Risk Attitudes Scale: Perceived risk instructions
 (Weber et al., 2002)
People often see some risk in situations that contain uncertainty about what the outcome or consequences will be and for which there is the possibility of 'bad' consequences. However, riskiness is a very personal and intuitive notion, and we are interested in your gut level assessment of how risky each situation is. For each of the following statements, please indicate how risky you perceive each situation to be right now.

1	2	3	4	5
Not at all risky		Moderately risky		Extremely Risky

Note: I-investment, G-gambling

1. Betting a day's income at the horse races. (G) _____
2. Investing 10% of your annual income in a moderate growth mutual fund. (I) _____
3. Betting a day's income at a high stake poker game. (G) _____
4. Investing 5% of your annual income in a very speculative stock. (I) _____
5. Betting a day's income on the outcome of a sporting event (e.g. baseball, soccer, or football). (G) _____
6. Investing 5% of your annual income in a conservative stock. (I) _____
7. Investing 10% of your annual income in government bonds (treasury bills). (I) _____
8. Gambling a week's income at a casino. (G) _____

Prospective Risk-taking
(Weber et al., 2002)
For each of the following statements please indicate your likelihood of engaging in each activity or behaviour for each of the following statements.

1	2	3	4	5
Very unlikely	Unlikely	Not sure	likely	Very likely

1. Betting a day's income at the horse races. (G) _____
2. Investing 10% of your annual income in a moderate growth mutual fund. (I) _____
3. Betting a day's income at a high stake poker game. (G) _____
4. Investing 5% of your annual income in a very speculative stock. (I) _____
5. Betting a day's income on the outcome of a sporting event (e.g. baseball, soccer, or football). (G) _____
6. Investing 5% of your annual income in a conservative stock. (I) _____
7. Investing 10% of your annual income in government bonds (treasury bills). (I) _____
8. Gambling a week's income at a casino. (G) _____

Personality Inventories

Connor Davidson Resilience scale (CD-RISC) ©
(Campbell-Sills &Stein, 2007)

Multidimensional locus of control scale
(internal subscale; Levenson, 1981)

Following is a series of attitude statements. Each represents a commonly held opinion. There are no right or wrong answers. You will probably agree with some items and disagree with others. We are interested in the extent to which you agree or disagree with such matters of opinion.
Read each statement, decide if you agree or disagree and the strength of your opinion, and then respond accordingly. GIVE YOUR OPINION ON EVERY STATEMENT. If you find that the numbers to be used in answering do not adequately reflect your own opinion, use the one that is closest to the way you feel.

3 Agree strongly
2 Agree Somewhat
1 Agree slightly
-1 Disagree slightly
-2 Disagree somewhat
-3 Disagree strongly

1. Whether or not I get to be a leader depends mostly on my ability.
2. Whether or not I get into a car accident depends mostly on how good a driver I am.
3. When I make plans, I am almost certain to make them work.
4. How many friends I have depends on how nice a person I am.
5. I can pretty much determine what will happen in my life.
6. I am usually able to protect my personal interests.
7. When I get what I want, it's usually because I worked hard for it.
8. My life is determined by my own actions.

Demographics and Financial Status
Economic Hardship Questionnaire
(Lempers et al., 1989)
In the last year, how often have you or your family had to:

Never	Sometimes	Often	Very Often
(1)	(2)	(3)	(4)

1. Cut back on social activities and entertainment expenses?
2. Postpone major household purchases?
3. Postpone clothing purchases?
4. Change transportation patterns to save money?
5. Change food shopping or eating habits to save money?
6. Cut back on charitable contributions?
7. Reduce household utility use?
8. Sell some possessions?
9. Postpone medical care to save money?
10. Take additional employment to help meet expenses?

Demographics for financial situation
Are you currently employed?

1. No
2. Yes, Part-time
3. Yes, Full-time

What is your total annual income, before taxes?

What is your total household income (i.e., including your parents or partners) before taxes?

On average, how much do you spend on total monthly expenses (e.g., utilities, food, clothes, cable, etc.)?

What is your total debt (i.e., how much money do you currently owe in your stated currency)?
 Please break this amount (your total debt) down into the different categories of debt that you owe.
1. Consumer debt (e.g., credit card, store credit, vehicle, cell phone)
2. Student debt (e.g., student loan, tuition)
3. Mortgage/Rent
4. Gambling losses
5. Other, specify:

Appendix B: Pilot Testing: Manipulating Economic Stress

In order to verify that the planned experimental manipulation was successful in manipulating economic stress the manipulation designed was first pilot tested. A between-subjects design was employed, with participants randomly assigned to one of three conditions, and then as part of a longer testing session completed several related measures. There are two economic stress conditions, one with a threat to participant's status and one without, and a control condition.

The economic stress exercises are adapted from manipulations of economic threat designed by Wohl, Brancombe, and Lister (2014), where high stress was significantly associated with gambling behaviour. The original paper involved two conditions, where participants were asked to read a news article purportedly from a reputable and award-winning national news magazine, with a high circulation. In the economic threat condition, the article warned students about the coming effects of the global financial crisis on students, while in the control condition participants read an article on money production at the mint.

Modifications to Original Manipulation

Two key modifications were made to the protocol administered by Wohl at al. (2014). First, the original articles used were updated to reflect the location of study administration and current economic conditions. Second, rather than just reading the assigned article, participants were also asked to complete a writing exercise where they had just read. The writing exercise served as a means to reinforce the content of the article, as past research in this lab has shown the article alone to be insufficient to create a reliable effect, and was also used to create the distinction between the two high-stress conditions.

Both high-stress conditions involved reading the same article, and the writing prompts were equal in terms of the financial conditions participants are asked to write about but differed in terms of whether the financial stress was paired with a threat to their status and identity. In the high-stress low-status condition, after reading the article participants were asked to imagine themselves graduating into the described negative economic conditions, and write about finding themselves working a minimum wage job, with no prospects in their chosen field. In the high-stress high-status condition, participants were asked to imagine that they were able to find a minimum wage internship in their field. For the control

condition, after reading the updated version of the article about visiting the mint used by Wohl et al. (2014), participants were then instructed to imagine themselves as taking the described tour of the mint facilities and to write about how they would feel on such a tour.

Method

Measures

As part of a larger test battery, immediately following the writing exercise participants were asked to complete the tension-anxiety subscale of the Profile of Mood States (Shacham, 1983), and the negative affect subscales of the PANAS (Watson, Clark & Tellegen, 1988).

Participants

One hundred and seventy-seven participants completed in the pilot study in exchange for course credits. Participants took an average 40.63 minutes (SD=45.68) to complete the survey measures, with a range from 5.10 to 451.53 minutes. Those that took less than 10 minutes, or more than 80 minutes to complete the study were excluded from subsequent analyses, resulting in an n of 162, and an average time to completion of 33.70 minutes (SD=15.66). The sample was predominantly female (72.0%), with a mean age of 19.88 (SD=3.52). The majority of participants were single (95.1%), and attending university full-time (98.1%). Most were in their first or second year of study (52.2% and 26.7% respectively).

Quantitative Manipulation Check

In order to assess the effect of the manipulations on a participant's stress levels, a MANOVA was conducted with condition as the independent variable, and anxiety and negative affect as the dependent variables (Table B1). Results of multivariate analyses show that condition had a significant effect on the dependent variables (*Wilk's Λ*=.93, $F(4,316)$=2.84, p=.03). Condition was found to have a significant effect on negative affect ($F(2,159)$= 4.48, p=0.01), and a marginal effect on anxiety ($F(2,159)$=3.71, p=0.06).

Follow- up tests on negative affect show that there was a significant difference between the high-stress high-status condition and the control condition, as well as a significant difference between the high-stress high-status condition and the low-status condition (Table B2). Essentially, negative affect is highest in the high-stress high-status condition as compared to the control and high-stress low-status condition, which did not significantly differ from each other. Though the univariate test was not

significant, a similar pattern of results emerges for anxiety, where anxiety is highest in the high-status condition.

Table B1: Quantitative Manipulation Check Means and Standard Deviations Based on Condition

	Control		High-Stress Low-status		High-Stress High-status	
Variable	Mean	SD	Mean	SD	Mean	SD
Anxiety	1.8	.7	1.9	.9	2.3	1.1
Negative Affect	2.6	1.1	2.4	1.0	2.9	1.2

Table B2: Pairwise Comparisons of Negative Affect and Anxiety based on condition.

Dependent Variable	(I) Condition	(J) Condition	Mean Difference (I-J)	*SE*	*p*
Negative Affect	Control	High Stress Low-status	-.11	.17	.54
		High Stress High-status	-.49	.17	.01
	High Stress Low-status	Control	.11	.17	.54
		High Stress High-status	-.39	.17	.03
	High Stress High-status	Control	.49	.17	.01
		High Stress Low-status	.39	.17	.03
Anxiety	Control	High Stress Low-status	.18	.22	.42
		High Stress High-status	-.34	.22	.12
	High Stress Low-status	Control	-.18	.22	.42
		High Stress High-status	-.52	.22	.02
	High Stress High-status	Control	.34	.22	.12
		High Stress Low-status	.52	.22	.02

Qualitative Manipulation Check

Given the mixed findings from the quantitative manipulation check, the decision was made to proceed with a qualitative analysis to further explore the findings from the written responses. This qualitative analysis occurred in three steps. First, to provide a rough assessment of group differences in the valence and content of responses, a word frequency analysis was conducted, comparing the total number of

positive, negative, and finance related words within responses to each condition. Next, a sentiment analysis was conducted, looking at the valence of each individual written response, and whether it contained negative statements, positive statements, or both. Finally, a thematic analysis was undertaken, examining the responses to each condition to identify key themes.

Word Frequency

As a preliminary step to determine whether more in-depth analyses of the written responses to the writing prompts associated with each condition was warranted, a word frequency analysis was conducted. The raw word frequency count for positive, negative and finance-related words within the responses for each of the three conditions was converted to percentages of total words in each condition, to allow for a gross comparison between groups (Table B3). Z-tests on the proportion of words of each type relative to the total number of words indicate that both the low-status group and the high-status group are significantly different from the control condition in terms of positive words, negative words, and financial words, but do not significantly differ from each other (Table B4). This analysis suggests that the two high-stress conditions were similarly high in financial and negative content relative to the control condition, and did not appear to differ significantly from each other.

Table B3: Word frequency proportions, with additional coding of negative, positive, and financial words.

	Positive Words (%)	Negative Words (%)	Financial Words (%)
Control (2107 words)	10	0.6	9.4
Low-status (2909 words)	3.4	7.9	16.3
High-status (2808 Words)	4	7.2	16.2

Table B4: Z-tests for comparisons between conditions based on positive, negative, and financial words.

	Positive Words	Negative Words	Financial Words
Control Vs. High-status	Z=8.40, p<0.001	Z=-11.20, p<0.001	Z=-6.95, p<0.001
Control Vs. Low-status	Z=.96, p<0.001	Z=-11.90, p<0.001	Z=-7.08, p<0.001
High-status vs Low-status	Z=1.20, p=.23	Z=1.0, p=.317	Z=.10, p=.92

Sentiments Analysis

Given that the quantitative analysis indicates that only the high-status condition is associated with significant amounts of anxiety, but the word frequency analysis suggests that the high-stress high-status

and high-stress low-status conditions were similar in terms of content, a sentiment analysis was conducted focusing on the two high-stress conditions. Individual responses were coded as to whether they contained positive statements, negative statements, or both positive and negative statements.

In the low-status condition, 100% of participants expressed negative sentiments in their written responses, while 32.2% had both positive and negative statements. None had positive statements only. In the high-status condition, 94.9% of participant had negative statements, and 39.0% had positive statements, with 33.9% of participants having both positive and negative statements in their written responses. Z tests show no significant difference in the number of participants who expressed negative statements only (Z=1.681, p=.093), positive statements only (Z=-1.731, p=.084), nor both positive statements and negative statements (Z=-.738, p=.459) between the high-status and low-status conditions. In line with the word frequency results, this shows significant evidence that participants in both the high-status and low-status conditions experienced both positive and negative states in response to the writing exercise to a similar degree.

Thematic Analysis

To more fully understand the content of the responses to the two high-stress conditions, a thematic analysis was conducted to examine the content of the positive and negative sentiments that were identified in the sentiment analysis.

Themes Found in Positive Sentiments

Positive sentiments in the high-status condition most often centred around the idea that the position they had was in their field and for some, that this would make it easier to secure a position in the future of a more permanent job. Participants also reported being thankful to at least have a job, and that being employed itself was an accomplishment. So despite acknowledging their negative circumstances, participants were able to articulate positive feelings they had about being able to work in the field of their choice. Taken together, these data provide some evidence that roughly a third of participants in the high-status condition reacted to the manipulation as we had initially hypothesized, such that they viewed the internship as a stepping stone in their career.

Positive sentiments in the low-status condition showed more variety. Approximately 7 participants stated that they would not let the economy stop them from pursuing their dreams and they will try to find a better job, demonstrating optimism in the face of the negative circumstances they were told to

imagine. Some (5 participants) mentioned they would consider moving out of the province to get better employment, or switching careers. One person was grateful to just be employed.

Themes found in the negative sentiments

The most frequently-stated negative comment for participants in the high-status condition was that their education was a waste of time and/or money (at least 12 participants). Many mentioned they would feel disappointed and some indicated their parents would be disappointed in them. Some mentioned they felt like a failure, stupid, and that their life would not be up to the standards they deserve (n = 17). For others, the situation was hopeless, horrible, scary, frustrating (n = 10). Many responded they felt miserable, stressed out, angry, guilty, unhappy, depressed, anxious and they were worrying (n = 25). In addition, 18 participants referred to the debt they incurred during their studies and that they were worried about how they would repay the loans they needed to finance their education.

As in the high-status condition, several participants in the low-status condition mentioned that their education was a waste of time and/or money (at least 12 participants). Several also stated that they were disappointed (in general and with themselves) (n = 13) and stressed (n= 12). Many responded they felt horrible, miserable, angry, unhappy, depressed, life not worth living, insecure, anxious and they were worrying (n = 22). Another theme centred around personal failure such as feeling like a failure, feeling useless, unaccomplished and devalued (n= 7). In addition, 14 participants referred to the debt they incurred during their studies and that they were worried about how they would repay the loans they needed to finance their education.

Comparison of Themes in High-status and Low-status Conditions

Comparisons of the negative comments in both conditions indicate that there were no notable differences in the cognitions and affect expressed by participants. The negative comments in both conditions reflected disappointment, feelings of failure, depression, hopelessness, and self-blame. Participants in both conditions expressed worry about repaying their loans. On the other hand, comparison of the positive comments in both conditions indicated that when making positive comments, those in the high-status condition were more likely to express positive feelings about being able to work in the field of their choice. This was the main difference between the two conditions.

Evidence of Economic Stress in the Written Responses

Conceptually, the instructions for the writing task in both the high-status and low-status condition asked participants to write about their future in a situation with poor economic conditions and minimum wage positions, involved economic stress. These observations of the present study are in line with Voydanoff (1990) who defined economic strain as "an evaluation of current financial status … and one's projected financial situation" (p. 1104). In a similar way, Shek (2005) theorized that economic stress is current economic hardship and future economic worry. Clearly, in the data presented here, participants' sentiments involve negative affect in relation to both current and projected financial status.

Specifically, Voydanoff (1990) describes economic distress as "aspects of economic life that are potential stressors for individuals and families" (p. 1102). She developed a two-dimensional taxonomy to describe broad categories of economic stress measures used in some prior literature (Probst, 2004; Sinclair, Sears, Probst, & Zajack, 2010), distinguishing between employment and income stressors such that employment-related stressors concern one's continued employment status and income-related stressors refer to one's ability to meet financial demands.

In terms of the two-dimension taxonomy of economic stress developed by Voydanoff (1990), the findings from the qualitative analyses make clear that participants in both the high-status and low-status conditions demonstrated significant concern about both income and employment-related stressors. Employment-related stressors included participants acknowledging the instability of their employment, in terms of both the high unemployment rate they were asked to consider and their inability to find a job commensurate with the amount of money and time invested in their education. More prevalent in the written responses was income-related stress, with participants displaying concern regarding their inability to support themselves and their families, and to pay off their debts.

Notably, these stressors showed no evidence of being alleviated in the high-status condition, relative to the low-status condition, which based on the writing prompts that participants received differed in terms of employment stress, but were identical in terms of income stress. Even amongst those who acknowledged the increased status of their internship, there was considerable concern about the need to work hard in order to transition to a permanent position, and that the low pay would still require potentially working multiple jobs, and a low standard of living.

Overall, in line with the taxonomy developed by Voydanoff, participants showed clear evidence of economic strain, relating to negative subjective perceptions of their financial status and perceived inadequacy of their income.

Pilot Test Conclusions

Though the findings from the quantitative manipulation check were inconclusive, with only the high-status condition demonstrating significant amounts of anxiety compared to the control condition, the qualitative analysis of participants written responses makes clear that both the high-stress high-status and high-stress low-status condition demonstrate significant evidence of economic stress. Thus, the manipulation check was deemed to be successful, with the inconclusive quantitative manipulation check attributed to the specific measures administered, rather than a failing of the manipulation itself. The decision is then made to proceed with the economic stress manipulation as designed but modifying the quantitative manipulation check measures to better understand the effects of the manipulation.

Sample Written Responses

Sample responses from the High-status condition

Negative Only: I would feel very stressed out and like a disappointment. I would have student loans to pay off, while having to pay rent and buying food and only having a minimum wage job after my parents spent so much money on my education would be very shameful.

Positive Only: I'd think that securing a minimum wage internship in such tough economic times is already an accomplishment, especially when I could be stuck doing unpaid internship or even volunteering. My personal extraneous spending is already very low as I consider may things people indulge in to be wasteful and incapable of granting long-term satisfaction and or entertainment, hence I do not foresee this making a huge negative impact on my quality of life.

Positive and Negative: I would feel definitely upset since I went to school for a number of years only in return to realize that the same job that I could have gotten without the schooling. However, I would also enjoy it as I am still able to be in the profession that I enjoy.

Sample responses from the Low-status condition

Negative Only: I would feel disappointed and sad, for the fact that I have been studying for the past few years for nothing. The purpose of going to university is to have a secure financial

future. If that is the case when I graduate, then university was a waste of time and money. My life would be hard, and having to pay the student loans would be more than I can handle. *Positive and Negative:* I feel upset that the money my parents spent in order for me to gain and obtain an education has really no use in the economy we live in. My life would be difficult especially trying to land a job within my field of study. Working hard every day is my prime focus, but I won't let the economy stop me from pursuing my dreams and aspirations in life. *Positive Only:* No positive only responses were present for participants in the low-status condition

Appendix C: Study 2 Protocol

Pre Measure of Perceptions of Control over Future Financial Prospects

Stress Appraisal Measure (Controllable by Self Subscale (Peacock & Wong, 1990) and new Control by outside forces subscale): The following questions are related to your thoughts about your <u>future financial prospects</u>. There are no right or wrong answers. Please respond according to how you view your financial situation right NOW.

Not at all	slightly	moderately	considerably	Extremely
1	2	3	4	5

1. Do I have the ability to do well in this situation?
2. Do I have what it takes to do well in this situation?
3. Will I be able to overcome problems **with this situation**?
4. Do I have the skills necessary to achieve a successful outcome to this situation?
5. Are the outcomes of this situation mainly due to outside forces?
6. Is beyond any individual's power to control this situation?
7. Is the outcome of this situation controlled by outside forces?
8. Is this situation unresolvable by anyone?

Personality Inventories

Connor Davidson Resilience scale (CD-RISC) ©
(Campbell-Sills &Stein, 2007)

> CD-RISC © 2001, 2003, 2007 Kathryn M. Connor, MD, and Jonathan R. T. Davidson, MD. All Rights Reserved. We acknowledge contributions as works made for hire by Laura Campbell-Sills, Ph. D. and Murray Stein MD.

Multidimensional locus of control scale
(internal subscale; Levenson, 1981)

> Following is a series of attitude statements. Each represents a commonly held opinion. There are no right or wrong answers. You will probably agree with some items and disagree with others. We are interested in the extent to which you agree or disagree with such matters of opinion.
> Read each statement, decide if you agree or disagree and the strength of your opinion, and then respond accordingly. GIVE YOUR OPINION ON EVERY STATEMENT. If you find that the numbers to be used in answering do not adequately reflect your own opinion, use the one that is closest to the way you feel.
>
> > 3 Agree strongly
> > 2 Agree Somewhat
> > 1 Agree slightly
> > -1 Disagree slightly
> > -2 Disagree somewhat
> > -3 Disagree strongly

1. Whether or not I get to be a leader depends mostly on my ability.
2. Whether or not I get into a car accident depends mostly on how good a driver I am.
3. When I make plans, I am almost certain to make them work.
4. How many friends I have depends on how nice a person I am.
5. I can pretty much determine what will happen in my life.
6. I am usually able to protect my personal interests.

7. When I get what I want, it's usually because I worked hard for it.

Desire for Control
(Burger & Cooper, 1979)
Below you will find a series of statements. Please read each statement carefully and respond to it by expressing the extent to which you believe the statement applies to you. For all items, a response from 1 to 7 is required. Use the number that best reflects your belief when the scale is defined as follows:

        1 = The statement does not apply to me at all
        2 = The statement usually does not apply to me
        3 = Most often, the statement does not apply
        4 = I am unsure about whether or not the statement applies to me, or it applies to me about half the time
        5 = The statement applies more often than not
        6 = The statement usually applies to me
        7 = The statement always applies to me

1. I prefer a job where I have a lot of control over what I do and when I do it.
2. I enjoy political participation because I want to have as much of a say in running government as possible.
3. I try to avoid situations where someone else tells me what to do.
4. I would prefer to be a leader than a follower.
5. I enjoy being able to influence the actions of others.
6. I am careful to check everything on an automobile before I leave for a long trip.
7. Others usually know what is best for me. (Reverse)
8. I enjoy making my own decisions.
9. I enjoy having control over my own destiny.
10. I would rather someone else take over the leadership role when I'm involved in a group project. (Reversed)
11. I consider myself to be generally more capable of handling situations than others are.
12. I'd rather run my own business and make my own mistakes than listen to someone else's orders.
13. I like to get a good idea of what a job is all about before I begin.
14. When I see a problem, I prefer to do something about it rather than sit by and let it continue.
15. When it comes to orders, I would rather give them than receive them.
16. I wish I could push many of life's daily decisions off on someone else. (Reversed)
17. When driving, I try to avoid putting myself in a situation where I could be hurt by another person's mistake.
18. I prefer to avoid situations where someone else has to tell me what it is I should be doing.
19. There are many situations in which I would prefer only one choice rather than having to make a decision. (Reversed)
20. I like to wait and see if someone else is going to solve a problem so that I don't have to be bothered with it. (Reversed)

Barratt Impulsivity Scale – Short form
(Patton, Stanford, & Barratt, 1995)
DIRECTIONS: People differ in the ways they act and think in different situations. This is a test to measure some of the ways in which you act and think. Read each statement and select the response option that best describes you. Do not spend too much time on any statement. Answer quickly and honestly.

A—Attention impulsivity, M—Motor Impulsivity, NP—Non-planning

Rarely/Never (1) Occasionally (2) Often (3) Almost Always/Always (4)

    1.   I act on impulse. [Reversed] M
    2.   I act on the spur of the moment. M
    3.   I do things without thinking. M
    4.   I say things without thinking. M

5. I buy things on impulse M
6. I plan for job security. [Reversed] NP
7. I plan for the future. [Reversed] NP
8. I save regularly. [Reversed] NP
9. I plan tasks carefully. [Reversed] NP
10. I am a careful thinker. [Reversed] NP
11. I am restless at lectures or talks. A
12. I squirm at plays or lectures. A
13. I concentrate easily. [Reversed] A
14. I don't pay attention. A
15. Easily bored solving thought problems. A

Demographics/ induction to focus on self

Item	Response Options
What is your sex?	1=Male 2=Female 3=Other
What is your age?	Written, numeric, in years
What is your marital status?	1=Married or common law 2=Separated or divorced 3=Single 4=Widowed
Are you a student?	Yes No
If yes, are you	Part- time Full-time
If you are a student, what is your year of study	First year undergraduate Second year undergraduate Third year undergraduate Fourth year undergraduate Fifth year undergraduate Graduate student
If yes, What program are you in?	Fill in Blank
If yes, What is your expected graduation date?	Fill in Blank

Stress Manipulation
Adapted from Wohl et al. (2014)

High Economic Stress Conditions.

Please read the following article.

No Financial Safe Haven for University Students in Ontario

Students attending university in Ontario may have more than grades to worry about next year. Recently released information suggests that effects of the global financial crisis will continue to be felt by students across the province.

Effective September 2013, students will be hit with additional tuition fees, accompanied by a drastic drop in the amount of financial aid. To make matters worse, there will be a continued decrease in Federal and Provincial funding, which typically provides several million dollars to students each year. If the lack of funding was not enough, there will be an increase in interest rates for student loans provided by the Ontario Student Assistance Program (OSAP). Jane Carmichael, an administrator with OSAP stated, "it is going to become increasingly difficult for students to obtain provincial student loans. Less available money, higher tuition fees looming and an increase in applications, just does not add up for the student." Some have speculated that it may take years for tuition rates and funding to return to their previous levels.

With youth unemployment rates projected to continue to increase from their current 13.6%, in the foreseeable future, higher education, though once considered an investment, may not even be enough to secure the few positions available in this unstable economic climate. The employment situation means that students who graduate over the next few years will face a job market upon graduation where they are unlikely to find the jobs they are training for.

9.
    High Financial Deprivation, Low Status: Please imagine that when you graduate, you find yourself in the negative economic circumstances described in the article above. You are only able to get a minimum wage job, and have no prospects in the area you have chosen to specialize in. How do you feel? What would your life be like?

    High Financial Deprivation, High Status: Please imagine that when you graduate, you find yourself in the negative economic circumstances described in the article above. You are only able to find a minimum

wage internship in the area you have chosen to specialize in. How do you feel? What would your life be like?

Control Condition
Please read the following article.

Change is Good (and Shiny)!

Getting to know the Royal Canadian Mint - Canadian Mint to make guided tours of the Mint available to university students interested in the industry.

The Winnipeg site of the Mint produces all of Canada's circulation coins, as well as circulation coins for other nations.

The Mint has the capacity to produce over 2 billion circulation coins per year for foreign governments; its patented coin plating technology helps minimize coin cost for foreign governments. The Royal Canadian Mint provides its proven expertise to foreign markets to develop, produce, package and market custom commemorative coins. For example, the 1997 commission from the Hong Kong Monetary Authority to produce a $1,000 22-karat gold coin to mark the historic transfer of the territory to the People's Republic of China.

In addition to the production of circulation coins, the Winnipeg branch of the Mint provides storage services for branded precious metals in its vaults. The Royal Canadian Mint operates one of the most technically advanced and respected gold refineries in the world, producing bars, wafers and custom products. Every gold bar and wafer is struck with the Royal Canadian Mint hallmark, an internationally recognized guarantee of weight and purity.

Winnipeg's high-speed circulation presses can produce 20 million coins each day. That's 750 coins per second! Via their collaboration with U of W, these and other interesting facts will be among the information gathered by young minds interested in their nation's money-making industry in Winnipeg.

Imagine you were to take the tour described in the future. How do you feel? What would it be like?

Manipulation Check
POMS – Anxiety (Shacham, 1983): Imagine yourself in the situation you just read about in the article. Using the scale below, please indicate what your feelings would be if you were really in that situation.
(1)very slightly/or not at all (2) a little (3) moderately (4)quite a bit (5)extremely
On edge
Restless
Anxious
Tense
Uneasy
Nervous

PANAS Negative Affect(Watson et al., 1988): This scale consists of a number of words that describe different feelings and emotions. Imagine yourself in the situation you just read about in the article. Using the scale below, indicate what your feelings would be if you were really in that situation.

(1)very slightly/or not at all (2) a little (3) moderately (4)quite a bit (5)extremely

distressed
upset
guilty
scared
hostile
irritable
ashamed
nervous
jittery
afraid

Threat (Based on Marjanovic et al, 2013): Please indicate how you would feel if you were really in the situation you were asked to write about by answering the following questions

1. How uncertain would you feel? 1 = Not At All to 5 = Extremely Uncertain
2. How much would you feel at risk? 1 = Not At All to 5 = A Great Deal
3. How much would you feel threatened? 1 = Not At All to 5 = Extremely Threatened
4. How much would you worry about it? 1 = Not At All to 5 = A Great Deal
5. How much would you think about it? 1 = Not At All to 5 = A Great Deal

Post Measure of Perceptions of Control over Future Financial Prospects
Stress Appraisal Measure (Controllable by Self Subscale (Peacock & Wong, 1990) and new Control by outside forces subscale)The following questions are related to your thoughts about your future financial prospects. There are no right or wrong answers. Please respond according to how you view your financial situation right NOW.

Not at all	slightly	moderately	considerably	Extremely
1	2	3	4	5

1. Do I have the ability to do well in this situation?
2. Do I have what it takes to do well in this situation?
3. Will I be able to overcome problems with this situation?
4. Do I have the skills necessary to achieve a successful outcome to this situation?
5. Are the outcomes of this situation mainly due to outside forces?

6. Is beyond any individual's power to control this situation?
7. Is the outcome of this situation controlled by outside forces?
8. Is this situation unresolvable by anyone?

Risk Perceptions

Risk Attitudes Scale: Perceived risk instructions.
(Weber et al., 2002)
People often see some risk in situations that contain uncertainty about what the outcome or consequences will be and for which there is the possibility of 'bad' consequences. However, riskiness is a very personal and intuitive notion, and we are interested in your gut level assessment of how risky each situation is. For each of the following statements, please indicate how risky you perceive each situation to be right now.

1	2	3	4	
Not at all risky		Moderately risky		Extrem…

Note: I-investment, G-gambling

1. Betting a day's income at the horse races. (G) _____
2. Investing 10% of your annual income in a moderate growth mutual fund. (I) _____
3. Betting a day's income at a high stake poker game. (G) _____
4. Investing 5% of your annual income in a very speculative stock. (I) _____
5. Betting a day's income on the outcome of a sporting event (e.g. baseball, soccer, or football). (G) _____
6. Investing 5% of your annual income in a conservative stock. (I) _____
7. Investing 10% of your annual income in government bonds (treasury bills). (I) _____
8. Gambling a week's income at a casino. (G) _____

Risk Tolerance Questionnaire.
(Grable & Lytton, 1999)
Please choose the response that best describes your current feelings. There are no "right" or "wrong" answers. Just choose the response option that best describes how you feel NOW.
Items:
1. In general, how would your best friend describe you as a risk taker?
   a. A real gambler
   b. Willing to take risks after completing adequate research
   c. Cautious
   d. A real risk avoider
2. You are on a TV game show and can choose one of the following. Which would you take?
   a. $1,000 in cash
   b. A 50% chance at winning $5,000
   c. A 25% chance at winning $10,000
   d. A 5% chance at winning $100,000
3. You have just finished saving for a "once-in-a-lifetime" vacation. Three weeks before you plan to leave, you lose your job. You would:
   a. Cancel the vacation
   b. Take a much more modest vacation
   c. Go as scheduled, reasoning that you need the time to prepare for a job search
   d. Extend your vacation, because this might be your last chance to go first-class
4. If you unexpectedly received $20,000 to *invest*, what would you do?
   a. Deposit it in a bank account, money market account, or an insured CD
   b. Invest it in safe high quality bonds or bond mutual funds

      c. Invest it in stocks or stock mutual funds

5. In terms of experience, how comfortable are you investing in stocks or stock mutual funds?

      a. Not at all comfortable

      b. Somewhat comfortable

      c. Very comfortable

6. When you think of the word "risk" which of the following words comes to mind first?

      a. Loss

      b. Uncertainty

      c. Opportunity

      d. Thrill

7. Some experts are predicting prices of assets such as gold, jewels, collectibles, and real estate (hard assets) to increase in value; bond prices may fall, however, experts tend to agree that government bonds are relatively safe. Most of your investment assets are now in high interest government bonds. What would you do?

      a. Hold the bonds

      b. Sell the bonds, put half the proceeds into money market accounts, and the other half into hard assets

      c. Sell the bonds and put the total proceeds into hard assets

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

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

      a. $200 gain best case; $0 gain/loss worst case

      b. $800 gain best case; $200 loss worst case

      c. $2,600 gain best case; $800 loss worst case

      d. $4,800 gain best case; $2,400 loss worst case

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

      a. A sure gain of $500

      b. A 50% chance to gain $1,000 and a 50% chance to gain nothing

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

      a. A sure loss of $500

      b. A 50% chance to lose $1,000 and a 50% chance to lose nothing

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

      a. A savings account or money market mutual fund

      b. A mutual fund that owns stocks and bonds

      c. A portfolio of 15 common stocks

      d. Commodities like gold, silver, and oil

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

      a. 60% in low-risk investments 30% in medium-risk investments 10% in high-risk investments

      b. 30% in low-risk investments 40% in medium-risk investments 30% in high-risk investments

      c. 10% in low-risk investments 40% in medium-risk investments 50% in high-risk investments

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

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

Prospective Risk-taking

(Weber et al., 2002)

For each of the following statements please indicate your likelihood of engaging in each activity or behaviour for each of the following statements.

1	2	3	4	5
Very unlikely	Unlikely	Not sure	likely	Very likely

1. Betting a day's income at the horse races. (G) _____
2. Investing 10% of your annual income in a moderate growth mutual fund. (I) _____
3. Betting a day's income at a high stake poker game. (G) _____
4. Investing 5% of your annual income in a very speculative stock. (I) _____
5. Betting a day's income on the outcome of a sporting event (e.g. baseball, soccer, or football). (G) _____
6. Investing 5% of your annual income in a conservative stock. (I) _____
7. Investing 10% of your annual income in government bonds (treasury bills). (I) _____
8. Gambling a week's income at a casino. (G) _____

Demographics and Financial Status

Economic Hardship Questionnaire

(Lempers et al., 1989)

In the last year, how often have you or your family had to:

Never	Sometimes	Often	Very Often
(1)	(2)	(3)	(4)

1. Cut back on social activities and entertainment expenses?
2. Postpone major household purchases?
3. Postpone clothing purchases?
4. Change transportation patterns to save money?
5. Change food shopping or eating habits to save money?
6. Cut back on charitable contributions?
7. Reduce household utility use?
8. Sell some possessions?
9. Postpone medical care to save money?
10. Take additional employment to help meet expenses?

Demographics for financial situation

Are you currently employed?

1. No
2. Yes, Part-time
3. Yes, Full-time

What is your total annual income, before taxes?

What is your total household income (i.e., including your parents or partners) before taxes?

On average, how much do you spend on total monthly expenses (e.g., utilities, food, clothes, cable, etc.)?

What is your total debt (i.e., how much money do you currently owe in your stated currency)?
 Please break this amount (your total debt) down into the different categories of debt that you owe.
      1. Consumer debt (e.g., credit card, store credit, vehicle, cell phone)
      2. Student debt (e.g., student loan, tuition)
      3. Mortgage/Rent
      4. Gambling losses
      5. Other, specify:

Appendix D: Validating the Perceptions of Outside Control over Future Financial Prospects Measure

A series of 4 items were developed to assess the extent to which an individual perceives their future financial prospects to be under the control of outside forces. The developed measures are conceptually distinct from existing control related subscales from the SAM (Peacock & Wong, 1990), including controllable-by-other, which focuses on the availability of individuals to assist with potentially stressful situations, and uncontrollable-by-anyone, which assesses the extent to which a situation is perceived to be beyond the power of anyone to resolve. For the purposes of scale validation, the 4-item threat subscale from the SAM was administered (sample item: How threatening is this situation). To demonstrate construct validity of the newly created measure of perceived outside control over future financial prospects, factor analyses were conducted. Principal Axis Factoring with Varimax Rotation was conducted on the 12 items assessing a participant's perceptions of their future financial prospects, the 4-item internal control and threat scales, and the proposed 4-items from the newly created outside control scale. The analyses were conducted separately for the two administrations of the scale items, before (Table D1) and after (D2) the manipulation. Overall, results from both before and after the manipulation analyses yield a similar model. Both analyses yielded 3 factors with eigenvalues over 1, accounting for 68.7% of the variance in the sample prior to the manipulation and 75.1% of the variance in scale scores following the manipulation.

The factor structure is consistent with the hypothesized results, yielding the expected 4-item measures, with all factor loadings being above fair (0.45), based on recommendations from the literature (Tabachnik & Fidell, 2007; Comrey & Lee, 1992), with the majority being excellent (0.71 and above). No evidence of cross loading of items is found, where Factor 1 is perceptions of threat, Factor 2 is perceptions of internal control, and Factor 3 is perceptions of outside control. The newly created measure assessing perceptions of outside control of future financial prospects are deemed to have acceptable levels of internal consistency, and is suitable for use in future analyses, though further study would be necessary to fully validate the new measure.

Table D1: Results from factor analysis of scale items looking at perceptions of an individual's future financial prospects, prior to the economic stress manipulation, using principal axis factoring and varimax rotation.

	Factor		
	1	2	3
Eigenvalues: .	3.99	2.69	1.56
1. Does this situation make me feel anxious?	-.065	.726	.118
2. How threatening is this situation?	-.040	.832	.159
3. Is it going to have a negative impact on me?	-.148	.808	.205
4. Will the outcome of this situation be negative?	-.261	.694	.263
5. Do I have the ability to do well in this situation?	.772	-.071	-.008
6. Do I have what it takes to do well in this situation?	.834	-.091	-.015
7. Will I be able to overcome problems with this situation?	.753	-.122	-.012
8. Do I have the skills necessary to achieve a successful outcome to this situation?	.776	-.110	.001
9. Are the outcomes of this situation mainly due to outside sources?	.161	.274	.597
10. Is it beyond any individual's power to control this situation?	-.046	.077	.798
11. Is the outcome of this situation controlled by outside forces?	-.028	.145	.774
12. Is this situation unresolvable by anyone?	-.055	.132	.470

Table D2: Results from factor analysis of scale items looking at perceptions of an individual's future financial prospects, after the economic stress manipulation, using principal axis factoring and varimax rotation.

	Factor		
	1	2	3
Eigenvalues: .	4.35	3.18	1.48
1. Does this situation make me feel anxious?	.035	.755	.192
2. How threatening is this situation?	-.030	.881	.241
3. Is it going to have a negative impact on me?	-.107	.850	.236
4. Will the outcome of this situation be negative?	-.146	.795	.287
5. Do I have the ability to do well in this situation?	.839	-.072	-.022
6. Do I have what it takes to do well in this situation?	.877	-.048	-.027
7. Will I be able to overcome problems with this situation?	.839	-.030	.004
8. Do I have the skills necessary to achieve a successful outcome to this situation?	.859	-.053	.032
9. Are the outcomes of this situation mainly due to outside sources?	.147	.234	.695
10. Is it beyond any individual's power to control this situation?	-.036	.170	.708
11. Is the outcome of this situation controlled by outside forces?	.017	.186	.824
12. Is this situation unresolvable by anyone?	-.115	.243	.532