

THE INFLUENCE OF PAYMENT METHOD AND CHOICE MINDSET  
ON RISK TAKING BEHAVIORS

---

A Dissertation  
Submitted to  
the Temple University Graduate Board

---

In Partial Fulfillment  
of the Requirements for the Degree  
DOCTOR OF PHILOSOPHY

---

by  
Nese Nur Onuklu  
August 2021

Examining Committee Members:

Dr. Joydeep Srivastava, Advisory Co-Chair, Marketing and Supply Chain Management  
Dr. Monica Wadhwa, Advisory Co-Chair, Marketing and Supply Chain Management  
Dr. Susan Mudambi, Marketing and Supply Chain Management  
Dr. Maureen (Mimi) Morrin, School of Business, Rutgers University Camden  
Dr. Sunil Wattal, External Member, Management Information Systems

## ABSTRACT

The role of risk in consumer decision-making has been a popular research subject in the last decades. As such, the determinants of risk-taking have been examined in several domains. Past research suggests that risky decisions are frequently influenced by various situational factors. Across two essays, two such factors that impact consumer risk-taking behaviors, namely payment methods and choice mindset are explored. In the first essay, the impact of payment methods on consumers' risk-taking in purchase decisions is analyzed. This paper tests processing differences initiated by the payment methods and suggests that consumers are more likely to neglect the risk associated with the purchase when paying with a credit card than cash. In the second essay, the influence of a mere belief that one has a choice, in the absence of making an active choice is explored in the context of risky decisions. The findings suggest that merely reminding people that they have a choice leads to a tendency to seize opportunities impacting risk preferences.

To my family and Duru

## ACKNOWLEDGMENTS

I would like to gratefully acknowledge the people who journeyed with me as I worked on this dissertation. First, I thank my family and especially my daughter Duru for encouragement and unconditional support. Also, I would like to express my sincere gratitude to my advisors, Professor Monica Wadhwa and Professor Joydeep Srivastava, for their guidance, patience, support and advice throughout this entire process. I am very grateful for the support and insightful feedback of my dissertation committee: Professor Maureen (Mimi) Morrin, Professor Susan Mudambi, and Professor Sunil Wattal. I would also like to thank all faculty members, my colleagues and friends, and members of the Department of Marketing and Supply Chain Management, who provided me with much support and assistance.

TABLE OF CONTENTS

	Page
ABSTRACT .....	ii
DEDICATION .....	iii
ACKNOWLEDGMENTS .....	iv
LIST OF TABLES .....	ix
LIST OF FIGURES .....	x
CHAPTER	
1. INTRODUCTION .....	1
2. ESSAY 1: IN A RUSH TO MAKE RASH PURCHASE DECISIONS? HOW PAYING BY CREDIT CARD LEADS TO RISK NEGLECT .....	4
Conceptual Background .....	7
Prior Research on the Effects of Paying with Credit Card versus Cash on Consumer Decisions .....	7
Pain of Paying, Purchase Decisions, and the Risk Neglect Hypothesis.....	9
Moderating Role of Individual Differences in Impulsivity .....	14
Overview of Studies.....	15
Empirical Evidence For The Risk Neglect Hypothesis .....	16
Study 1: Risk Neglect In A Financial Investment Decision .....	20
Method .....	20
Results and Discussion .....	22

Study 2: Risk Neglect In An Incentive Compatible Behavioral	
Task .....	23
Method .....	23
Results and Discussion .....	24
Study 3: Mediating Role Of Pain Of Paying .....	26
Method .....	26
Results and Discussion .....	28
Study 4: Moderating Role Of Deliberation.....	30
Method .....	30
Results and Discussion .....	31
Study 5: Moderating Role Of Processing Time And Impulsivity.....	34
Method .....	34
Results and Discussion .....	36
General Discussion .....	40
Theoretical And Practical Contributions .....	42
Limitations and Future Research.....	44
3. ESSAY 2: CHOOSING TO TAKE RISKS .....	45
Theoretical Framework .....	48
Choice Mindset: A Subjective Belief In Choice .....	48
Choice Mindset And Risk Taking .....	50
Moderating Role of Risk Type.....	53
Overview of Studies .....	54
Study 1 .....	55

Method .....	55
Results.....	56
Discussion .....	57
Study 2.....	57
Method .....	58
Results.....	58
Discussion .....	60
Study 3.....	61
Method .....	61
Results.....	62
Discussion .....	63
Study 4.....	64
Method .....	65
Results.....	66
Discussion .....	68
General Discussion .....	69
Theoretical Contributions .....	70
Practical Contributions .....	71
Limitations and Future Research.....	73
4. CONCLUSION .....	74
REFERENCES.....	77

APPENDICES

A. ESSAY 1:STUDY 1 AND 2: PAYMENT METHOD MANIPULATION

    SAMPLE STIMULI .....88

B. ESSAY 1:STUDY 3 AND 4: STIMULI.....90

C. ESSAY 1:STUDY 5: STIMULI .....91

D. ESSAY 2:MANIPULATION PRETEST .....92

E. ESSAY 2:STUDY 1 AND STUDY 2 DEPENDENT VARIABLE .....94

F. ESSAY 2:STUDY 3 DEPENDENT VARIABLE .....96



## LIST OF TABLES

Table	Page
1. Essay 1 Empirical Study Regression Coefficients .....	19

## LIST OF FIGURES

Figure	Page
1. Essay 1 Study 2: Results .....	25
2. Essay 1 Study 4: Results .....	33
3. Essay 1 Study 5: Results .....	37
4. Essay 1 Study 5: Results .....	39
5. Essay 2 Study 2: Mediation Model .....	60
6. Essay 2 Study 3: Results .....	63

## CHAPTER 1

### INTRODUCTION

Consumer behavior involves risk as “any action consumer undertakes produces consequences that cannot be fully anticipated” (Bauer 1960, p. 64). Risk-taking is defined as any conscious, or non-conscious behavior involving a “perceived uncertainty about its outcome, benefits or costs for the physical, economic or psycho-social well-being of oneself or others” (Trimpop 1994, p.9). Considering purchasing a new product brand, deciding between investment tools, debating to spend money on luxuries rather than necessities, and even pondering big ticket purchases involve some level of risk assessment. The central role risk plays in consumer decision-making made it a popular research subject in the last decades. The determinants of risk taking have been examined in several domains (Sitkin & Pablo, 1992). As such, past research suggests that risk decisions are frequently influenced by various situational factors, such as message cues in health risk assessments (Menon et al., 2002), social exclusion in financial risk-taking (Duclos et al., 2013), phonetic elements of a name in volatility evaluations (Botner et al., 2020) and warranty cues on financial and performance risk decisions (Shimp & Bearden, 1982).

Across two essays, I explore two such factors influencing risk-taking behaviors, namely payment methods and choice mindset. In the first essay, I investigate how payment methods impact consumers’ risk-taking in purchase decisions. This paper tests processing differences initiated by payment methods and suggests that consumers are

more likely to neglect the risk associated with the purchase when paying with a credit card than cash. In the second essay, the influence of mere belief that one has a choice, in the absence of making an active choice is explored in the context of risky decisions. I suggest that merely reminding people that they have a choice leads to a desire to seize opportunities, resulting in higher risk-taking.

Three main contributions emerge from the first essay. First, advancing our understanding of how payment method affects consumers, this research documents the relationship between payment methods and risk neglect. We demonstrate that consumers tend to neglect risk in many purchase decisions when paying with a credit card, compared to cash in a variety of decisions including, investment, lottery, product choice, and in an incentive-compatible behavioral measure of risk-taking. Second, we show that payment method affects information processing such that consumers are quicker and more spontaneous when paying with a credit card than cash. Third, we trace the effect of payment method on information processing and risk neglect to differences in the pain of paying. Whereas a relatively low pain of paying when paying with a credit card suggests a benign environment and facilitates quicker and more spontaneous information processing, a relatively high pain of paying when paying with cash acts as a “speed breaker” such that consumers process information more slowly and deliberately. Lastly, we identify two important boundary conditions. First, altering the natural way people process information while making a purchase can attenuate the effect. Second, the effect is more pronounced for highly impulsive consumers.

The second essay will make two contributions to the literature. First, this research suggests that the mere belief in choice, in the absence of making an active choice can

have an impact in risky decision contexts. This proposal, we suggest is a novel contribution to the literature analyzing the influence of situational determinants on risk-taking. Second, our research contributes to the literature on choice mindset and decision making. Past research showed that a choice mindset can impact behaviors (Madan et al., 2020; Savani & Rattan, 2012); yet the influence of the mere belief in choice on the desire to seize opportunities and risk-taking has not been explored before. Thus, our research contributes to the literature on choice mindset and risk-taking by showing the impact of choice mindset on the desire to attain opportunities for the self. As such, when the choice mindset is activated, consumers are more likely to take a financial risk if the risk presents an opportunity for the self. On the contrary, a choice mindset reduces risk-taking when the risk is merely stimulating without the promise of a positive outcome for the self.

## CHAPTER 2

### ESSAY 1: IN A RUSH TO MAKE RASH PURCHASE DECISIONS? HOW PAYING BY CREDIT CARD LEADS TO RISK NEGLECT\*

\* with Joydeep Srivastava

In recent years, there has been a proliferation of different payment methods such as Alipay, Amazon Pay, Apple Pay, Google Pay, and Paypal. Despite the different payment methods, and many providing only a payment gateway, credit card, and cash remain the two dominant payment methods for both online (cash on delivery for online purchases is common in many countries) and offline purchases. In the United States, 83% of the population between 30 and 49 years has at least one credit card, with the average credit card user owning four cards (Statista, 2019). The Federal Reserve Payments Study (FRPS) estimates that there were 44.7 billion credit card purchases with a value of \$3.98 trillion in 2018, up from 33.7 billion purchases with a value of \$3.05 trillion in 2015 in the United States (USA Federal Reserve, 2019). The FRPS also estimates that while the number of ATM cash withdrawals fell slightly from \$5.2 billion in 2015 to \$5.1 billion in 2018, the average cash withdrawal increased to \$156 in 2018 from \$146 in 2015. Estimates suggest that cash payments represent about 30% of all transactions and 39% of in-person transaction volume (Kumar et al., 2018).

The ongoing Covid-19 pandemic has exacerbated the use of credit cards as it allows convenient, quick, and “touchless” payments for both online and offline

purchases. Firms issuing credit cards also offer a variety of rewards as incentives to use a credit card. Further, research suggests that the pain of paying or the negative affective reaction experienced when parting with money is relatively milder when paying with credit cards than cash (Prelec & Loewenstein 1998; Raghurir & Srivastava 2008). With added convenience (Tokunaga, 1993), more potential rewards, and milder pain of paying, it is not surprising that existing research suggests that credit card increases consumers' propensity to spend, amount willing to pay, the actual amount spent, and purchase of unhealthy foods relative to cash (Feinberg 1986; Hirschman 1982; Prelec & Simester 2001; Raghurir & Srivastava 2008; Soman 2003; Thomas et al., 2011). Research also suggests that consumers focus more on the benefits (vs. costs) of the product (Chatterjee and Rose 2012), and perceptions of ownership and post-transaction connection with the product are lower (Kamleitner and Erki 2013; Shah et al. 2015) with a credit card than cash. The reasoning is that the higher pain of paying with cash (vs. credit card) engenders a focus on costs (Chatterjee and Rose 2012), and a stronger connection or perception of psychological ownership of the product (Kamleitner and Erki 2013; Shah et al. 2015).

The present research extends the burgeoning literature by providing another perspective on how consumer behavior may be affected by payment methods. Specifically, we examine whether consumers' risk-taking, and related product preferences, differ when paying with a credit card versus cash, holding all else constant. Labeled "risk neglect," we propose that consumers knowingly or unknowingly give insufficient attention to the risk associated with a purchase that merits attention when paying with a credit card than cash. Said differently, consumers may be aware of the risk but ignore or underweight it in their purchase decisions. Drawing on the notion that the

more transparent or vivid the money outflow, the greater the pain of paying (Prelec and Loewenstein 1998; Raghurir and Srivastava 2008; Soman 2003), we argue that the relatively high pain of paying with cash gives consumers a reason to pause and thus make purchase decisions slowly and deliberately. In contrast, as a convenient, quick, and less transparent payment method, credit card serves to dull the pain of paying, facilitating faster and more spontaneous purchase decisions, resulting in risk neglect. The underlying difference in the pain of paying across payment methods thus affects the purchase decision process. Importantly, to the extent that differences in the purchase decision process as a function of payment method underlie risk neglect, our conceptual reasoning suggests that altering the purchase decision process is likely to attenuate the effect of payment method on risk neglect.

Broadly, this research contributes to the literature on the psychology of money (Chatterjee & Rose, 2012; Prelec & Loewenstein, 1998; Raghurir & Srivastava, 2008, 2009; Soman, 2001, 2003; Srivastava & Raghurir, 2002; Thomas et al., 2011) in several ways. First, this research advances our understanding of how payment method affects consumers by documenting the relationship between payment method and risk (and thereby product preferences). We demonstrate that consumers exhibit risk neglect with credit cards (vs. cash) in a variety of decisions including investment, raffle, product preference, and an incentive-compatible behavioral measure of risk-taking. Second, we demonstrate that consumers are faster and more spontaneous in making decisions when paying with credit cards than cash. Third, we trace the effect of payment method on risk neglect to differences in the pain of paying. While the mild pain of paying with a credit card may lead consumers to “throw caution to the wind,” facilitating fast and spontaneous



decisions, the relatively high pain of paying with cash may act as a “speed breaker,” encouraging slow and deliberate decisions. Fourth, we show that consumers high in trait impulsivity are more susceptible to the effects of payment method on risk neglect.

Our research makes important practical contributions for managers and policy makers as well. Credit card debt is an important social problem (Hodson et al., 2014). Improving the quality of purchase decisions might be an effective way to reduce this debt. Our findings offer simple nudges that policy makers can use to increase the quality of these decisions by encouraging consumers to deliberate more on purchases with credit card. Similarly, managers in the field of personal finance management can utilize our findings to improve the apps they offer. Integrating into personal finance management apps processes that encourage consumers to deliberately consider their purchases with credit cards may enhance the performance of these apps.

The next section reviews previous research on the effects of payment methods on consumer decisions and then develops the reasoning for why paying with a credit card (vs. cash) may lead to risk neglect.

## Conceptual Background

### *Prior Research on the Effects of Paying with Credit Card versus Cash on Consumer Decisions*

With the phenomenal growth of credit cards as a payment method, researchers have been interested in examining whether paying with a credit card versus cash affects

consumer spending decisions. One stream of research suggests a credit card premium wherein the propensity to spend and the amount spent are higher with credit cards than with cash (Feinberg 1986; Hirschman 1982; Prelec & Simester 2001; Soman 2003). For example, Hirschman (1982) noted that consumers who own more credit cards spend more per department store visit. Feinberg (1986) reported that consumers paying with a credit card tipped a larger amount. In a similar vein, Prelec and Simester (2001) reported that the amount consumers were willing to pay was higher when the payment method was credit card than cash. Although there are several explanations for the higher propensity to spend with a credit card based on convenience (Tokunaga, 1993), memory processes (Soman 2001; Srivastava & Raghurir 2002), and classical conditioning (Feinberg 1986), the dominant explanation relies on differences in the pain of paying (Prelec & Loewenstein 1998; Raghurir & Srivastava 2008).

Another research stream suggests that consumers focus on different aspects of the good as a function of payment method. Chatterjee and Rose (2012) reported that consumers primed with credit cards focused more on the benefits of the product whereas those primed with cash focused more on the costs. Specifically, participants primed with credit cards made more recall errors regarding cost attributes, identified more words related to benefits, and responded faster to benefits than to costs compared to those who were primed with cash. Kamleitner and Erki (2013) found that the perceived psychological ownership was higher for cash consumers than credit card consumers. Similarly, Shah et al. (2015) argued that paying by a more painful payment method such as cash increases consumers' emotional connection to the product compared to a less painful payment method such as a credit card.

Of particular relevance to the present research, previous research suggests that consumers increase the purchase of unhealthy (or vice) foods when paying with a credit card than cash (Thomas et al. 2011). Along the same lines, Soman (2003) analyzed grocery shopping data to find that credit card was associated with higher spending than cash, particularly for “flexible” treats and luxuries. The reasoning is that the high pain of paying (or negative arousal) with cash curbs the impulsive urges for unhealthy foods compared to the milder pain of paying with credit cards (Thomas et al. 2011).

Researchers speculate that the lower level of negative arousal when paying with credit card (vs. cash) reduces attention to the health risks associated with unhealthy foods (Park et al., 2021). However, given existing research does not test the link between payment method and risk neglect, it is not clear whether the relationship between payment method and risk neglect extends beyond the context of indulgent consumption of unhealthy foods. Further, since the health risks associated with unhealthy foods are typically more medium to long term, it is not clear how participants perceived the risk. Our research explicitly tests the relationship between payment method and risk neglect (and product preference) in a more general context where the risk is more immediate and unambiguous.

### *Pain of Paying, Purchase Decisions, and the Risk Neglect Hypothesis*

The psychological pain of paying refers to the negative affect experienced when individuals part with their money to pay for a good or service (Prelec and Loewenstein 1998). Research suggests that the more transparent the payment method, or more vivid

the feeling of parting with one's money, the higher the pain of paying (Raghubir & Srivastava 2008; Soman 2003). By virtue of being legal tender, cash is the most transparent payment method, associated with a relatively high pain of paying as individuals can vividly feel the immediate outflow of money both physically and visually. In contrast, credit card represents a less transparent payment method in terms of the vividness with which one can feel the money outflow, serving to dull the pain of paying and lower the aversion to spend (Raghubir & Srivastava 2008). There are at least two reasons why credit card payments are associated with a relatively mild pain of paying compared to cash payments. First, credit card payments are typically decoupled as there is a temporal separation of the purchase/consumption from the actual payment (Prelec & Loewenstein 1998). Second, credit card differs from cash in physical appearance and form (Raghubir & Srivastava 2008). The idea that payment methods differ in transparency and thus the pain of paying is the underlying rationale for much of the documented differences between credit card and cash (e.g., Shah et al. 2015; Thomas et al. 2011).

Building on the relationship between transparency of payment method and the pain of paying, we propose that the higher pain of paying with cash gives consumers a reason to pause, and process the information associated with the purchase decision more slowly and deliberately. The vividness with which consumers can feel the money outflow when paying by cash makes the pain of paying salient (Raghubir & Srivastava 2008; Soman 2003), and increases negative arousal (Park et al. 2020). Extensive research on affect and information processing suggests that the presence of negative affect indicates the possibility of a threat, motivating individuals to process information more slowly, and

in a more effortful and deliberate manner (Bless, 2001; Isen, 2004; Schwarz, 1990; Wyer et al., 1999). Said differently, the pain of paying associated with cash payments acts as a “speed breaker.” In contrast, credit card as a payment method is not only less transparent, but is also convenient, quick, easy, and provides incentives. We argue that the relatively mild pain of paying with a credit card facilitates faster and more spontaneous processing of the purchase decision. The mild pain of paying indicates a relatively benign and safe environment thus precluding the need for effortful and deliberate processing (Bless 2001; Isen 2004). Consistent with our argument, Feinberg (1986) reported faster response times in the presence of credit card logos. Credit card payments thus serve to dull the pain of paying, facilitate faster, and more spontaneous purchase decisions, resulting in risk neglect.

Drawing on the research on affect and information processing, we reason that compared to cash, the relatively mild pain of paying with credit cards facilitates fast, effortless, and spontaneous purchase decisions, resulting in neglecting or underweighting the risk associated with the purchase. In fact, consistent with our conceptualization, recent neurological evidence suggests that credit card purchases are associated with reward network activation in the brain (Banker et al., 2021). As such, we suggest that consumers may focus more on the rewards rather than the risks associated with the purchase when paying with credit cards. On the contrary, relatively intense pain of paying in cash payments leads to increased scrutiny over the purchase and the risks associated with it. This suggestion is based on the findings of affect and information processing research showing that presence of negative affect induces detailed analysis of the situation at hand (Wyer et al. 1999). Building upon these streams of research we

suggest that consumers are more likely to neglect the risk associated with the purchase when paying with credit card compared to cash.

Consistent with the dual system information processing theories (e.g., Eagly and Chaiken 1993; Kahneman 2011), our conceptualization suggests that pain of paying is an antecedent to the purchase decision process. The pain of paying felt when parting with one's money thus affects the extent to which consumers process information related to the product/purchase decision. Further, our conceptualization suggests that previous findings with respect to credit card (vs. cash) payments may be viewed as manifestations of a mental state where there is relatively little detailed and deliberate processing of product/purchase decisions. Said differently, credit card (vs. cash) may undermine more effortful and deliberate processing, resulting in a spontaneous state in which consumers are willing to spend more (Feinberg 1986; Prelec & Simester 2001), make more recall errors regarding cost attributes (Chatterjee & Rose 2012), develop a weaker connection with the product (Kamleitner & Erki, 2013; Shah et al., 2015), and make unhealthy food purchases (Thomas et al., 2011).

- H1: Consumers are more likely to neglect the risk associated with a purchase when paying with credit card than cash, holding all else constant.
- H2: Consumers are likely to make faster purchase decisions when paying with credit card than cash, holding all else constant.
- H3: The difference in the pain of paying with credit card and cash is likely to mediate the effect of payment method on risk neglect.

To the extent that paying by credit card naturally engenders fast, effortless, and spontaneous purchase decisions relative to when paying by cash, factors that alter consumers' purchase decision process should moderate the effect of payment method, lending more credence to our underlying reasoning. The dual system information processing theories suggest multiple ways of initiating more effortful and deliberate processing. Specifically, a more effortful and deliberate processing necessitates elaboration which requires cognitive resources, motivation, ability, and opportunity (Eagly & Chaiken 1993; Kahneman 2011). In the present context, having consumers elaborate during the purchase decision is likely to have a stronger effect when paying by credit card than cash. The rationale is that having consumers elaborate alters the natural way in which they process information when paying by credit card but not so much when paying by cash. In general, our reasoning suggests that factors that alter the natural way in which consumers make purchase decisions when paying by credit card is likely to moderate the effect of payment method on risk neglect. In other words, altering consumers' purchase decision process from fast, effortless, and spontaneous to slow, effortful, and deliberate is likely to attenuate the effect of payment method on risk neglect.

H4: Altering the natural way in which consumers make purchase decisions when paying by credit card will attenuate the effect of payment method on risk neglect.

### *Moderating Role of Individual Differences in Impulsivity*

Since consumers increase the purchase of unhealthy (or vice) foods when paying by credit card than cash (Thomas et al. 2011), we examine whether individual differences in impulsivity moderates the effect of payment method on risk neglect. Previous research suggests that high impulsivity may lead to more risk neglect (Lauriola et al. 2014). A key difference between individuals high in impulsiveness versus those low in impulsiveness is the accessibility of the costs and benefits related to the impulsive behavior (Puri, 1996; Rook & Fisher, 1995). Consumers who are low (vs. high) in impulsiveness naturally think and deliberate about all the costs and benefits of impulsiveness and thus behave less impulsively (Puri 1996). The high accessibility of cognitions at the point of making the decision is thus likely to weaken the effect of payment method on processing and risk neglect. We thus predict that because of the natural processing differences between low and high impulsive consumers (Puri 1996), the effect of payment method and purchase decision process on risk neglect is likely to be stronger for high impulsive consumers relative to low impulsive consumers.

H5: The effect of payment method and purchase decision process on risk neglect is likely to be stronger for consumers who are high on impulsiveness relative to those who are low on impulsiveness.



## Overview of Studies

Our investigation begins by reporting the results of a large-scale, national consumer survey that provides preliminary correlational evidence for the risk neglect hypothesis. We then report the results of five studies designed to test the five hypotheses. Testing hypotheses 1 and 2, studies 1 and 2 demonstrate that preference for a risky financial prospect and behavioral risk-taking were higher for participants primed with credit cards than with cash, respectively. Further, in both studies, participants responded faster when primed with credit cards than with cash. Study 3 tests hypothesis 3 and demonstrates that pain of paying mediates the effect of payment method on risk neglect. Study 4 tests hypothesis 4 and shows that participants paying with credit cards prefer a product that is high in risk compared to those paying with cash. Importantly, it shows that the effect of payment method on risk neglect is attenuated when participants are asked to deliberate about the purchase. Study 5 tests hypotheses 4 and 5 and demonstrates that altering the natural way in which consumers make purchase decisions with a credit card and cash attenuates the effect of payment method on risk neglect. It also shows the moderating role of trait impulsivity such that the effect of payment method and decision processing on risk neglect is manifested for those who are high in impulsivity but not for those who are low in impulsivity.

## *Empirical Evidence For The Risk Neglect Hypothesis*

The Financial Industry Regulatory Authority, Inc. (FINRA) is a non-government entity that regulates and oversees all investment firms and brokers doing business in the United States. As part of its regulatory authority, FINRA established the FINRA Investor Education Foundation (FINRA IEF) in 2003 to “empower underserved Americans with the knowledge, skills, and tools to make sound financial decisions throughout life” (<https://www.finrafoundation.org/about-us>). Towards this initiative, the FINRA IEF has been collecting data to understand the national financial capability of American adults since 2009, with the most recent edition completed in 2018. According to FINRA IEF, the “research objectives of the National Financial Capability Study were to benchmark key indicators of financial capability and evaluate how these indicators vary with underlying demographic, behavioral, attitudinal and financial literacy characteristics” (<https://www.usfinancialcapability.org/about.php>). Although the NFCS includes a myriad of indicators and background variables, the study captures information on the number of credit cards respondents own and their willingness to take risks in financial investments. We take advantage of this unique, national-level, large-scale survey to explore whether respondents using credit cards are willing to take more risks in financial investments than respondents who do not have a credit card or have fewer credit cards.

The 2018 edition of the NFCS was “conducted online from June through October 2018 among a nationally representative sample of 27,091 American Adults, reaching approximately 500 individuals per state, plus the District of Columbia, with oversamples of 1,250 in Oregon and Washington”

(<https://www.usfinancialcapability.org/downloads.php>). The survey and the data are available at <https://www.usfinancialcapability.org/downloads.php>.

The question that we focused on was “How many credit cards do you have? Please include store and gas station credit cards but NOT debit cards” (Section F, F1). The responses were coded as follows (1 = 1, 2 = 2-3, 3 = 4-8, 4 = 9-12, 5 = 13-20, 6 = More than 20 cards, 7 = No credit cards). The willingness to take financial risks was asked on a ten-point scale (1 = Not at all willing; 10 = Very willing): “When thinking of your financial investments, how willing are you to take risks?” (Section J, J2). To control for other factors, we included socio-demographic characteristics (Section A) such as gender (A3), age (A3a), education (A5), income (A8), evaluation of current debt (Section G, G23) which was measured on a seven-point scale (1 = Strongly disagree; 7 = Strongly agree): “I have too much debt right now,” and whether or not the household had checking and savings bank account (Section B, B1 and B2) measured as (1 = Yes; 2 = No): “Does your household have a checking/savings account?” The checking and savings accounts were included as covariates to control for respondents’ general financial condition.

Additionally, to better control for the effect of income on willingness to take financial risks, we included overall satisfaction with finances (Section J, J1) which was measured on a ten-point scale (1 = Not at all satisfied; 10 = Extremely satisfied): “Overall, thinking of your assets, debts and savings, how satisfied are you with your current personal financial condition?” and evaluation of current credit record which was measured on a five-point scale (1 = Very bad; 7 = Very good): (Section J, J32) “How would you rate your current credit record?”.

We ran two different regression models with respondents who answered all the questions used in the analysis ( $N = 23,905$ ). The first model included the willingness to take risks in financial investments as the criterion variable, card ownership as the predictor (a dichotomous variable reflecting having a credit card versus not having any), and gender, age, education, income, evaluation of overall debt level, evaluation about credit record, satisfaction with finances, and account ownership as controls. The analysis revealed a significant positive relationship suggesting that respondents who have at least one credit card are willing to take more risks than those who do not have any credit cards ( $\beta = .03; t = 4.88, p < .001$ , see Table 1).

In the second model, all variables included in the first model were included except for the card ownership. Instead of treating it as a dichotomous variable, we used the number of credit cards possessed as the predictor (respondents with no credit cards were removed for this analysis). The analysis revealed a significant positive relationship between the number of credit cards and willingness to take risks ( $\beta = .03; t = 5.18, p < .001$ ). Including respondents who did not have a credit card do not change the findings ( $\beta = .05; t = 7.07, p < .001$ , see Table 1).

Table 1. Essay 1 Empirical Study Regression coefficients

	Standardized			Standardized	
	Beta	t		Beta	t
Card ownership	0.03**	4.88	No of cards	0.03**	5.18
Age	-0.22**	-37.31		-0.23**	-35.75
Income	0.12**	18.06		0.11**	16.15
Debt level	0.11**	16.74		0.11**	14.92
Gender	-0.2**	-34.76		-0.2**	-33.06
Education	0.05**	8.43		0.05**	7.81
Checking Account	0.02*	2.83		0.02**	2.70
Savings Account	-0.04**	-5.65		-0.04**	-5.39
Satisfaction with finances	0.36**	49.67		0.35**	46.73
Evaluation of credit record	-0.02*	-2.70		-0.02*	-2.80

\*\*  $p < .001$ , \* $p < .05$

The results of this national survey provide preliminary evidence for the risk neglect hypothesis. Controlling for demographics such as gender, age, education, and particularly income, our analysis suggests that respondents with at least one credit card are more willing to take risks compared to those who do not have any credit card. Further, the analysis shows that there is a positive relationship between the number of credit cards a respondent has and the willingness to take risks in financial investments. Admittedly, the evidence from the survey is correlational and subject to many alternate interpretations such as unobserved variables, or the sequence in which the questions were asked. Notwithstanding, the key take away is that there appears to be a relationship between payment method and risk neglect that needs to be investigated in more controlled settings.

### *Study 1: Risk Neglect In A Financial Investment Decision*

Study 1 tests hypotheses 1 and 2 in the context of a financial investment decision. The key feature of a financial investment decision is that it allows a clear specification of the probabilities of success/failure such that the associated risk is unambiguous. Another objective of study 1 was to examine whether the payment method prime also alters shoppers' mental construal and thereby risk neglect. Chen et al. (2017) suggested that the construal level may be higher when primed with a credit card than cash. Further, research on construal level suggests that a high level construal may desensitize individuals to risk whereas a low level construal reverses this effect (Lerner et al., 2015; Wakslak & Trope, 2009). We thus explored whether the effect of payment method on risk neglect could be due to differences in mental construal as well.

#### *Method*

One hundred and seventy-five U.S. participants (mean age = 36.9 years, 43% female), recruited from Amazon's Mechanical Turk for a nominal payment, were randomly assigned to one of two conditions in a 2 (payment method prime: credit card and cash) between-subjects design. We adapted Thomas et al.'s (2011) shopping task to prime payment method. Participants were told that a convenience store chain is planning to open a store and is conducting a survey to understand the types of products that consumers typically buy from convenience stores. Participants then participated in the simulated shopping task where they were shown twelve items typically found in

convenience stores. The twelve items were shown sequentially with their prices and participants were asked to indicate whether they would buy each of the items or not. Participants in the credit card condition were told that the convenience store only accepts major credit cards. To strengthen the manipulation, the logo of credit cards was shown. In the cash condition, participants were told that the convenience store only accepts cash and were shown an image of a \$5 bill (see Appendix for sample stimuli).

After the shopping simulation, in an ostensibly unrelated task, participants were asked to consider an investment decision. Adapted from Kupor, Liu, and Amir (2018), participants were told that they had to make a risky investment decision as part of their job with \$500. The options were to not invest the \$500 versus invest the \$500. The investment had a 10% of success to yield 20 times the initial investment of \$500 (i.e., \$10,000). If it failed, the company would lose \$500. Participants indicated their decision to invest on a seven-point scale (1= Keep \$500; 7 = Invest \$500). The time taken on this task was recorded.

Finally, adapting a measure from Aggarwal and Zhao (2015), we assessed participants' construal level by asking their preference between two jobs that require more of a big picture orientation (high level construal) versus a detail orientation (low level construal). Specifically, Job A, the position of Business Planning Manager, necessitates developing business plans and setting overall business goals, whereas Job B, the position of Business Implementation Manager, requires implementing business plans. Participants indicated their preference for the jobs on a seven-point scale (1 = Job A is more appealing; 7 = Job B is more appealing).

## *Results and Discussion*

The analyses reported is with one hundred and fifty-three participants as twenty-two participants did not complete the study. A one-way ANOVA revealed a significant effect of payment method prime on risk neglect as participants' preference for investing in the risky investment was higher when primed with credit card than cash ( $M_{\text{Credit}} = 5.49$  vs.  $M_{\text{Cash}} = 4.76$ ;  $F(1, 151) = 5.34, p = .02, \eta^2 = .03$ ). Another one-way ANOVA on the time taken on investment decision (log transformed) revealed that participants were faster in making the investment decision when the payment method prime was credit card than cash ( $M_{\text{Credit}} = 0.82$  vs.  $M_{\text{Cash}} = 1.01$ ;  $F(1, 151) = 8.86, p < .01, \eta^2 = .05$ ).

A third one-way ANOVA on participants' construal level revealed no significant difference across the credit card and cash conditions. ( $M_{\text{Credit}} = 4.67$  vs.  $M_{\text{Cash}} = 4.18$ ;  $F(1, 151) = 2.37, p = .12$ ). A mediation analysis (Hayes 2017, Model 4) using mental construal as the mediator suggests no mediation as the confidence interval included zero (95% CI [-0.03 to 0.35]).

Study 1 provides support for hypotheses 1 and 2 in the context of a financial investment decision. It adds to the empirical study and extends the effect of payment method on risk neglect in a context where the risk is immediate and clearly specified. The findings are also consistent with our conceptualization that consumers process information faster when primed with a credit card than cash. The results of study 1 also lend credibility to the empirical evidence from the FINRA IEF NFCS as the financial investment task used in this study is similar to the willingness to take risks measure in the NFCS. This study also rules out differences in construal level as an additional mechanism



for the effect of payment method on risk neglect. Since study 1 used an investment decision as a measure of risk neglect, study 2 examines risk neglect with an incentive compatible, behavioral measure.

### *Study 2: Risk Neglect In An Incentive Compatible Behavioral Task*

Study 2 tests hypotheses 1 and 2 with an established behavioral measure of risk-taking. The Balloon Analogue Risk Task (BART), developed by Lejuez et al. (2002), has been widely used as a measure of risk-taking (Koscielniak et al., 2016; Lighthall et al., 2009; Lowe et al., 2019). Scores on BART have been shown to be associated with self-reported addictive, health, and safety risk behaviors (Lejuez et al., 2002). In a typical BART, participants are rewarded based on the points earned by inflating a balloon as much as possible, but only if the balloon does not explode. In addition to measuring risk neglect in an incentive-compatible behavior, BART allows recording of response times thus making it amenable to testing both hypotheses 1 and 2.

#### *Method*

One hundred and sixty-one undergraduate students (mean age = 20.1 years, 47% female) were randomly assigned to one of two conditions in a 2 (payment prime: credit card and cash) between-subjects design. Participants first participated in the shopping simulation as in study 1 and then participated in the ostensibly unrelated BART, labeled the “Balloon Game” in which the objective was to collect as many points as possible.

Participants were told that they could inflate the balloon as much as they want and collect .25 points for each inflation. If the balloon explodes before the participant chooses to stop inflating the balloon by clicking on the “Collect” button, all points earned for that balloon would be lost. For every new round of the balloon game, the explosion point for the balloon was randomly determined. Participants participated in ten rounds and were informed that at the end of the task, some participants would be randomly selected and be rewarded a bonus payment based on the total points earned. Since the only way to earn more points is to inflate the balloon, but to keep the points for that round, risk averse individuals are likely to collect points sooner than later, resulting in fewer exploded balloons. The number of inflations and the related number of exploded balloons were thus used as behavioral measures of risk neglect (Lowe et al. 2019). The total time participants spent playing in ten rounds of the game was also recorded. Since the balloon task necessitates participants to balance the benefits of the number of inflations with the cost of losing out on the points earned if the balloon exploded, participants are likely to be aware that the risk increases with the number of inflations.

### *Results and Discussion*

Seven participants were excluded from the analysis as they took long breaks in completing the study (eating dinner, sleeping, going out). A one-way ANOVA on the total number of times the balloon was inflated across the ten rounds revealed that the number of inflations was higher in the credit card prime condition than in the cash prime condition ( $M_{\text{Credit}} = 99.53$  vs.  $M_{\text{Cash}} = 87.99$ ;  $F(1, 152) = 3.78, p = .05, \eta^2 = .02$ ). As

expected, the total number of inflations percolated over to the number of exploded balloons as the number of exploded balloons was higher for participants in the credit card than in the cash prime condition ( $M_{\text{Credit}} = 4.05$  vs.  $M_{\text{Cash}} = 3.59$ ;  $F(1, 152) = 3.68$ ,  $p = .057$ ,  $\eta^2 = .02$ ). A third one-way ANOVA on the time taken across the ten rounds (log-transformed) revealed that participants spent less time on the balloon game when primed with credit card than with cash ( $M_{\text{Credit}} = 1.88$  vs.  $M_{\text{Cash}} = 1.93$ ;  $F(1, 152) = 3.73$ ,  $p = .055$ ,  $\eta^2 = .02$ , see Figure 1).

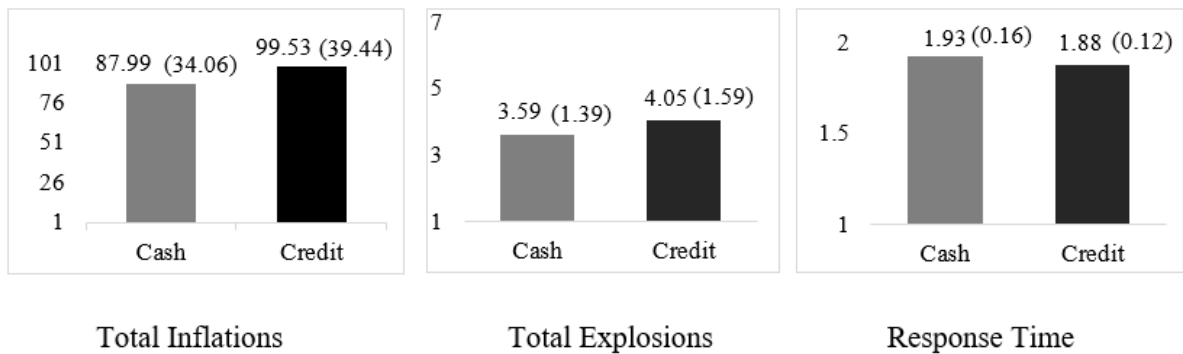


Figure 1. Essay 1 Study 2: Results

The results of study 2 bolster support for hypotheses 1 and 2 as participants who were primed with credit cards exhibited greater risk neglect, as measured by the higher number of inflations and exploded balloons, compared to those who were primed with cash. Further, despite a higher number of inflations, we find that participants in the credit card prime condition were faster in the BART, suggesting that credit card engenders faster, effortless, and more spontaneous processing relative to participants in the cash prime condition. Study 2 thus generalizes the findings to an incentive-compatible,

behavioral measure of risk neglect. Together, studies 1 and 2 demonstrate the effect of payment methods on risk neglect and response time.

However, these studies used a payment method prime rather than a task where the payment method as part of the purchase task affects product preferences. To shed more insight into the underlying process that the effect of payment method is due to the differences in the pain of paying, study 3 examines the mediating role of the pain of paying.

### *Study 3: Mediating Role Of Pain Of Paying*

Study 3 tests hypothesis 3 and examines the extent to which pain of paying mediates the effect of payment method on risk neglect. Further, rather than assessing the effect of payment primes as in studies 1 and 2, study 3 is designed to examine the effect of payment method on product preferences that differ on risk. Preferences favoring the riskier product are thus used as a measure of risk neglect.

#### *Method*

Two hundred U.S. participants (mean age = 38.6 years, 49% female), recruited from Amazon's Mechanical Turk for a nominal payment, were randomly assigned to one of two conditions in a 2 (payment method: credit card and cash) between-subjects design. Participants read information and reviews about two multivitamins and were then asked to indicate their preference between the two. Both multivitamins offered 13 vitamins and

9 minerals and were priced identically at \$14.99. The high-risk multivitamin offered three additional ingredients and was described as having an average rating of 4.2 out of 5, rated by only 130 consumers. The low-risk multivitamin was described as having an average rating of 4.1 out of 5, rated by 12,282 consumers. Although similar in terms of ratings, the rationale was that the multivitamin that offered the three additional ingredients was riskier since only 130 consumers had reviewed it compared to 12,282 consumers for the low-risk multivitamin (see Appendix for stimuli).

The payment method manipulation was embedded in the purchase scenario. In the credit card (cash) condition, participants were told that the store selling the multivitamins only accepts credit cards (cash), accompanied by pictures of credit card logo (\$20 bill).

Participants indicated their preference between the two multivitamins on a nine-point scale, with higher numbers reflecting a higher preference for the vitamin with small number of reviews, and thus more risk neglect. The pain of paying was measured as in Thomas et al. (2011) with the question “ Now, please imagine yourself paying \$14.99 for the vitamin you chose with credit card/cash. How do you feel about spending money on this vitamin?” on a five-point facial emoticon scale with the sad (☹) on the left and the happy (☺) on the right. The measure was reverse coded such that higher values indicated a higher pain of paying. To check that the high-risk multivitamin was indeed perceived to be higher in risk than the low-risk multivitamin, participants were asked on a nine-point scale “Considering the two multivitamins, which one do you think involves more risk?”

## *Results and Discussion*

*Controls and checks.* Thirty-seven participants were excluded from the analysis as they failed the attention checks, took long breaks, or had other technical problems. Another participant was excluded as the response time was three standard deviations away from the mean. To understand whether the multivitamin with low number of reviews is perceived as associated with higher risk, we conducted a t-test. Participants indeed perceived the multivitamin with small number of reviews to be associated with higher risk than the multivitamin with a large number of reviews ( $M = 6.25$  relative to mid-point of 5;  $t(161) = 7.31, p < .001$ ). A one-way ANOVA revealed that the risk involved with the two multivitamins was not different across the credit card and cash conditions ( $M_{\text{Credit}} = 6.33$  vs.  $M_{\text{Cash}} = 6.18$ ;  $F(1, 160) = 0.2, p = .65$ ). These results suggest that while the high-risk multivitamin is indeed perceived as higher in risk relative to the low-risk multivitamin, there is no difference in risk perceptions across the credit card and cash conditions.

*Risk neglect.* A one-way ANOVA on preference revealed that participants in the credit card condition reported higher preference for the high risk vitamin than participants in the cash condition ( $M_{\text{Credit}} = 5.85$  vs.  $M_{\text{Cash}} = 4.90$ ;  $F(1, 160) = 4.06, p = .045, \eta^2 = .02$ ).

*Pain of paying.* Another one-way ANOVA on the pain of paying revealed that participants reported a lower pain of paying in the credit card condition than in the cash

condition ( $M_{\text{Credit}} = 2.07$  vs.  $M_{\text{Cash}} = 2.64$ ;  $F(1, 160) = 8.53$ ,  $p < .01$ ,  $\eta^2 = .05$ ).

Importantly, a mediation analysis (Hayes 2017, Model 4 with 5,000 bootstrap samples) with payment method as the independent variable, preference for high-risk multivitamin as the dependent variable, and pain of paying as the mediator, revealed that the indirect effect of payment method on preference through the pain of paying was significant as the confidence interval did not include zero (Indirect effect = 0.31, 95% CI [0.05 to 0.66]).

Study 3 supports hypothesis 3 and our conceptualization that differences in the pain of paying across credit card and cash underlie the effects on risk neglect. Further, this study extends the findings of the earlier studies by demonstrating the effect of payment method on risk neglect in a purchase context where consumers are evaluating products and the payment can be made either through credit card or cash. The risk neglect is thus manifested beyond the settings where participants were primed with credit card or cash. In summary, while studies 1 and 2 demonstrated the effect of payment method prime on risk neglect and response time, study 3 showed that the effect of payment method on risk neglect is mediated by pain of paying. The results of study 3 also suggest that while there is no difference in perceptions of the risk associated with the two products, consumers neglect or underweight the risk in their purchase decisions when paying with credit card than cash.

Thus far, in studies 1 and 2, we relied on response time as an indicator of participants' purchase decision process. Studies 4 and 5 provide more direct tests of the effects of payment method on risk neglect (and product preferences) and the underlying reasoning that paying by credit card (vs. cash) facilitates fast and spontaneous purchase decisions.

#### *Study 4: Moderating Role Of Deliberation*

Study 4 tests hypothesis 4 and provides more insight into the underlying process. Using preference of the high-risk multivitamin as in study 3, study 4 examines whether altering the natural way in which consumers make purchase decisions when paying by credit card attenuates the effect of payment method on risk neglect. Since credit cards facilitate fast, effortless, and spontaneous purchase decisions, asking consumers to deliberate on the product/purchase decision is likely to have a stronger effect on the decision process when paying by credit card. In contrast, since paying by cash encourages slow, effortful, and deliberate purchase decisions, asking consumers to deliberate should have relatively little or no effect.

#### *Method*

Two hundred and sixty-seven participants (mean age = 36.5 years, 34% female), recruited from Amazon's Mechanical Turk for a nominal payment, were randomly assigned to one of four conditions in a 2 (payment method: credit card and cash) x 2 (processing: deliberation and control) between-subjects design. Using the multivitamin preference as in study 3, the purchase decision process was manipulated at two levels. In the deliberation condition, participants were asked to think about each of the two multivitamin options carefully before they indicate their preference as they would have to explain their preference later in the study. In the control condition, participants were asked to indicate their preferences.



After the preference measure, participants in the deliberation condition were asked to write down reasons for their preference. Although listing reasons for the preference is reflective of the deliberation manipulation, all participants were asked “I provided reasons for my multivitamin preference” (1 = Strongly disagree; 7 = Strongly agree). As in study 3, a check was included to ensure that the high-risk multivitamin was indeed perceived as higher in risk than the low-risk multivitamin. Finally, to ensure that the deliberation manipulation did not influence affect, participants completed the short version of PANAS (Watson et al., 1988).

### *Results and Discussion*

*Controls and Checks.* There was no significant effect of any of the factors on affect and are thus not discussed any further. Seven participants did not respond to the processing manipulation check item and five participants did not respond to risk perception measure. A 2x2 ANOVA with the remaining participants revealed only a significant effect of processing, such that participants in the deliberation condition agreed more with the statement that they provided reasons for their preference than participants in the control condition ( $M_{\text{Deliberation}} = 6.21$  vs.  $M_{\text{Control}} = 4.90$ ;  $F(1, 256) = 40.28, p < .001, \eta^2 = .13$ ). No other effects were significant (all  $p$ 's  $> .39$ ). In terms of the relative risk associated with the two multivitamins, participants perceived the high-risk multivitamin to be higher in risk than the low-risk multivitamin ( $M = 6.25$  relative to mid-point of 5;  $t(261) = 8.53, p < .001$ ). Both manipulations thus worked as intended. A 2x2 ANOVA revealed that there was no difference in the risk perceptions across the

credit card and cash conditions ( $M_{\text{Credit Card}} = 6.38$  vs.  $M_{\text{Cash}} = 6.11$ ;  $F(1, 258) = 0.8$ ,  $p = .37$ ). Said differently, participants' opinions about the relative riskiness of vitamins did not differ across conditions. No other differences were significant (all  $p$ 's  $> .64$ ).

*Risk neglect.* A 2x2 ANOVA on preference revealed a significant effect of payment method ( $F(1, 263) = 7.6$ ,  $p < .01$ ,  $\eta^2 = .03$ ) which was qualified by a significant two-way interaction between payment method and processing ( $F(1, 263) = 4.28$ ,  $p = .04$ ,  $\eta^2 = .02$ ). Consistent with the findings of the earlier studies, participants in the control condition indicated a higher preference for the high-risk multivitamin when the payment method was credit card than cash ( $M_{\text{Credit-control}} = 7.06$  vs.  $M_{\text{Cash-control}} = 5.33$ ,  $F(1, 263) = 11.78$ ,  $p < .01$ ). However, consistent with hypothesis 4, when participants deliberated about the decision, there was no difference in the preference for the high-risk multivitamin across the credit card and cash payment conditions ( $M_{\text{Credit-deliberation}} = 5.8$  vs.  $M_{\text{Cash-deliberation}} = 5.56$ ;  $F(1, 263) = .23$ ,  $p = .63$ ; see Figure 2). Further, deliberation about the purchase decision reduced preference for the high-risk multivitamin in the credit card condition, but deliberation did not have any effect in the cash condition. As alluded to before, there was no difference in the risk perception manipulation check between two vitamins across the credit card and cash conditions. Therefore, these findings suggest that although participants in the credit card condition are aware that one vitamin is riskier than the other, they appear to be neglecting it.

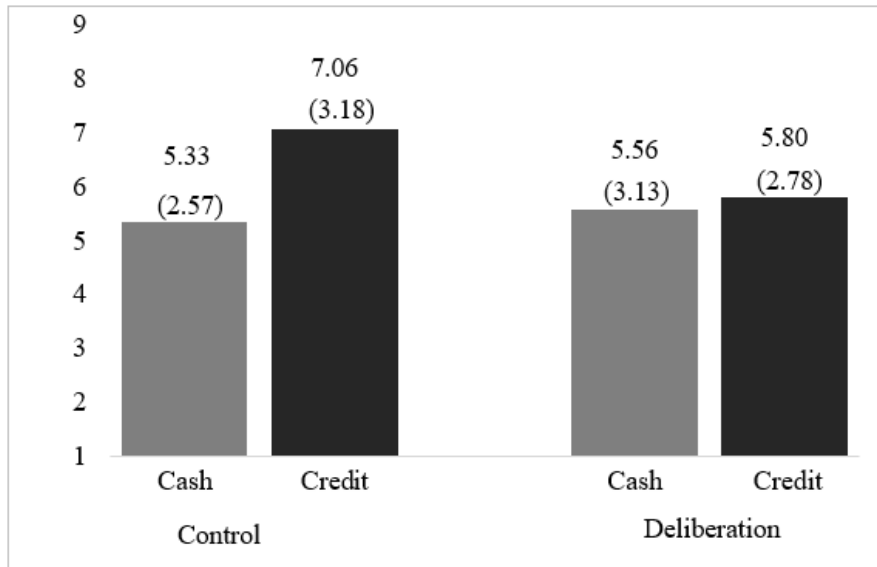


Figure 2. Essay 1 Study 4: Results

Study 4 provides support for hypothesis 4 and sheds insight into the underlying process. Participants exhibited risk neglect when the payment method was credit card (vs. cash) in the control condition. However, the effect of payment method on risk neglect was attenuated when participants were asked to deliberate about the two multivitamin options. These results are consistent with our reasoning that the high pain of paying with cash gives consumers a reason to pause and make purchase decisions more slowly and deliberately. In contrast, the relatively mild pain of paying with credit card facilitates faster, effortless, and spontaneous purchase decisions, thereby leading to risk neglect. Deliberation hinders fast and spontaneous purchase decisions and thus attenuates the effect of payment method on risk neglect.

In studies 3 and 4, to manipulate payment method we told participants that the store selling the vitamin only accepts cash/credit card. Although, our findings still support the risk neglect effect, we acknowledge that a limitation of these studies is that

typically stores accept both payment methods. For this reason, we designed study 5 to provide additional support for the underlying process in a different setting and examine the moderating role of trait impulsivity.

#### *Study 5: Moderating Role Of Processing Time And Impulsivity*

Study 5 tests hypotheses 4 and 5. First, study 5 examines the extent to which altering the processing speed attenuates the effect of payment method on risk neglect. To the extent credit card engenders fast processing and cash encourages slow processing, altering the processing such that it is slow for credit cards and fast for cash should attenuate the effect of payment method on risk neglect. In other words, altering consumers' natural processing is likely to attenuate the effect of payment method on risk neglect. Second, study 5 examines the moderating role of trait impulsivity such that the effect of payment method and processing time on risk neglect is likely to stronger for high (vs. low) impulsive consumers (Puri 1996).

#### *Method*

Two hundred and seventy participants (mean age = 39.1 years, 37% female), recruited from Amazon's Mechanical Turk for a nominal payment, were randomly assigned to one of four conditions in a 2 (payment method: credit card and cash) x 2 (processing speed: fast and slow) between-subjects design. Participants read "Every year the firm that you work for raises money to donate to charity. This year, to get all its

employees involved in raising money, your firm is organizing a raffle. All the money raised from the raffle will go to the charity. The firm is encouraging all its employees to participate in the raffle. If your ticket wins in the raffle draw, the firm will donate an additional amount to the charity. Your firm is offering two kinds of raffle tickets for its employees to purchase. Both raffle tickets cost \$20 to purchase.” Participants were informed that they will be indicating their preference.

Processing speed was manipulated by using Allard et al.'s (2019) method where participants were asked to read a paragraph where they learned about recent psychological research which extolls the virtues of making decisions quickly or slowly (see Appendix for the manipulation). Participants in the fast (slow) processing speed were asked to take as little (much) time as needed to respond and think quickly (carefully) about their choice in the next question. In the credit card (cash) condition, participants are told that tickets can be purchased only by credit card (cash) with accompanying pictures of credit card logos (\$20 bill).

The preference between the two raffle tickets was our measure of risk neglect. The two raffle tickets had the same expected value but differed in terms of the probability of winning and reward. The low-risk raffle (Raffle A) offered 6/10 chance of winning \$1000 for the charity, whereas the high-risk raffle (Raffle B) offered 2/10 chance of winning \$3000. Both tickets were priced at \$20. Preference was measured on a nine-point scale item (1 = Definitely Raffle A; 9 = Definitely Raffle B). Participants' response time in evaluating the two raffles and indicating their preference was recorded. They then completed Rook and Fisher's (1995) impulsive buying scale (e.g., "I often buy things spontaneously" 1 = Strongly disagree; 7 = Strongly agree). Finally, although actual

response time was recorded, an average of two items was used to check for the processing speed manipulation ( $r = .73, p < .001$ ): “The effort that I put in indicating my preference for a raffle was” (1 = Very little effort; 7 = Lot of effort) and “The time I took to indicate my preference for a raffle was” (1 = Very little time; 7 = Lot of time).

### *Results and Discussion*

*Controls and checks.* Three participants were excluded as the response times were three standard deviations away from the mean. A 2x2 ANOVA on the time participants spent on evaluating and indicating their preference (log-transformed) revealed only a significant effect of processing speed as participants spent more time in the slow (vs. fast) processing speed condition ( $M_{\text{Slow}} = 0.93$  vs.  $M_{\text{Fast}} = 0.75$ ;  $F(1, 263) = 15.59, p < .001, \eta^2 = .06$ ). No other effects were significant. Another 2x2 ANOVA on the self-reported check revealed only a significant effect of processing speed as participants rated the effort and time spent on indicating their preference as higher in the slow (vs. fast) processing condition ( $M_{\text{Slow}} = 5.72$  vs.  $M_{\text{Fast}} = 5.01$ ;  $F(1, 263) = 17.34, p < .001, \eta^2 = .06$ ). No other effects were significant. Both the actual response times and the self-ratings suggest that the processing speed manipulation worked as intended.

*Risk neglect.* To analyze the effect of payment method and processing speed on risk neglect, we created a variable to reflect the natural match between payment method and processing speed. The “match” variable was assigned a value of 0 when the payment method and processing speed do not match (i.e., credit card and slow processing; cash and fast processing) and a value of 1 when there was a natural match (i.e., credit card and

fast processing; cash and slow processing). A 2x2 ANOVA on raffle preference as a function of payment method and match revealed only a significant two-way interaction ( $F(1, 263) = 5, p = .03, \eta^2 = .02$ ; see Figure 3). Planned contrasts showed that when there was a match between payment method and processing speed, participants' preferences for the high-risk raffle was higher in the credit card condition than in the cash condition ( $M_{\text{Credit-match}} = 6.19$  vs.  $M_{\text{Cash-match}} = 5.06$ ;  $F(1, 263) = 4.68, p = .03$ ). However, when there was a mismatch between payment method and processing speed, there was no difference in participants' preferences for the high-risk raffle across the credit card and cash conditions ( $M_{\text{Credit-mismatch}} = 5.13$  vs.  $M_{\text{Cash-mismatch}} = 5.65$ ;  $F(1, 263) = 0.99, p = .32$ ). Consistent with hypothesis 4, the effect of payment method on risk neglect is attenuated when the natural processing associated with credit card is altered.

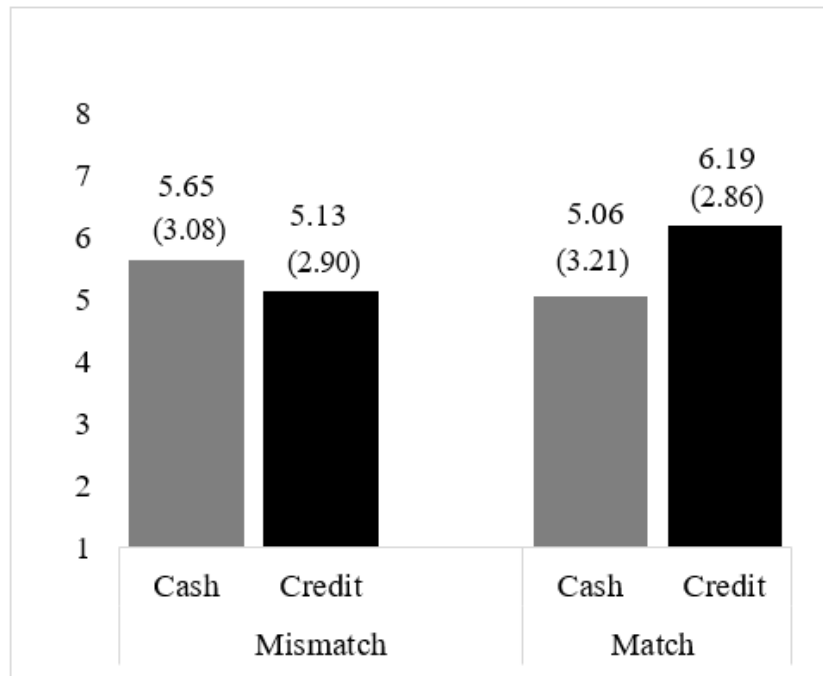


Figure 3. Essay 1 Study 5: Results

*Moderating role of trait impulsivity.* One participant did not complete the impulsivity scale and was removed from the analysis. To assess the role of trait impulsivity, we ran a regression (Hayes 2017, Model 3) on raffle preference as the dependent variable as a function of payment method, match, and the continuous measure of trait impulsivity (mean-centered) and all interactions. The regression revealed a main effect of impulsivity ( $B = 0.74$ ,  $SE = 0.12$ ;  $t(258) = 6.17$ ,  $p < .001$ ) and a marginal three-way interaction ( $B = 0.89$ ,  $SE = 0.48$ ;  $t(258) = 1.85$ ,  $p = .064$ ). No other effects were significant. To shed more insight into the three-way interaction, we used the Johnson-Neyman floodlight approach (Spiller et al. 2013). The floodlight analysis suggests that the conditional effect of the two-way interaction between payment method and match on risk neglect was significant only for participants with a standardized trait impulsivity score higher than  $-0.084$  ( $B_{IN} = 1.37$ ,  $SE = 0.69$ ;  $t(258) = 1.96$ ,  $p = .05$ , see Figure 4). The results provide support for hypothesis 5 that the effect of payment method and processing speed on risk neglect is stronger for participants high (vs. low) on impulsiveness.



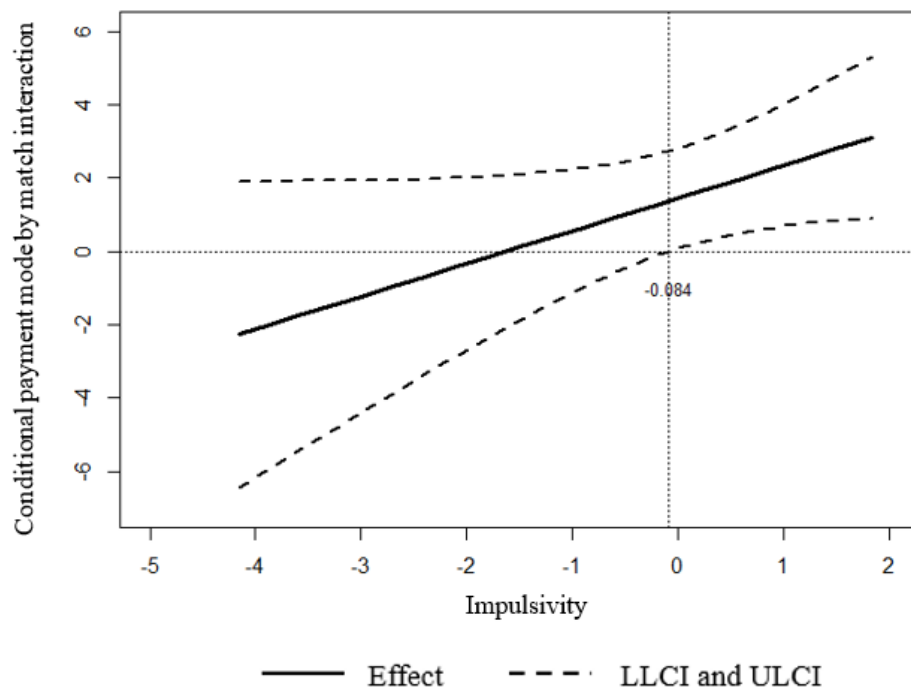


Figure 4. Essay 1 Study 5: Results

Study 5 provides support for hypotheses 4 and 5 and bolsters support for our conceptual reasoning for the effects of payment method on risk neglect. In the context of a raffle where the risk was immediate and unambiguous, study 5 shows that when the processing speed matches how consumers naturally make purchase decisions with credit card, consumers exhibit risk neglect when paying with a credit card relative to cash. To the extent that the relatively mild pain of paying with credit card facilitates fast, effortless, and spontaneous processing, slowing down the processing attenuates the risk neglect. Indeed, study 5 shows that a mismatch between payment method and processing speed attenuates the effect of payment method on risk neglect.

Study 5 also shows that consumers who are high in impulsiveness are more likely to exhibit risk neglect as a function of payment method than those who are low in

impulsiveness. These findings lend credence to the idea that low impulsive consumers naturally think about the costs and benefits of impulsive behavior and are thus less likely to be impulsive than high impulsive consumers (Puri 1996). High impulsive consumers, on the other hand, do not naturally think about the costs and benefits of impulsive behavior and are thus more susceptible to factors that affect processing and impulsivity.

## General Discussion

Spurred by the burgeoning research on the effects of payment method on consumer spending decisions and behavior (e.g., Chatterjee and Rose 2012; Prelec and Simester 2001; Raghurir and Srivastava 2008; Shah et al. 2015; Soman 2003; Thomas et al. 2011), the main objective of this research was to examine the extent to which paying with credit card (vs. cash) leads to risk neglect. Building on the differences in pain of paying across credit card and cash (Raghurir and Srivastava 2008; Shah et al. 2015), we argue that the relatively high pain of paying associated with cash gives consumers a reason to pause, and process more slowly and deliberately. In contrast, the relatively mild pain of paying associated with credit card facilitates faster, more spontaneous processing, resulting in risk neglect. The findings from a national survey and five studies provide support for the risk neglect hypothesis.

The 2018 edition of the NFCS suggests that respondents with credit cards are more willing to take risks in financial investments compared to respondents with no credit cards. The willingness to take risks is also positively related to the number of credit cards respondents own. These relationships hold even after controlling for demographics

such as age, gender, education, and income. Studies 1 and 2 test the risk neglect hypothesis in a more controlled setting and demonstrate that participants primed with credit card exhibited more risk neglect than those primed with cash. Participants primed with credit card showed a higher preference for a risky investment decision (study 1), and increased risk-taking in an incentive-compatible behavioral task (study 2). Studies 1 and 2 also showed that response times were faster for those who were primed with credit card than cash. These findings are consistent with the reasoning that credit card engenders fast and more spontaneous purchase decisions than cash.

Rather than priming payment method, studies 3, 4, and 5 examine the effect of payment methods on product preferences in the context of making a purchase. Importantly, studies 3, 4, and 5 provide insight into the underlying process for the effect of payment method on risk neglect. Study 3 showed that pain of paying mediated the effect of payment method on preferences for a high-risk multivitamin. The finding suggests that it is the differences in the pain of paying across credit card and cash that underlie the effect on risk neglect. Study 4 showed that while the effect of payment method on risk neglect was manifested in the control condition, having participants deliberate about the purchase decision attenuated the effect. Study 5 further demonstrated that altering the natural way in which consumers make purchase decisions with credit card attenuated the effect of payment method on risk neglect. Study 5 also revealed that the effect of payment method and processing speed on risk neglect was manifested for consumers who were high in impulsivity but not for those who were low in impulsivity.

Together, the findings are consistent with our reasoning that the relatively high pain of paying with cash (and negative arousal) suggests the presence of a threat,

motivating consumers to make decisions slowly and deliberately. In contrast, the relatively mild pain of paying with credit card suggests a benign environment, facilitating faster and more spontaneous decisions. Altering the natural way in which consumers make purchase decisions with a credit card and cash thus attenuates risk neglect. Said differently, paying with cash acts as a “speed breaker,” curbing risk neglect. Our findings also highlight the role of impulsivity as a trait characteristic that moderates the effect of payment method on risk neglect. The finding that the effects are stronger for consumers who are high (vs. low) on impulsivity suggests that compared to high impulsive consumers, low impulsive consumers naturally consider the pros and cons of the impulsive behavior and make purchase decisions more deliberately (Puri 1996; Rook and Fisher 1995).

### *Theoretical and Practical Contributions*

Our research contributes to the literature on the psychology of money in at least four ways. First, while the existing literature has reported a higher propensity to spend (Feinberg 1986; Raghurir and Srivastava 2008), willingness to pay (Prelec and Simester 2001), preference for unhealthy foods (Thomas et al. 2011), and lower emotional connection to the product (Shah et al. 2015) with credit card, we document that credit card leads to risk neglect. Second, we show that consumers make decisions faster and more spontaneously with credit card than cash. Third, we highlight the role of pain of paying in signaling the necessity to deliberate more and thus trace the effect of payment method on risk neglect and processing of decisions to differences in the pain of paying.

Fourth, we identify impulsivity as a trait characteristic that allows us to identify consumers who may be more susceptible to the effects of payment method on risk neglect. By documenting the differences in risk neglect and decisions processing across credit card and cash, this research may have uncovered a broader explanation for the previous findings.

Our findings have important implications for consumer welfare. A key determinant of consumer welfare is the quality of purchase decisions, such as choosing better products and controlling impulsive purchases. Although a myriad of situational and personal factors affects consumer decision-making, this research highlights the role of payment method, a ubiquitous factor in every purchase. Being a less transparent payment method, the relatively mild pain of paying with credit card can potentially influence the purchase decision-making process and thus susceptibility to risk. As such consumers and policy makers can utilize our findings to design simple nudges that can motivate consumers to deliberate more on their purchases with credit cards.

Our research also offers significant managerial implications. Consumers increasingly prefer mobile apps to capture their spending (Sharma and Sharma, 2019). Further, mobile wallets linked with credit cards enable consumers to make payments with their smartphones. Integrating processes into these apps that encourage consumers to deliberate more on their purchases with credit cards can increase saving levels and thus increase consumer satisfaction with these products.

### *Limitations and Future Research*

Our works has a few limitations that open up avenues for future research. It is important to note that the fast and more spontaneous purchase decisions along with risk neglect may in fact be more pronounced for purchases less than \$50. Our studies were designed to reflect the fact that the average value of a cash transaction is \$22, compared to \$112 for non-cash transactions (USA Federal Reserve, 2019). It is thus not clear whether the differences in risk neglect and purchase decision-making process would manifest for large purchase amounts. This represents a fruitful area for future research.

We acknowledge that cash represents nearly 30 % of all transactions in the U.S. according to estimations (Kumar et al., 2018) and people generally use credit card instead of cash. Notwithstanding, the finding that people spend less time on their purchase decisions, and neglect risk when paying by credit card assumes greater significance when one considers that the proportion of credit card debt in serious delinquency is at 5.32% in the fourth quarter of 2019, the highest level in almost eight years (Hayashi, 2020). The Covid-19 pandemic has further exacerbated the situation since consumers' use of credit cards has increased manifold. The use of cash has decreased because of the lack of face-to-face transactions as well as safety issues. As such, subtle nudges to encourage consumers to deliberate and reconsider even their low-ticket purchases with credit card is likely to yield significant improvements in terms of financial well-being, particularly for those who are high in impulsiveness.

## CHAPTER 3

### ESSAY 2: CHOOSING TO TAKE RISKS\*

\* with Monica Wadhwa

Choice is an integral part of people's lives. Studies suggest that on an average, Americans make about 35,000 choices in any given day (Hoomans, 2005). The choices people make could range from simple choices, such as what TV program to watch to more consequential choices, such as which job to choose. Much research has focused on how the act of choosing impacts decision making. Recent research, however, suggests that even in the absence of making an active choice, people might have a subjective belief that one always has a choice (Madan et al., 2020; Savani et al., 2011). In fact, consumers are constantly exposed to such reminders, which makes the concept of choice salient. An increasing number of brands, for example, have begun to highlight a belief in choice in their advertisements. Cosmetic brand Clinique's advertisements position itself as a brand that gives customers a choice. Similarly, insurance brand Geico emphasizes in their ads that the choice is customer's. Despite such marketing appeals that have begun to make the subjective belief in choice salient, little is known about how such reminders that one has a choice, in the absence of making an active choice, impacts decision making. The current research fills this gap by examining the influence of the mere belief in choice, referred to as the choice mindset, in an important context of risky decision making.

Specifically, the current research examines when inducing a subjective belief in choice could increase or decrease risk seeking.

An extensive body of research has examined how the availability of options to choose from can impact decision making (e.g. Iyengar & Lepper, 1999). This research primarily focused on manipulating the availability of choices and examining the impact of choosing versus not choosing on subsequent behaviors (Madan et al., 2020). Recent research, however, suggests that choice is a psychological state, such that even when two individuals are presented with the same set of options, one might believe that they s/he has a choice, while the other likely won't see it as a choice (Savani et al., 2011). In other words, this research positions choice as a mindset, which when activated, encourages people to think about their own as well as other people's actions "through a lens of choice" (Madan et al. 2020, p. 81). Research shows that when a choice mindset is activated, people are more likely to attribute blame to the victims for their circumstances and, thereby, display less empathy for them (Savani et al. 2011). Similarly, people in a choice mindset believe that income inequality is a result of people's own actions (Savani & Rattan, 2012). While research on choice mindsets has primarily examined the effect of choice mindset on social judgments, it is not clear how a choice mindset would impact people's decisions involving risks. In the current research, we ask whether a choice mindset could impact risk-taking behaviors.

We argue that a choice mindset can increase risk-seeking behaviors, when taking a risk is associated with the potential of getting a reward. Why might this be the case? In everyday lives, choice is positioned as a powerful tool. Accordingly, research suggests that people see choice as an instrumental tool, a mean that can lead them to rewarding



outcomes (Gustafsson 2020). Similarly, when the concept of choice is activated, people believe that they have a free will, regardless of circumstances they are in (Feldman et al., 2014). While on the one hand choice is considered a privilege, it is also associated with the responsibility of making informed decisions. When the concept of choice is activated, people are likely to believe that one is responsible for their own actions (Feldman et al., 2014), thus leading to a desire to make the most out of the circumstances. Thus, we propose that activating a choice mindset should lead to a desire to seize an opportunity that could lead to a reward. As such, we hypothesize that when a choice mindset is activated, people would be willing to take a risk, if that risk is perceived as a good opportunity. We further argue that if a choice mindset leads to a desire to seize a good opportunity, it should not lead to risks, which are merely taken for the purpose of sensation seeking and do not present a rewarding opportunity. To illustrate, while those in a choice mindset should be willing to invest more money in a risky, but high potential start-up, they should be less likely to bet their money in a casino, compared with those who are not in a choice mindset.

The current research has important theoretical and managerial contributions. First, to the best of our knowledge, this is the first research to examine the impact of a choice mindset on risk-taking. To elaborate, while past work has shown the consequences of actively choosing tasks or products on motivation (Cordova & Lepper, 1996; Iyengar & Lepper, 1999) and satisfaction (Langer & Rodin, 1976; Taylor & Brown, 1988) no work has hitherto examined how mere salience of choice – without making an actual choice impacts risky decision making.

Second, our research contributes to the literature on risk-taking; providing support for two different types of risk-taking, findings of this research show that while a choice mindset increases risk-taking, aimed at seizing an opportunity, it reduces disinhibited risk-taking. Finally, the current research makes important policy-making implications. These findings show that a simple nudge, activating a choice mindset, could enhance consumer welfare by activating a tendency to seize opportunities that could create positive outcomes in the long run.

In the sections that follow, we first present our conceptualization related to the choice mindset and risk-taking behaviors. We then present four studies that examine our research questions. We conclude with a discussion of the theoretical and managerial implications of current work.

## Theoretical Framework

In the paragraphs that we follow, we first explain the concept of choice mindset. We then draw upon research on risk-seeking to derive our hypotheses.

### *Choice Mindset: A Subjective Belief in Choice*

Research shows that when people actively choose the task they perform, they report an increased liking and interest for the task (Iyengar & Lepper 1999). This research further shows that providing choices in a task has a positive effect on the effort people put into that task, which, thereby, positively impacts subsequent learning and the

resulting performance (Cordova & Lepper, 1996; Iyengar & Lepper, 1999). Making choices could also create negative affect, especially when the choice involves a difficult tradeoff (Botti & Iyengar, 2004), thus leading people to prefer the status quo (Luce, 1998). The current research, however, diverges from research on making active choices in an important way. Unlike past research, our research focuses on how the mere belief that one has a choice, without making an active choice, impacts people's behaviors in risky decisions. An emerging body of research suggests that an objective choice differs from the subjective belief that one has a choice, which is referred to as a choice mindset (Madan et al., 2020; Savani & Rattan, 2012). While an objective choice refers to an active task of making a choice, a subjective belief in choice is a perception that one has a choice in life, even when one is not really making an active choice (Madan et al., 2020). Thus, while traditionally choices have been viewed as different options people have (Luce, 1998), recent research exploring the concept of choice mindset suggests that people could perceive that they have a choice even when they really don't have any options or might perceive that they do not have a choice, even in the presence of multiple options (Ma et al., 2019). As such, choice is a psychological state, one in which people view their own as well as other people's actions through the lens of choice (Ma et al., 2019).

Research has explored the influence of an activated choice mindset in social contexts. For example, research shows that when the choice mindset is activated, people are more likely to blame the victims for their plight and feel less empathetic toward disadvantaged others (Savani et al., 2011). Moreover, the choice mindset could negatively impact how people access welfare related policies. Similarly, this research

shows that since people in a choice mindset view others and their own actions through a lens of choice, they are less disturbed with high levels of income inequality in society (Savani & Rattan, 2012). While research exploring the impact of choice mindset has documented its negative impact on social judgments, it is not clear if a choice mindset could impact risky decision-making. In the next few paragraphs, we discuss how a choice mindset could impact risky decision-making.

### *Choice Mindset and Risk-Taking*

Risky behaviors have been shown to be associated with sensation-seeking (Zuckerman, 2007; Zuckerman et al., 1978), such that people often take a risk because it is exciting to do so. Accordingly, research suggests that those high in impulsivity are more likely to engage in varied types of risky behaviors, including financial risks (Chambers & Potenza, 2003; Steel & Blaszczynski, 1998), reckless driving (Dahlen et al., 2005; Hoyle et al., 2000) or even risky sexual behaviors (Donohew et al., 2000). Such kind of disinhibited risky behaviors, which are primarily motivated by a desire to seek excitement, are detrimental to the risk taker's overall welfare (Fischer & Smith, 2004).

Not all risky behaviors, however, are associated with negative outcomes; under certain conditions, taking a risk may be advantageous for the self and even for the society. Think about venture capitalists, who invest in startups. While investing resources in a start-up is associated with uncertainty, if the start-up is backed by a good team, such investment also holds an opportunity to get a big payoff. Moreover, without such investment in start-ups, many exciting innovations would not have been possible

(Nanda & Rhodes-Kropf, 2017). Thus, investing in a start-up, while risky, is not merely driven by a desire to seek excitement; rather, it is driven by the motive to achieve a positive outcome, to seize an opportunity before one loses it. In a similar vein, research shows that entrepreneurs are more likely to make risky choices, such as take on a new loan for investing in high potential projects (Macko & Tyszka, 2009). Such kind of risk-seeking behaviors that are driven by an objective to attain a reward are referred to as instrumental risk seeking behaviors (Zaleskiewicz, 2001). As alluded to earlier, taking such risks is often important to get the rewards, one could potentially not get without diving into the risk. Research in management, for example, suggests that entrepreneurs who take more risks are often more successful (Boon-Falleur et al., 2021). Stated differently, successful entrepreneurs not only recognize an opportunity in the risk, but also don't shy away from seizing it (Ireland et al., 2003; Kirzner, 2015; Ray & Cardozo, 1996), which eventually contributes to their success (Baum et al., 2007).

In the current research, we argue that a choice mindset should increase risk-seeking behaviors, which are instrumental in attaining a reward. Why might that be the case? The concept of choice is associated with power (Weinschenk 2013). In line with choice being viewed as powerful, research in sociology suggests that people view choice to have instrumentality value—that is having a choice is perceived as instrumental to achieving rewarding outcomes (Gustafsson 2020). Moreover, research shows that when the concept of choice is made salient, people report a higher belief in free will, regardless of their personal circumstances (Feldman et al., 2014). It is not surprising then that not only do people prefer tasks that allow them to make choices, over tasks that don't give them an opportunity to choose, even when that doesn't lead to better outcomes (Bown et

al., 2003), but they are also willing to pay to make their own active choices, rather than outsourcing the choice to a more experienced agent (Bobadilla-Suarez et al., 2017). In a similar vein, anticipating an opportunity to choose has been shown to activate areas of the brain that are involved in motivation and reward processing (Leotti & Delgado, 2011). Since choice is considered an instrumental tool, which can help people get rewards, choice also brings responsibilities. Indeed, people are often reminded to make informed choices.

The aforementioned discussion leads to the proposition that when a choice mindset is activated, people would want to seize the opportunities that are presented to them. Thus, if a risky investment (e.g., putting money in a startup) presents a high potential opportunity to attain a reward, those in a choice mindset would be more willing to invest, compared to those who are not in a choice mindset. We should note that this is not because those in a choice mindset don't recognize the risk, rather it is because that they recognize that the risk is instrumental to getting the reward. Specifically, we hypothesize:

H1A: Choice mindset (vs. neutral mindset) will increase risk-taking behaviors, such that those in a choice mindset would be willing to invest more money in a risky investment.

H1B: Choice mindset should lead to an increased desire to seize a good opportunity, which should mediate the effect of choice mindset on risk-seeking.

### *Moderating Role of Risk Type*

We further argue that if a choice mindset does lead to a desire to seize a good opportunity, it should only increase risk-taking, when the risk presents an opportunity. As alluded to earlier, people often take a financial risk because it is exciting to do so (Zaleskiewicz, 2001). For example, people engage in gambling or betting behaviors, just for the excitement of it, even though they hold a lay belief that gambling leads to losses (Shang et al., 2021). Such risks, therefore, are merely stimulating, but are not perceived as an opportunity. Since gambling or betting in a casino is not perceived as an opportunity, we argue that individuals in a choice mindset are less likely to engage in betting or gambling (disinhibited risk taking). Thus, while a choice mindset should increase risk seeking behaviors when risk is perceived as a mean to get a reward (e.g., investing in a startup), it will reduce risk seeking behaviors when risk is perceived as merely stimulating. More specifically, we argue:

H2: Type of risk will moderate the effect of choice mindset on risk-seeking behaviors. Such that those in a choice mindset will be willing to invest more money in a risky task that is associated with an opportunity to make money (a high potential startup), they should be willing to spend less money in risk task that is merely stimulating.

## Overview Of Studies

Four studies, including a real-life data set exploring the effect of belief in choice on different risky behaviors, provide support for the main hypothesis —a choice mindset is likely to increase risk-seeking when the risk is associated with the potential of getting a reward. Study 1 examines our hypothesis in an investment context and reveals that a choice mindset compared to a neutral mindset leads people to allocate more of their savings in a high potential investment opportunity. Study 2 explores the choice mindset construct more thoroughly by examining the underlying process, namely the desire to seize an opportunity. Further, this study demonstrates that the thoughts related to negative consequences of the risky decision do not mediate the influence of a choice mindset on risk-taking. Study 3 demonstrates an important boundary condition for the choice mindset effect by examining the moderating role of risk type (Ozorio & Fong, 2004; Zaleskiewicz, 2001). Specifically, this study shows that when the risk is instrumental for the achievement of rewards, risk-taking is enhanced in the choice mindset. On the contrary, when the risk is merely stimulating (disinhibited risk taking) but does not present an opportunity, a choice mindset reduces risk-taking. The last study evaluates the relationship between one's stated belief in choice and real-life outcomes. This study provides correlational evidence that a stronger belief in choice is associated with taking more loans for entrepreneurial purposes.

Our experiments were made open to only US based participants. In all studies, we used VPN checks to identify if participants taking the survey were outside the US. These checks identify the location of participants and whether they use a VPN service to hide



their location or not. Surveys were designed such that accounts flagged by the VPN check procedure were directly moved to the end of the survey; thus, no data for these participants were collected. All of the experiments were preregistered on OSF.

### *Study 1*

Study 1 examines the impact of choice mindset on risk-taking in an investment context. We predict that participants will exhibit higher risk-taking in an investment task when the concept of choice is made salient, compared with when the concept of choice is not made salient.

### *Method*

While the study was opened for four hundred participants, three hundred and twenty one participants (mean age = 36.5 years, 34% female), recruited from Amazon's Mechanical Turk, passed the VPN check and completed the study for a nominal payment. This study followed a simple (Choice Mindset: Activated vs. Not Activated) between-subjects design. Participants were randomly assigned to one of the two conditions.

In the first task, we manipulated mindset by asking participants to design a wall art for their room. Participants could choose to put a quote on the wall art. They were asked to pick one of the five quotes they wanted to go on their wall art. In the choice mindset-not activated condition, participants were presented with five neutral quotes (e.g. "When you know better you do better"). Those in the choice mindset-activated condition

were presented with five quotes emphasizing the importance of choice in life (e.g. “Every choice you make makes you”). All participants were then shown the final wall art, with the quote they had chosen and were asked to briefly explain why they believe in the quote they selected (see Appendix for details). We tested this manipulation in a separate pretest (79 participants). In this pretest, participants completed the same mindset manipulation and then completed a word puzzle task (adapted from Hyodo & Bolton, 2021) designed to assess the salience of choice. The results indicated that the manipulation of choice mindset facilitated the identification of choice-related words (e.g., select, possibilities, etc.) but not neutral words. Thus, our manipulation of the choice mindset was effective in making the concept of choice salient (see Appendix for details).

Subsequent to the mindset manipulation, participants were presented with an investment survey. Participants were instructed to imagine that they have \$5000 in savings and consider whether to invest part of it in a high potential start-up business (see Appendix for details). We asked how much of \$5000 they would invest in the business. Participants entered the amount they would like to invest (between 0 and \$5000), which served as our main dependent variable. Finally, participants responded to various demographics questions.

### *Results*

After analyzing the open-ended responses to the question of why they believe in the quote selected, we identified thirteen meaningless responses, thus leaving us with a total sample of 308 participants. A one-way ANOVA on the amount invested in the

business idea revealed that participants in the choice mindset-activated condition indicated that they would invest more of their savings in the startup business ( $M_{\text{choice}} = \$1860$ ) than those in the choice mindset-not activated condition ( $M_{\text{control}} = \$1527$ ;  $F(1, 306) = 4.84, p = .028, \eta^2 = .016$ ).

### *Discussion*

The findings of study 1 provide preliminary support for our hypothesis. Specifically, these findings show that when the choice was made salient via quote signs, people in a choice mindset-activated condition were willing to invest higher amounts in the startup business than those in the choice mindset- not activated condition. The next study replicates this finding and tests the underlying reason for the choice mindset effect.

### *Study 2*

This study has two primary objectives. First, in this study, we wanted to replicate the choice mindset effect found in the first study, Second, we examine our underlying conceptualization related to choice mindset leading to a desire to take a risk that is instrumental to achieving a reward. We propose that when a choice mindset is activated, it will result in a stronger desire to seize opportunities for the self, which in turn should increase the amount people are willing to invest in a startup. Further, in this study, we also measure thoughts related to how risky people find the investment to be. We argue that while a desire to seize an opportunity should mediate the effect of choice mindset on

a risky investment, perceptions of risk will not mediate this relationship. This study was preregistered ([osf.io/s7cqW](https://osf.io/s7cqW)).

### *Method*

While the study was opened for five hundred participants (mean age = 41.01 years, 48% female), 429 participants, recruited from Amazon's Mechanical Turk, completed the study. Participants were randomly assigned to one of the two conditions (Choice Mindset: Activated vs Not) in a between-subjects design. For mindset manipulation, we used the quote task used in study 1.

Next, participants were presented with the investment survey we used in study 1. In addition to the main dependent measure, we asked participants to respond to three items tapping into the opportunity seizing —"Making the best use of the money I have", "Investing for my future", "Not losing a good investment opportunity" (1= Strongly disagree-7 Strongly agree). We also asked participants to indicate how much they thought about the negative consequences of investing with two items: "Investing is a risky proposition", "I don't want to lose money" (1= Strongly disagree-7 Strongly agree).

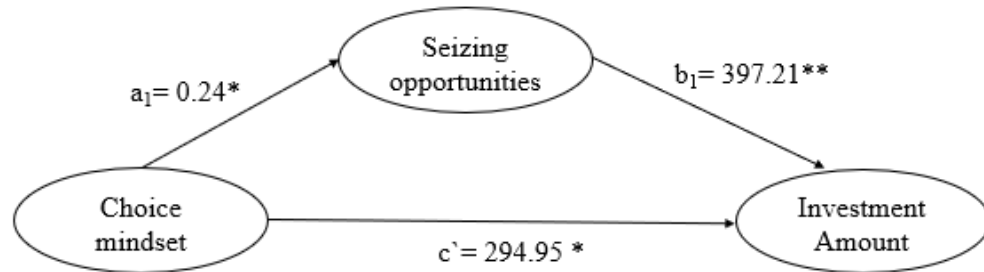
### *Results*

*Investment amount.* After analyzing the open-ended responses to the question of why they believe in the quote they selected, we identified twenty meaningless responses which reduced the valid number of responses to four hundred and nine. A one-way

ANOVA on the amount invested in the business idea revealed that participants invested more of their savings in the choice mindset-activated condition than in the choice mindset-not activated condition ( $M_{\text{choice}} = 1606$  vs.  $M_{\text{control}} = 1213$ ;  $F(1, 407) = 10.68$ ,  $p = .001$ ,  $\eta^2 = .026$ ). This finding replicates the result of study 1 by demonstrating that a choice mindset increases risk-taking by inducing people to allocate more of their savings in a high potential startup compared to participants in the choice mindset-not activated condition.

*Desire to seize opportunities.* We combined the opportunity items ( $\alpha = .72$ ) to form a composite score tapping into the desire to seize opportunities. A one-way ANOVA on the opportunity seizing score showed that participants reported higher desire to seize opportunities in the choice mindset-activated condition than in the choice mindset-not activated condition ( $M_{\text{choice}} = 5.12$  vs.  $M_{\text{control}} = 4.87$ ;  $F(1, 407) = 4.69$ ,  $p = .031$ ,  $\eta^2 = .011$ ). Thoughts on the negative consequences of the risk did not differ across conditions ( $p = .14$ ).

*Mediation.* To analyze the underlying process, we ran a mediation analysis with the mindset (0=choice mindset-not activated, 1= choice mindset- activated) as the independent variable, investment amount as the dependent variable, and opportunity seizing score as the mediator. Process model 4 (Hayes, 2017) with 10,000 bootstrap samples revealed that the indirect effect of choice mindset through desire to seize opportunities was significant ( $a_1b_1 = 98.48$ ,  $SE = 45.97$ , 95 % CI [11.41, .191.83], Figure 1). We repeated the same analysis with thoughts on the negative consequences. The result showed that the confidence interval included zero, revealing that thoughts related to negative consequences do not mediate the effect (95 % CI [-0.01, .011]).



NOTE—COEFFICIENTS ARE UNSTANDARDIZED; \* $p < .05$ , \*\* $p < .001$ .

Figure 5. Essay 2 Study 2: Mediation Model

### *Discussion*

Results from study 2 provide strong support for our underlying mechanism related to the opportunities offered by the risky decision. Specifically, these findings show that a choice mindset leads to an enhanced desire to seize opportunities, which thereby increases risk-taking. These findings further rule out an alternative account related to the thoughts about the negative consequences of the risky decision. That is the risk of losing and thus facing adverse consequences cannot explain the influence of choice mindset on risk-taking. As we expected, these findings show that people are driven by opportunity-related thoughts rather than loss-related thoughts under the influence of a choice mindset. The next study provides support for our conceptualization by exploring a related account of a desire to seize opportunities. We expect that if the risk itself does not present a good opportunity, then risk-taking is diminished in the choice mindset.

### *Study 3*

In the previous studies, we showed that a choice mindset can increase the amount people want to invest in a high potential business idea and this effect is mediated by the desire to seize opportunities offered by the risky prospect. In this study, we want to examine whether the type of risk influences the risk-taking behavior observed in the choice mindset. As alluded to before, we suggest that when the choice is salient people are more likely to seize the opportunities presented by risky prospects. Therefore, we propose that when a choice mindset is activated, it should make people more likely to take risks that are perceived as instrumental (Zaleskiewicz, 2001; Rogers et al., 2013) for achieving positive outcomes for the self, such as investing in a good business project. However, this effect should not be translated to risks based on chance alone, such as gambling which is typically regarded as disinhibited (Ozorio & Fong, 2004) risk-taking. We registered this study before data collection ([osf.io/5f2r8](https://osf.io/5f2r8)).

#### *Method*

While the study was opened for five hundred participants, three hundred and ninety two participants (mean age = 41.1 years, 44% female), recruited from Amazon's Mechanical Turk, completed the study for a nominal payment. Participants were randomly assigned to one of four conditions in a 2 (Choice Mindset: Activated vs. Not Activated) x 2 (Type of risk: Investing and betting) between-subjects design. For mindset manipulation, we used the quote sign task we used in study 1. To manipulate the risk type we used two scenarios. In the investment condition participants were told that they have

\$5000 in savings. They were then asked to decide how much of their savings they would put in a high potential investment project on an investment portal. In the betting condition participants considered how much of their savings they would put in an online betting game (see Appendix for details). The amount they indicated (\$0-\$5000) served as our main dependent variable.

### *Results*

*Amount spent from savings.* After analyzing the open-ended responses to the question of why they believe in the quote selected, we identified thirty-six meaningless responses which reduce the valid number of responses to three hundred fifty-six. A 2x2 ANOVA on the amount spent from savings revealed a significant main effect of risk type ( $F(1, 352) = 45.77, p < .001$ ). Participants in the betting condition allocated a lower amount of their savings compared to participants in the investment condition ( $M_{\text{betting}} = 902.18$  vs.  $M_{\text{investment}} = 1796.77$ ). More importantly, this effect was qualified by a significant two-way interaction between risk type and mindset ( $F(1, 352) = 9.32, p = .002$ ). When the risk originates from an investment, participants in the choice mindset-activated condition allocated more of their savings to investment and thus, take a higher risk compared to participants in the choice mindset-not activated condition ( $M_{\text{choice-inv}} = 2001.13$  vs.  $M_{\text{control-inv}} = 1609.27, p = .032$ ). In the betting condition, however, participants in the choice mindset-not activated condition allocated higher amounts to live betting compared to participants in the choice mindset-activated condition ( $M_{\text{choice-bet}} = 704.67$  vs.  $M_{\text{control-bet}} = 1119.19, p = .031$ , Figure 2).



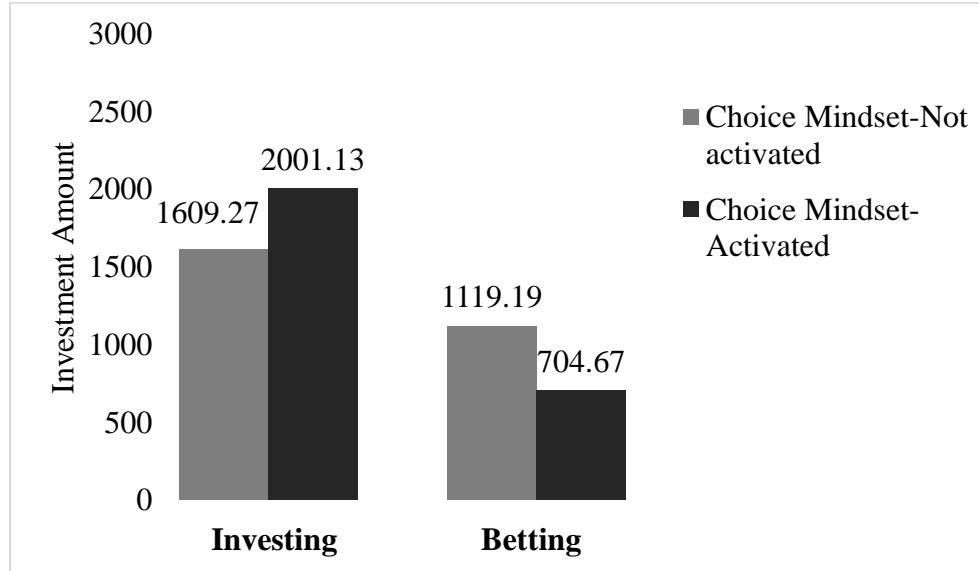


Figure 6 Essay 2 Study 3: Results

### *Discussion*

The findings of study 3 support our conceptualization by showing the underlying process related to a desire to seize opportunities. Specifically, when the risk presented an opportunity to achieve a reward for the self as in investing in a high potential business project, a choice mindset increased risk-taking. However, when risk was merely stimulating and not perceived as instrumental for achievements as in gambling, the effect of choice mindset on risk-taking was diminished.

One could argue that a choice mindset is similar to an action orientation (Bagozzi et al., 1992). To the extent that choice mindset leads to an urge to seize an opportunity that the decision offers, it shares kinship with action orientation. However, although choice mindset induces a desire to seize opportunities and act by taking a higher risk,

findings of study 3 show that choice mindset leads to action (risk taking) only when the risk presents a good opportunity. To elaborate, action orientation should induce a general action tendency both in the case of investing and betting as research suggests that when people are in an action mindset, they are more likely to engage in quick decision making, focusing on taking quick actions (Norman et al.2003, p. 538). In contrast, our findings show that choice mindset enhanced risk taking only in investment condition.

In the next study using a big data set we explore the real-world consequences of choice salience. Specifically, we test whether a belief in choice is associated with better usage of resources as in the case of taking loans. Further, we explore whether a stronger belief in choice is associated with accomplishments in life, such as higher income, higher education level, and supervisory roles at work.

#### *Study 4*

A primary objective of this study was to examine a direct consequence of our hypothesis -a choice mindset leads to an enhanced desire to seize opportunities. As the findings of our experimental studies demonstrated, we argue that, if choice salience triggers a desire to seize opportunities, then people who believe in choice should make better use of resources they have to accomplish more in life. We examine this hypothesis using a big data set, World Value Survey (WVS) (Inglehart et al., 2014). The WVS provides information on individual beliefs about politics, the economy, religious, social, and ethical topics, personal finances, familial and social relationships, happiness, and life satisfaction. The WVS consists of nationally representative surveys conducted in almost 100 countries that contain almost 90 percent of the world's population, using a common

questionnaire (<http://www.worldvaluessurvey.org/WVSContents.jsp>). The last wave as of writing this paper was conducted in 2010-2014 contains a total of 89,565 observations.

The survey and data are available at <http://www.worldvaluessurvey.org/wvs.jsp>.

### *Method*

Although, the WVS includes a myriad of variables, of particular importance to current research, is the measure of people's belief in choice. Specifically, in the survey people are asked to rate their belief in choice by answering the following question "Some people feel they have completely free choice and control over their lives, while other people feel that what they do has no real effect on what happens to them. Please use this scale where 1 means "no choice at all" and 10 means "a great deal of choice" to indicate how much freedom of choice and control you feel you have over the way your life turns out".

The WVS also measures various life outcomes and decisions including entrepreneurial initiatives and loan usage. Entrepreneurial initiatives are measured with the question "Do you own a business or have taken tangible steps to start a business during the past twelve months (either by yourself or with others)?, 1-No steps, 2- Have taken steps, 3-Already have an established business". The usage of loans is measured with the question "During the last year did your family", (1-Save money, 2-Just get by, 3-Spent some savings, 4- Spent savings and borrowed money). For the participants who indicated that they borrowed money, two other questions measured whether they mention "Starting or growing a business" or "Household purchases" among the reasons why they

borrowed money. We examined the usage of credit as a related account of opportunity seizing which we explain below.

The life outcomes we are interested in tap into positive outcomes people managed to attain. As such, we examine if the belief in choice impacts people's income, education, whether or not they have a supervisory role at work. The income indicator is measured by self-reported deciles in the national distribution of income so that it is comparable across countries. The education variable is based on the question "What is the highest educational level that you have attained?" and is measured on a scale from 1 to 9 with 1 representing "no formal education" and 9 being "University level, with degree". As alluded to before, we also analyzed whether belief in choice is associated with a supervisory role at work (currently or in the past). This variable is based on the question "Do you or did you supervise other people at work?" and is measured on a binary scale (1=No, 2= Yes).

The set of control factors includes socio-demographic characteristics (age, gender, education, income) and citizenship (being a citizen of the country or not). Besides, all the estimations include dummies based on socioeconomic grouping employed by World Bank (<https://data.worldbank.org/country>), so that we can control for the heterogeneity due to country-level cultural and societal differences.

## *Results*

*Choice and entrepreneurial initiatives.* We examined the relationship between the choice mindset and entrepreneurial attempts. We ran a regression analysis with entrepreneurship as the outcome variable and belief in choice as the predictor with the

control variables. As expected, regression analysis revealed a main effect of belief in choice, such that the more they believe they have a choice in life, the more likely they are to own a business or taken steps to establish one ( $\beta = .034$  (standardized),  $t = 2.44$ ,  $p = .015$ ).

*Choice and usage of credit.* To explore whether choice mindset is associated with taking opportunities to attain positive outcomes for the self we analyzed the relationship between the reasons for borrowing money and choice mindset (only among participants who indicated that they borrowed money). We predict that a choice mindset will be positively associated with borrowing money for entrepreneurial purposes. This prediction is based on our proposal that a choice mindset will lead to an enhanced tendency to seize opportunities to achieve the best for the self. In that sense, rather than borrowing money for regular expenses, people believing in choice would be more likely to utilize credit for beneficial purposes. As such, we expect to find no relationship between choice mindset and borrowing money for household purchases. The logistic regression model with belief in choice as the predictor and borrowing for entrepreneurial purposes as the outcome was statistically significant ( $\chi^2(13) = 122.4$ ,  $N = 1846$ ,  $p < .001$ ). The model explained 13.9% (Nagelkerke  $R^2$ ) of the variance and correctly classified 90.6% of cases. As predicted, high belief in choice is associated with a higher likelihood to borrow money for establishing or growing a business (Exp ( $\beta$ )=1.97, Wald- $\chi^2$  (1)=4.41,  $p = .036$ ). Additionally, we found no significant association between choice mindset and borrowing for household purchases ( $p = .6$ ).

*Choice and income.* In addition to the entrepreneurial outcomes, we also analyzed the association between the belief in choice and general accomplishments in life. First,

we ran a regression analysis with income as the outcome variable and belief in choice as the predictor. Gender, age, education level, citizenship, and geographic dummies were included as covariates in the model. Regression analysis revealed a main effect of belief in choice, such that the more responders believe they have a choice in life, the higher the income they reported ( $\beta = .170$  (standardized),  $t = 49.21$ ,  $p < .001$ ).

*Choice and education.* A similar regression analysis with education as the outcome variable and belief in choice as the predictor including income, gender, age, citizenship, and geographic dummies as covariates in the model revealed a main effect of belief in choice, such that the more respondents believe they have a choice in life, the higher the educational attainments ( $\beta = .041$  (standardized),  $t = 11.61$ ,  $p < .001$ ).

*Choice and supervisory role.* A logistic regression was conducted to ascertain the effects of belief in choice on the likelihood that survey participants supervise at work (currently or in the past) controlling for the covariates mentioned above. The logistic regression model was statistically significant ( $\chi^2(13) = 6022$ ,  $p < .001$ ). The model explained 12.5% (Nagelkerke  $R^2$ ) of the variance in supervising and correctly classified 71.8% of cases. The ones who believe in choice are more likely to be in a supervisory position (Exp ( $\beta$ )=1.06, Wald- $\chi^2$  (1)=225.3,  $p < .001$ ).

## *Discussion*

Results of the WVS data present correlational evidence that a choice mindset is associated with the usage of loans for entrepreneurial purposes rather than regular expenses. These findings also show that, controlling for other factors people who have a

stronger belief in choice are more likely to undertake entrepreneurial projects. Further, a belief in choice is positively associated with income, education, and supervisory role at work. We are aware that because of the correlational nature of the study, it is not possible to infer causality from these findings. However, we suggest that one factor that may lead to better outcomes in life as reflected in these accomplishments can be chronic belief in choice and the resulting desire to seize opportunities to succeed.

## General Discussion

There is variability among individuals in constructing their actions and behaviors as choices (Savani et al., 2010). In this sense, it is possible that even without making active choices, some people can interpret their own actions through a lens of choice (Madan et al., 2020). Further, choice exists as a “psychological state” (Ma et al., 2019, p.3) and thus, it can be manipulated to influence judgments and decisions (Savani et al. 2010). Although we know that actively choosing tasks and actions can impact motivation and satisfaction, we know little about how consumer behavior is affected when a “psychological state” of choice (Ma et al., 2019) is induced by making the existence of choice is salient. We explored this question in the context of risky decisions.

We argue that a choice mindset can increase risk-seeking behaviors when taking a risk is associated with the potential of getting a reward. The current research tested the underlying mechanism for the choice mindset effect- the tendency to seize opportunities. We further examined how risk-taking is affected in the choice mindset when the risk is not perceived as instrumental for achieving positive outcomes. Across four studies,

including a correlational study reflecting real experiences, we show that a choice mindset enhances a desire to seize an opportunity, which in turn increases risk-taking. Findings of study 1 show that when the choice mindset is activated people are more likely to take a risk when the risk presents an opportunity. We provide support for our underlying process related to opportunity seizing in study 2. Further, study 2 also shows that the proposed choice mindset effect is not driven by thoughts related to the negative consequences of taking a risk. Study 3 demonstrates that the choice mindset effect is enhanced when the risk is instrumental but attenuated when it is merely stimulating. Finally, using a big data set in study 4 we show that a belief in choice is associated with using loans for entrepreneurial purposes and life accomplishments like, higher income, higher education, having supervisory roles at work, and entrepreneurial initiatives.

### *Theoretical Contributions*

This research contributes to the literature on consumer decision-making by investigating how the salience of choice influences opportunity seizing, and risk-taking behaviors. Whereas prior research has primarily focused on how the act of making choices impact behavior (Cordova & Lepper, 1996; Iyengar & Lepper, 1999), our findings provide novel insights into settings where people realize the availability of choices without actively choosing. Specifically, our research shows that mere reminders of choice can activate a desire to seize opportunities, resulting in risk-seeking behaviors. Thus, our findings expand consumer risk-taking literature by demonstrating that choice mindset can be a factor affecting behavior in decision making under uncertainty. In



addition, whereas past research has primarily focused on social consequences of activating a choice mindset, our findings enrich the literature by extending the impact of choice mindset into financial risk domain.

Our findings also contribute to the limited literature exploring determinants of disinhibited and instrumental risk-taking behaviors (Ozorio & Fong, 2004; Zaleskiewicz, 2001). Given that disinhibited form of risk-taking behaviors are driven by excitement and sensations (Zuckerman, 2007; Zuckerman et al., 1978) and regarded as harmful to one's well-being (Fischer & Smith, 2004), our research shows that choice mindset by triggering a desire to seize opportunities reduces disinhibited risk-taking. Specifically, our findings in study 3 indicates that choice mindset can enhance risk-seeking when the risk is instrumental to achieve good outcomes but diminish it when the risk is merely stimulating. As such we document novel findings regarding nuances between determinants of different risk-seeking behaviors.

### *Practical Contributions*

First, our findings provide useful guidelines for managers who consider using choice appeals in marketing communications. Firms spend significant resources to promote their products. Therefore, it is important to select promotional messages that can increase consumer comprehension of product benefits (Graeff, 1997). Our research suggests that choice reminders can be relevant for financial products or personal financial management tools focusing on enhancing financial welfare through seizing good investment opportunities. Said differently, our findings in study 1 and 2 indicate that

choice reminders can help consumers realize the financial opportunities that these products can provide. However, our findings in study 3 demonstrate that choice reminders might backfire for companies focusing on products involving stimulating risk, such as lotteries or gambling.

Second, our research offers important implications for consumers and policymakers. Our findings in study 1 and 2 show that activating a choice mindset can induce a desire to seize good opportunities that a financial investment tool offers. Therefore, a choice mindset can be used to nudge people to better investment decisions, resulting in enhanced financial welfare. Further, our findings provide useful insights to policy makers who are concerned about the negative consequences of disinhibited risk-taking. Given the rise of many societal problems associated with disinhibited risk-taking (Chambers & Potenza, 2003; Dahlen et al., 2005; Hoyle et al., 2000), much research has focused on what causes consumers to engage in these types of behaviors. For example, individual characteristics such as impulsivity (Enticott & Ogloff, 2006; Steel & Blaszczynski, 1998), as well as sensation seeking (Lauriola et al., 2014; Zuckerman, 2007; Zuckerman et al., 1978) have been shown to influence risk-taking behaviors. Lately, researchers have been particularly interested in interventions that may alleviate behaviors, such as gambling (Cheng et al., 2012; D'Amico & Fromme, 2002; Donohew et al., 2000). Our findings in study 3 indicate that activating a choice mindset could be another way to direct peoples' focus away from the mere excitement aroused by the risky activities. Thus, our findings offer a unique and interesting intervention that could be used by individuals and policymakers to nudge people toward general well-being.

### *Limitations and Future Research*

Our work has a few limitations, which open up avenues for future research. In the current research, we focused on risk-taking in the financial domain. An interesting question that arises is whether our findings would apply to other domains of risk such as social risks. A choice mindset may trigger a desire to grab an opportunity in a socially risky situation if the risk itself offers a chance to achieve a good outcome for the self. Hence, we predict that a choice mindset would impact risk-taking in these situations. However, this remains an empirical question to be tested.

In the current research, the choice mindset manipulation we used was presented as a seemingly unrelated study. Although we successfully manipulated the choice mindset as shown by the results of the pretest, we predict that a manipulation integrated with the dependent variable may result in larger effect sizes.

Finally, in the current research, our experimental studies employed hypothetical scenarios to analyze the impact of choice mindset on risk-seeking behaviors. Future research should explore this effect by using incentive compatible studies to increase external validity of our findings.

## CHAPTER 4

### CONCLUSION

As risk is an integral part of many consumer decisions, extensive amount of has research explored the determinants of risk taking in several domains (Sitkin & Pablo, 1992). The aims of this dissertation were to identify two novel factors impacting consumer risky decision making and, thus, contribute to our understanding of what determines risk-taking literature behaviors. The findings of this work indicate that both payment methods and choice mindset can play an important role in how consumers make decisions involving risk. Specifically, first essay showed that credit card payments are more likely to result in risk neglect in purchases compared to cash payments. This essay further showed that credit card initiates rather faster and effortless processing compared to cash. We identified pain of paying as the underlying mechanism for the suggested risk neglect effect and showed that this effect is more pronounced for consumers who are highly impulsive.

In the second essay, the influence of mere belief that one has a choice, in the absence of making an active choice is explored in the context of risky decisions. The findings of the second essay showed that merely reminding people that they have a choice results in higher risk-seeking behaviors when the risk offered a good opportunity for the self. We further showed that the desire to seize opportunities triggered by the choice mindset is the underlying reason for the effect. We also showed that the influence of choice mindset on risk taking is attenuated if the risk does not present a good

opportunity for the self as in the case of disinhibited risk-taking. As such, we identified risk type as a moderator by showing that choice mindset increases risk seeking only when the risk is instrumental for getting a reward.

The essays in the dissertation also make a novel contribution to the literature exploring differences between different types of risk-taking. Our findings indicate that both cash payments and choice mindset can reduce risk-taking that may be harmful for the consumer. Specifically, we show that paying with cash can diminish risk neglect in purchases and thus increase quality of purchase decisions. Similarly, we demonstrated that a choice mindset can reduce disinhibited risk-taking in the form of gambling. These two findings together contribute to the literature examining different types of risk-seeking behaviors and interventions to reduce harmful risk-seeking.

In addition to the theoretical contributions mentioned, this dissertation offers important practical implications as well. Specifically, for managers and policy makers interested in improving quality of spending decisions, first essay suggests simple nudges that may direct consumers to deliberate purchases more effectively, resulting in lower credit card spending. For example, digital wallets designed to track spending may be enhanced with processes that can nudge consumer to consider purchases deliberately. The second essay shows that usage of reminders of choice in marketing communications should be selective. While products designed to enhance financial welfare through savings or budgeting may benefit from activating a choice mindset, new products on the market which lack the necessary consumer awareness in the opportunities they provide may consider benefit more from other types of messages. Further, choice mindset can be utilized by policymakers interested in restricting disinhibited risk-taking behaviors.

Specifically, choice mindset can be used to design interventions that can help people focus more on the opportunities presented by the risk rather than the excitement they get from engaging in risky activities.

## REFERENCES

- Aggarwal, P., & Zhao, M. (2015). Seeing the big picture: The effect of height on the level of construal. *Journal of Marketing Research*, 52(1), 120–133.
- Allard, T., Hardisty, D. J., & Griffin, D. (2019). When “More” Seems Like Less: Differential Price Framing Increases the Choice Share of Higher-Priced Options. *Journal of Marketing Research*, 56(5), 826–841.
- Bagozzi, R. P., Baumgartner, H., & Yi, Y. (1992). State versus action orientation and the theory of reasoned action: An application to coupon usage. *Journal of Consumer Research*, 18(4), 505-518.
- Banker, S., Dunfield, D., Huang, A., & Drazen, P. (2021). Neural mechanisms of credit card spending. *Scientific Reports*, 4070, 11(1).
- Bauer, R. A. (1960). Consumer behavior as risk taking. In *Dynamic marketing for a changing world*. (pp. 384–398).
- Baum, J. R., Frese, M., Baron, R. A., & Katz, J. A. (2007). Entrepreneurship as an area of psychology study: An introduction. *The Psychology of Entrepreneurship*, 1, 18.
- Bless, H. (2001). Mood and the use of general knowledge structures in judgment and decision making. In G. L. Martin, Leonard Clore (Ed.), *Theories of Mood and Cognition : A User’s Guidebook* (pp. 9–27). Taylor & Francis Group.
- Bobadilla-Suarez, S., Sunstein, C. R., & Sharot, T. (2017). The intrinsic value of choice: The propensity to under-delegate in the face of potential gains and losses. *Journal of Risk and Uncertainty*, 54(3), 187–202.
- Boon-Falleur, M., Baumard, N., & André, J.-B. (2021). Risk-seeking or impatient? Disentangling variance and time in hazardous behaviors. *Evolution and Human*

- Behavior*, 42, 4, In Press.
- Botner, K. A., Mishra, A., & Mishra, H. (2020). The Influence of the Phonetic Elements of a Name on Risk Assessment. *Journal of Consumer Research*, 47(1), 128–145.
- Botti, S., & Iyengar, S. S. (2004). The Psychological Pleasure and Pain of Choosing: When People Prefer Choosing at the Cost of Subsequent Outcome Satisfaction. *Journal of Personality and Social Psychology*, 87(3), 312–326.
- Bown, N. J., Read, D., & Summers, B. (2003). The lure of choice. *Journal of Behavioral Decision Making*, 16(4), 297–308.
- Chambers, R. A., & Potenza, M. N. (2003). Neurodevelopment, impulsivity, and adolescent gambling. *Journal of Gambling Studies*, 19(1), 53–84.
- Chatterjee, P., & Rose, R. L. (2012). Do Payment Mechanisms Change the Way Consumers Perceive Products? *Journal of Consumer Research*, 01 April 2012, Vol.38(6), Pp.1129-1139.
- Cheng, A. S. K., Ng, T. C. K., & Lee, H. C. (2012). Impulsive personality and risk-taking behavior in motorcycle traffic offenders: A matched controlled study. *Personality and Individual Differences*, 53(5), 597–602.
- Cordova, D. I., & Lepper, M. R. (1996). Intrinsic motivation and the process of learning: Beneficial effects of contextualization, personalization, and choice. *Journal of Educational Psychology*, 88(4), 715.
- Cornil, Y., Chandon, P., & Krishna, A. (2015). Expectancy Effects of Alcohol-Energy Drink Cocktail Labeling on Subjective Intoxication, Risk-Taking, and Sexual Self-Confidence and Aggressiveness. *ACR North American Advances*.
- D'Amico, E. J., & Fromme, K. (2002). Brief prevention for adolescent risk-taking



- behavior. *Addiction*, 97(5), 563–574.
- Dahlen, E. R., Martin, R. C., Ragan, K., & Kuhlman, M. M. (2005). Driving anger, sensation seeking, impulsiveness, and boredom proneness in the prediction of unsafe driving. *Accident Analysis & Prevention*, 37(2), 341–348.
- Donohew, L., Zimmerman, R., Cupp, P. S., Novak, S., Colon, S., & Abell, R. (2000). Sensation seeking, impulsive decision-making, and risky sex: Implications for risk-taking and design of interventions. *Personality and Individual Differences*, 28(6), 1079–1091.
- Duclos, R., Wan, E. W., & Jiang, Y. (2013). Show Me the Honey! Effects of Social Exclusion on Financial Risk-Taking. *Journal of Consumer Research*, 40(1), 122–135.
- Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes* (S. Chaiken (ed.)). Worth, TX : Harcourt Brace Jovanovich College Publishers.
- Enticott, P. G., & Ogloff, J. R. P. (2006). Elucidation of impulsivity. *Australian Psychologist*, 41(1), 3–14.
- Feinberg, R. (1986). Credit Cards as Spending Facilitating Stimuli: A Conditioning Interpretation. *Journal of Consumer Research (1986-1998)*, Dec 1986, Vol.13(3), p.348.
- Feldman, G., Baumeister, R. F., & Wong, K. F. E. (2014). Free will is about choosing: The link between choice and the belief in free will. *Journal of Experimental Social Psychology*, 55, 239–245.
- Figner, B., Mackinlay, R. J., Wilkening, F., & Weber, E. U. (2009). Affective and deliberative processes in risky choice: age differences in risk taking in the Columbia

- Card Task. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 35(3), 709.
- Fischer, S., & Smith, G. T. (2004). Deliberation affects risk taking beyond sensation seeking. *Personality and Individual Differences*, 36(3), 527–537.
- Graeff, T. R. (1997). Comprehending product attributes and benefits: The role of product knowledge and means-end chain inferences. *Psychology & Marketing*, 14(2), 163-183.
- Gustafsson, J. E. (2020). A Paradox for the Intrinsic Value of Freedom of Choice. *Noûs*, 54(4), 891-913.
- Hayashi, Y. (2020, February 11). Credit-Card Debt in U.S. Rises to Record \$930 Billion. *Dow Jones Institutional News*.  
<http://libproxy.temple.edu/login?url=https://search.proquest.com/docview/2353351930?accountid=14270>
- Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford publications.
- Hirschman, E. (1982). Consumer Payment Systems: The Relationship of Attribute Structure to Preference and Usage. *The Journal of Business*, Oct 1, 1982, Vol.55(4), p.531.
- Hodson, R., Dwyer, R. E., & Neilson, L. A. (2014). Credit card blues: the middle class and the hidden costs of easy credit. *The Sociological Quarterly*, 55(2), 315-340.
- Hoomans, J. (2005). *35,000 Decisions: The Great Choices of Strategic Leaders*. March.  
<https://go.roberts.edu/leadingedge/the-great-choices-of-strategic-leaders>
- Hoyle, R. H., Fejfar, M. C., & Miller, J. D. (2000). Personality and sexual risk taking: A

- quantitative review. *Journal of Personality*, 68(6), 1203–1231.
- Hyodo, J. D., & Bolton, L. E. (2021). How does religion affect consumer response to failure and recovery by firms? *Journal of Consumer Research*, 47(5), 807–828.
- Inglehart, R., Haerpfer, C., Moreno, A., Welzel, C., Kizilova, K., Diez-Medrano, J., Lagos, M., Norris, P., Ponarin, E., & Puranen, B. (2014). World values survey: Round six-country-pooled datafile version. *Madrid: JD Systems Institute*, 12.
- Ireland, R. D., Hitt, M. A., & Sirmon, D. G. (2003). A model of strategic entrepreneurship: The construct and its dimensions. *Journal of Management*, 29(6), 963–989.
- Isen, A. M. (2004). Some Perspectives on Positive Feelings and Emotions: Positive Affect Facilitates Thinking and Problem Solving. *Feelings and Emotions: The Amsterdam Symposium, Jun, 2001, Amsterdam, Netherlands*.
- Iyengar, S. S., & Lepper, M. R. (1999). Rethinking the value of choice: a cultural perspective on intrinsic motivation. *Journal of Personality and Social Psychology*, 76(3), 349-366.
- Kahneman, D. (2011). *Thinking, fast and slow*. Macmillan.
- Kamleitner, B., & Erki, B. (2013). Payment method and perceptions of ownership. *Marketing Letters*, 24(1), 57–69.
- Kirzner, I. M. (2015). *Competition and entrepreneurship*. University of Chicago press.
- Koscielniak, M., Rydzewska, K., & Sedek, G. (2016). Effects of age and initial risk perception on balloon analog risk task: The mediating role of processing speed and need for cognitive closure. *Frontiers in Psychology*, 7, 659.
- Kumar, R., Maktabi, T., & O'Brien, S. (2018). 2018 Findings from the Diary of

- Consumer Payment Choice. *Federal Reserve Bank of San Francisco*.
- Kupor, D. M., Liu, W., & Amir, O. (2018). The Effect of an Interruption on Risk Decisions. *Journal of Consumer Research*, *44*(6), 1205–1219.
- Langer, E. J., & Rodin, J. (1976). The effects of choice and enhanced personal responsibility for the aged: A field experiment in an institutional setting. *Journal of Personality and Social Psychology*, *34*(2), 191-198.
- Lauriola, M., Panno, A., Levin, I. P., & Lejuez, C. W. (2014). Individual differences in risky decision making: A meta-analysis of sensation seeking and impulsivity with the balloon analogue risk task. *Journal of Behavioral Decision Making*, *27*(1), 20–36.
- Lejuez, C. W., Read, J. P., Kahler, C. W., Richards, J. B., Ramsey, S. E., Stuart, G. L., Strong, D. R., & Brown, R. A. (2002). Evaluation of a behavioral measure of risk taking: the Balloon Analogue Risk Task (BART). *Journal of Experimental Psychology: Applied*, *8*(2), 75-84.
- Leotti, L. A., & Delgado, M. R. (2011). The inherent reward of choice. *Psychological Science*, *22*(10), 1310–1318.
- Lerner, E., Streicher, B., Sachs, R., Raue, M., & Frey, D. (2015). The effect of construal level on risk-taking. *European Journal of Social Psychology*, February 2015, *Vol.45*(1),.99-109.
- Lighthall, N. R., Mather, M., & Gorlick, M. A. (2009). Acute stress increases sex differences in risk seeking in the balloon analogue risk task. *PLoS One*, *4*(7).
- Lowe, M. L., Loveland, K. E., & Krishna, A. (2019). A quiet disquiet: Anxiety and risk avoidance due to nonconscious auditory priming. *Journal of Consumer Research*,

- 46(1), 159–179.
- Luce, M. F. (1998). Choosing to avoid: Coping with negatively emotion-laden consumer decisions. *Journal of Consumer Research*, 24(4), 409–433.
- Ma, A., Yang, Y., & Savani, K. (2019). “Take it or leave it!” A choice mindset leads to greater persistence and better outcomes in negotiations. *Organizational Behavior and Human Decision Processes*, 153, 1–12.
- Macko, A., & Tyszka, T. (2009). Entrepreneurship and risk taking. *Applied Psychology*, 58(3), 469–487.
- Madan, S., Nanakdewa, K., Savani, K., & Markus, H. R. (2020). The Paradoxical Consequences of Choice: Often Good for the Individual, Perhaps Less So for Society? *Current Directions in Psychological Science*, 29(1), 80–85.
- Menon, G., Block, L. G., & Ramanathan, S. (2002). We’re at as Much Risk as We Are Led to Believe: Effects of Message Cues on Judgments of Health Risk. *Journal of Consumer Research*, 28(4), 533–549.
- Nanda, R., & Rhodes-Kropf, M. (2017). Innovation Policies. In *Entrepreneurship, Innovation, and Platforms*. Emerald Publishing Limited.
- Norman, P., Sheeran, P., & Orbell, S. (2003). Does State Versus Action Orientation Moderate the Intention-Behavior Relationship?. *Journal of Applied Social Psychology*, 33(3), 536-553.
- Ozorio, B., & Fong, D. K.-C. (2004). Chinese casino gambling behaviors: Risk taking in casinos vs. abstract investments. *UNLV Gaming Research & Review Journal*, 8(2), 3.
- Park, J., Lee, C., & Thomas, M. (2019). Why Do Cashless Payments Increase Unhealthy

- Consumption? The Decision-Risk Inattention Hypothesis, *Journal of the Association for Consumer Research*, 6(1), 21-32.
- Penolazzi, B., Gremigni, P., & Russo, P. M. (2012). Impulsivity and reward sensitivity differentially influence affective and deliberative risky decision making. *Personality and Individual Differences*, 53(5), 655-659.
- Petty, R. E., Cacioppo, J. T., & Schumann, D. (1983). Central and peripheral routes to advertising effectiveness: The moderating role of involvement. *Journal of Consumer Research*, 10(2), 135–146.
- Prelec, D., & Loewenstein, G. (1998). The Red and the Black: Mental Accounting of Savings and Debt: Abstract. *Marketing Science (1986-1998)*, 17(1), 4-28.
- Puri, R. (1996). Measuring and modifying consumer impulsiveness: A cost-benefit accessibility framework. *Journal of Consumer Psychology*, 5(2), 87-113.
- Raghubir, P., & Srivastava, J. (2008). Monopoly Money: The Effect of Payment Coupling and Form on Spending Behavior. *Journal of Experimental Psychology: Applied*, 2008, Vol.14(3),213-225.
- Raghubir, P., & Srivastava, J. (2009). The denomination effect. *Journal of Consumer Research*, 36(4), 701–713.
- Ray, S., & Cardozo, R. (1996). Sensitivity and creativity in entrepreneurial opportunity recognition: a framework for empirical investigation. *Sixth Global Entrepreneurship Research Conference, Imperial College, London*.
- Rogers, J., Viding, E., & Chamorro-Premuzic, T. (2013). Instrumental and disinhibited financial risk taking: Personality and behavioural correlates. *Personality and Individual Differences*, 55(6), 645–649.

- Rook, D. W., & Fisher, R. J. (1995). Normative influences on impulsive buying behavior. *Journal of Consumer Research*, 22(3), 305–313.
- Savani, K., Markus, H. R., Naidu, N. V. R., Kumar, S., & Berlia, N. (2010). What counts as a choice? US Americans are more likely than Indians to construe actions as choices. *Psychological Science*, 21(3), 391–398.
- Savani, K., & Rattan, A. (2012). A choice mind-set increases the acceptance and maintenance of wealth inequality. *Psychological Science*, 23(7), 796–804.
- Savani, K., Stephens, N. M., & Markus, H. R. (2011). The unanticipated interpersonal and societal consequences of choice: Victim blaming and reduced support for the public good. *Psychological Science*, 22(6), 795–802.
- Schwarz, N. (1990). *Feelings as information: Informational and motivational functions of affective states*. The Guilford Press.
- Shah, A. M., Eisenkraft, N., Bettman, J. R., & Chartrand, T. L. (2015). “Paper or Plastic?”: How We Pay Influences Post-Transaction Connection. *Journal of Consumer Research*, 42(5), 688–708.
- Shang, X., Duan, H., & Lu, J. (2021). Gambling versus investment: Lay theory and loss aversion. *Journal of Economic Psychology*, 84-91.
- Sharma, S. K., & Sharma, M. (2019). Examining the role of trust and quality dimensions in the actual usage of mobile banking services: An empirical investigation. *International Journal of Information Management*, 44, 65-75.
- Shimp, T. A., & Bearden, W. O. (1982). Warranty and Other Extrinsic Cue Effects on Consumers’ Risk Perceptions. *Journal of Consumer Research*, 9(1), 38–46.
- Sitkin, S. B., & Pablo, A. L. (1992). Reconceptualizing the Determinants of Risk

- Behavior. *The Academy of Management Review*, 17(1), 9-38.
- Soman, D. (2001). The mental accounting of sunk time costs: Why time is not like money. *Journal of Behavioral Decision Making*, 14(3), 169–185.
- Soman, D. (2003). The Effect of Payment Transparency on Consumption: Quasi-Experiments from the Field. *Marketing Letters*, 2003, Vol.14(3),173-183.
- Spiller, S. A., Fitzsimons, G. J., Lynch, J. G., & McClelland, G. H. (2013). Spotlights, floodlights, and the magic number zero: Simple effects tests in moderated regression. *Journal of Marketing Research*, 50(2), 277–288.
- Srivastava, J., & Raghurir, P. (2002). Debiasing using decomposition: The case of memory-based credit card expense estimates. *Journal of Consumer Psychology*, 12(3), 253–264.
- Statista. (2019). *Credit cards - Statistics & Facts*.  
<https://www.statista.com/topics/1118/credit-cards-in-the-united-states/>
- Steel, Z., & Blaszczynski, A. (1998). Impulsivity, personality disorders and pathological gambling severity. *Addiction*, 93(6), 895–905.
- Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: a social psychological perspective on mental health. *Psychological Bulletin*, 103(2), 193-210.
- Thomas, M., Desai, K. K., & Seenivasan, S. (2011). How Credit Card Payments Increase Unhealthy Food Purchases: Visceral Regulation of Vices. *Journal of Consumer Research*, Vol.38(1),.126-139.
- Tokunaga, H. (1993). The use and abuse of consumer credit: Application of psychological theory and research. *Journal of Economic Psychology*, 14(2), 285–316.



- Trimpop, R. M. (1994). *The psychology of risk taking behavior*. Elsevier.
- USA Federal Reserve. (2019). *The 2019 Federal Reserve Payments Study*.  
<https://www.federalreserve.gov/paymentsystems/2019-December-The-Federal-Reserve-Payments-Study.htm>
- Wakslak, C., & Trope, Y. (2009). The Effect of Construal Level on Subjective Probability Estimates. *Psychological Science, January 2009, Vol.20(1)*,.52-58.
- 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)*, 1063-1070.
- Weinschenk, A. C. (2014). Polarization, Ideology, and Vote Choice in US Congressional Elections. *Journal of Elections, Public Opinion & Parties, 24(1)*, 73-89.
- Wyer, R., Clore, G. L., & Isbell, L. M. (1999). Affect and information processing. In *Advances in Experimental Social Psychology*, Vol. 31, 1–77).
- Zaleskiewicz, T. (2001). Beyond risk seeking and risk aversion: Personality and the dual nature of economic risk taking. *European Journal of Personality, 15(S1)*, 105–122.
- Zuckerman, M. (2007). *Sensation seeking and risky behavior*. American Psychological Association.
- Zuckerman, M., Eysenck, S. B., & Eysenck, H. J. (1978). Sensation seeking in England and America: cross-cultural, age, and sex comparisons. *Journal of Consulting and Clinical Psychology, 46(1)*, 139-149.

APPENDIX A

ESSAY 1:STUDY 1 AND 2: PAYMENT METHOD MANIPULATION SAMPLE  
STIMULI

Credit card condition



Amy's Frozen General Tso's Bowl - 8oz

\$7.99

**WE ACCEPT ONLY CREDIT  
CARD**



**Buy**



**Continue shopping**



Cash condition



Amy's Frozen General Tso's Bowl - 8oz

\$7.99

**WE ACCEPT ONLY  
CASH**



**Buy**



**Continue shopping**



APPENDIX B

ESSAY 1:STUDY 3 AND 4: STIMULI

High reward, high risk multivitamin



**Multivitamins & Minerals | 13 Vitamins and 9 Minerals | With L-Cysteine, Biotine, Coenzyme Q10**

Brand: [NUTRALIE](#)

Price: \$ 14.99

Extra ingredients

**L-Cysteine:** Antioxidant for delaying aging

**Biotine:** Helps improve hair and nail appearance

**Coenzyme Q10:** Reduce sun damage on skin

Some people think it is great!

**Reviews: 4.2 out of 5 as rated by 130 people**

Low reward, low risk multivitamin



**Multivitamins & Minerals Formula | 13 Vitamins and 9 Minerals**

Brand: [Nu U Nutrition](#)

Price: \$ 14.99

Most people like it!

**Reviews: 4.1 out of 5 as rated by 12,282 people**

APPENDIX C

ESSAY 1:STUDY 5: STIMULI

Your firm is offering **two kinds of raffle tickets** for its employees to purchase. **Both raffle tickets cost \$20** to purchase.

Raffle A is where **6 out of 10** raffle tickets will be randomly picked for an additional donation amount of **\$1000**. If you were to purchase a ticket for Raffle A, you would have a **6/10 chance of winning \$1000** for the charity.



Raffle B is where **2 out of 10** raffle tickets will be randomly picked for an additional donation amount of **\$3000**. If you were to purchase a ticket for Raffle B, you would have a **2/10 chance of winning \$3000** for the charity.



*Payment method manipulation*

You can pay for your purchase of a raffle ticket with **credit cards** only.



## APPENDIX D

### ESSAY 2:MANIPULATION PRETEST

#### Methods

Seventy-nine participants (mean age = 39.18 years, 46% female), recruited from Amazon's Mechanical Turk for a nominal payment, were randomly assigned to control or choice mindset condition in a between-subjects design. In the choice condition, participants read 5 quotes about choice (for example "Life is the sum of all our choices"). They were asked to choose their favorite quote. They were that the quote they select would be printed on a sign that they would hang on their wall. After they selected their favorite quote, the sign with the quote they selected was presented to them. After they review the sign, they were asked to write down briefly why they believe in this quote. In the control condition, participants completed the same procedure for 5 neutral quotes (for example "When you know better you do better" see the list below for all the quotes used in the pretest).

In an ostensibly unrelated task, participants were next asked (as part of an assessment of their perception abilities) to find and record six words of at least five letters' length from a word search puzzle. No prompts were provided for included words. Embedded in the randomly generated word search puzzle were six words with choice connotations (e.g. choice, select, possibilities) and six neutral words (e.g. engine, yellow, broken etc.) matched for length. This manipulation check was adapted from (Hyodo and Bolton 2021).

#### Results

Participants identified 2.58 words on average and the total number of choice-related words identified in the first three words listed served as our dependent measure. ANOVA revealed a main effect of choice salience such that participants identified more choice words when the choice mindset was activated vs. not ( $M_{\text{choice}} = 1.51$ ,  $M_{\text{control}} = 1.17$ ;  $F(1, 77) = 4.39$ ,  $p = .039$ ). Hence, the manipulation of choice salience facilitated the identification of choice-related words in a word search task.

## Pretest Stimuli

### Design a Wall Art

Please imagine that you attend a fair. You see that you can design your own wall art in one of the booths.

Please imagine yourself designing a quote sign that you will hang on your wall.

On the next page you will see the quotes. Please select the quote that will be printed on the sign.

We will show you the end product.

Please click > to start.

## Choice Condition

Please select the quote that will be printed on the sign.

- Every choice you make makes you
- Our choices enable us to tell the world who we are
- Choices determine our destiny
- We have the power of choice
- Life is the sum of all our choices

## Control condition

Please select the quote that will be printed on the sign.

- When you know better, you do better
- When you focus on the good, the good gets better
- The greatest gift of life is friendship
- Think positive, be positive
- Forget the mistake, remember the lesson

Words in the puzzle manipulation check

Choice	Yellow	Choose	Annual	Options
Engine	Select	Broken	Possibilities	Constellation
Preferences	Carpentries			



## APPENDIX E

### ESSAY 2:STUDY 1 AND STUDY 2 DEPENDENT VARIABLE

#### Investment Survey

Please imagine that **you have \$5000 in savings**. You recently learned from your friends that a start-up is looking for investors. The **start up seems to have high potential**.

You have a chance to invest in the company. \$5000 is all your savings.

How **much of \$5000 would you invest in the company?** You could enter any amounts between 0 and 5000.

## APPENDIX F

### ESSAY 2:STUDY 3 DEPENDENT VARIABLE

#### Betting Decision

Please imagine that **you have \$5000 in savings**. You recently learned that you can play **live betting games** for money in an online casino, LeoVegas.

You decide to check out the online casino. You find one live betting game, which you find interesting.

You have a chance to **bet on this game**. \$5000 is all your savings.

How **much of \$5000 would you bet on this game?** You could choose to gamble any amounts between 0 and 5000.

#### Investment Decision

Please imagine that **you have \$5000 in savings**. You recently learned about an opportunity to invest in a **high potential business project** on an investment portal, SeedInvest.

You decide to check out the project. You read about the details of the project and find it to be high potential.

You have a chance to **invest in the project**. \$5000 is all your savings.

How **much of \$5000 would you invest in the project?** You could choose to invest any amounts between 0 and 5000.