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Two Essays on Everyday Financial Decisions

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Abstract

Every day consumers make numerous financial decisions which have the potential to increase or decrease their wellbeing in the short-term or long-term. For instance, choosing to pay only the minimum due on a credit card bill can increase liquidity and wellbeing in the short-term, but increase debt and decrease wellbeing in the long-term. My work examines two such instances of everyday financial decisions which influence consumer wellbeing. In Essay 1, I use experiments to examine how the design of retirement savings investment plans can influence the choices consumers make, thus setting them up for comfort or hardship in their retirement. Specifically, I look at how investment decisions are influenced by choice-set size and whether the funds are presented in ascending or descending order of risk. I find that when presented with large choice-sets, consumers who see safer funds first take on lower risk than consumers who see riskier funds first. This happens because consumers get overwhelmed and engage in biased search behaviour. Interestingly, this difference is mitigated when consumers are more financially literate. In Essay 2, I look at a phenomenon, where consumers voluntarily incur a financial loss and improve their wellbeing. I use experiments to examine situations where consumers who are trying to sell an item receive an unfairly low (lowball) offer. In response to this lowball offer, consumers often voluntarily incur a financial loss by choosing to donate the item. I find that consumers choose to donate, as they receive moral rewards that compensate for the loss of financial rewards, but that these moral rewards are received only if they believe the recipient of the donation will value the item at a price much higher than the lowball offer they received. Findings from both these essays can improve consumer wellbeing by providing businesses with insights on how to design choice options that are optimal for consumers, and policymakers with information they can use when designing policies regarding consumer finances and the environment.

Keywords

Choice overload, donation, financial decision-making, investment, lowball, mental accounting, moral rewards, retirement

Summary for Lay Audience

Consumers make many financial decisions every day, each of which can possibly increase or decrease their wellbeing in the short-term or long-term. For instance, choosing to pay only the minimum due on a credit card bill can increase liquidity and wellbeing in the short-term, but increase debt and decrease wellbeing in the long-term. My work examines two such instances of everyday financial decisions which influence consumer wellbeing. In Essay 1, I look at how investment decisions for retirement are influenced by the number of investment options consumers are shown, as well as which options are at the top of the list. I find that when presented with large choice-sets of investment funds, consumers who see safer funds first take on lower risk than consumers who see riskier funds first. This happens because consumers get overwhelmed by too many options and mostly focus on the funds at the top of the list. Interestingly, when consumers are more financially literate, their investment choices are not influenced by these factors. In Essay 2, I find that when consumers receive an unfairly low (lowball) offer when they are trying to sell an item, they often voluntarily incur a financial loss by choosing to donate the item. This happens because consumers who choose to donate, receive moral rewards that compensate for the loss of financial rewards they could have received if they sold the item. I also find that consumers receive these moral rewards only if they believe the recipient of the donation will value the item at a price much higher than the lowball offer they received. Findings from both these essays can improve consumer wellbeing by providing businesses with insights on how to design choice options that are optimal for consumers, and policymakers with information they can use when designing policies regarding consumer finances and the environment.

Co-Authorship Statement

This is to certify that for both essays in this dissertation, I was responsible for leading all aspects of the research. The work for Essay 1 was conducted under the guidance of Prof. Rod Duclos. The work for Essay 2 was conducted with advice from Prof. June Cotte.

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Table of Contents

List of Tables

List of Figures

List of Appendices

Introduction

Decisions like spending money on paying bills, saving money for retirement, and earning money by selling used possessions, are all financial decisions in which consumers regularly engage. As a researcher motivated to improve consumer wellbeing, my work over the past few years has focused on such everyday financial decisions and how they can impact a consumer's wellbeing in the short-term as well as in the long-term. Both of the essays in my dissertation are an outcome of observing financial decision-making in the real world, and they are an attempt to improve consumer wellbeing by understanding the underlying psychological mechanism driving these behaviours.

The focus in Essay 1 is on long-term investment behaviour. While there has been a considerable amount of research done in the domain of saving for retirement, we still do not know enough about how consumers make investment decisions for the long-term. In separate work on the topic of investment behaviour, I found that consumers are often time-blind, and do not necessarily change their investment behaviour based on whether they are investing for the short-term or the long-term. This is particularly concerning, as consumers joining an organization often decide how to invest their retirement savings in an hour or less (Benartzi and Thaler 1999), and revisit this decision very infrequently (Agnew, Balduzzi and Sunden 2003; Samuelson and Zeckhauser 1988). Such long-term investment decisions can have major consequences on the wellbeing of consumers in retirement, as their money may not grow at the rate of inflation, resulting in an inability to maintain their previous standard of living. Using this information as a starting point, the objective of Essay 1 was to examine how the choice architecture of defined contribution plans can be enhanced to guide naïve consumers into making more optimal long-term investment choices.

Essay 2 is based on another phenomenon that I encountered while interviewing consumers for some (unrelated) research on disposal practices. Selling items is a common way of disposing of items that are still useful, and many consumers use websites and phone apps like eBay, Craigslist, Kijiji, Vinted, LetGo, and Poshmark to find buyers.

Through these interviews, I found that consumers who were lowballed when selling an item often chose to donate it rather than sell it at the lowball price. Considering that consumers are known to be loss averse (Kahneman, Knetsch and Thaler 1991; Kahneman and Tversky 1979), and that they can make some money if they sell the item at the lowball price, it was interesting that they chose to voluntarily incur a financial loss and donate the item to a person in need. The objective of Essay 2 was thus to understand the psychological mechanism underlying this behaviour, as it shows that consumer wellbeing can be achieved even in situations where they incur a financial loss. The next part gives an overview of Essays 1 and 2, by placing the research questions in the context of prior work, stating the high-level findings of the research, and explaining the implications of these findings.

Overview of Essay 1

Retirement savings play a critical role in the overall wellbeing of older consumers. An important aspect of such long-term savings is ensuring that the money grows at least at the rate of inflation, thus avoiding undesirable financial consequences such as debt and poverty in retirement. While prior research focuses on how to get consumers to save more money for retirement, not enough is known about how they invest this money and the psychological mechanisms driving these long-term investment decisions. This essay looks at retirement savings plans and examines the interplay of two elements of choice architecture (i.e., choice-set size and presentation-sequence) on the investment of retirement savings. Over three studies, the research demonstrates that when consumers view large choice-sets, they engage in biased search, which results in choosing safer (riskier) portfolios if they view safer (riskier) funds first. It also shows that when facing large choice-sets, consumers who have high financial literacy are able to make choices that are similar on risk as consumers presented with smaller choice-sets. These results have real-world implications, as they provide insights to employers and policymakers regarding the assortment and presentation of funds in retirement savings plans, which can have long-term consequences for consumer financial wellbeing.

Overview of Essay 2

Consumers make a number of financial decisions related to the purchase and disposal of items on a daily basis. This essay demonstrates that in disposal situations, if consumers are offered a lowball price when selling an item with residual value, they often withdraw the item from the marketplace and voluntarily incur a financial loss by donating the item. I find that consumer wellbeing is reduced when they receive a lowball offer, as they feel that the price they were offered was unfair. In order to alleviate this situation, consumers then look at alternative disposal channels, one of which is the option to donate the item. The intriguing part of this phenomenon, is that consumers willingly incur a bigger financial loss when they donate the item, as against selling it at the lowball price. Examining the psychological mechanism underlying this phenomenon, I find that consumers offset this financial loss by using malleable mental accounting to give themselves a moral rewards counteroffer for their donation. The effect of this counteroffer is moderated by the perceived price at which the consumer expects the donation recipient to value the item. These findings demonstrate that consumer wellbeing can be improved even in situations where they incur a financial loss. This work also adds to the literature on prosocial behaviour by explaining one more reason why people make the decision to donate, and the role of moral rewards in such decisions.

Essay 1

1 Investing for Retirement: The Interplay of Choice-Set Size and Presentation-Sequence on Investment Risk

You can be young without money but you can't be old without it.

– Tennessee Williams

Low savings rates (i.e., failing to set aside money for the future) are an issue in numerous countries. For illustration, 40% of Americans have less than $300 in their savings account, with 54.9% of the age-group 55-64 falling into this category (GoBankingRates 2021). As a result, the vast majority of Americans cannot cover emergencies such as a $1,000 car repair or medical bill. However, these short-term problems pale in comparison with the long-term effects of chronic low savings rates. At retirement, income drops significantly and consumers who failed to save enough during their working years find themselves unable to pay for rent and/or healthcare. In fact, the average working-household in the US has virtually no retirement savings (the median retirement-account balance is $2,500; Rhee & Boivie, 2015), and Munnell, Chen, and Siliciano (2021) estimate that approximately 50% of households will be unable to maintain their pre-retirement standard of living.

Saving for retirement (i.e., long-term saving) is unlike saving for a short- or medium-term goal. This is because it is not just about setting aside money but also taking a long-term perspective to grow the money; taking on higher investment risk early to benefit from compounding returns that can outpace inflation (McKenzie and Liersch 2011). For instance, assuming standard rates of inflation, if a consumer can buy a bundle of goods for $100 today, a similar bundle of goods in 20 years will cost the equivalent of today's $160. To ensure that $100 saved today will be equivalent to $160 in 20 years, consumers need to invest their savings to grow at least at the rate of inflation.

1.1 Present Research

Given the prevalence of low savings rates and its dire consequences for individual and societal welfare, we ground our investigation in real-world practice. To better situate the importance of our contribution, it is essential to understand the process consumers go through when making such investment decisions. When consumers join a new organisation, many of them set aside money for their retirement through an employer-sponsored retirement account (e.g., 401(k) in the U.S.). According to the United States Department of Labor (2021), as of March 2020, 64 percent of employees in private organisations had access to employer-provided defined-contribution plans to save for retirement. This includes about 600,000 401(k) plans, 60 million active participants, and about $7.3 trillion in assets (“Investment Company Institute” 2021). These plans are designed such that employees can set aside some part of their salary towards their retirement savings in a systematic manner, and employers usually match the employee’s contribution to a certain percentage of their salary. Enrolling in the defined-contribution plan is typically a part of the new-employee on-boarding process, and involves a three-step decision-making process; first, whether to participate at all, second, how much to contribute, and third, how to invest this money. Consumers can choose not to participate in these plans, but this strategy can result in the loss of the additional money they can receive from the employer as part of the matching plan, as well as the tax they can save on the money they invest each year. When considering how much to contribute, research has shown that setting up default enrolments and percentage contributions often help consumers save more for their future (Madrian and Shea 2001; Thaler and Benartzi 2004). Our focus is on the third part of this decision-making process, which is how consumers invest their savings for retirement. These investment decisions are often driven by the individual’s risk-profile, and in most cases consumers never bother revisiting their original investment decisions (Agnew et al. 2003; Samuelson and Zeckhauser 1988; Thaler and Benartzi 2004). For illustration, consider a 401(k) investment with custom allocations (figure 1). Consumers allocate their savings in one or several of the investment choices provided, based on their risk-profile. Depending on employers, fund choice-sets range from small to large, and the risk level varies from minimal to high. This research explores the impact of choice-set size on consumers’ risk-

taking. Stated differently, we investigate whether larger choice sets promote or hinder risk in consumers' investment portfolio. These findings can have long-term and high-impact consequences on wellbeing in retirement, as minor changes in the choice-set size of investment funds can make the difference between living a comfortable retired life and penury.

Fund name	Member (%)
	New
Cash & equivalents	
ABC Money Market Fund	0 %
Fixed income	
XYZ Bond Index	0 %
ABC Total Return Bond	0 %
U.S. equity	
XYZ Equity Index	0 %
International equity	
ABC Intl Equity Index	0 %
Foreign/global equity	
XYZ Global Equity	0 %
Balanced	
ABC Balanced Index	0 %
ABC LifeTime 2015 Fund	0 %
ABC LifeTime 2020 Fund	0 %
ABC LifeTime 2025 Fund	0 %
Total percent allocated	0 %

Figure 1. Essay 1 Funds Offered in a Custom Allocation Portfolio

1.2 Conceptual Development

Prior Research on Savings. Over the past few decades, research on saving money for retirement has resulted in a number of behavioural interventions to improve savings

rates. These interventions include defaults for retirement savings accounts (Choi et al. 2002; Madrian and Shea 2001; Thaler and Benartzi 2004), precommitments to increase retirement account contributions over time (Thaler and Benartzi 2004), providing information on the exponential growth of retirement savings (McKenzie and Liersch 2011), and helping consumers empathize with their future selves (Hershfield et al. 2011).

Researchers have also examined how consumers invest their retirement savings (e.g., 401(k) in the US). Insights from these studies show that consumers are disinclined to participate in 401(k) plans if they have to choose from more than 10 funds (Iyengar, Huberman and Jiang 2004), use a naïve diversification strategy to distribute savings across funds in a choice-set (Benartzi and Thaler 2001; Huberman and Jiang 2006), and stick with the status quo or defaults provided (Agnew et al. 2003; Choi et al. 2004; Samuelson and Zeckhauser 1988). Interestingly, when company stock is provided as a fund option, consumers treat it as a separate financial instrument, thus increasing their exposure to equity (Benartzi and Thaler 2001). However, while we have a fair understanding of the decisions that consumers make for these long-term investments, we do not always understand the psychological underpinnings that drive such decisions. This research attempts to add to our understanding of the psychological factors that motivate such investment decisions.

Choice overload and risk-taking. Prior research using actual retirement investment data shows that retirement savings plans can have as little as four and as many as 59 funds from which consumers are expected to choose, with about 96 percent of consumers having access to 7 or more funds (Huberman and Jiang 2006). Other research on choice-sets has shown that, when consumers face too much choice, they experience *choice overload*, which reduces their motivation to choose as well as commit to a choice (Iyengar and Lepper 2000). This was demonstrated through a study on the purchase of jam, where consumers at a grocery store saw a display of either six or 24 gourmet jams. Though consumers were more likely to stop at the display and sample items when 24 jams were presented, the actual purchase-rate was 10 times higher when only 6 jams were displayed. Extending this work to the domain of retirement savings and investments, employee participation rates in retirement plans were shown to be significantly higher

when plans offered 10 or fewer funds; with the participation rate peaking to 75 percent if only two funds are offered and dipping to 60 percent when approximately 59 funds are offered (Iyengar et al. 2004).

These findings lead to the question, “if an employee does participate in the retirement plan, how does the choice-set size affect their investment choices?” Iyengar and Kamenica (2010) investigated this using a dataset from Vanguard, and found that large choice-sets *reduce* investment risk.

Through experiments, they demonstrate that this occurs because consumers presented with a large choice-set have a strong preference for the option for which it is simplest to compute the expected value. In their experiments, participants were shown either a set of three gambles or a set of 11 gambles. In the first experiment, they found that 63 (vs. 16) percent of participants in the 11 (vs. 3) gambles condition chose the *safest and simplest* gamble, while in the second experiment, they found that 57 (vs. 16) percent of participants in the 11 (vs. 3) gambles condition chose the *riskiest and simplest* gamble. These findings led them to suggest that when choosing from a larger choice-set, participants have a strong preference for the simplest option. However, Iyengar and Kamenica note their explanation for their experimental findings (i.e., ease of computation drives choice, irrespective of the underlying risk) is unable to account for the real-world investing witnessed among 401(k) holders in their dataset (i.e., large choice-sets reduce risk by reducing investments in equities).

In our work, we keep simplicity (i.e., ease of computation) constant as retirement savings investment choice-sets provide the very same information on each of the funds, regardless of the investment risk of the fund. In other words, the complexity of information (e.g., returns over the past few years) provided to the consumer is the same, irrespective of whether they are investing in a money market (i.e., minimal risk) fund or an international equity (i.e., high risk) fund.

Contrasting from Iyengar and Kamenica (2010), Huberman and Jiang (2006) find that large choice-sets make *no difference* in investment risk. They find that in the case of 10 funds or fewer (about 47 percent of the plans and 28 percent of individuals in their

dataset), there is a statistically significant positive correlation between consumer exposure to equity and investment in equity. However, if there are more than 10 funds, there is no relationship between equity exposure and investment in equity. They also found that irrespective of the number of funds offered, most consumers invested their savings in a small number of funds. In other words, consumers simplify their decision-making by first reducing their consideration set (e.g., selecting a subset of four funds from 60). Once a subset is identified, consumers diversify within that subset, following a conditional 1/n strategy (Benartzi and Thaler 2001, 2007), by which they choose an arithmetically simple division to split their savings across funds (e.g., .25, .25., .25, .25 across four funds).

We contribute to this literature by using experiments to examine the causal mechanism underlying long-term consumer investment decisions, and the role of choice architecture in the same. Specifically, we examine *when* (H1) and explore *why* (H2) larger choice-sets may promote risk-taking, stifle it, or leave it unaffected. We define choice-set size as *the number of funds available in a defined contribution plan, categorised by financial instrument*, and presentation-sequence as *the order in which the funds are presented, based on the risk associated with the type of financial instrument.* Our first hypothesis (H1) revolves around the interplay of choice-set size (i.e., the breadth and depth of investment options) and presentation-sequence (i.e., funds being presented in ascending (i.e., safe to risky) vs. descending (i.e., risky to safe) risk) on investment risk, which is the *combined risk of all the funds in the portfolio chosen by the consumer*. We propose that the sequence in which the risk of investment options are presented to consumers moderates the effect of choice-set size (see appendix A for a sample set of funds). Formally,

> **H1 (interaction):** When investment funds are listed in ascending risk (i.e., from safe to risky), a larger choice-set *reduces* investment risk. In contrast, when investment funds are presented in descending risk (i.e., from risky to safe), a larger choice-set *increases* investment risk.

Our first hypothesis thus identifies a context effect (i.e., a "switch") that sways/biases consumer choice in *opposite* directions. To account for these predictions, we draw from the information processing and search literatures.

Information Processing. Research has shown that if consumers are provided with too much information, also called information overload, this could lead to dysfunctional consequences (e.g., decision inaccuracy, time costs, dissatisfaction, etc.) for the consumer (Jacoby 1984; Jacoby, Speller and Kohn 1974; Malhotra 1984). It has also been found that when provided with too much information, or information they find hard to understand, consumers ignore a large portion of that information (Bettman 1979; Malhotra, Jain and Lagakos 1982). As such, while consumers have been shown to be capable of processing a large amount of information, they might not always choose to do so (Malhotra 1984; Tversky and Kahneman 1974).

Biased Search. When consumers do not have a very good understanding of how to discern between choices, they tend to choose the options at the top of the list (Kim, Krosnick and Casasanto 2015; Miller and Krosnick 1998). Manifestations of this bias come in multiple forms; one of which is the "ballot-order effect" observed in political elections. Outside of high-profile races wherein knowledge of candidates is pronounced, candidates listed first on the ballot receive substantially more votes than counterparts listed lower. The benefits can be as high as 15 percentage points (Kim et al. 2015).

Drawing on the above literatures, we define biased search as *the use of inaccurate heuristics to find information, so as to minimise the effort involved.* We posit (H2) that the "choice-set size by presentation-sequence" interaction predicted in H1 is driven by biased search. Our rationale breaks down as follows. Consumers tend to process information in the sequence in which it is presented to them (e.g., from top to bottom or from left to right). In parallel, since processing capacity is quite limited, it does not take much for consumers to saturate cognitively (Jacoby 1984; Jacoby et al. 1974; Malhotra 1984). Together, these two forces combine such that consumers' search is biased toward options listed early. If funds are listed in ascending (descending) risk, consumers will primarily engage with safer (riskier) investments. Formally,

H2 (process; moderated mediation): A large choice-set biases search such that consumers select primarily from funds listed *early*. As a result, if the risk sequence is ascending (from safe to risky), the portfolio will take on relatively-safe assets. In contrast, if the risk sequence is descending (i.e., from risky to safe), the portfolio will take on relatively-risky assets.

Financial Literacy to the Rescue. According to Kim et. al (2015), greater cognitive skills can prevent consumers from engaging in biased search. They refer to cognitive skills as the ability to gather, store, and retrieve information such that it can later be integrated into a specific context which in turn can result in a thoughtful judgment. In the context of long-term investment choices, these cognitive skills are related to the consumer's level of financial literacy, which can play a role in two ways. First, consumers who are high on financial literacy understand that, when investing for the long-term, equity investments can provide higher returns and the long time-horizon will allow their investment to recover from any short-term shocks. Second, financially literate consumers are more aware of the financial instruments in which they would like to invest their money, so they are not easily overwhelmed even when facing a large number of investment options. As such, we expect that consumers who possess the cognitive skills related to financial literacy, i.e., those who are chronically high on financial literacy will be less likely to be influenced by the choice architecture of the investment plans, unlike consumers who are low on chronic financial literacy. On this basis, we posit (H3: three-way interaction) that the interaction proposed in H1 and explained in H2 will be moderated (i.e., corrected) by financial literacy. Formally,

H3 (three-way interaction): Consumers with higher levels of financial literacy will be less susceptible to the decision biases caused by the interplay of choice-set size and presentation-sequence on risk-taking.

Overview of Studies and Contributions. We examine these hypotheses in three experiments. Testing H1, study 1 documents the interplay of choice-set size and presentation-sequence on risk taking. Study 2 goes a step further by shedding light on

process. Lastly, concluding our empirical efforts, study 3 shows that financial literacy can help remedy these decision biases.

From a theoretical standpoint, our empirical package helps understand how choice architecture can influence long-term investment decisions, and also provides the psychological mechanism for findings in the literature (i.e., Iyengar & Kamenica, 2010 and Huberman & Jiang, 2006). From a practical standpoint, this research can help organisations design the choice architecture of retirement investment plans, thus improving consumer financial wellbeing in the long-term.

1.3 Study 1

As proposed in H1, we expect that the effect found by Iyengar and Kamenica (2010) can be replicated when the funds are listed in ascending order of risk (i.e., safe-first) but this effect will be reversed or disappear when the funds are listed in a descending order of risk (i.e., risky-first). To provide evidence for H1, we designed our manipulation to closely resemble a typical choice-set of funds that consumers view when making retirement savings investment decisions. The financial instruments that comprise such a choice-set (e.g., cash, bonds, equity) usually have varying levels of market-defined risk, to cater to a wide range of consumer risk-profiles. For instance, money markets/cash and bonds are considered low risk, while equity is considered higher risk. Within equity, US equity is considered lower risk than international equity, which in turn is considered lower risk than foreign equity (“Sun Life Financial” 2020).

Participants and design. This study used a 2(choice-set size: 5 vs. 20 funds) x 2(presentation-sequence: ascending (i.e., safe to risky) vs. descending (i.e., risky to safe) risk) between-participant design, with participants being randomly assigned to one of the four conditions. 800 participants were recruited on Prolific Academic, and paid £.40.

Procedure. Participants were given a scenario in which they were told they had set aside $5,000 towards their retirement savings, and were now making a decision on how to invest it for their long-term future, (i.e., 25 years). All participants saw five financial instruments that had different market-defined risk (i.e., cash and equivalents,

bonds, US equity, international equity, and foreign equity). The participants in the five-funds choice-set condition saw one fund under each of these financial instruments, while the participants in the 20-funds choice-set condition saw four funds under each. Clicking on any of the funds would open a pop-up window with a table displaying the performance details of the fund (fund details were adapted from the Morningstar website, see appendix A for a sample). Next to each fund was a textbox to enter the percent of savings they wished to invest in the fund. In the ascending risk sequence, participants saw the safer financial instruments first (i.e., cash -> foreign equity), while those in the descending risk sequence saw the riskier financial instruments first (i.e., foreign equity -> cash). In the large choice-set condition, the order of the funds within each financial instrument category was determined randomly and this order stayed the same across the ascending and descending risk conditions (this ensured the only change between conditions was the order of the financial instruments, and within-group order effects would not influence our findings.) For instance, if bonds had four funds under it, B1, B2, B3, and B4, the order of B1, B2, B3, and B4 would be the same in both the ascending and descending risk conditions. In the small choice-set condition, the fund for each financial instrument was the fund from the large choice-set condition with the highest average returns. For instance, if fund B3 in bonds was the fund with the highest average returns from among B1, B2, B3, and B4 in the large choice-set condition, then B3 would be the fund in the small choice-set condition.

In addition to putting in their allocation percentage for each fund, participants had to ensure that the sum of their investments across funds totalled to 100 percent (as per university IRB guidelines, total =100 percent validation could not be enforced, so this served as our attention check across all studies, to ensure that participants were following instructions.) As the attention check was also our dependent variable, which was required to sum to 100, we do not reanalyse the data in any of the studies using participants who failed the attention check. Participants then answered demographic questions and were debriefed.

Results

Six-hundred and eighty-nine participants (M_{age} = 31.60, 42.1% female, 54.7% male, 2.6% non-binary) passed the attention check of ensuring their investment allocation summed to 100 percent. Allocations to funds under each financial instrument were added, so as to get the percentage allocated to each financial instrument. For instance, in the small choice-set of five-funds, the percentage allocated to the single available bonds fund (i.e., B3 from our previous example) would be the overall percentage allocated to bonds, while for the large choice-set of 20-funds, the percentages allocated to each of the four bonds funds (i.e., B1, B2, B3, and B4 from our previous example) would be added to get the overall percentage allocated to bonds.

Dependent variable. The key dependent variable in this essay is the level of risk a consumer is willing to take when making their investment decisions. We calculate the investment risk score (table 1), by multiplying the percentage invested in each financial instrument by a weight (i.e., 1 for cash and equivalents, 2 for bonds, 3 for US equity, 4 for international equity, and 5 for foreign equity), and dividing the sum of these values by 100. This gives an investment risk score for each participant on a scale of 1 to 5, where 1 indicates 100 percent investment in the safest financial instrument (i.e., cash and equivalents), while 5 indicates 100 percent investment in the riskiest financial instrument (i.e., foreign equity).

A two-way ANOVA was conducted to examine the effects of choice-set and presentation-sequence on the investment risk taken by the participant. There was a statistically significant main effect of presentation-sequence on investment risk ($F(1, 685) = 6.187$, $p = .013$); i.e., participants who were presented with the funds in ascending risk took on significantly less risk than participants presented with the funds in descending risk. More importantly and testing H1, an interaction between choice-set size and presentation-sequence qualified this main effect ($F(1, 685) = 5.270$, $p = .022$, partial $\eta^2 = .008$). The main effect of choice-set size on investment risk was not significant ($F(1, 685) = .124$, $p = .725$).

Contrasts. In the small choice-set (i.e., control) condition, presentation-sequence had no impact on investment risk (simple effect: $M_{\text{safe-first}} = 2.95$, $SE = .048$ vs. $M_{\text{risky-first}} = 2.96$, $SE = .047$; $F(1, 685) = .02$, $p = .889$). That is, when participants chose among five funds, those in the ascending risk condition took similar risks as those in the descending condition. In contrast, in the large choice-set condition, presentation-sequence differentiates investment risk scores (simple effect: $M_{\text{safe-first}} = 2.82$, $SE = .049$ vs. $M_{\text{risky-first}} = 3.05$, $SE = .052$; $F(1, 685) = 10.75$, $p = .001$; see figure 2). Stated differently, when funds are presented in ascending risk, increasing choice-set size tends to reduce risk-taking (simple effect: $M_{\text{small}} = 2.95$, $SE = .047$ vs. $M_{\text{large}} = 2.82$, $SE = .049$; $F(1, 685) = 3.59$, $p = .058$). This finding aligns with Iyengar and Kamenica (2010). In contrast, when funds are presented in descending risk, a larger choice-set tends to increase risk-taking (simple effect: $M_{\text{small}} = 2.96$, $SE = .047$ vs. $M_{\text{large}} = 3.05$, $SE = .052$; $F(1, 685) = 1.84$, $p = .175$). Though the simple effect is not quite significant here, we can see its direction is consistent with our theorizing.

Discussion

In study 1, we provide evidence that if the presentation-sequence of the funds is ascending risk (i.e., safe to risky), a large choice-set decreases investment risk similar to the findings in the Iyengar and Kamenica (2010) paper, and that these effects can be reversed/disappear if the presentation-sequence of the funds is changed to descending risk (i.e., risky to safe). One concern was that we did not measure whether the participants in the large choice-set condition felt more fatigued when compared to participants in the small choice-set condition. We remedy this in study 2, by introducing a measure to assess fatigue.

Table 1. Essay 1 Investment Risk Score

Participant	Investment Allocation %					Investment Risk
	Safe 1	2	3	4	Risky 5	
1	100	0	0	0	0	1
2	80	20	0	0	0	1.2
3	60	40	0	0	0	1.4
4	20	20	20	20	20	3
5	0	50	0	50	0	3
6	50	0	0	0	50	3
7	0	0	100	0	0	3
8	0	0	0	40	60	4.6
9	0	0	0	20	80	4.8
10	0	0	0	0	100	5

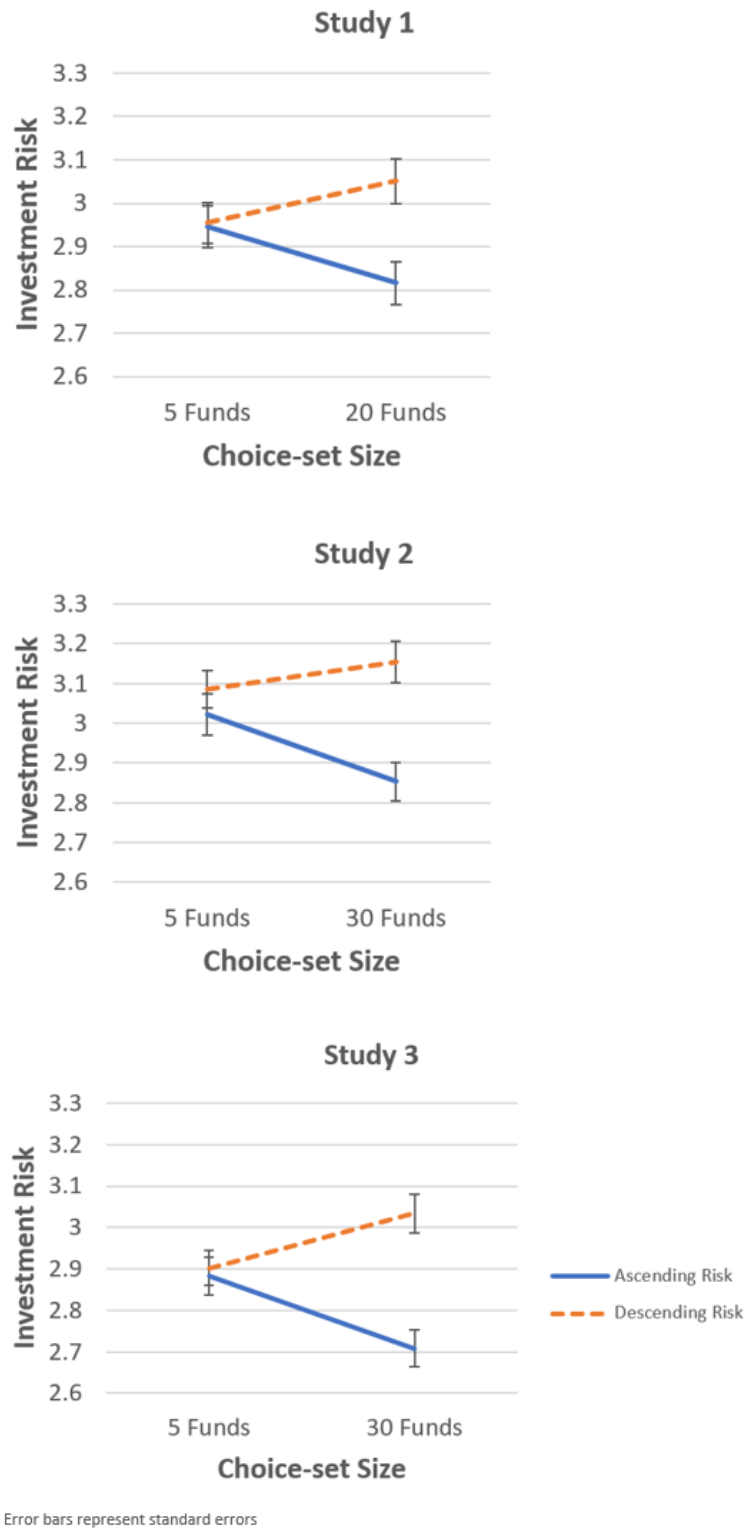

Figure 2. Essay 1 Effect of Choice-set Size and Presentation Sequence on Investment Risk

1.4 Study 2

Study 2 had two goals, the first of which was to increase realism. In their dataset, Huberman and Jiang (2006) find that the number of funds available to consumers can vary from 4 to 59. To examine how a larger choice-set affects consumer investment risk, we increase from 20 to 30 the number of funds in the larger choice-set. The second goal was to examine the underlying psychological mechanism for the phenomenon in study 1. As predicted in H2, we expect that when consumers are faced with large choice-sets, they engage in biased search, causing them to focus more on the funds they see first. This in turn leads to consumers taking on lower (higher) investment risk if they see the funds in ascending (descending) risk sequence.

Participants and design. In this study, we increased the number of funds in the larger choice-set to 30, by adding two additional funds for each financial instrument. The rest of the design was similar to study 1, and used a 2(choice-set size: 5 vs. 30 funds) x 2(presentation-sequence: ascending vs. descending risk) between-participant design, with participants being randomly assigned to one of the four conditions. 456 students from a large North American university participated in this study for course credit.

Procedure. In addition to the questions in study 1, participants also completed an additional measure for fatigue, which served as a manipulation check for choice overload. To measure fatigue, participants were presented with the question "How _____ was it to make your allocation?" followed by the words difficult, tiring, effortful, and overwhelming, presented in random order. They rated each of these on a 1 (Not at all) to 7 (Very) scale.

To ensure that participants were paying attention to the task, we set up the study such that if a participant proceeded without clicking on any funds, they were shown a message that said we expected them to click on the funds and make informed choices. These participants were then asked to repeat the exercise. If they still did not click on any funds, they were excluded from the analysis. This design choice also allowed us to track the funds that participants examined before making their allocation decision.

Mediator. In order to understand how consumers made their choices between the different funds available, we used a JavaScript to give us information on which funds participants clicked as well as how many times. To measure biased-search, we selected the mid-point of the list of funds in each choice-set, and calculated the proportion of clicks that were on funds at the top of the list. This was done by adding all the clicks the participants made above the mid-point, and dividing this value by the total number of clicks. The midpoint was set as 3 for the five-fund choice-set, and 15 for the 30-fund choice-set.

Results

Of the 456 participants recruited for the study, 415 (M_{age} = 18.66, 62.7% female, 36.6% male, .2% non-binary) ensured their investment allocation summed to 100 percent, and clicked on at least one of the funds. The dependent variable, investment risk, was calculated as in study 1. The manipulation check examining fatigue showed that consumers in the larger choice-set condition felt significantly higher fatigue than consumers in the smaller choice-set condition (M_{small} = 4.40 vs. M_{large} = 5.01, p<.001; see appendix C for details).

Investment Risk. A two-way ANOVA was conducted to examine the effects of choice-set size and presentation-sequence on the investment risk taken by participants. There was a statistically significant main effect of presentation-sequence on investment risk (F(1, 411) = 12.996, p<.001); i.e., participants who saw the ascending risk presentation-sequence (safe to risky) took on significantly less risk than participants who saw the descending risk presentation-sequence (risky to safe). Critical to H1, this main effect of presentation-sequence was qualified by choice-set size (interaction term: F(1, 411) = 5.531, p = .019, partial η^2 = .013). The main effect of choice-set size on investment risk was not significant (F(1, 411) = .985, p = .322).

Contrasts. Replicating the findings in study 1, presentation-sequence had no impact on investment risk in the small choice-set condition (simple effect: $M_{safe\text{-}first}$ =

3.022, *SE* = .052 vs. $M_{\text{risky-first}}$ = 3.085, *SE* = .048; *F*(1, 411) = .791, *p* = .374). In contrast, in the large choice-set condition, presentation-sequence differentiates investment risk scores (simple effect: $M_{\text{safe-first}}$ = 2.853, *SE* = .049 vs. $M_{\text{risky-first}}$ = 3.154, *SE* = .0053; *F*(1, 411) = 17.606, *p*<.001; see figure 2). As was indicated in study 1, the findings from the analysis of the 401(k) plans in Iyengar and Kamenica (2010) are replicated when funds are presented in ascending risk (simple effect: M_{small} = 3.022, *SE* = .052 vs. M_{large} = 2.853, *SE* = .049; *F*(1, 411) = 5.611, *p* = .018). Conversely, when funds are presented in descending risk, a larger choice-set tends to increase risk-taking (simple effect: M_{small} = 3.085, *SE* = .048 vs. M_{large} = 3.154, *SE* = .053; *F*(1, 411) = .921, *p* = .338). While the latter simple effect is not significant, the direction is consistent with our theorizing.

Moderated Mediation. In H2, we proposed that a larger (vs. smaller) choice-set influences participants to focus more on the funds available at the top of the list, thus biasing their investments to the funds they see initially. As a result, participants who see the ascending risk presentation-sequence choose to allocate a higher percentage of their investment in lower risk funds, while participants who see the descending risk presentation-sequence, choose to allocate a higher percentage of their investment in higher risk funds.

To test this theoretical framework, we conducted a moderated mediation analysis (Hayes, 2017, model 15, with 5,000 bootstrap samples, figure 3). As predicted for the indirect path, the index of moderated mediation was significant (indirect effect = -.197, $CI_{95\%}$ = [-.324, -.098]), indicating that presentation-sequence moderated the mediation through biased search. The indirect effect breaks down as follows. Choice-set size had a main effect on the mediator. A larger choice-set led participants to search disproportionately more within investment options located in the top half of the choice-set/list (i.e., to click on and examine the options in the top half of the list). This focus on early options has opposite consequences on investment risk depending on sequence. In the ascending (descending) risk condition, a focus on top-half funds caused consumers to ultimately adopt a relatively safer (riskier) portfolio ($b_{\text{safe-first}}$ = -.0822, SE = .0248, $CI_{95\%}$ = [-.1372, -.0403]; $b_{\text{risky-first}}$ = .1148, SE = .0442, $CI_{95\%}$ = [.0400, .2141]. Stated

differently, presentation-sequence moderated the effect of search on risk taking. Furthermore, the direct effect of choice-set size and presentation-sequence on investment risk was not significant (b = -.0559, SE = .1019, t = -.5484, p = .5837, $CI_{95\%}$ = [-.2563, .1445]).

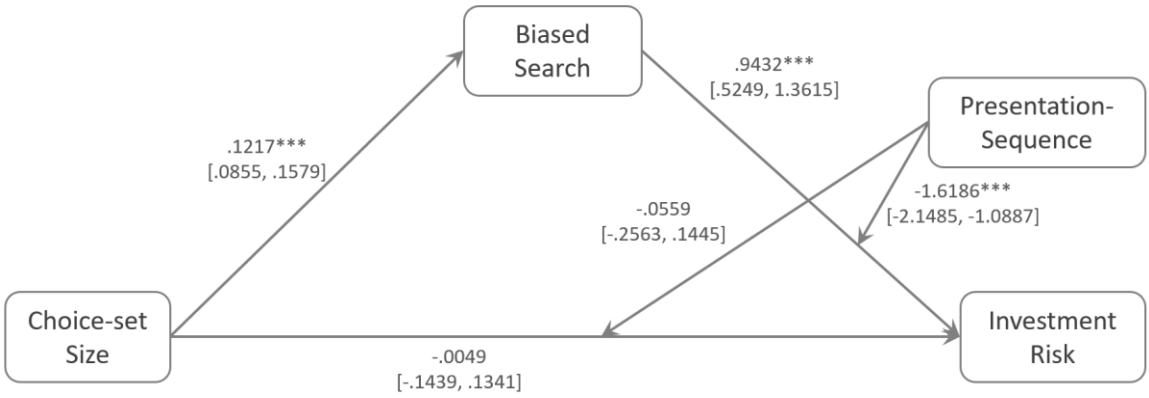

Figure 3. Essay 1 Moderated Mediation Results (Study 2)

Discussion

In study 2, we replicate our findings from study 1, and also confirm the psychological process driving the phenomenon. We show that large choice-sets lead to biased search, whereby consumers focus more on investment funds at the top of the choice-set, resulting in their investment risk becoming lower (higher) if the funds are presented in an ascending (descending) order of risk. While study 2 helps us understand that consumer investment risk for such decisions is a result of biased search, we wanted to check if this would hold true for consumers who had higher cognitive skills as far as financial literacy was concerned. We tested this in study 3.

1.5 Study 3

In this study, we examine the role of financial literacy in making such investment decisions. As proposed in H3, we expect that when consumers have high financial

literacy the presentation-sequence of the funds in the large choice-set will not have an effect on their investment risk.

Participants and design. Similar to study 2, we used a 2(choice-set size: 5 vs. 30 funds) x 2(presentation-sequence: ascending vs. descending risk) between-participant design, with participants being randomly assigned to one of the four conditions. The manipulation check measuring fatigue was similar to Study 2. A third factor was added in the form of financial literacy (a measure adapted from Fernandes, Lynch and Netemeyer, 2014), which gave participants a score out of 12. This included questions such as "Do you think that the following statement is true or false? "Bonds are normally riskier than stocks."", followed by the options: true, false, don't know, and refuse to answer. The details of this measure are in appendix D. 850 participants were recruited on Prolific Academic, and paid £.80 for their time.

Results

Eight-hundred and twenty-two participants (M_{age} = 30.64, 42.3% female, 50.4% male, 1.2% non-binary) passed the attention check, which was to ensure their investment allocation summed to 100 percent[1]. The dependent variable, investment risk, was calculated in the same way as in the previous studies. Similar to study 2, participants in the large choice-set condition felt significantly higher fatigue than those in the smaller choice-set condition (M_{small} = 3.86 vs. M_{large} = 4.75; p<.001).

Investment Risk. A two-way ANOVA was conducted to examine the effects of choice-set size and presentation-sequence on investment risk. Replicating the effects found in the previous studies, there was a statistically significant main effect of presentation-sequence on investment risk (F(1, 822) = 14.78, p<.001) and a statistically

[1] This study was run chronologically before study 2, at which point we had not begun collecting information on whether participants had clicked on a fund.

significant interaction between choice-set size and presentation-sequence ($F(1, 822) = 11.55$, $p = .001$, partial $\eta^2 = .014$). The main effect of choice-set size on investment risk was not significant ($F(1, 822) = .226$, $p = .634$).

Contrasts. As in studies 1 and 2, presentation-sequence had no impact on investment risk in the small choice-set (i.e., control) condition (simple effect: $M_{\text{safe-first}} = 2.88$, $SE = .045$ vs. $M_{\text{risky-first}} = 2.90$, $SE = .043$; $F(1, 822) = .104$, $p = .747$). That is, when participants chose among five funds, those in the ascending risk condition took similar risks as those in the descending risk condition. In contrast, in the large choice-set condition, there was a statistically significant difference in investment risk scores (simple effect: $M_{\text{safe-first}} = 2.708$, $SE = .045$ vs. $M_{\text{risky-first}} = 3.034$, $SE = .047$; $F(1, 822) = 25.200$, $p<.001$; figure 2); when funds are presented in ascending risk, increasing choice-set size tends to reduce risk-taking (simple effect: $M_{small} = 2.882$, $SE = .045$ vs. $M_{large} = 2.708$, $SE = .045$; $F(1, 822) = 7.50$, $p = .006$), but when funds are presented in descending risk, increasing choice-set size tends to increase risk-taking (simple effect: $M_{small} = 2.902$, $SE = .043$ vs. $M_{large} = 3.034$, $SE = .047$; $F(1, 757) = 4.274$, $p = .039$).

Three-way interaction. Answers to the financial literacy measure ($\alpha = .85$) were summed to create a score on 12 for each participant. Then the three-way interaction between choice-set size, presentation-sequence, and financial literacy was tested using the PROCESS macro (Hayes, 2017, model 3, with 5,000 bootstrap samples). As predicted, there was a statistically significant three-way interaction (b = .0650, SE = .0273, $CI_{95\%}$ = [.0113, .1187]). In the large choice-set condition, presentation-sequence of the funds had no impact on the investment risk of participants who were high on financial literacy ($b_{\text{safe-first}}$ = -.0616, SE = .0890, $CI_{95\%}$ = [-.2362, .1131]; $b_{\text{risky-first}}$ = .0435, SE = .0881, $CI_{95\%}$ = [-.1295, .2164]). In contrast, presentation-sequence of the funds had a significant impact on investment risk when participants in the large choice-set were low on financial literacy, ($b_{\text{safe-first}}$ = -.2831, SE = .0825, $CI_{95\%}$ = [-.4450, -.1212]; $b_{\text{risky-first}}$ = .2121, SE = .0846, $CI_{95\%}$ = [.0459, .3782]). This demonstrates that the effects of choice-set size and presentation-sequence will be neutralised at higher levels of financial literacy.

Discussion

The results from study 3 demonstrate that financial literacy plays a critical role in the choices consumers make when investing their retirement savings. We find that when consumers have low financial literacy, they are more likely to be influenced by the size of the choice-set as well as the presentation-sequence of the funds. However, when consumers have high financial literacy, their investments choices are less likely to be influenced by the size of the choice-set, or the sequence in which the funds are presented. These results suggest that when considering the long-term financial wellbeing of consumers who are low on financial literacy, it is important to consider how the choice architecture of such retirement plans can be modified so that they can make optimal choices.

1.6 General Discussion and Future Research

As mentioned at the start of the essay, consumers not having adequate savings for retirement is becoming a challenge across the globe. What is particularly concerning, is that consumers who are diligent about setting aside money for retirement can also face financial challenges in retirement if their savings do not grow at least at the rate of inflation. While consumer behaviour researchers have been examining these challenges over the past decades, we still have a long way to go in terms of improving long-term consumer wellbeing.

The objective of this essay was to move forward our understanding of investment behaviour, by examining the role of biased decision-making on long-term consumer financial wellbeing. Specifically, it examines how factors like the size of the choice-set and the presentation-sequence of funds in retirement savings accounts can influence consumer investment decisions, such that consumers faced with a large choice-set of funds may take on lower or higher investment risk, based on whether they see safer or riskier funds first. While prior research on the topic examines datasets with information on actual retirement savings investments (Huberman and Jiang 2006; Iyengar and

Kamenica 2010), the work is challenged by the inability to understand the psychological mechanism underlying this decision-making. Over three studies, this essay extends and explains research findings by Iyengar and Kamenica (2010) and Huberman and Jiang (2006), by showing that consumers who are low on financial literacy are more likely to be influenced by the choice architecture of the retirement plan, which in turn can influence their financial wellbeing in retirement.

Iyengar and Kamenica (2010) find in their dataset, that employees with higher income and wealth are more likely to invest in equities. This is a point of interest, because the 64 percent of consumers in U.S. private organisations who have access to defined contribution plans ("United States Department of Labor" 2021), all see the same format for the defined contribution plan for retirement, irrespective of their paygrade or literacy levels. If the choices are overwhelming, it is possible that those who are low on financial literacy may be influenced by the choice architecture and not be able to make optimal investment decisions. As such, it is important to create a more level-playing field, whereby employees can make decisions that will benefit them in their retirement, irrespective of their financial literacy or ability to pay a financial advisor. From our findings it appears that such gaps can be bridged to some extent through the choice architecture of the investment plan.

One of the challenges in work related to long-term financial decision making is making the research as close as possible to what the consumer experiences in the real world. While datasets can help us find patterns of behaviour, they still do not give us a clear understanding of the psychology driving such decisions. Another option is the use of randomised controlled trials in the field, but these could raise a number of ethical challenges in terms of protecting the long-term interests of the participants in the study. Though creating incentive compatible lab experiments for long-term investments are difficult, we hope that in the future, we will be able to run more involved experiments that are as close to the real-world as possible.

We hope that these findings will help guide employers and policymakers on strategies and behavioural interventions that will allow employees across the financial

literacy spectrum make optimal retirement savings investment decisions. We also hope that this work will spur future research. For instance, some ideas that can be explored include how long-term investment decisions can be optimised through the use of just-in-time financial literacy (Fernandes et al. 2014), the use of robo-advisors that can provide cost-effective investment advice that caters to individual risk profiles, and rethinking the format of retirement savings investment plans so that they are beneficial to all consumers. We hope that this work will generate more research that focuses on the underlying psychological mechanisms that motivate long-term investment decision-making.

Essay 2

2 Donate Rather than Sell: Choosing Moral Rewards over Financial Rewards

> "I'm just spinning my wheels because they would just keep bartering down, down, down, down, to the point where you say okay, if I'm going to give it to you at what you want, I'd rather give it to charity."
>
> - *Jennifer*[2]*, teacher and former athlete*

Consumer behaviour covers the gamut of acquisition, consumption, and disposal, with consumers making many decisions in each of these domains every day (Hanson 1980; Jacoby 1976; Jacoby, Berning and Dietvorst 1977). In terms of disposal, these decisions could range from disposing of an item which no longer has any utilitarian value (Dhar and Wertenbroch 2000; Thaler 1985) like an empty soda can or a broken appliance, to an item that has positive affective value, like a favourite book or a family heirloom. Consumers also make decisions on the channel of disposal, for instance, throwing the soda can into the recycling bin vs. the trash, or giving the book to a friend vs. selling it (Albinsson and Perera 2009; Belk, Wallendorf and Sherry, Jr. 1989; Cruz-Cárdenas, González and Gascó 2017; Donnelly et al. 2017; Herrmann 1997; Jacoby et al. 1977; Lastovicka and Fernandez 2005; Price, Arnould and Curasi 2000; Roster and Amann 2003; Rucker et al. 1992; Trudel, Argo and Meng 2016; Türe 2014; Young and Wallendorf 1989).

In this essay, we provide insights into how consumers evaluate items that have residual (utilitarian and/or affective) value (more plainly, things that still work, or things

[2] Pseudonym

that mean something to us) for disposal and study a specific situation in which consumers switch between disposal channels (from selling to donation).

Consumers disposing of items that have residual value often try to sell them. When examining a transaction from the viewpoint of sellers, standard economic theory predicts that sellers will always try to maximise their profit. This implies that when consumers take on the role of sellers, they should accept the highest non-zero offer they receive for the item. While conducting qualitative interviews to understand disposal behaviour (separate research study), we found that if a consumer selling an item *perceives* the offer to be an unfairly low one, that is, they perceive they are being "lowballed[3]," they will withdraw the item from the market. They will then either hold on to the item, or willingly incur a monetary loss by donating the item if they intend to permanently dispose of it.

We refer to the *perception of being lowballed* as "lowballed/lowballing" through the essay, because we make no claim as to whether the offer is actually a fair one; we are focused on the consumer's perception of the offer. We focus on cases where the consumer has decided to permanently dispose of an item, and has exhausted other disposal channels like passing the item on to family and friends, or finding a trade-in deal. To preview our experimental findings, we show that lowballed consumers will donate the item, rather than make any money at all, because if they sell at an unfairly low price, they do not expect their post-disposal outcome to be rewarding. To compensate for the financial rewards they forsake when switching their disposal channel from selling to donating, consumers engage in malleable mental accounting (Cheema and Soman 2006; Thaler 1985), which allows them to receive moral rewards from donating the item. We also show that these moral rewards are moderated by the consumer's perception of the recipient's valuation of the donated item. That is, the more a consumer thinks a donation recipient will value the item, the greater the moral rewards. We thus contribute to the

[3] The Merriam-Webster Dictionary defines "lowball" as "to give a markedly or unfairly low offer. e.g., lowballed him in contract negotiations."

financial decision-making, disposal, and prosocial literatures by demonstrating the psychological mechanism underlying consumer decisions to switch disposal channels from selling to donation, and thus voluntarily incur a financial loss.

When a consumer like Jennifer (in the opening quotation) decides to dispose of an item, her disposal decision is conditional on the disposal channel she is considering, as well as how rewarded she expects to feel after using that disposal channel. When attempting to sell an item that has residual value, Jennifer prefers to lose the money she can receive from a lowball offer, because giving the item away for free to a charity feels more rewarding.

The essay uses experiments (studies 1-3) to examine and explain the psychological mechanism underlying the specific phenomenon of consumers donating an item when lowballed. Study 1 tests our main effect, that lowballing leads consumers to switch from selling the item to either donating or keeping it. Study 2 extends this to test whether lowballing decreases expected financial rewards from selling the item, and whether consumers compensate for this with expected moral rewards from donating the item. And finally, Study 3 tests if lowballed consumers receive higher moral rewards when they believe the donation recipient will value the item at a price higher than what the consumer can get by selling it, leading to a higher likelihood of the consumer switching from selling the item to donating it.

The rest of the essay is divided into three parts. First, we review the relevant literature, develop our conceptual model and propose testable hypotheses; second, we present evidence for our hypotheses from our laboratory studies (studies 1-3); and finally, we conclude with theoretical and managerial implications, limitations, and possible avenues for future research.

2.1 Conceptual Development

Disposal of Possessions with Residual Value

When consumers evaluate items for disposal, an important part of their decision is the residual value of the item. In accounting terms, the residual value of an asset is the amount at which it is valued at the time of appraisal, which is typically the end of the lease term or its useful life. In the context of consumer disposal behaviour, residual value can be defined as the *expected utilitarian and/or affective benefits that can still be received from the item, and which can appreciate or depreciate over time*. For instance, a book received from a favourite relative can appreciate in value after the relative passes away, while it could depreciate in value if the relationship with the relative goes sour. An item that has no residual value to the consumer, for instance an empty soda can, may be easily disposed of into the trash or recycling bin. However, if a consumer perceives an item has residual value (utilitarian and/or affective), these disposal decisions become more complex. Our focus in this essay is on items that have residual value.

Affect-laden Items. When consumers think about getting rid of items with affective residual value, considerations about self-identity, symbolism, and the transfer of meaning influence both their disposal intentions, as well as their choice of disposal channel. Attachment to items with affective residual value can influence ease of disposal (Kleine, Kleine III and Allen 1995), so the first step consumers often need to take is to come to terms with the idea of disposing of the item (Lastovicka and Fernandez 2005; Price et al. 2000). This coming to terms could include 1) grieving for the loss of items that were involuntarily disposed of (e.g., through theft or a fire) or strongly linked to their self (Ferraro, Escalas and Bettman 2011; Young and Wallendorf 1989), or 2) engaging in divestment rituals (Belk et al. 1989; Lastovicka and Fernandez 2005; McCracken 1986) that allow consumers to detach themselves from the item by transferring or erasing the meanings associated with the item. These could include taking a photograph/video of the item or giving it to someone in order to transfer meaning (Lastovicka and Fernandez 2005; Price et al. 2000), moving it somewhere else in the house to create spatial distance (Albinsson and Perera 2009; Lastovicka and Fernandez 2005; McCracken 1986; Roster

2001; Suarez et al. 2016), or simply cleaning the item to remove private meanings (Lastovicka and Fernandez 2005).

Once consumers are ready to dispose of items laden with positive affect, they tend to sell or give such items to someone who will appreciate them, or will help them create or preserve a legacy (Brough and Isaac 2012; Dunn, White and Dahl 2020; Lastovicka and Fernandez 2005; Price et al. 2000). In the case of items such as failed gifts, which are laden with negative affect or kept only due to the relationship with the giver, if and when consumers get around to considering disposal (Roster 2001; Roster and Amann 2003; Suarez et al. 2016), the disposal channels can include returning the gift to the store, re-gifting, trading, donation, or throwing it in the trash (Roster and Amann 2003; Suarez et al. 2016).

Beyond Affect. In general, when considering the disposal channels for items with residual value, *either* utilitarian and/or affective value, a typical starting point is giving the item away to friends or family (Albinsson and Perera 2009; Gregson and Beale 2004; Ha-Brookshire and Hodges 2009). Another popular disposal channel is selling, where consumers view the item they are selling as a means to purchasing another item they desire (Denegri-Knott and Molesworth 2009). However, many sellers often expect to be paid more to part with an item than buyers are willing to pay to acquire it (Kahneman et al. 1991; Thaler 1980), leading to a reluctance to dispose of the item at the offered price. Consumers may also use trade-in deals to alleviate the psychological discomfort of buying an upgrade when the old model that is being disposed of still has residual value (Okada 2001).

Individual and Situational Characteristics. A consumer's self-identity and personality can also imbue items with residual value and influence whether and how they make disposal decisions. Items that consumers associate with their self-identity are more likely to be disposed of if they are no longer connected with their current self or situation (e.g., life after a divorce, outgrowing a stage of life, or receiving diagnosis of a terminal illness, Belk 1988; Dommer and Winterich 2021; Lastovicka and Fernandez 2005; McAlexander 1991; Pavia 1993; Young 1991). If the items are still linked to their self-

identity (e.g., motherhood), consumers may use coping strategies to dispose of items (Phillips and Sego 2011). For everyday items with no residual value to the consumer (e.g., disposable coffee cup), identity-links (e.g., their name on the cup) can motivate them to dispose of the item in the recycling bin rather than the trash (Trudel et al. 2016). Personality also plays an important role in disposal behaviour, such that consumers with higher product retention tendencies focus on finding good homes for items they are disposing of, while those with lower product retention tendencies prioritise ease of disposal (Coulter and Ligas 2003; Haws et al. 2012).

From this review of the literature related to the disposal of items with residual value, we can see that consumers make varied disposal decisions depending on the item itself, their personality, as well as the situation in which they find themselves (Belk 1975; Jacoby et al. 1977). From the phenomenon we observed in the field, another factor that determines the disposal decision is the response consumers anticipate having after disposing of an item through a specific disposal channel, what we are calling the *expected post-disposal outcome*. Going back to Jennifer's example, we found that while attempting to sell the desk, Jennifer's expected post-disposal outcome from selling at a lowball price did not feel adequately rewarding, which led her to withdraw the desk from the market. In the end, she changed the disposal channel from sell to donate, as her expected post-disposal outcome from giving the desk away for free, felt adequately rewarding. We propose that this is because she believed the item still had considerable residual value (both utilitarian and affective), and that the offers she received/could receive were lowball offers. This affected her disposal decision process, such that she switched her disposal channel and decided to donate her desk instead of selling it.

Valuation of Possessions and Lowballing

As the mental valuation of an item is subjective, there can be a considerable amount of variance even when the same item is valued by different people. Some people may use the current market value as a reference, others might use the amount they paid for it, while still others could add positive affective value to raise the valuation. This increased valuation of owned items has been extensively studied in the literature, and can

be attributed to any or a combination of the following: the endowment effect (Kahneman et al. 1991; Thaler 1980), whether the item was won by skill rather than chance (Loewenstein and Issacharoff 1994), the duration of ownership (Strahilevitz and Loewenstein 1998), a high mental book value based on the original price paid for the item and its subsequent enjoyment (Okada 2001), the relationship shared with the source from whom the item was acquired (McGraw, Tetlock and Kristel 2003), or it being made by the person instead of being bought off the shelf (Norton, Mochon and Ariely 2012).

The *perception* of being lowballed can be tied to the valuation of the item, and this perception can be the result of actually being lowballed when compared to the market value of the item, or due to an inaccurate asking price that was generated through a combination of the factors that affect valuation. As such, the perception of being lowballed can be defined as the *consumer's subjective belief that there is an unfairly large and positive difference between the asking price of the item and the highest non-zero offer received.*

The intriguing phenomenon we found in our fieldwork was the consumer talking about refusing an offer as it was too low, and yet then forsaking all financial remuneration by donating the item. We use the lens of mental accounting (Thaler 1980, 1985) to explain how the perception of being lowballed, a result of the difference between the seller's valuation and the highest amount offered for it, can lead to donation behaviour. In the mental accounting literature, consumers have been shown to keep a mental account of the costs and benefits associated with a transaction (Gourville and Soman 1998; Okada 2001; Thaler 1980, 1985; Zhu, Chen and Dasgupta 2008) and use mental depreciation (Heath and Fennema 1996) to align these costs and benefits. When the item is being evaluated for disposal, the consumer ascertains the mental account balance for the item at that point in time. We propose that this mental account balance, along with the current market value of the item and market availability, determines the valuation of the item and in turn the asking price. In our work, we only consider the consequences of the perception of being lowballed, and not the reasoning behind this perception. Drawing on the phenomenon we observed in the field, we propose our first hypothesis:

H1: Receiving only lowball offers will increase the likelihood of the item being withdrawn from the market instead of being sold.

While economic games explore the concept of lowballing and unfairness in the ultimatum game (Güth, Schmittberger and Schwarze 1982), they do so in an all-or-nothing setting, where rejecting an unfair offer results in both players forfeiting the chance to earn any money. However, in the case of our consumers, if they decide not to accept the lowball offer, they still maintain ownership of the item, which makes it a different situation from that of the ultimatum game. We do expect that similar to the ultimatum game, a lowball offer will activate notions of fairness (Fehr and Schmidt 1999).

Moral Rewards

Prior literature typically uses the constructs of warm-glow (Andreoni 1989, 1990), happiness (Lok and Dunn 2020), and moral credits (Hollander 1958; Merritt, Effron and Monin 2010; Miller and Effron 2010) to explain why consumers engage in prosocial behaviour. In our work, we refer to these benefits to the self as moral rewards, defined as the *intangible psychological remuneration for perceived right conduct that consumers receive when they engage in prosocial behaviour* (e.g., donation). This is in contrast to the tangible financial remuneration consumers receive when they engage in market transactions (e.g., selling). We use the term *moral rewards* to distinguish this construct from the others used in the literature, for the following reasons. Prior work that has used the construct of warm-glow has often used it as a catchall term to describe the utility people derive from the act of giving. As we see it, warm-glow encompasses the constructs of happiness, moral credits, as well as moral rewards. Moral credits, on the other hand, has primarily been used in the context of moral licensing, to demonstrate that people set up a moral bank account into which they deposit moral credits when they perform good deeds and withdraw from it to purchase the right to commit a transgression later, conceptualised as moral debits (Merritt et al. 2010; Miller and Effron 2010). However, while moral credits uses the lens of mental accounting, this was not a construct we could use, as we examine how consumers earn these moral rewards, and not how

these rewards are stored or accessed at a later point. We also could not use the construct of happiness, as it does not allow us to distinguish between the happiness from prosocial behaviour and happiness from a successful sale and receipt of money. As such, we use the construct of moral rewards, and propose that when an item is donated to a charity or someone in need, the consumer receives moral rewards. Moral rewards can also be *expected* moral rewards, as is the case in this essay, where the consumer expects to receive moral rewards, if they use donation as their disposal channel. This leads to the next set of hypotheses:

H2a: The effect of lowball offers on donation likelihood is mediated by expected financial rewards: lowballing leads to a decrease in expected financial rewards; lower financial rewards in turn increase the likelihood of an item being donated.

H2b: The effect of lowball offers on donation likelihood is mediated by expected moral rewards: lowballing leads to the creation of a mental counteroffer of expected moral rewards; higher moral rewards in turn increase the likelihood of an item being donated.

We draw on these constructs to develop our theoretical framework (figure 4) and explain the psychological underpinnings of the phenomenon.

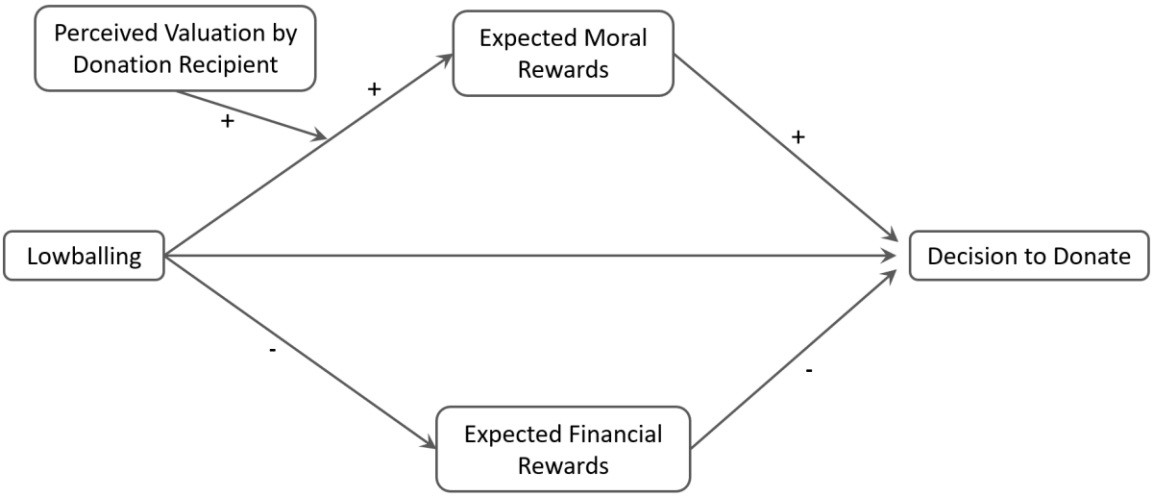

Figure 4. Essay 2 Theoretical Framework

We argue that a consumer's anchor when setting the asking price for an item is typically around the mental account balance for the item. For example, consider a television a consumer bought for $600 three years ago; she used it regularly. Though still in great condition, the mental account balance for the television in the consumer's mind has depreciated over the years to $300. When she decides to sell the television, its mental account is closed and the mental account balance, which in this case is $300, serves as an anchor for calibrating the asking price. If the highest offer received for the item is significantly lower than the asking price, say $50, she perceives she is being lowballed.

From prior literature, one could assume that a consumer will continue to look for alternatives to the offers received until she finds one closest to her asking price (Weitzman 1979; Baye, Morgan and Scholten 2006). Instead, as we found in our fieldwork, the consumer may look for an alternative disposal channel for the item. Because the item is being disposed of permanently and has residual value, the consumer will prefer not to throw it in the trash or recycling (Denegri-Knott and Molesworth 2009). However, assuming she has already exhausted the options of disposing it through her social circles or through a trade-in, the remaining alternatives to selling it at a lowball price are to donate it or to hold onto the item indefinitely in the hope of a better offer. When the item is being permanently disposed of, and keeping the item is not an option, the consumer is left with the option of donation.

Donating the item results in a loss of the non-zero amount the consumer could make if she accepted the lowball offer, $50 in our example. To counter the financial loss incurred from rejecting the lowball offer, we propose that the consumer uses moral rewards to construct a mental counteroffer to the lowball offer. With this malleable mental accounting (Cheema and Soman 2006; Thaler 1985), the consumer receives moral rewards for donating the item to a charity or someone in need, resulting in her expected post-disposal outcome being adequately rewarding, as opposed to less than adequately rewarding, should she accept the lowball price.

We also propose that the effect of this counteroffer of moral rewards on the decision to donate is moderated by the perceived recipient valuation, which is the *price at*

which the consumer believes the person receiving the donated item will value it. For example, if the consumer believes that a person in need will value her TV at a price higher than the lowball offer of $50, she accrues moral rewards, which counters the $50 lowball offer received and results in the TV being donated. We expect that when consumers are lowballed, they make the decision to donate the item only if they believe the donation recipient's valuation will be much above the lowball offer that was received. Formally, this prediction is consolidated in the following hypothesis:

H3: Lowballing contributes to higher expected moral rewards, but only when the perceived valuation of the item by the donation recipient is higher than the lowball offer received; otherwise, the effect of a lowball offer on expected moral rewards is attenuated. Higher expected moral rewards in turn increase the likelihood of the item being donated.

We tested these hypotheses in three experimental studies. Study 1 brings the phenomenon we saw in the field into an experiment and tests hypothesis 1. Study 2 tests hypotheses 2a and 2b and tests how expected moral and financial rewards mediate the relationship between offer price and disposal channel. Study 3 tests the moderated mediation that is posited in hypothesis 3.

2.2 Study 1

In Study 1, we examine situations in which consumers decide to permanently dispose of items they believe have residual value, but when they are unable to pass it on to family or friends or find a trade-in deal, they move to the option of selling it. As the item has residual value, we assume that the consumer will not trash, recycle, abandon, or destroy the item. Also, as we are examining instances of an old item being disposed of, we assume that the item cannot be returned to the store as it should have passed the typical 30-90 days return policy at most stores. As such, in keeping with hypothesis 1, the choices given to participants in the study were to sell, donate, or keep the item. In line with our theorising, we expect that participants who are lowballed when trying to sell an item will be more likely to withdraw the item from the market and switch their disposal channel to donate or reverse their disposal intention and instead keep it.

Participants, Design, and Method

This study had one independent variable with three conditions: offer price of met-asking vs. below-asking vs. lowball. Participants were randomly assigned to one of the three conditions. Two hundred and ten participants were recruited on Amazon Mechanical Turk (restricted to participants in the US), of which 174 (M_{age} = 36.46, 40% female, 59.8% male) passed a memory check (details below). The dependent variable was choice: sell vs. donate vs. keep.

Participants were asked to consider a scenario where they were trying to dispose of an old vacuum cleaner as they had got a new one. The old one was still in excellent condition, but as nobody in their immediate social circle wanted it, they decided to sell it online. As most consumers selling an item have a reference price in mind, in this scenario we used the market price of similar new vacuum cleaners, and told them that a similar new vacuum cleaner is being sold for $700. As their vacuum cleaner was in good condition, they had set their selling price at $400, and over the next few days received multiple offers. In the met-asking condition, the highest offer received was $400, in the below-asking condition it was $270, and in the lowball condition it was $60. Participants were then asked to choose between selling it at the offered price, donating it to a nearby charity that was fundraising, or keeping it. The order of the disposal options was randomised. In addition, participants answered a manipulation check question: "How would you rate the offer you received?" on a 1 (Very low) to 7 (Very high) scale, wrote a few sentences on their thought process for the decision, answered a memory check question: "What was the price you decided to ask for your old vacuum cleaner?" with three options (60, 270, and 400) from which to make their choice, and provided some demographic information.

Results and Discussion

Manipulation Check. A one-way ANOVA revealed that the manipulation for the scenario was effective, and that participants' rating of the offer price was significantly different between conditions ($F(2,171) = 60.72$, $p < .001$, $\eta^2 = .42$). A Tukey post hoc test revealed that the offer was rated significantly lower for participants in the lowball

condition (M = 2.36, SE = 2.02) when compared to the below-asking (M = 4.02, SE = 1.60, $p < .001$) or met-asking (M = 5.53, SE = 1.02, $p < .001$) condition.

Disposal Decision. In order to test H1, we combined the responses for people who chose to withdraw the vacuum cleaner from the market (i.e., keep and donate) and created a new dichotomous dependent variable which had two choices, sell and withdraw. A binary logistic regression with the offer condition as the independent variable and the disposal choice (sell vs. withdraw) as dependent variable showed that when compared to participants who were lowballed, participants who received offers at the asking price (B = -3.03, χ^2 = 41.07, $p < .001$, OR = .048) or below-asking price (B = -1.73, χ^2 = 16.24, $p < .001$, OR = .177), were significantly less likely to withdraw their vacuum cleaner from the market, that is, to keep it or donate it (figure 5). These results hold even when we include participants who failed the memory check.

Results from study 1 were thus consistent with our hypothesis 1. Specifically, when consumers are trying to permanently dispose of an item by selling it, receiving only lowball offers increases the likelihood of them withdrawing the item from the market, and changing the disposal channel to donate or even reversing their decision to dispose of the item. While some consumers may have the luxury of holding onto the item for a better price, there are numerous instances where this might not be a feasible option. For instance, when they are moving homes, downsizing, replacing items that they do not need multiples of, etc. We explore this situation in the remaining studies, by removing the keep option, and only comparing sell vs. donate. We also dropped the met-asking condition that was examined in Study 1, as the results demonstrate that most consumers (~84%) sell the item if they receive their asking price.

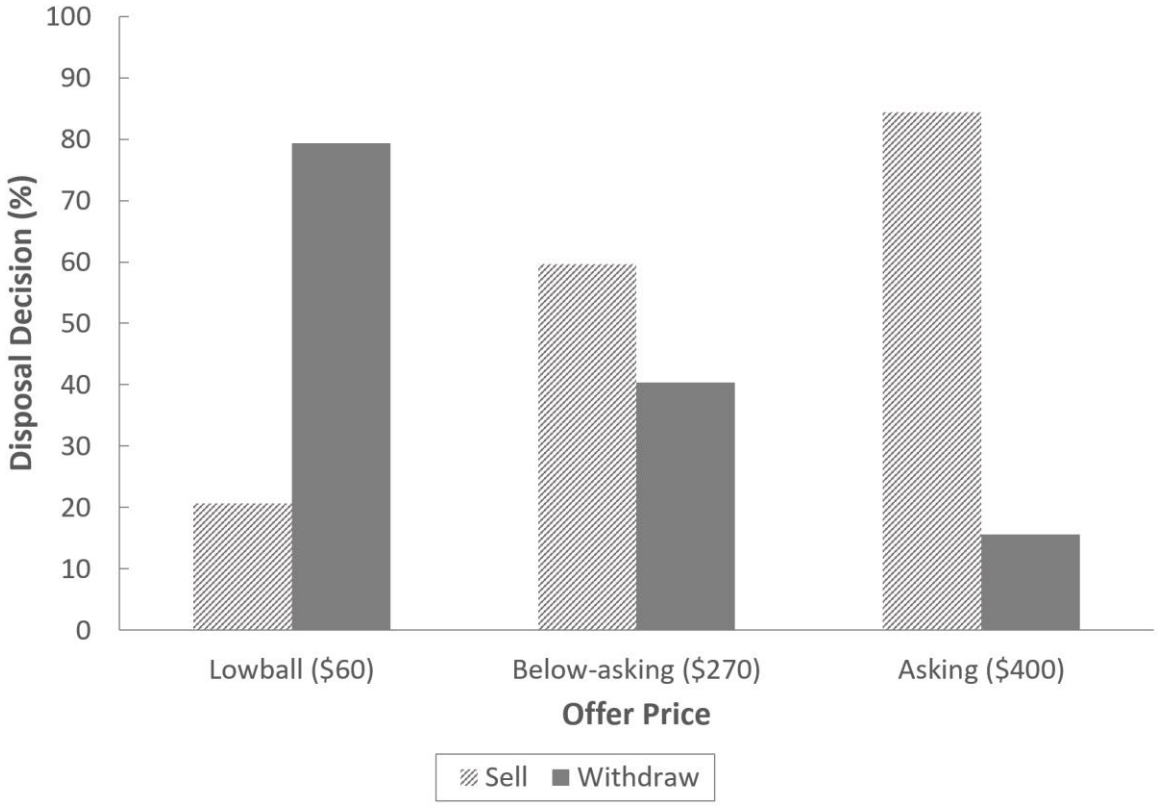

Figure 5. Essay 2 Percentage of Consumers Deciding to Sell or Withdraw the Vacuum Cleaner

2.3 Study 2

The objective of study 2 was to explore the mechanism underlying the decision participants made to donate the item if they were lowballed. As proposed in hypotheses 2a and 2b, we expect that in their mental accounting for the transaction, a lowball offer leads to a decrease in expected financial rewards. Donating the item allows the consumer to overcome this perceived loss, as they use malleable mental accounting (Cheema and Soman 2006; Thaler 1985) to create a mental counteroffer of expected moral rewards, which compensates for the decrease in expected financial rewards. In order to examine this, we introduce a measure for moral and financial rewards, with the expectation that consumers who donate the item will receive higher moral rewards, while those who sell the item will receive higher financial rewards. As a lowball offer is considered unfairly

low, we also changed the manipulation check to measure whether the participant felt the offer was unfair, instead of just low.

Participants, Design, and Method

This study had one independent variable with two conditions: offer price of below-asking vs. lowball. Participants were randomly assigned to one of these two conditions. Two hundred participants were recruited on Amazon Mechanical Turk (restricted to participants in the US), of which 178 (M_{age} = 35.17, 40% female, 58.4% male) passed both the attention and memory check questions (details below). The dependent variable was disposal channel choice: donate vs. sell.

The scenario was similar to that in study 1, but here participants were trying to dispose of their old coffee maker as they had got a new one. We told them that they had done some research and found that similar second-hand coffee makers were being sold for $70, so they too had set their price at $70. They were told they received multiple offers, and the highest offer was $50 in the below-asking condition vs. $20 in the lowball condition. Participants were then asked to choose between selling it at the offered price or donating it to a social worker who helps families in need. The order of the disposal options was randomised. In addition, participants answered a manipulation check question asking them to rate how fair they thought the offer was, on a scale of 1 (Very Unfair) to 7 (Very Fair). To measure moral and financial rewards, participants were presented with the statement "I felt rewarded ____" followed by the words financially, mentally, monetarily, materially, economically, spiritually, morally, and emotionally, presented in random order. They rated each of these on a 1 (Not at all) to 7 (Very much) scale, with an attention check item that asked them to "Select 'Not at all'". Participants also answered an exploratory question on how much the recipient of the coffeemaker would value it at, wrote a few sentences on their thought process for the decision, and answered a memory check question: "What was the initial price at which you wanted to sell your old coffee machine?" with three options (70, 100, and 150) from which to make their choice, and provided some demographic information.

Results and Discussion

Manipulation Check. An independent samples *t*-test on the manipulation check question revealed a significant difference between the conditions ($t(163.82) = 11.56$, $p < .001$; $d = 1.7$). Participants in the lowball offer condition ($M_{lowball} = 2.84$, SD = 1.72) rated their offer as significantly less fair than participants in the below-asking offer condition ($M_{below\text{-}asking} = 5.34$, SD = 1.13).

Disposal Decision. A binary logistic regression with the offer price condition as the independent variable and the disposal channel choice (donate vs. sell) as dependent variable showed a significant main effect of offer price on the disposal channel decision ($B = 1.44$, $\chi^2 = 19.45$, $p < .001$, $OR = 4.24$, Nagelkerke $R^2 = .15$). Participants who were lowballed (i.e., highest offer was $20) were over four times more likely to donate the coffee maker than those who were not lowballed (i.e., highest offer was $50).

Rewards Measure. An exploratory factor analysis was conducted on the eight items of the rewards measure, using the maximum likelihood method with varimax rotation. The items load well on two separate factors: financially, monetarily, materially, and economically loaded on one factor, and mentally, spiritually, morally, and emotionally loaded on another factor. As such, we created two subscales for the rewards measure: perceived financial rewards (Cronbach's $\alpha = .93$) and perceived moral rewards (Cronbach's $\alpha = .91$).

Mediation Analysis. To test our prediction that the expected financial and expected moral rewards will mediate the relationship between offer price and the choice of disposal channel, we performed a parallel mediation analysis using the PROCESS macro (Hayes 2017, model 4) in SPSS with 5000 bootstrap samples. The offer price was the independent variable (0 = below-asking, 1 = lowball), the choice of disposal channel was the dependent variable (0 = sell, 1 = donate), and the financial rewards and moral rewards subscales were the two parallel mediators. The analysis showed that a lowball (vs. below-asking) offer significantly increased the expected moral rewards ($B = .68$, $SE = .28$, $CI_{95\%}$ [.14, 1.23]), and significantly decreased the expected financial rewards ($B = -1.99$, $SE = .24$, $CI_{95\%}$ [-2.47, -1.52]). Further, an increase in expected moral rewards

significantly increased the likelihood of donation (B = 1.17, SE = .20, $CI_{95\%}$ [.78, 1.57]), while an increase in expected financial rewards significantly reduced the likelihood of donation (B = -1.12, SE = .20, $CI_{95\%}$ [-1.52, -.73]). The direct effect of offer price on disposal decision was no longer significant (B = .12, SE = .53, $CI_{95\%}$ [-.94, 1.15]), indicating full mediation. The indirect paths through perceived moral rewards (indirect effect = .80, $CI_{95\%}$ [.19, 1.71]), as well as through perceived financial rewards (indirect effect = 2.24, $CI_{95\%}$ = [1.50, 3.64]) were significant.

Results from this study supported hypotheses 2a and 2b. Specifically, lowballing decreases expected financial rewards, resulting in an increased likelihood of the item being donated, and lowballing increases expected moral rewards, resulting in a higher likelihood of the item being donated. These results hold even when we include participants who failed the memory check.

One of the shortcomings of studies 2 and 3 is that we provided participants with their asking price as well as the offer price they received. While people selling an item might be able to estimate the current second-hand market price for the item they plan to sell, most people have very different perspectives on how they should price the item when they plan to sell it. Some people are happy to undercut the market price in order to get a quick sale, while others are very particular about receiving at least the same price as others in the market. We resolve this in study 3, by seeking the participant's input for the asking price, and customising the manipulation accordingly.

2.4 Study 3

In addition to addressing the shortcomings in studies 1 and 2, study 3 also tests hypothesis 3. According to our theoretical model, we expect that when consumers receive a lowball offer, they indulge in malleable mental accounting (Cheema and Soman 2006; Thaler 1985) such that the expected moral rewards they receive is dependent on the price at which they expect the donation recipient to value the item. To examine this, we first presented the offers to the participants, and before they made a decision, asked them to

estimate at what price they expected it would be valued by a person who received the item as a donation (i.e., received it for free). As per our theorising, we expect that when participants are lowballed, they expect to receive moral rewards if they perceive that the donation recipient will value the item higher than the lowball offer that was received. However, if they expect the donation recipient to value the item at or around the offer received, they will not expect to accrue moral rewards that can compensate for the loss of financial rewards, and will thus not be inclined to donate the item.

Participants, Design, and Method

This study had one independent variable with two conditions: offer price of 80% vs. 35% of asking price. Participants were randomly assigned to one of these two conditions. Two hundred and fifty participants (over 18 years old, residing in the US, with a minimum approval rate of 90) were recruited on Prolific Academic, of which 231 (M_{age} = 33.08, 53.7% female, 44.6% male) passed the attention check and memory check (details below). The dependent variable was disposal channel choice: sell vs. donate.

Participants were given a scenario where they were trying to dispose of their old vacuum cleaner as they had got a new one. They were told that similar second-hand vacuum cleaners were being sold for around $150, and were asked to enter the price at which they would like to sell the vacuum cleaner. Next, they were informed that they had received multiple offers for their vacuum cleaner, and were shown the top three offers, the highest of which was either 80% or 35% of the price at which they had said they would like to sell (see appendix E for details). They were informed that they also had another option, which was to donate the vacuum cleaner to a charity that gave away donated items for free, to people in need. At this point they were asked to estimate the price at which they expected the recipient of the donation would value the vacuum cleaner. They were then asked to choose between selling it at the offered price, or donating it to the charity (order of options was randomised). In addition, participants answered two manipulation check questions: “How acceptable was the offer of $___ for your vacuum cleaner, when compared to your asking price of $___?” on a 1 (Highly Unacceptable) to 7 (Highly Acceptable) scale, and “What did you think of the offer of

$___ for your vacuum cleaner, when you could see that other similar vacuum cleaners were selling for $150?" on a 1 (Very Unfair) to 7 (Very Fair) scale. They answered questions on moral and financial rewards (the measures used in study 2), wrote a few sentences on their thought process for the decision, and answered a memory check question: "What was the initial price at which you wanted to sell your old coffee machine?" with three options (one of which was the initial price they entered) from which to make their choice, and provided some demographic information. The attention check question was the first question participants answered in the survey, which asked them to choose a specific answer from a list. If they failed, they were given a second chance. Participants who got the answer correct in one of their two attempts were considered to have passed the attention check question.

Results and Discussion

Manipulation Check. An independent samples *t*-test on the manipulation check questions revealed a significant difference between the conditions in terms of acceptability ($t(229) = 13.16$, $p < .001$, $d = 1.74$) and fairness ($t(224.487) = 11.25$, $p < .001$, $d = 1.47$) of the offer. Participants in the lowball (i.e., 35% of asking price) condition ($M_{acceptability} = 2.54$, SD = 1.40; $M_{fairness} = 2.23$, SD = 1.26) felt that the offer was significantly less acceptable and less fair than those in the below-asking (i.e., 85% of asking price) condition ($M_{acceptability} = 4.91$, SD = 1.33; $M_{fairness} = 4.27$, SD = 1.50).

Recipient Valuation. Given that the price at which participants believed a donation recipient would value the vacuum cleaner could vary based on the participant's asking price and the offer price condition they were in, we created a variable, perceived recipient valuation, by subtracting the highest offer price from the amount at which the participants expected the donation recipient to value the vacuum cleaner (i.e., perceived valuation by recipient - highest offer price received). This variable gives us positive values when the participant expects the donation recipient to value the item higher than the highest offer they received, and negative values when the expected valuation is lower than the highest offer.

Disposal Decision. A binary logistic regression with the offer price as the independent variable and the disposal channel choice (donate vs. sell) as dependent variable showed a significant main effect of offer price condition on the choice of disposal channel (B = 1.59, χ^2 = 31.07, p < .001, OR = 4.90, Nagelkerke R^2 = .18). Participants who were lowballed (i.e., highest offer was 35% of asking price) were approximately five times more likely to donate the vacuum cleaner than those who were not lowballed (i.e., highest offer was 80% of asking price).

Moderated Mediation Analysis. To test our prediction that the relationship between offer price and moral rewards will be moderated by the consumer's expectation of the donation recipient's valuation, we performed a moderated mediation analysis using the PROCESS macro (Hayes 2017, model 8) in SPSS with 5000 bootstrap samples, with disposal channel choice as the dependent variable, and the moral and financial rewards variables as parallel mediators. We did not expect the indirect path through financial rewards, or the direct path, to be moderated by perceived recipient valuation.

As predicted, for the expected moral rewards path, the index of moderated mediation was significant (indirect effect = .0235, $CI_{95\%}$ [.0065, .0445]), indicating that perceived recipient valuation moderated the mediation through expected moral rewards. Specifically, the indirect effect for individuals who had high perceived recipient valuations compared to their highest offer (B = 1.97, SE = .95; $CI_{95\%}$ [.1285, 3.9844]) was significant, while the indirect effect for individuals who had medium (B = .14, SE = .61; $CI_{95\%}$ [-1.0582, 1.3530]) or low (B = -1.69, SE = .99; $CI_{95\%}$ [-3.8565, .0609]) perceived recipient valuations compared to their highest offer was not significant. As predicted for the expected financial rewards path, the index of moderated mediation was not significant (indirect effect = -.0046, $CI_{95\%}$ [-.0197, .0037]), indicating that perceived recipient valuation does not have an effect on expected financial rewards. Furthermore, the direct effect of offer price on disposal channel choice (B = .93, SE = .62; $CI_{95\%}$ [-.2953, 2.1514]) as well as the interaction between offer price and perceived recipient valuation (B = .02, SE = .01; $CI_{95\%}$ [-.0047, .0405]) were not significant. These results hold even when we include participants who failed the memory check.

Results from study 3 provide further evidence that consumers who are lowballed when trying to sell an item that has residual value are more likely to donate it than consumers who received an offer around their asking price. We also demonstrate that in such lowballing situations, the higher a consumer expects a donation recipient will value the item, the greater will be their expected moral rewards, and higher the likelihood of them donating the item.

2.5 General Discussion and Future Research

Prior research more often focusses on everyday consumer financial decisions in the context of acquisition behaviour, than in the context of disposal behaviour. In this essay we look at consumer financial decision-making in the context of the disposal of items that have residual value, irrespective of whether the value is affective or utilitarian in nature. Specifically, we examined how consumers looking to permanently dispose of an item by selling it, respond to a lowball offer by withdrawing it from the market, and choosing to either donate it or reverse their disposal decision and keep it (study 1). To understand the psychological mechanism underlying this switching of disposal channels from selling to donation, we used the lens of mental accounting to demonstrate that lowballing results in a decrease in expected financial rewards and an increase in notions of unfairness, which leads to the expected post-disposal outcome not being adequately rewarding. This reduces the likelihood of the item being sold. However, if the item has to be permanently disposed of, the consumer engages in malleable mental accounting to counter the lowball offer with expected moral rewards from donation of the item. This increase in moral rewards increases the likelihood of them donating the item (study 2). We also identify a moderator, perceived valuation by the donation recipient, which affects the counteroffer of expected moral rewards. We show that high perceived valuation by the donation recipient increases moral rewards, which in turn increases the likelihood of an item being donated (study 3).

Substantively, these findings can be used by not-for-profit organisations to create initiatives that show their donors how much value their donations bring to the lives of the

recipients. This could motivate consumers to donate items to such charities, rather than sell them. Such a strategy is particularly beneficial to organisations like Goodwill Industries, The Salvation Army, Habitat for Humanity, and other organisations which rely on consumers to donate items for the efficient functioning of their business model. Policymakers can use this information to better understand disposal decision-making and promote environmentally sustainable policies and disposal channels. And finally, for-profit organisations can gain a better understanding of their consumers' aversion to being lowballed, and thus design trade-in programs that will motivate their consumers to come in and exchange their product for a new one. In addition to profitability, such promotions can have a long-term impact on the environment, as manufacturers will be able to recycle the parts more efficiently, as against these items being thrown into the trash or an inefficient recycling system. Online websites that enable consumer-to-consumer (C2C) selling, can also use these findings to provide consumers with approximate valuations or past prices for similar items. Such a feature can help increase the likelihood of buyers and sellers finding common ground, by improving the accuracy of valuations by sellers, and reducing the proliferation of lowball offers by buyers.

The objective of this essay is to motivate further discussions around how financial decision-making can be an inherent part of everyday consumers decisions like that of disposing of their possessions, and how it can influence consumer wellbeing. In order to examine the phenomenon in an experimental setting, we have made simplifying assumptions in terms of the recipient of the donation, which in our case was usually a charity that gives away items for free to people in need. It is possible that these donation decisions will vary based on the type of charity accessible to the consumer, which could be a matter of location, or even personal preferences. There are also other boundary conditions that will need to be examined. For instance, a lowball offer might still be accepted if an item has high monetary value, or depending on the financial circumstances of the seller, where $10 might mean a lot to a person who is not financially well off, but not as much to an affluent person. It could also depend on the life circumstances under which the sale is being made, where if the seller is moving cities in the next hour, they might take the lowball offer, or even dispose of the item in the trash if they have made a permanent disposal decision, instead of taking the trouble to find a person in need or a

charity. It is also possible that consumers who are accustomed to selling items might be motivated to sell items even if they are lowballed, similar to the findings regarding market experience playing a significant role in eliminating the endowment effect (List 2003)

We expect that future research could focus on the nuances that separate moral rewards, warm-glow, happiness, and moral credits to give us more accurate measures of these specific constructs and the overlap between them.

Final Thoughts and Future Directions

The objective of this dissertation was to examine how consumers make everyday financial decisions and explore the influences these decisions can have on consumer wellbeing. While Essay 1 explores a conventional route of achieving wellbeing through improving a consumer's financial situation, Essay 2 examines a less conventional path where a voluntary financial loss can improve consumer wellbeing.

Essay 1 focusses on long-term investment behaviour, which is an understudied topic in consumer behaviour. Research in this area has the potential to improve the lives of millions of consumers, and with my work I hope to motivate new research in this area. I show that when consumers are given a large choice-set of funds in which to invest their retirement savings, they are more likely to take on lower risk if they are shown the safer funds first, rather than when they are shown riskier funds first. I also find that these effects are mitigated when consumers have high financial literacy. These findings emphasize that when considering consumer wellbeing in the long term, it is important to consider the investment behaviour of consumers who are low on financial literacy, as they can easily be influenced by the architecture of the choices with which they are presented. One drawback of the study designs was that the stimuli were not incentive compatible. In future research on this topic, I plan to create more elaborate incentive compatible stimuli for my studies, and corroborate these findings with a dataset that has information on actual investment decisions made by consumers. As consumers with low financial literacy are often the most affected, future research can also explore the potential of just-in-time financial education (Fernandes et al. 2014) and the use of visual aids to help consumers understand the long-term consequences of their choices. I hope that work in this area will provide consumers who are diligent about saving, the opportunity to grow their money in an optimal manner.

Essay 2 extends our understanding of the financial decision-making process consumers engage in when making disposal decisions regarding items that have residual value. I show that consumers who are lowballed when selling an item are more likely to withdraw it from the market than sell it at the lowball price, and if they are permanently

disposing of the item, they are more likely to voluntarily give up financial remuneration and instead donate the item. I show the psychological mechanism underlying this behaviour, by identifying mediation through financial and moral rewards, and also demonstrate that these moral rewards are moderated by the consumer's perception of the recipient's valuation of the donated item. In addition to the contribution to the financial decision-making and disposal literature, this work adds to the work on prosocial behaviour by helping us understand one more reason why people make the decision to donate, and the role of moral rewards in promoting consumer wellbeing. As consumer behaviour researchers, we often examine financial decision-making in the context of acquisition behaviour. However, what we do not always consider, is that consumers also make numerous financial decisions in the realm of disposal. I hope that this research will motivate more work in the area of financial decision-making in disposal behaviour.

Together, Essay 1 and Essay 2 demonstrate different types of financial decisions that consumers make in their everyday lives, and how we as consumer behaviour researchers can use these findings to improve their financial and psychological wellbeing.

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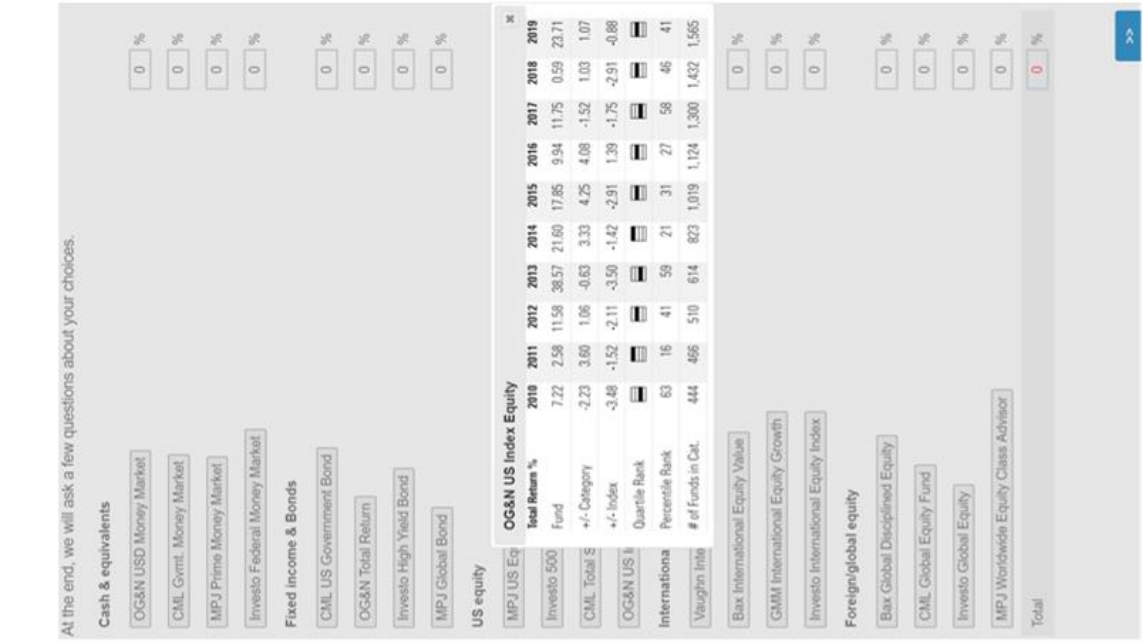
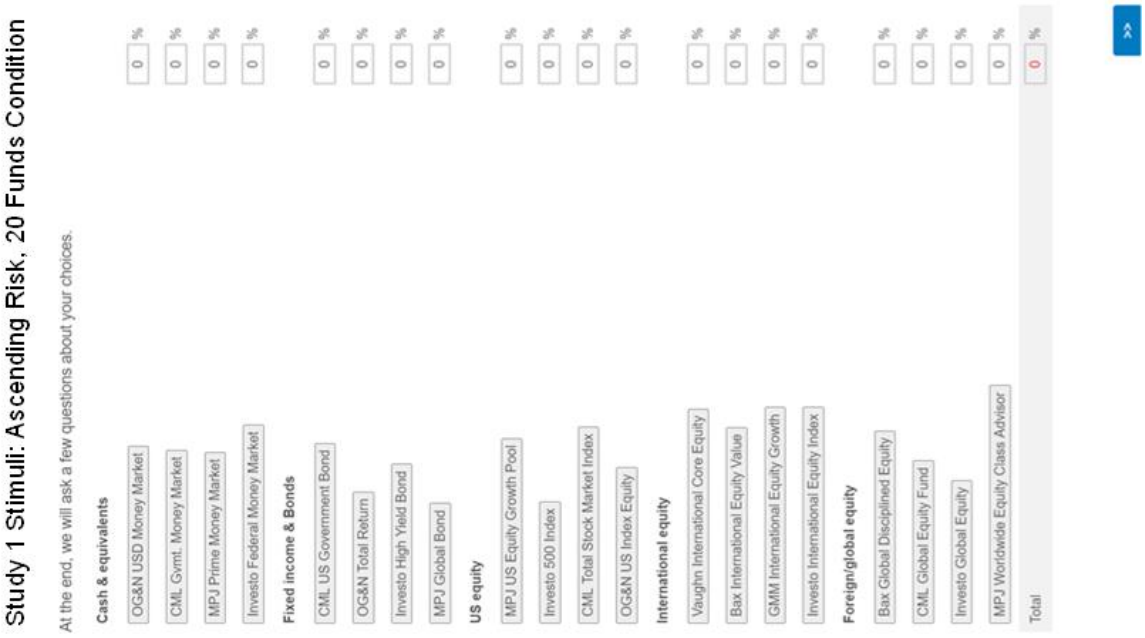
Appendices

Appendix A: Essay 1: Study 1 Stimuli

Appendix B: Essay 1: Study 1 Stimuli





Appendix C: Essay 1: Study 2 Manipulation Check

Fatigue Measure (served as a manipulation check)

How _____ was it to make your allocation?

	Not at all						Very
Difficult	O	O	O	O	O	O	O
Tiring	O	O	O	O	O	O	O
Effortful	O	O	O	O	O	O	O
Overwhelming	O	O	O	O	O	O	O

Results

Answers to the four-questions tapping into fatigue were averaged to get a fatigue measure (α = .81) and a one-way ANOVA with choice-set size as the independent variable and fatigue as the dependent variable revealed that participants in the larger choice-set condition felt significantly more fatigued than those in the control condition ($F(1, 413) = 22.387$, $p<.001$).

Appendix D: Essay 1: Study 3 Financial Literacy Scale

Financial Literacy Scale (adapted from Fernandes, Lynch, & Netemeyer, 2014)

1. Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, would you be able to buy:

    - More than today with the money in this account
    - Exactly the same as today with the money in this account
    - **Less than today with the money in this account**
    - Don't know
    - Refuse to answer

2. Do you think that the following statement is true or false?
"Bonds are normally riskier than stocks."

    - True
    - **False**
    - Don't know
    - Refuse to answer

3. Considering a long time period (for example, 10 or 20 years), which asset described below normally gives the highest return?

    - Savings accounts
    - **Stocks**
    - Bonds
    - Don't know
    - Refuse to answer

4. Normally, which asset described below displays the highest fluctuations over time?

    - Savings accounts
    - **Stocks**
    - Bonds
    - Don't know
    - Refuse to answer

5. When an investor spreads his money among different assets, does the risk of losing a lot of money:

    - Increase
    - **Decrease**
    - Stay the same
    - Don't know
    - Refuse to answer

6. Do you think that the following statement is true or false? "If you were to invest $1,000 in a stock mutual fund, it would be possible to have less than $1,000 when you withdraw your money."

    - **True**
    - False
    - Don't know
    - Refuse to answer

7. Do you think that the following statement is true or false? "A stock mutual fund combines the money of many investors to buy a variety of stocks."

    - **True**
    - False
    - Don't know
    - Refuse to answer

8. Do you think that the following statement is true or false? "A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less."

    - **True**
    - False
    - Don't know
    - Refuse to answer

9. Suppose you have $100 in a savings account and the interest rate is 20% per year and you never withdraw money or interest payments. After 5 years, how much would you have in this account in total?

    - **More than $200**
    - Exactly $200
    - Less than $200
    - Don't know
    - Refuse to answer

10. Which of the following statements is correct?

- Once one invests in a mutual fund, one cannot withdraw the money in the first year
- **Mutual funds can invest in several assets, for example invest in both stocks and bonds**
- Mutual funds pay a guaranteed rate of return which depends on their past performance
- None of the above
- Don't know
- Refuse to answer

11. Which of the following statements is correct? If somebody buys a bond of firm B:

- He owns a part of firm B
- **He has lent money to firm B**
- He is liable for firm B's debts
- None of the above
- Don't know
- Refuse to answer

12. Suppose you owe $3,000 on your credit card. You pay a minimum payment of $30 each month. At an annual percentage rate of 12% (or 1% per month), how many years would it take to eliminate your credit card debt if you made no additional new charges?

- Less than 5 years
- Between 5 and 10 years
- Between 10 and 15 years
- **Never**
- Don't know
- Refuse to answer

Appendix E: Essay 2: Study 3 Stimuli

Scenario

Imagine that you have just bought yourself a new vacuum cleaner.

You are disposing of your old vacuum cleaner, as the new one is much better. Your old vacuum cleaner is still in very good condition, but because none of your family members or friends want it, you decide to sell it online.

You do some research and see that similar second-hand vacuum cleaners are being sold online for around $150.

What is the price at which you would like to sell your vacuum cleaner? Please use numbers to enter the dollar amount _____

Conditions

You have set the selling price of your vacuum cleaner at _____. Over the next couple of days, you receive multiple offers:
$ X *[35% or 80% of asking price]*
$ X-5
$ X-20

Another option is to donate the vacuum cleaner to a charity. You know of one that simply gives away donated items to people in need, and does not sell them.

If you did decide to donate it to this charity instead of selling it, how much do you think the person receiving your vacuum cleaner for free from the charity will value it at?

Please use numbers to enter the dollar amount._____

What would you do in such a situation? Would you:

- ○ donate the vacuum cleaner to the charity where the recipient will receive it for free, but value it at _____
- ○ sell the vacuum cleaner at _____, which was the highest offer you received

Appendix F: Essay 2: Study 3 Fairness and Rewards Measures

Fairness Measure

How acceptable was the offer of _____ for your vacuum cleaner, when compared to your asking price of _____?

Highly Unacceptable						Highly Acceptable
O	O	O	O	O	O	O

What did you think of the offer of _____ for your vacuum cleaner, when you could see that other similar vacuum cleaners were selling for around $150?

Very Unfair						Very Fair
O	O	O	O	O	O	O

Rewards Measure

Transactions, like the one you made with your vacuum cleaner, provide people with different types of rewards.

Please let us know how you felt after making the decision to _____.

I felt rewarded **financially**

Not at all						Very Much
O	O	O	O	O	O	O

I felt rewarded **mentally**

Not at all						Very Much
O	O	O	O	O	O	O

I felt rewarded **monetarily**

Not at all						Very Much
O	O	O	O	O	O	O

I felt rewarded **materially**

Not at all						Very Much
O	O	O	O	O	O	O

I felt rewarded **economically**

Not at all						Very Much
O	O	O	O	O	O	O

I felt rewarded **spiritually**

Not at all						Very Much
O	O	O	O	O	O	O

I felt rewarded **morally**

Not at all						Very Much
O	O	O	O	O	O	O

I felt rewarded **emotionally**

Not at all						Very Much
O	O	O	O	O	O	O

Appendix G: Descriptive Statistics

Table 2. Descriptive statistics for Essay 1

Essay 1

Study 1	**N:** 689 **Mean Age:** 31.60 **Gender:** 42.1% female, 54.7% male, 2.6% non-binary				
	Condition		**N**	**Mean**	**SE**
	Control	Safe-First	179	2.946	.048
		Risky-First	187	2.955	.047
	Overload	Safe-First	172	2.816	.049
		Risky-First	151	3.051	.052

Study 2	**N:** 415 **Mean Age:** 18.66 **Gender:** 62.7% female, 36.6% male, .2% non-binary				
	Condition		**N**	**Mean**	**SE**
	Control	Safe-First	97	3.022	.052
		Risky-First	112	3.085	.048
	Overload	Safe-First	111	2.853	.049
		Risky-First	95	3.154	.053

Study 3	**N:** 822 **Mean Age:** 30.64 **Gender:** 42.3% female, 50.4% male, 1.2% non-binary				
	Condition		**N**	**Mean**	**SE**
	Control	Safe-First	202	2.882	.045
		Risky-First	226	2.903	.043
	Overload	Safe-First	207	2.708	.045
		Risky-First	187	3.034	.047

Table 3. Descriptive statistics for Essay 2

Essay 2

Study 1	**N:** 174 **Mean Age:** 36.46 **Gender:** 39.7% female, 59.8% male				
	Condition	**N**	**Sell**	**Donate**	**Keep**
	Lowball	58	12	20	26
	BelowAsking	52	31	7	14
	Asking	64	54	4	6

Study 2	**N:** 178 **Mean Age:** 35.17 **Gender:** 39.9% female, 58.4% male			
	Condition	**N**	**Sell**	**Donate**
	Lowball	95	39	56
	BelowAsking	83	62	21

Study 3	**N:** 231 **Mean Age:** 33.08 **Gender:** 53.7% female, 44.6% male			
	Condition	**N**	**Sell**	**Donate**
	Lowball	114	39	75
	BelowAsking	117	84	33

Curriculum Vitae

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Brock Scholarship, Ivey Business School, 2017-2021

Publications:

Journal Articles

- Sepehri, Amir, Rod Duclos, Kirk Kristofferson, **Poornima Vinoo**, and Hamid Elahi. "The Power of Indirect Appeals in Peer-to-Peer Fundraising: Why "S/He" Can Raise More Money for Me Than "I" Can for Myself." *Journal of Consumer Psychology* (2021).
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