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The Impact of Outcome Elaboration on Susceptibility to Contextual and Presentation Biases

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The Impact of Outcome Elaboration on Susceptibility to Contextual and Presentation Biases

Abstract

The authors examine an important anomaly in investment behavior – the tendency to fall prey to the effects of contextual and presentation biases, which emerge when individuals make different decisions as a function of how information is presented to them. They also identify an important factor that moderates these effects. Results from four studies show that investors with a stronger tendency to engage in pre-decision outcome elaboration are less susceptible to various contextual and presentation biases and are more likely to make consistent investment choices. Furthermore, the authors find that encouraging pre-decision elaboration on both the potential benefits and potential risks of investing helps investors who tend not to engage in such elaboration to become less influenced by peripheral cues like information framing and presentation mode. Findings from this paper offer implications for decision research and for the design, presentation, and communication of financial products.

Keywords: Elaboration on potential outcomes, context and framing effects, investment decision making, personal finance, Morningstar box

Individual investors represent a large and growing part of financial markets, as a result of the availability of on-line investing, a growth in the number and types of investment vehicles, and a shift from the use of defined benefit to defined contribution retirement plans (Bucks, Kennickel, and Moore 2006). Thus, more consumers than ever are participating in financial markets, yet many possess only minimal relevant knowledge and fail to receive appropriate training. Research has shown that investors are susceptible to many of the judgmental biases demonstrated in other decision-making domains (e.g., Lifson and Geist 1999; Shiller 2006). Since investment decisions have major implications for consumers' future financial welfare, there is a great need for research providing insights into how ordinary consumers make investment decisions and identifying ways to improve their decision making. In this paper, we use the investment context to study a broader consumer behavior anomaly – the tendency to fall prey to the effects of contextual and presentation biases.

Contextual and presentation biases emerge when individuals make different decisions as a function of how information is presented to them, even though the substance of the information is unchanged. With a few exceptions (e.g., Grant and Xie 2007; Hamilton and Biehal 2005; Johnson, Tellis, and MacInnis 2005; Madrian and Shea 2001; Rubaltelli et al. 2005; Zhou and Pham 2004), research of these biases in the domain of investment decision making has been scarce, and more research is needed on their effects on investors' decisions. We explore why some individuals are more susceptible to the biasing effects of context and information presentation variations, and propose a potential solution to alleviate these biases. In order to make thoughtful and balanced investment decisions, both potential gains and potential losses should generally be given consideration. However, not all investors engage in such thorough pre-decision consideration of potential outcomes. Nenkov, Inman, and Hulland (2008) show that

some people are more inclined than others to elaborate on potential outcomes when deciding how to behave. In this paper, we show that investors with a stronger chronic tendency to engage in pre-decision outcome elaboration (i.e., high in outcome elaboration) are less likely to fall prey to the effects of contextual and presentation biases and more likely to make consistent investment choices.

Across four studies, we consistently find that investors who are chronically high in outcome elaboration tendencies (i.e., have a stronger tendency to elaborate on both positive and negative potential outcomes) generate more frame-inconsistent thoughts (i.e., thoughts related to the alternative frame of reference), are less susceptible to context and information presentation effects, and make more optimal investment choices when compared to investors low in outcome elaboration tendencies. Furthermore, we show that elaboration on potential outcomes can be stimulated if individuals are encouraged to elaborate on the potential outcomes of investing before making an investment decision. Thus, our results have important implications for the design and marketing of financial products and for investor education campaigns.

The remainder of the paper is organized as follows. First, we review past literature dealing with the effects of contextual and presentation biases on choice. We then look at research related to elaboration on potential outcomes and discuss how this individual-specific construct can moderate the extent to which people are influenced by these biases when evaluating investment opportunities. Next, we present four studies that show how the tendency to engage in outcome elaboration draws attention to alternative frames of reference and attenuates the negative effects of information framing and information presentation. We conclude with a discussion of implications and suggestions for future research.

CONTEXTUAL AND PRESENTATION BIASES

One of the basic principles underlying expected utility theory is the principle of preference invariance, which requires that the preference order between prospects should not depend on the manner in which they are described (Kahneman and Tversky 2000). However, research conducted over the past two decades has established that the principle of invariance is often violated and the manner in which problems are presented affects decision makers' preferences and choices, even when the presentations are normatively equivalent (e.g., Soman 2004; Kahneman and Tversky 2000). This phenomenon is demonstrated in two major streams of research: effects of message framing – responding differently to distinct but objectively equivalent descriptions of the same message (e.g., 10% fat versus 90% fat-free) – and effects of message presentation – responding differently to equivalent information presented in different modes (e.g., verbally, numerically or graphically) – have been found to affect both preferences and choices. These effects are well documented in various domains, including medical judgments (Levin, Schnittjer, and Thee 1988), consumer judgments (Sen 1998), health behaviors (Halpern, Blackman, and Salzman 1989), auditor judgments (O'Clock and Devine 1995), health promotion (Block and Keller 1995; Maheswaran and Meyers-Levy 1990), product promotion (Homer and Yoon 1992), social dilemmas (Brewer and Kramer 1986), preference reversals (Johnson, Payne, and Bettman 1988), and gambling (Erev and Cohen 1990).

In the investment decision making context, very few articles have examined the effects of contextual and presentation biases. For example, Zhou and Pham (2004) examined the effects of presenting an investment opportunity as an individual stock offered in a trading account or as a mutual fund offered as an IRA on consumers' sensitivities to gains and losses, while Johnson, Tellis, and MacInnis (2005) found that describing a stock trade as a buy vs. sell affects investors'

preferences for winning/losing stocks. Even fewer studies have been conducted on information format effects in the investment domain, although Rubaltelli et al. (2005) found that varying the format used to present investment returns (e.g., prices, price changes, percentages, ratios) affects the extent to which people exhibit a status quo bias in their investment decisions.

While these context and presentation effects have been well substantiated, relatively little attention has been paid to their relationship with individual personality traits. One exception is research that has looked at the effects of people's need for cognition (NFC) on their responses to framing effects (e.g., Simon, Fagley, and Halleran 2004, Smith and Levin 1996). Results from this research stream have been inconsistent and have led to the conclusion that "[need for cognition] alone does not appear to consistently moderate framing effects" (Simon, Fagley, and Halleran 2004, p. 91). Not surprisingly, researchers have advocated further investigation of the effects of individual difference variables as moderators of people's evaluation of framed messages (Levin et al. 2002; Simon, Fagley, and Halleran 2004).

In the studies that follow, we measure and test an individual trait that we argue should be a more consistent moderator of people's susceptibility to context and presentation effects. Specifically, we examine how people's tendency to elaborate on potential outcomes affects their intentions to invest in financial opportunities that are framed differently (e.g., as gains versus losses) or presented in different information formats (e.g., graphically versus textually). Furthermore, we investigate whether outcome consideration can temporarily be stimulated so as to overcome an individual's chronic tendency not to engage in such pre-decisional elaboration.

We focus on one particular vein of context and presentation effects – those that result from varying different aspects of the description of a focal option that people need to evaluate. More specifically, we examine four distinct examples of such effects. Study 1 examines

information presentation effects, where the mode of financial information presentation is varied - graphic versus textual (information presentation study). Study 2 frames the goal of investment behaviors as approaching gains versus avoiding losses (goal framing study). Study 3 varies the label of the difference between two mutual funds' fees by framing it as either a discount of one fund or a surcharge of the other (difference label study). Finally, Study 4 characterizes a key attribute of a financial instrument - its past return - as a gain or loss (attribute framing study). Responses to these different manipulations encourage adoption by the decision maker of a particular frame of reference towards the target, and a lack of focus on alternative frames of reference (see Levin, Schneider, and Gaeth 1998). Across all four studies, we find that elaborating on the positive and negative outcomes of engaging in the advocated behavior attenuates (or even eliminates) people's susceptibility to these effects and helps them make better investment decisions. In Study 2, we assess the process through which elaboration on potential outcomes reduces susceptibility to such effects by collecting and analyzing cognitive response data. Furthermore, in Study 4 we show that susceptibility can be reduced for investors who tend not to engage in outcome elaboration by encouraging them to elaborate on the potential positive and negative outcomes of investing before making a decision.

Past research has argued that pre-decision deliberation creates a cognitive orientation - a "deliberative mindset" - that facilitates the task of determining which available option is most desirable while still being feasible (Gollwitzer 1990). Individuals in a deliberative mindset, who weigh the pros and cons of feasibility-related and desirability-related information and the positive and negative consequences of goal pursuit, are more receptive both to information that is externally available and to information that is stored in memory (Gollwitzer and Bayer 1999).

Stable individual traits tend to make consumers more involved with deliberating options and wishes. In this paper, we examine one such trait: the tendency to elaborate on potential outcomes. As discussed above, some people have a stronger tendency than others to elaborate on the potential implications of a decision and weigh its pros and cons (Nenkov, Inman, and Hurland 2008). This tendency makes individuals more likely to activate a deliberative mind-set in the pre-decisional phase of decision making. Such a balanced consideration of positive and negative consequences can reduce shortcomings people ordinarily exhibit when analyzing the desirability of a choice, such as employing simplified strategies or weighing positive and negative consequences differently and falling prey to framing effects.

Nenkov, Inman, and Hurland (2008) conceptualize elaboration on potential outcomes as a stable individual difference that encompasses three related dimensions: (1) a *generation/evaluation* dimension (the extent to which people generate a variety of potential consequences before they make a decision, and evaluate the importance and likelihood of these consequences); (2) a *positive outcome focus* dimension (the extent to which people focus on positive consequences); and (3) a *negative outcome focus* dimension (the extent to which people focus on negative consequences). In this paper we focus exclusively on the first dimension of elaboration on potential outcomes, which deals with the extent to which individuals consider their decision consequences and evaluate the probability and importance of these consequences. Such a focus is particularly important in investment decision-making where both potential rewards and losses should be considered, as investors who are more willing to engage in a thorough, balanced pre-decision elaboration on potential outcomes of a decision should be less susceptible to contextual and presentation biases.¹

STUDY 1: INFORMATION PRESENTATION VARIATION

According to rationality principles, different but equivalent information formats should not affect investment strategies and decisions. However, differences in modes of information presentation have been shown to affect decision making behavior in various domains (e.g., Erev and Cohen 1990; Halpern, Blackman, and Salzman 1989; Johnson, Payne, and Bettman 1988; Sen 1998). Varying the information format is also likely to have important effects on investor decision making (e.g., Rubaltelli et al. 2005). We propose that providing investors with visual aids when describing mutual funds should have a greater impact on those who tend not to engage in a balanced pre-decision outcome elaboration (i.e., low outcome elaboration). Visual aids should make these individuals more conscious of the different asset types contained in each fund and of the potential risks and returns associated with investing in certain funds, which should in turn prompt them to create more diversified investment portfolios.

The Morningstar-style box is a pictorial representation of the different asset types contained in a mutual fund. This widely adopted format classifies mutual funds along two dimensions into one of nine categories using a matrix-type graphic,² allowing investors to assess the degree to which their set of investments spans the different types of investment categories. By including a variety of investments that are categorized into different Morningstar style box classifications, an investor can create a more diversified portfolio of investments.³

Providing fund information in a visual format (i.e., Morningstar boxes) rather than textual format is expected to have a greater impact on the diversification efforts of low (versus high) outcome elaboration investors. The visual format should make the different asset classes available in a choice set more salient to low outcome elaboration investors, thus providing cues to diversification and leading to the creation of more diversified investment portfolios. In

contrast, high outcome elaboration investors, who are more likely to engage in thorough pre-decision elaboration on the various potential outcomes that might result from investing in each of the proposed mutual funds, should be able to discern risk/return tradeoffs regardless of presentation format. Thus:

H₁: Individuals with a higher (versus lower) chronic tendency to generate and evaluate potential outcomes will be less susceptible to the effects of varying information presentation format.

Design and Procedure

A mail questionnaire was sent to a representative nationwide sample of 2,500 households. Each questionnaire contained a single dollar bill to encourage participation. Respondents were asked to consider a scenario in which they had just begun working for a company that offered them an opportunity to invest in a 401(k) retirement plan. They were given general information about 401(k) plans, and told that they could contribute up to \$14,000 from their annual salary to the 401(k) for the current year. Respondents were then asked to indicate how much money, if any, they would invest in the 401(k), and how they would invest this money across the three available mutual funds, each of which represented one of the three major asset classes offered in 401(k) type plans: stocks, bonds, and money market funds. The funds were listed in alphabetical order.

After participants decided how much to invest and allocated the money to the available funds (i.e., asset classes), we measured their self-reported knowledge about investing (two 5-point items; $\alpha = .80$; “Compared to most people, I know a lot about investing”; “Others often ask me for investing advice”), administered the generation/evaluation dimension of the elaboration on potential outcomes scale (six 5-point items; $\alpha = .90$; Nenkov, Inman, and Hulland 2008, see Appendix), and a scale measuring risk aversion (three 5-point items; $\alpha = .75$; Donthu and

Gilliland 1996). Finally, demographic information (gender, employment status, and primary household income earner status) was collected. Of the 166 respondents who returned the questionnaire (a 15% response rate), 131 chose to invest in the 401(k) plan presented in the scenario. Of the latter group, we removed participants aged 65 or older, who are above the traditional retirement age and are likely not to be concerned with investing in a 401(k) plan. Data from the remaining 113 respondents form the basis for our analysis.

The information presentation manipulation consisted of varying the salience of diversification cues by providing (or not providing) a visual representation of the asset types contained in a fund. For this purpose we either used Morningstar-style boxes as visual aids to describe the mutual funds that people could choose from for their 401(k) plans or provided the information in text format (see Table W1 in the Web Appendix for stimuli). Our dependent variable is a commonly used index of portfolio diversification, equal to one minus the normalized Herfindahl index,⁴ (e.g., Woerheide and Persson 1993). The index ranges in value from 0 to 1, with higher values indicating greater diversification.

Results and Discussion

Test of hypothesis. To test H₁, a regression using outcome elaboration, information format (box graphic versus text), and their interaction as independent variables, and knowledge about investing, risk aversion, gender, employment status, and primary household income earner status as controls was conducted to look at how well investors diversified their money across the available fund options.⁵ Results from the regression ($F(8, 104) = 3.35, p < .05; R^2 = 10\%$) revealed a significant main effect for format condition ($b = .78, t = 2.09, p < .05$) and for outcome elaboration ($b = .13, t = 2.07, p < .05$), as well as a significant interaction between information format condition and outcome elaboration ($b = -.19, t = -1.98, p < .05$). Subsequent

analysis of the group means revealed that investors who scored high on outcome elaboration (based on a median split) were not significantly affected in their diversification by the format manipulation ($M_{\text{box format}} = .63$; $M_{\text{text format}} = .67$, $t(109) = -.52$, $p > .1$; see Figure 1). In contrast low outcome elaboration investors created a more diversified portfolio in the Morningstar-box condition than in the text condition ($M_{\text{box format}} = .65$; $M_{\text{text format}} = .47$, $t(109) = 1.97$, $p < .05$). Thus, H_1 is supported.

----- Please insert Figure 1 about here -----

Results from our first study show how peoples' outcome elaboration tendencies impact their susceptibility to the effects of varying information presentation formats for investment options. When mutual fund descriptions included Morningstar-style boxes rather than similar information presented in textual form, low outcome elaboration investors significantly increased their portfolio diversification. It is interesting that employing the box format had no effect on the high outcome elaboration group. This supports our thesis that this latter group engages in a risk/benefit assessment and discerns the value of considering different asset classes regardless of information format, while the low-outcome elaboration group is affected by the nature of the information presentation.

In the next study, we analyze the underlying process via which investors' outcome elaboration tendencies mitigate their susceptibility to contextual and presentation biases. For this purpose, we elicit participants' cognitive responses in addition to their evaluations in order to provide direct evidence that high outcome elaboration people, who are less susceptible to such biases, are more likely to spontaneously generate alternative frames of reference.

STUDY 2: BEHAVIOR GOAL VARIATION

Past research has found that emphasizing either the positive consequences of undertaking an act to achieve a particular goal or the negative consequences of not undertaking it influences subsequent judgment and choice (e.g., Block and Keller 1995; Brewer and Kramer 1986; Homer and Yoon 1992; Maheswaran and Meyers-Levy 1990). Researchers have also begun to investigate the effects of activating different goals on investment decisions (Hamilton and Biehal 2005; Zhou and Pham 2004). Goal framing, however, has not always produced consistent effects, and researchers have sought individual moderators that might explain these inconsistencies (e.g., Maheswaran and Meyers-Levy 1990; Shiv, Edell, and Payne 2004). Rothman and Salovey (1997) also call for more research examining the relationship between goal framing and stable psychological traits. In this study, we examine how consumers' outcome elaboration tendencies interact with the effects of goal framing to affect consumers' intention to invest in an advertised mutual fund. We expect to find significant goal framing effects for low outcome elaboration investors, but not for high outcome elaboration ones. High outcome elaboration investors are more likely to engage in a thorough pre-decision elaboration of the potential implications – both positive and negative – of the advertised investment behavior, which will draw their attention to the different goals that the advocated behavior might fulfill (i.e., achieving gains, avoiding losses), making both goals salient. Because these high outcome elaboration consumers focus on both the goal emphasized by the message and the alternative goal, their evaluation of the investment offer will not reflect goal framing effects. Thus:

H₂: Individuals with a higher (versus lower) chronic tendency to generate and evaluate potential outcomes will be less susceptible to goal framing effects.

Throughout the paper we argue that elaborating on the positive and negative outcomes of engaging in an advocated behavior helps people focus not only on the frame of reference made salient by the framing manipulation, but also on the alternative frame of reference. We

experimentally test this argument by examining investors' thought processes to provide evidence that consumers with strong (versus weak) outcome elaboration tendencies spontaneously generate a greater number of alternative frames of reference. We expect that high (but not low) outcome elaboration investors will generate a greater number of frame-inconsistent thoughts, while there will be no difference in the number of frame-consistent thoughts.

H₃: Investors with a higher (versus lower) chronic tendency to generate and evaluate potential outcomes will generate a greater number of frame-inconsistent (compared to frame-consistent) thoughts in response to the investment offer.

Design and Procedure

One hundred and two undergraduate students (49 female) were randomly assigned to either a gain (i.e., positive framing) or a non-gain (i.e., negative framing) condition. For their participation, respondents were entered in a lottery for several gift certificates from a large online retailer. Each respondent was given a booklet that described a decision scenario asking them to imagine that they had \$5,000 available and to evaluate an investment opportunity. The investment opportunity was a mutual fund offered by the fictional *Financial Investment Corporation*, whose description was varied across the two conditions to emphasize either the gains that investing in the fund might provide (positive framing) or the gains that one might fail to realize by not investing in the fund (negative framing). The advertised mutual fund had an average return of 9.3% over the past 10 years (please see Table W3 in the Web Appendix for stimuli). All respondents were told that they could choose to invest all or some of the available \$5,000 in the advertised fund or choose to use the money for other things, and that gains and losses were to be realized in one year. The dependent measure in this study is the likelihood of investing in the advertised mutual fund (1 = "not likely at all," 9 = "very likely"). Next, we assessed participants' cognitive responses by asking them to list the things that went through

their mind while they were evaluating the investment offer (Cacioppo and Petty 1981). As Cacioppo and Petty (1981) recommend, the thought listing procedure was administered after the outcome variable.

Measures

After measuring participants' intention to invest in the advertised mutual fund, we measured a set of potential confounds and covariates: perceived risk, extent of cognitive elaboration, issue involvement, self-efficacy beliefs, and feelings of threat and fear.⁶ Demographic information was also collected, along with measures of knowledge about investments. Two manipulation check questions were included that asked participants whether the message stressed the positive implications of investing in the mutual fund, and whether it stressed the negative implications of not investing in the fund (Block and Keller 1995).

Next, as a part of a seemingly unrelated study involving completion of a different questionnaire, we measured the generation/evaluation dimension of the elaboration on potential outcomes scale (six 7-point items; $\alpha = .84$) and risk aversion (three 7-point items; $\alpha = .71$) using the same scales used in Study 1. We also included a measure of participants' NFC (five 7-point items; $\alpha = .82$; Cacioppo and Petty 1982)⁷ in order to control for this individual trait that has been examined in the past as a moderator of framing effects (e.g., Simon, Fagley, and Halleran 2004).

Results and Discussion

Manipulation check. As expected, subjects perceived the fund description to emphasize the positive consequences of investing to a higher extent in the positive condition ($M = 6.9$) than in the negative one ($M = 4.6$; $t(100) = -5.06$, $p < .01$) and the negative consequences of not

investing to a higher extent in the negative condition ($M = 7.3$) than in the positive one ($M = 3.5$; $t(100) = 9.53, p < .01$). Thus, the goal framing manipulation was successful.

Thought-listing protocols. Two independent judges, unaware of the study hypotheses, coded participants' thought listings as frame-consistent ($M = 1.18, SD = 1.01$), frame-inconsistent ($M = 0.85, SD = 0.88$), or frame-unrelated ($M = 1.95, SD = 1.49$). For example, the thought, "I can make money", would be classified as frame-consistent in the positive framing condition, but as frame-inconsistent in the negative framing condition. A thought such as "I need more information" would be coded as frame-unrelated. Inter-rater agreement was 90% for frame-consistent thoughts, 91% for frame-inconsistent thoughts, and 91 % for frame-unrelated thoughts, with disagreements resolved through discussion. Kappa coefficients also verified that agreement between the two raters exceeds that expected by chance ($.86, p < .001$ for frame-inconsistent thoughts, $.87, p < .001$ for frame-consistent thoughts, and $.87, p < .001$ for frame-unrelated thoughts).

Test of hypotheses. To test H_2 , we ran a regression on intention to invest in the advertised fund, using goal framing, outcome elaboration and their interaction as independent variables, and perceived self-efficacy, perceived risk, risk aversion, knowledge about investing, and gender as controls ($F(8, 91) = 2.91, p < .01; R^2 = 20\%$). The results show significant main effect of goal framing ($b = -3.40, t = -2.83, p < .01$), but not of outcome elaboration ($b = -.02, t = -.07, NS$). Of the control variables, only self-efficacy beliefs had a significant effect on the dependent variable ($b = .42, t = 3.27, p < .01$). As predicted, the results also revealed a significant two-way interaction between framing and outcome elaboration ($b = .56, t = 2.60, p < .01$; also see Table W5 in Web Appendix).⁸

Additional analysis of the group means revealed that, as predicted, intentions to invest for high outcome elaboration individuals (based on a median split) were not affected by the framing manipulation ($M_{\text{negative frame}} = 5.0$; $M_{\text{positive frame}} = 5.1$, $t(98) = .33$, $p > .1$), whereas low outcome elaboration investors were significantly more persuaded to invest in the negative framing condition than in the positive one ($M_{\text{negative frame}} = 5.4$; $M_{\text{positive frame}} = 3.9$, $t(98) = -3.18$, $p < .01$; see Figure 2). Thus, while our findings reveal that people with high outcome elaboration tendencies are not affected by goal framing, we find those with low outcome elaboration tendencies are, in support of H_2 .

We next tested H_3 by examining whether participants with higher outcome elaboration scores had a stronger tendency to focus not only on the salient, but also on the alternative frame of reference (i.e. whether they generated a greater number of frame-inconsistent thoughts than participants with low outcome elaboration scores). For this purpose we ran two ANOVA's on the number of frame-consistent and frame-inconsistent thoughts people generated in the thought listing task. Results reveal that while there is no difference in the number of frame-consistent thoughts generated by high vs. low outcome elaboration people ($p > .1$), high outcome elaboration people generated a significantly greater number of frame-inconsistent thoughts than low outcome elaboration people ($p < .01$; see Table 1). These results provide strong evidence that high outcome elaboration people tend to have a significantly stronger tendency to focus on frame-inconsistent thoughts, which provides strong support for H_3 .

Since need for cognition has been examined as a moderator of framing effects in the past, we conducted additional analysis to examine its effects on individuals' generation of frame-consistent and frame-inconsistent thoughts. Results from two ANOVA's revealed that high NFC people generate a significantly greater number of frame-consistent thoughts as compared to low

NFC ones ($p < .01$). However, there was no difference in the number of frame-inconsistent thoughts generated by these two groups ($p > .1$; see Table 1). These results provide evidence that the deeper and more effortful general type of processing that high NFC people engage in does not help them escape the salient frame and generate a greater number of frame-inconsistent thoughts. Finally, it should be noted that, as shown in Table 1, high NFC people generate a significantly greater number of total thoughts as compared to low NFC people, while the total number of thoughts generated for high outcome elaboration people is only slightly greater than for low outcome elaboration ones.

----- Please insert Figure 2 and Table 1 about here -----

In our next study we show that high outcome elaboration investors' resistance to contextual and presentation biases helps them make more consistent and overall better investment choices when compared to low outcome elaboration investors, whose preferences are affected by such manipulations.

STUDY 3: DIFFERENCE LABEL VARIATION

In Study 3, we employ a framing manipulation that labels the difference in the annual fees charged by two mutual funds as a surcharge for one fund vs. a discount for the other. Past research has suggested that a difference that favors option B over option A can sometimes be framed as an advantage of B or as a disadvantage of A by suggesting either A or B as the neutral reference point (Tversky and Kahneman 1986). Because of loss aversion, the difference looms larger when A is neutral and the difference is evaluated as a loss than when B is neutral and the difference is evaluated as a gain. Indeed, there is evidence in various domains that labeling a difference between two prices as a surcharge or as a discount tends to differentially affect

people's preferences for the two options (e.g., Thaler 1980; Tversky and Kahneman 1986). The reason for these effects is that it is easier to forego a discount than to accept a surcharge because the same price difference is valued as a gain in the former case and as a loss in the latter (Tversky and Kahneman 1986).

The purpose of this study is to show that high outcome elaboration investors consistently choose the mutual fund with superior performance, whereas low outcome elaboration investors are likely to be influenced by how the difference between two mutual funds' annual fees is labeled. We expect that high outcome elaboration investors will prefer the fund with a superior overall return in both framing conditions. On the other hand, low outcome elaboration investors will prefer the superior fund in the discount condition, but will gravitate toward the inferior fund in the surcharge condition, since they will code the surcharge as a loss relative to the reference point promoted by the manipulation rather than take a comprehensive view and focus on the overall return. Thus:

H4: Individuals with a lower (versus higher) chronic tendency to generate and evaluate potential outcomes will be more likely to choose the superior investment option in the discount frame, but the inferior option in the surcharge frame.

Design and Procedure

Data for this study was collected via an online questionnaire administered to 94 people (46 female) ranging in age from 20 to 45. Participants were recruited via e-mail from undergraduate and graduate business classes (70% graduate) on three university campuses and were either paid a small cash award for participation or were entered in a lottery for a chance to win a gift certificate to a large online retailer. Participants were asked to imagine that they had \$5,000 available, and had to decide how to invest the money for the coming year. They were randomly assigned to one of two experimental conditions and were asked to evaluate two mutual

funds – fund A and fund B. In both conditions, fund B had a higher average annual return over the past 10 years (11.1%) and a higher annual fee (4.5%) than fund A (9.9%; 3.5%, respectively), and thus was the slightly superior option. However, in one condition participants were told that fund A offers a fee discount of 1% resulting in an annual fee of 3.5%, while the annual fee for fund B is 4.5%. In the other condition, they were told that the annual fee for fund A is 3.5%, while the fee for fund B - which adds a surcharge of 1% - is 4.5% (please refer to Table W6 in the Web Appendix for stimuli).

Measures

To measure our dependent variable (net preference for fund B over fund A) participants were asked to indicate how much of the \$5,000 they would invest in fund A and how much in fund B, making sure that these two amounts added up to \$5,000. We again measured and tested a set of potential confounds and covariates: perceived risk, extent of cognitive elaboration, issue involvement, and feelings of threat and fear (see table W4 in the Web Appendix). At the end of the questionnaire, as in the previous two studies, a manipulation check was included asking participants whether the message emphasized more of the positive or more of the negative aspects of each of the proposed funds (two 9-point questions ranging from - 4 = more of the negative aspects were emphasized to + 4 = more of the positive aspects were emphasized). Next, a questionnaire was administered containing the generation/evaluation dimension of the elaboration on potential outcome scale ($\alpha = .92$), the risk aversion scale ($\alpha = .77$), and the NFC scale ($\alpha = .89$) administered in previous studies.

Results and Discussion

Manipulation check. The manipulation check revealed that subjects perceived that more of the positive aspects of fund A were emphasized in both the discount ($M = 1.29$, $t(48) = 4.24$,

$p < .01$) and surcharge ($M = 1.04$, $t(44) = 3.25$, $p < .01$) framing conditions. On the other hand, they perceived that the scenario emphasized neither the positive nor the negative aspects of fund B in the discount condition ($M = -.12$; $t(47) = -.43$, $p > .1$), but it emphasized significantly more of the fund's negative aspects in the surcharge framing condition ($M = -1.30$; $t(43) = -3.81$, $p < .01$), suggesting that it is the greater emphasis on the negative aspects of fund B in the surcharge condition that is driving the effect.

Test of hypothesis. To test H_4 , we ran a regression on participants' net preference for fund B (operationalized as dollars invested in fund B minus dollars invested in fund A), with outcome elaboration and framing condition as independent variables, and knowledge about investing, perceived risk, risk aversion, and gender as controls ($F(8, 85) = 5.32$, $p < .01$; $R^2 = 33\%$). We find significant main effects of difference label framing ($b = -4,150$, $t = -2.70$, $p < .01$) and outcome elaboration ($b = 1,198$, $t = 3.88$, $p < .01$) and a significant two-way interaction between outcome elaboration and framing condition ($b = 700.6$, $t = 2.44$, $p < .05$). Only one control variable – perceived risk of investing in fund B – has a significant effect on participants' net preference for fund B ($b = -969.3$, $t = -4.10$, $p < .01$).

The significant two-way interaction provides support for H_4 . Subsequent analysis of the group means revealed that across the discount versus surcharge framing conditions, high chronic outcome elaboration investors (based on a median split) consistently invested more money in the superior fund B (M discount frame = \$1,179; M surcharge frame = \$708, $t(90) = -.54$, $p > .1$), while low chronic outcome elaboration investors invested more money in fund B in the discount condition (M discount frame = \$1,143), but invested more money in the inferior fund A in the surcharge condition (M surcharge frame = -\$1,781, $t(90) = -3.04$, $p < .01$; see Figure 3).

----- Please insert Figure 3 about here -----

In the next study, we test whether direct intervention can offset some of the negative effects of chronically-low outcome elaboration tendencies, with the potential to enhance decision quality in the domain of financial investing.

STUDY 4: PRODUCT ATTRIBUTE VARIATION

In this study we employ a framing manipulation that labels a key attribute of the fund – its past average return – in positive vs. negative terms. The manipulation we employ here – attribute framing – refers to the valence-consistent shift in evaluations that leads positively-framed attributes to result in more favorable evaluations than negatively-framed attributes. Attribute framing promotes selective attention to the positive (negative) attributes of the object, leading in turn to greater accessibility of positive (negative) associations in memory. Attribute framing effects appear to be reliable and robust (Levin et al. 2002) and have been shown across various domains (e.g., Levin, Schnittjer, and Thee 1988; O’Clock and Devine 1995).

In this study, we emphasize the positive or negative past return of a variable financial instrument. We expect that emphasizing positive return information will tend to activate positive concepts associated with a high return such as financial gains, whereas emphasizing negative return information will activate negative concepts such as financial losses, especially among low outcome elaboration investors. Based on past literature, which has found that framing a key product attribute in a positive (negative) way will lead to a more positive (negative) evaluation of the product (e.g., Levin, Schneider, and Gaeth 1998), we expect that low outcome elaboration individuals’ willingness to invest in the fund will generally be higher in the positive framing condition than in the negative one. Thorough pre-decision outcome elaboration on a variety of potential outcomes of investing, however, should help participants focus on both the positive and

negative aspects of the key product attribute, helping them evaluate the product in a more balanced way, and reducing their susceptibility to attribute framing effects. Therefore, the investment intentions of high outcome elaboration investors should not be swayed by emphasizing the positive (negative) aspects of a mutual fund's return. Thus:

H5: Individuals with a higher (versus lower) chronic tendency to generate and evaluate potential outcomes will be less susceptible to attribute framing effects.

Earlier, we argued that the chronic tendency to engage in pre-decision elaboration on potential outcomes draws peoples' attention to different frames of reference, thus helping them be less susceptible to specific, externally-imposed contextual and presentation biases. In this study we directly demonstrate that greater outcome elaboration precedes this reduced susceptibility by adding an additional condition that encourages participants to elaborate on the potential outcomes of investing before they make a decision. In this condition, we prime deliberative mindsets in participants by encouraging them to consider both the positive and negative, short-term and long-term outcomes of investing in an advertised mutual fund. We expect that this manipulation will encourage low outcome elaboration participants to temporarily engage in greater outcome elaboration. This should have the effect of decoupling their product evaluations from the differential framing of the fund return information. However, this deliberative mindset priming is not expected to make a difference to the responses of high outcome elaboration participants, since they tend to engage in such elaboration without encouragement.

H6: When encouraged to elaborate on the positive and negative outcomes of investing before making a decision, low outcome elaboration individuals will become less susceptible to attribute framing effects.

Design and Procedure

One hundred eighty three undergraduate students (79 female) participated in the study in exchange for course credit. They were told that they had \$5,000 available, and had to decide how to invest the money for the coming year. Participants were randomly assigned to one of four experimental conditions in a 2 (outcome elaboration: encouraged vs. not encouraged) x 2 (attribute framing: positive vs. negative) between-subjects design. In all conditions, participants were given a booklet that contained an investment offer describing a mutual fund that had a variable return and was offered by the fictional *Financial Investment Corporation*. The offer was framed differently in the two framing conditions: the positive condition emphasized that the average return for the best five of the past ten years was 12%, whereas the negative condition stated that the average return for the worst five of the past ten years was negative 2% (see Table W7 in the Web Appendix for stimuli). In both conditions, it was also stated that the average return over the past ten years was 5.03% and that any money not invested in the proposed fund would be invested instead in a mutual fund with a fixed annual return of 2%.

Following exposure to the investment offer, the outcome elaboration groups were asked to first elaborate on the potential outcomes of investing or not investing in the mutual fund before making a final investment decision. All subjects then responded to a series of questions relating to the dependent measures, the manipulation check variables, and measures of potential confounds and covariates. The same sets of measures used in Study 2 were also used in Study 4.

Measures

A questionnaire containing the same elaboration on potential outcomes ($\alpha = .90$) and risk aversion ($\alpha = .70$) scales as the previous studies was administered. The booklet containing the investment offer was presented separately as a part of a seemingly unrelated study. After participants in the outcome elaboration condition were shown the mutual fund advertisement, but

before they were asked to indicate their intention to invest, they were encouraged to elaborate on the potential outcomes of investing in the fund.⁹ In order to encourage participants' elaboration on potential outcomes, we employed the deliberative mindset priming approach developed by Gollwitzer and his colleagues (e.g., Gollwitzer and Kinney 1989). We first asked participants to list the positive and negative, short-term and long-term consequences of investing in the fund. After listing these consequences, participants were then asked to assess (using a seven-point scale) each outcome's potential importance and the likelihood that it would actually occur. Our dependent measure used a nine-point scale to assess intention to invest in the presented mutual fund (1 = "not likely," 9 = "very likely"). At the end of the questionnaire, as in Study 2, a manipulation check was included asking participants whether the message stressed the positive implications of investing in the mutual fund, and whether it stressed the negative implications of not investing in the fund.

Results and Discussion

Manipulation check. The manipulation check yielded a significant main effect for framing – subjects perceived that the framed investment offer emphasized the positive consequences of investing to a higher extent in the positive framing condition ($M = 7.3$) than in the negative one ($M = 4.1$, $t(181) = 11.16$, $p < .01$), and that the offer emphasized the negative consequences of investing to a higher extent in the negative framing condition ($M = 6.1$) than in the positive one ($M = 3.6$, $t(181) = 7.93$, $p < .01$).

Test of hypotheses. To test H_5 and H_6 , we ran a regression with outcome elaboration, framing condition, and deliberative mindset manipulation as independent variables, and knowledge about investing, perceived risk, risk aversion, and gender as controls ($F(1, 171) = 5.42$, $p < .01$; $R^2 = 26\%$). The analysis revealed significant main effects of attribute framing ($b =$

7.88, $t = 4.43$, $p < .01$) and outcome elaboration ($b = - 2.96$, $t = - 3.48$, $p < .01$), significant two-way interactions between outcome elaboration and framing ($b = 1.32$, $t = 3.52$, $p < .01$) and between framing and the deliberative mindset manipulation ($b = - 6.55$, $t = - 2.36$, $p < .05$), and a significant three-way interaction between framing, outcome elaboration, and the deliberative mindset manipulation ($b = 1.10$, $t = 1.96$, $p < .05$). Only one control variable, risk aversion, had a significant effect on participants' intention to invest ($b = - 0.46$, $t = - 3.23$, $p < .01$).

Analysis of the group means revealed that in the condition where participants were not encouraged to elaborate on potential outcomes, the results were similar to the other studies. Low chronic outcome elaboration investors (based on a median split) exhibited a significant effect of framing on intention to invest, with low outcome elaboration investors significantly more willing to invest in the positively-framed condition ($M_{\text{positive frame}} = 7.5$) than in the negatively-framed condition ($M_{\text{negative frame}} = 4.7$, $t(165) = - 4.0$, $p < .01$; see Figure 3). In contrast, high outcome elaboration investors were unaffected by framing ($M_{\text{positive frame}} = 6.2$; $M_{\text{negative frame}} = 6.1$, $t(165) = .29$, $p > .1$).

----- Please insert Figure 3 about here -----

We next examined the effects of directly encouraging a deliberative mindset by inducing outcome elaboration processing tendencies. The significant three-way interaction provides strong support for H_5 and H_6 . Among individuals who exhibit a chronic tendency to generate and evaluate potential outcomes, attribute framing did not have a significant effect on intention to invest when these individuals were encouraged to elaborate on outcomes ($M_{\text{positive frame}} = 6.3$; $M_{\text{negative frame}} = 5.8$; $t(165) = .33$, $p > .1$), as would be expected. Importantly, a similar pattern of results is observed among low outcome elaboration individuals who were encouraged to elaborate ($M_{\text{positive frame}} = 6.1$; $M_{\text{negative frame}} = 6.0$; $t(165) = 1.95$, $p > .1$). Thus, we show that

priming a deliberative mindset among low outcome elaboration individuals – by encouraging them to consider the potential positive and negative outcomes of investing – promotes a more balanced fund evaluation by consumers not normally inclined to engage in this type of elaboration, and thereby reduces their susceptibility to contextual and presentation biases. Direct intervention therefore enabled chronically low outcome elaboration individuals to behave in a manner consistent with high outcome elaboration individuals.¹⁰

Results from this fourth study provide a form of triangulation in that we achieve results in a state level as compared to a chronic trait level in the previous studies. The results support our contention that a stronger outcome elaboration tendency attenuates contextual and presentation biases, independent of the type of manipulation involved. This study further shows that independent of an individual's chronic tendency to elaborate on potential outcomes, investors' susceptibility to such biases can be temporarily attenuated with a mental processing intervention that induces them to consider the potential outcomes of investing before making a decision.

GENERAL DISCUSSION

Prior research has not empirically examined whether pre-decision deliberation on the pros and cons of engaging in a behavior might attenuate shortcomings individuals ordinarily exhibit when analyzing the desirability of a choice (Gollwitzer 1990). In this paper we provide evidence that the tendency to engage in a balanced consideration of positive and negative outcomes might eliminate these shortcomings. More specifically, we show that such pre-decision deliberation, which promotes a balanced focus on alternative frames of reference, reduces the effects of various contextual and presentation biases in the domain of investment decision making.

Our findings have important implications for understanding a key investment decision-making bias that results from presenting information equivalent in content but different in format. Robust context and presentation effects have been found to impact people's attitudes, judgments, and choices in various domains in prior research. We show that such effects exist in the domain of investment decision making as well, and persist when different types of manipulations that vary the description of a focal option are employed. Importantly, results from our studies demonstrate that investors who elaborate on the potential outcomes of their investment decisions, when compared to investors who are less likely to do so, are more likely to focus on alternative frames of reference and are thus less influenced by irrelevant cues such as the framing or the presentation mode of the information provided to them. Furthermore, we show that encouraging pre-decision elaboration on the pros and cons of investing helps investors with weaker outcome elaboration tendencies to become less influenced by peripheral cues such as framing and presentation mode.

Past research has found that high outcome elaboration people are more likely to engage in effective self-regulation and tend to invest more money for their retirement (Nenkov, Inman, and Hulland 2008). It is therefore important for investor education programs and campaigns to target and reach low outcome elaboration investors and improve their investment practices. Findings from our studies provide important implications for improving consumers' investment decisions. Results from our first study reveal that low outcome elaboration investors are more likely to benefit from visual aids such as Morningstar boxes. This group's higher susceptibility to information presentation effects calls for the creation of effective educational programs and advertising campaigns aimed at increasing investments and improving decision quality, since relatively simple changes in information presentation – using visual aids when presenting mutual

funds – can affect investment decisions (e.g., lead to an increase in portfolio diversification) for the low outcome elaboration sub-group of investors.

Research has shown that decisions made by employees covered by defined contribution plans may vary considerably depending on how the investment opportunities are presented (e.g., Benartzi and Thaler 1999). Given the increasing numbers of consumers who are switching from defined benefit to defined contribution type of pension plans, it is important to identify factors that might affect their decision to enroll in such plans. For example, one of the authors recently received a letter urging them to enroll in their employer's 401(k) plan. The letter employed negative goal framing and noted that "...if you do not participate you will be foregoing 8% of your pay." While the type of goal framing employed should not matter for high outcome elaboration people, our findings suggest that negative framing may be persuasive to low outcome elaboration investors – the ones who are less likely to invest in a 401(k) plan. Study 3 results further showed that, while high outcome elaboration investors make consistent investment choices, low outcome elaboration ones are more likely to choose a sub-optimal investment option due to a presentation variation. While considering a fund's fees and charges is important, the way that these charges are presented should not affect investors' choices. Finally, Study 4 revealed that low outcome elaboration investors tend to prefer a fund when its best years of performance are emphasized. This tendency is related to the widespread suboptimal investment strategy of performance chasing. This widely documented strategy of investing in funds that have realized high returns (e.g., Sirri and Tufano 1998) has been criticized and linked to multiple negative consequences such as increased portfolio volatility, excessive portfolio risk, and below-average results (e.g., Bagnoli and Watts 2000). Our results suggest that low outcome elaboration investors are especially vulnerable to this suboptimal strategy and its negative consequences. The

good news is that their susceptibility to this bias can be mitigated by a simple intervention. We found that encouraging investors to consider the risks and benefits of investing before making an investment decision reduces susceptibility to framing effects for all investors independent of their outcome elaboration tendencies.

The Securities and Exchange Commission is aware of the potential for funds to present its performance in a potentially misleading fashion. In October 2003, it amended its Investment Company Advertising Rules to require that all advertisements for mutual funds to require the following information, “(i) a statement that past performance does not guarantee future results; (ii) a statement that current performance may be lower or higher than the performance data quoted; and (iii) a toll-free or collect telephone number or a website where an investor may obtain performance data current to the most recent month-end” (Federal Register 2003, page 57765). Further, advertisements are required to include a statement that advises investors “to consider the fund’s investment objectives, risks, and charges and expenses carefully before investing; explains that the prospectus contains this and other information about the investment company; identifies a source from which an investor may obtain a prospectus; and states that the prospectus should be read carefully before investing” (Federal Register 2003). *Our findings strongly suggest that these requirements, while helpful, are insufficient for many investors. A deliberative mindset intervention (similar to our operationalization in Study 4) should be added to all mutual fund advertisements to help investors be less swayed by misleading representation of fund information.*

By examining the relationship between different types of contextual and presentation biases and people’s tendencies to consider the potential future outcomes of their behavior, this research also contributes to our understanding of the relationship between message frames and

individuals' dominant psychological traits and concerns. We argue conceptually and show empirically that in contrast to NFC (a general type of processing) – which does not prevent people from focusing exclusively on the salient frame of reference – elaboration on potential outcomes (a balanced type of processing), aids them in broadening their focus to include the alternative frame. While the interaction between NFC and framing was not significant in our studies, it has been demonstrated to be significant in previous work (e.g., Chatterjee et al. 2000). Perhaps its significance depends on the type of framing used (Levin, Schneider, and Gaeth 1998) and elaboration on potential outcomes is a better predictor than NFC for some types of framing but not for others. This is an interesting direction for future work.

While in this paper we examine the moderating effects of an individual trait, building on past research that has looked at the effects of individual traits on people's responses to framing (e.g., Simon, Fagley, and Halleran 2004), it is likely that responses to framed messages are moderated by situational influences as well. It is possible, for example, that people's decision stage could moderate their susceptibility to framing effects with people in the pre-decision stage, who are deliberating on both the pros and cons of a decision and people in the post-decision stage, who are planning the implementation of decision they have made, responding differently to a framed message. Future research should look into this possibility.

Although in this paper we focus on examining an important moderator of investors' susceptibility to contextual and presentation biases, we believe that elaboration on potential outcomes may also be an important moderator to people's susceptibility to other violations of expected utility theory such as violations of regularity (e.g., Huber, Payne, and Puto 1982) or procedure invariance (e.g., Tversky and Kahneman 1986). Furthermore, although we show that elaboration on potential outcomes mitigates the effects of these biases when people have to

evaluate and choose mutual funds, future research should also examine this relationship in other consumer contexts and domains that relate to the appropriate use of income to finance consumption or savings (e.g., Soman and Cheema 2002).

The need for innovative behavioral finance research that might give investors the tools they need to better understand the markets and the basic principles of financial planning is emphasized by organizations such as the *FINRA Investor Education Foundation*. Findings from the four studies presented in this paper provide strong evidence that investment biases could be alleviated by using techniques such as encouraging consumers to consider the pros and cons of the available options in a balanced way, offering important implications for the design, presentation, and communication of financial products and for campaigns targeted at improving investment decisions.

References

- Bagnoli, Mark and Susan G. Watts (2000), "Chasing Hot Funds: The Effects of Relative Performance on Portfolio Choice," *Financial Management*, 31–50.
- Benartzi, Shlomo and Richard H. Thaler (1999), "Risk Aversion or Myopia? Choices in Repeated Gambles and Retirement Investments," *Management Science*, 45 (3), 364–81.
- and ——— (2001), "Naive Diversification Strategies in Defined Contribution Saving Plans," *American Economic Review*, 91 (1), 79–98.
- Block, Lauren G. and Punam Anand Keller (1995), "When to Accentuate the Negative: The Effects of Perceived Efficacy and Message Framing on Intentions to Perform Health-Related Behaviors," *Journal of Marketing Research*, 32 (May), 192–203.
- Brewer, Marilyn B. and Roderick M. Kramer (1986), "Choice Behavior in Social Dilemmas: Effects of Social Identity, Group Size and Decision Framing," *Journal of Personality and Social Psychology*, 50 (3), 543–49.
- Brinson, Gary P., C. Randolph Hood, and Gilbert Beebower (1986), "Determinants of Portfolio Performance," *Financial Analysts Journal*, 42 (2), 39–44.
- , Brain D. Singer, and Gilbert Beebower (1991), "Determinants of Portfolio Performance II: An Update," *Financial Analysts Journal*, 47 (3), 40–8.
- Bucks, Brian, Arthur B. Kennickell, and Kevin B. Moore (2006), "Recent Changes in U.S. Family Finances: Evidence from the 2001 and 2004 Survey of Consumer Finances," *Federal Reserve Bulletin*, 92, A1–A38.

- Cacioppo, John T. and Richard E. Petty (1981), "Social Psychological Procedure for Cognitive Response Assessment: The Thought Listing Technique," in *Cognitive Assessment*, Thomas V. Merluzzi, Carol R. Glass, and Myles Genest, eds. New York: Guilford, 309–342.
- and ——— (1982), "The Need for Cognition," *Journal of Personality and Social Psychology*, 4 (1), 116–31.
- Chatterjee, Subimal, Timothy B. Heath, Sandra J. Milberg, and Karen R. France (2000), "The Differential Processing of Price in Gains and Losses: The Effects of Frame and Need for Cognition," *Journal of Behavioral Decision Making*, 13, 61–75.
- Donthu, Naveen and David Gilliland (1996), "The Infomercial Shopper," *Journal of Advertising Research*, 36 (2), 69–76.
- Erev, Ido and Brent L. Cohen (1990), "Verbal Versus Numerical Probabilities: Efficiency, Biases, and the Preference Paradox," *Organizational Behavior and Human Decision Processes*, 45 (1), 1–18.
- Federal Register (2003), "Securities and Exchange Commission 17 CFR Parts 230, 239, 270, and 274 - Amendments to Investment Company Advertising Rules," 68 (193), 57760–82.
- Gollwitzer, Peter M. (1990), "Action Phases and Mind-Sets," in *Handbook of Motivation and Cognition: Foundations of Social Behavior*, Vol. 2, E. Tory Higgins and Richard M. Sorrentino, eds. New York: Guilford, 53–92.

——— and Ute Bayer (1999), “Deliberative Versus Implemental Mindsets in the Control of Action,” in *Dual-Process Theories in Social Psychology*, Shelly Chaiken and Yakoov Trope, eds. New York: Guilford, 403–22.

——— and Ronald F. Kinney (1989), “Effects of Deliberative and Implemental Mind-Sets on Illusion of Control,” *Journal of Personality and Social Psychology*, 56 (4), 531–42.

Grant, Susan Jung and Ying Xie (2007), “Hedging Your Bets and Assessing the Outcome,” *Journal of Marketing Research*, 44 (August), 516–24.

Halpern, Diane F., Sonia Blackman, and Billie Salzman (1989), “Using Statistical Risk Information to Assess Oral Contraceptive Safety,” *Applied Cognitive Psychology*, 3 (3), 251–60.

Hamilton, Rebecca W. and Gabriel J. Biehal (2005), “Achieving Your Gains or Protecting Their Future? The Effects of Self-View on Goals and Choices,” *Journal of Consumer Research*, 32 (2), 277–83.

Homer, Pamela M. and Sun-Gil Yoon (1992), “Message Framing and the Interrelationships Among Ad-Based Feelings, Affect, and Cognition,” *Journal of Advertising*, 21 (1), 19–31.

Huber, Joel, John W. Payne, and Christopher Puto (1982), “Adding Asymmetrically Dominated Alternatives: Violations of Regularity and the Similarity Hypothesis,” *Journal of Marketing Research*, 9 (June), 90–98.

- Johnson, Eric J., John W. Payne, and James R. Bettman (1988), "Information Displays and Preference Reversals," *Organizational Behavior and Human Decision Processes*, 42 (1), 1–21.
- Johnson, Joseph, Gerard J. Tellis, and Deborah J. MacInnis (2005), "Losers, Winners, and Biased Trades," *Journal of Consumer Research*, 32 (May), 324–29.
- Kahneman, Daniel and Amos Tversky (2000), "Choices, Values, and Frames," in *Choices, Values, and Frames*, Daniel Kahneman and Amos Tversky, eds. New York, NY: Cambridge University Press, 1–16.
- Levin, Irwin P., Gary J. Gaeth, Judy Schreiber, and Marco Lauriola (2002), "A New Look at Framing Effects: Distribution of Effect Sizes, Individual Differences, and Independence of Types of Effects," *Organizational Behavior and Human Decision Processes*, 88 (1), 411–29.
- , Sandra L. Schneider, and Gary J. Gaeth (1998), "All Frames are not Created Equal: A Typology and Critical Analysis of Framing Effects," *Organizational Behavior and Human Decision Processes*, 76 (2), 149–88.
- , Sara Schnittjer, and Shannon L. Thee (1988), "Information Framing Effects in Social and Personal Decisions," *Journal of Experimental Social Psychology*, 24 (November), 520–29.
- Lifson, Lawrence E. and Richard A. Geist, (1999), *The Psychology of Investing*. New York: Wiley.

- Madrian, Brigitte C. and Dennis F. Shea (2001), "The Power of Suggestion: Inertia in 401(k) Participation and Saving Behavior," *The Quarterly Journal of Economics*, 16 (4), 1149–87.
- Maheswaran, Durairaj and Joan Meyers-Levy (1990), "The Influence of Message Framing and Issue Involvement," *Journal of Marketing Research*, 27 (August), 361–67.
- Nenkov, Gergana Y., J. Jeffrey Inman, and John Hulland (2008) "Considering the Future: The Conceptualization and Measurement of Elaboration on Potential Outcomes," *Journal of Consumer Research*, 35 (1), 126–41.
- O’Clock, Priscilla and Kevine Devine (1995), "An Investigation of Framing and Firm Size on the Auditor’s Going Concern Decision," *Accounting and Business Research*, 25 (Summer), 197–207.
- Payne, John W., James R. Bettman, and Eric J. Johnson (1992), "Behavioral Decision Research: A Constructive Processing Perspective," *Annual Review of Psychology*, 43, 87–131.
- Rothman, Alexander J. and Peter Salovey (1997), "Shaping Perceptions to Motivate Healthy Behavior: The Role of Message Framing," *Psychological Bulletin*, 121 (1), 3–19.
- Rubaltelli, Enrico, Sandro Rubichi, Lucia Savadori, Marcello Tadeschi, and Riccardo Ferretti (2005), "Numerical Information Format and Investment Decisions: Implications for the Disposition Effect and the Status Quo Bias," *The Journal of Behavioral Finance*, 6 (1), 19–26.

Sen, Sankar (1998), "Knowledge, Information Mode, and the Attraction Effect," *Journal of Consumer Research*, 25 (1), 64–77.

Shiller, Robert J. (2006), "Tools for Financial Innovation: Neoclassical Versus Behavioral Finance," *The Financial Review*, 41, 1–8.

Shiv, Baba, Julie A. Edell Britton, and John W. Payne (2004), "Does Elaboration Increase or Decrease the Effectiveness of Negatively versus Positively Framed Messages," *Journal of Consumer Research*, 31 (1), 199–208.

Simon, Andrew F., N.S. Fagley, and Jennifer G. Halleran (2004), "Decision Framing: Moderating Effects of Individual Differences and Cognitive Processing," *Journal of Behavioral Decision Making*, 17 (2), 77–93.

Sirri, Erik R. and Peter Tufano (1998), "Costly Search and Mutual Fund Flows," *The Journal of Finance*, 53 (5), 1589–622.

Smith, Stephen M. and Irwin P. Levin (1996), "Need for Cognition and Choice Framing Effects," *Journal of Behavioral Decision Making*, 9, 283–90.

Soman, Dilip (2004), "Framing, Loss Aversion and Mental Accounting," *Blackwell Handbook of Judgment and Decision Making Research*, Nigel Harvey and Derek J. Koehler, eds. London, England: Blackwell, 379–98.

——— and Amar Cheema (2002), "The Effect of Credit on Spending Decisions: The Role of the Credit Limit and Credibility," *Marketing Science*, 21 (1), 32–53.

- Thaler, Richard. H (1980), "Toward a Positive Theory of Consumer Choice," *Journal of Economic Behavior and Organization*, 1, 39–60.
- Tversky, Amos and Daniel Kahneman (1986), "Rational Choice and the Framing of Decisions," *Journal of Business*, 59, 251–78.
- Woerheide, Walt and Don Persson (1993), "An Index of Portfolio Diversification," *Financial Services Review*, 2 (2), 73–85.
- Wood, Stacy L. and Joffre Swait (2002), "Psychological Indicators of Innovation Adoption: Cross-Classification Based on Need for Cognition and Need for Change," *Journal of Consumer Psychology*, 12 (1), 1–13.
- Zhou, Rongrong and Michel Tuan Pham (2004), "Promotion and Prevention across Mental Accounts: When Financial Products Dictate Consumers' Investment Goals," *Journal of Consumer Research*, 31 (1), 125–35.

Footnotes

1 Even though in this paper we are not focusing on the positive and negative outcome focus EPO dimensions we did examine their moderating role in Studies 2, 3, and 4, which employ valence-based framing manipulations. We find that people are more willing to adopt a framed message that matches their predisposition – that is, people with a strong positive outcome focus are more persuaded to invest when positively-valenced type of framing is employed. These results suggest that a biased outcome focus has the potential to affect consumers’ message evaluations. Details are available from the authors.

2 For example, stock funds are classified according to whether the fund tends to invest in small, medium, or large cap stocks and whether the fund tends to invest in value, growth, or blended stocks.

3 Even though more diversification is not always better (e.g., see Benartzi and Thaler (2001) for a discussion of naïve diversification), research suggests that portfolio diversification (rather than investment choices within an asset class or attempts at market timing) accounts for the vast majority of long-term investment performance (Brinson, Hood and Beebower 1986; Brinson, Singer and Beebower 1991). Thus, individual investors’ decisions regarding asset allocation represent an important issue.

4
$$H = \sum_{i=1}^n s_i^2$$
; H normalized = $(H-1/n)/(1-1/n)$, where s_i is the proportion of portfolio value invested in fund i , and n is the number of funds in the portfolio.

5 For each study in the paper, the correlations between EPO and other main predictor variables are reported in Table W2 in the Web Appendix.

6 Details on the potential confound variables tested in Studies 2, 3, and 4 are available in Table W4 in the Web Appendix.

7 A short version of the scale developed by Wood and Swait (2002) was used.

8 Since involvement, depth of processing, and NFC have been examined as moderators of framing effects in the past, we conducted additional tests to rule them out as alternative explanations for our findings. Detailed results from these tests for studies 2, 3 and 4 are available in Table W5 in the Web Appendix. For all three studies results reveal no significant interactions of these variables with framing (p 's > .1) and confirm that the focal interaction between EPO and framing remains significant when interactions between these variables and framing are included in the regressions, which rules out these variables as alternative explanations.

9 In the outcome elaboration priming condition, we measured chronic EPO tendencies first in order to make sure that participants' responses to the scale were unaffected by the outcome elaboration manipulation.

10 An alternative explanation for our findings is that high EPO respondents (or those encouraged to engage in pre-decision outcome elaboration) were less likely to fall prey to the effects of framing simply because they were more likely to notice the fund's average 10-year annual return

figure of 5.03%. In order to rule out this alternative explanation, we ran a follow-up online study, where 107 undergraduate students participated in exchange for course credit. The results indicate that participants with varying EPO scores were not differentially likely to pay attention to the fund's average annual return nor were they differentially likely to consider it while evaluating the presented mutual fund (p -s > .1).

Table 1

NUMBER AND TYPE OF THOUGHTS GENERATED IN THOUGHT-LISTING
PROTOCOLS

	High outcome elaboration	Low outcome elaboration	Significance	High NFC	Low NFC	Significance
Frame-consistent thoughts	1.15	1.20	$t = .23; p > .1$	1.34	.81	$t = - 2.49; p < .01$
Frame-inconsistent thoughts	1.17	.52	$t = - 4.0; p < .01$.92	.75	$t = - 1.08; p > .1$
Frame-unrelated thoughts	1.80	2.10	$t = 1.28; p > .1$	1.89	2.01	$t = .53; p > .1$
Total number of thoughts	4.10	3.80	$t = - .98; p > .1$	4.15	3.55	$t = - 1.84; p < .06$

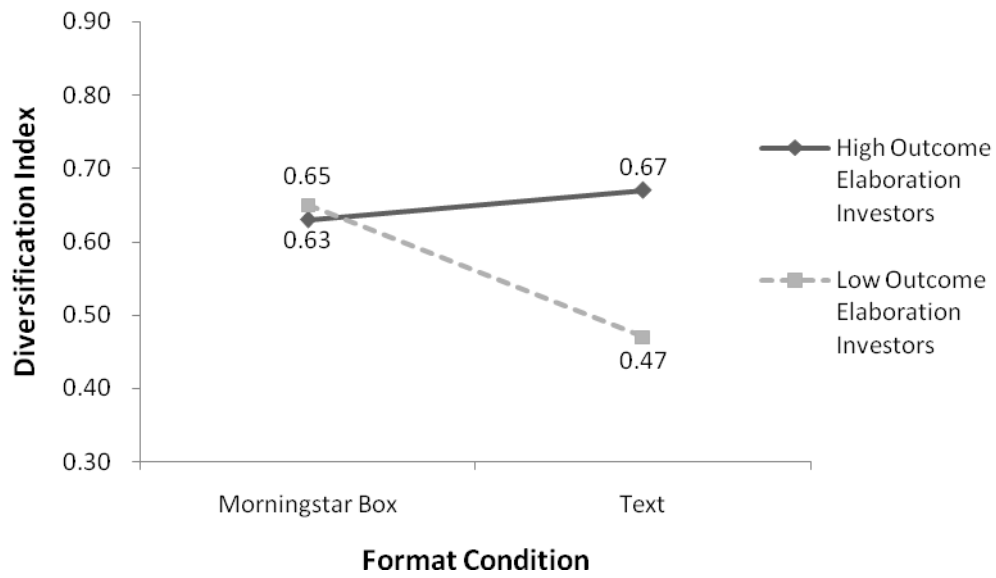
Figure 1***Study 1: Chronic Outcome Elaboration Eliminates Distortion from Varying Information******Presentation Format***

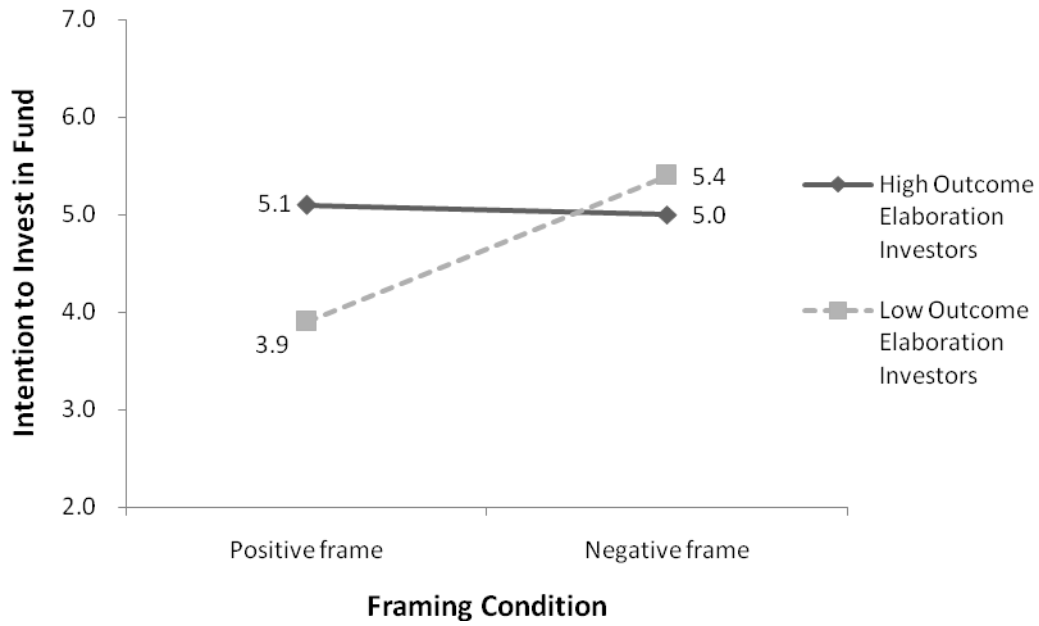
Figure 2***Study 2: Chronic Outcome Elaboration Eliminates Distortion from Goal Framing***

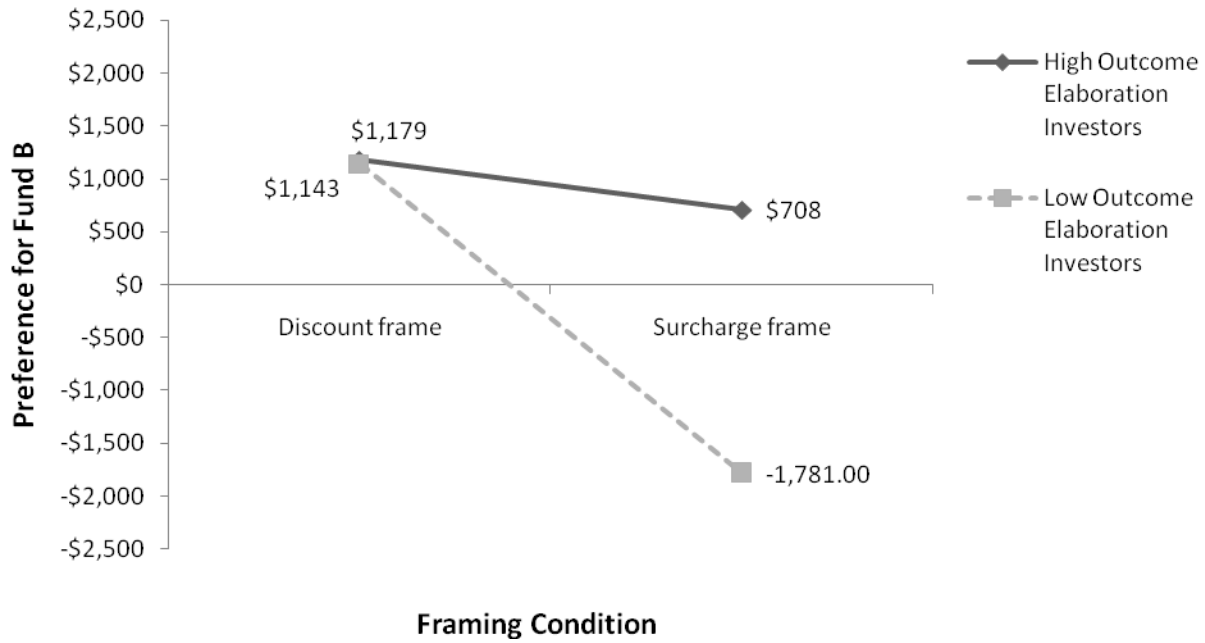
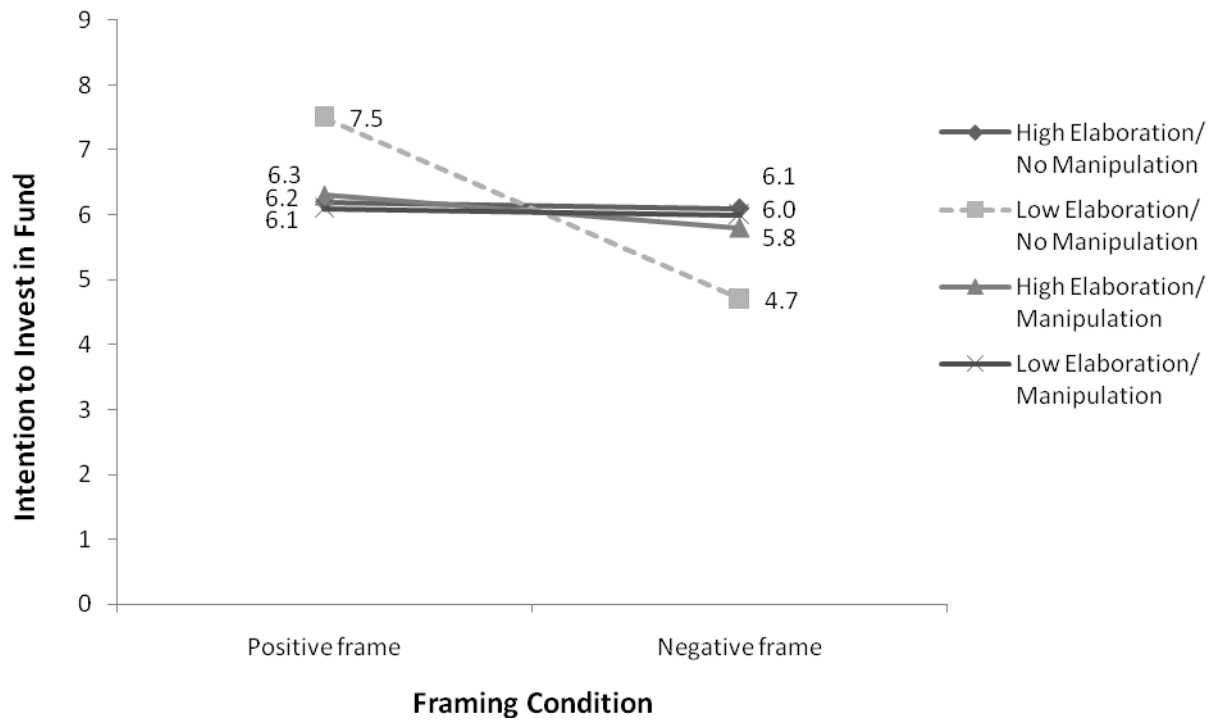
Figure 3***Study 3: Chronic Outcome Elaboration Eliminates Distortion from Difference Label Framing***

Figure 4***Study 4: Chronic or Cued Outcome Elaboration Eliminates Distortion from Attribute******Framing***

Appendix

Elaboration on Potential Outcomes Scale

Generation/Evaluation dimension items	CFA Factor Loadings			
	Study 1	Study 2	Study 3	Study 4
1. Before I act I consider what I will gain or lose in the future as a result of my actions.	.69	.61	.71	.81
2. I try to anticipate as many consequences of my actions as I can.	.80	.77	.80	.86
3. Before I make a decision I consider all possible outcomes.	.86	.86	.87	.77
4. I always try to assess how important the potential consequences of my decisions might be.	.85	.73	.90	.80
5. I try hard to predict how likely different consequences are.	.82	.68	.91	.73
6. Usually I carefully estimate the risk of various outcomes occurring.	.84	.72	.89	.84

Web Appendix

The Impact of Outcome Elaboration on Susceptibility to Contextual and Presentation Biases

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Table W1

STUDY 1 STIMULI

Box Condition

500 Index Stock Fund	The fund seeks to track the performance of a benchmark index that measures the investment return of large-capitalization stocks. Risk level = moderate to aggressive.		1Year return	5 Year return	10 Year return
			6.2%	- 3%	10.2%

No Box Condition

500 Index Stock Fund	The fund seeks to track the performance of a benchmark index that measures the investment return of large-capitalization stocks. The fund invests in a blend of value and growth stocks of large cap firms. Risk level = moderate to aggressive.	1Year return	5 Year return	10 Year return
		6.2%	-3.0%	10.2%

Table W2

CORRELATIONS BETWEEN EPO AND OTHER PREDICTOR VARIABLES

	EPO			
	Study 1	Study 2	Study 3	Study 4
Investment knowledge	-.01	.21 *	.11	.08
Perceived risk	NA	-.17	.08	.03/.05
Depth of processing	NA	.12	.24 **	.40 **
Issue involvement	NA	-.05	.11	.21 **
Perceived self-efficacy	NA	.15	NA	NA
Risk aversion	.37 **	.40 **	.44 **	.40 **
Need for cognition	NA	.34 **	NA	.37 **

* $p < .05$ ** $p < .01$

Table W3

STUDY 2 STIMULI

Please read the following scenario carefully:

Imagine you have \$5000 available and you have to decide how to invest the money for the coming year. Please carefully read and review the following offer.



Invest your money in Financial Investment Corporation's mutual fund

Historically our fund has had an outstanding performance.

By (not) investing in our mutual fund you may (fail to) realize considerable financial gains.

Current financial investments can significantly affect future well-being. By (not) investing in a high return financial instrument like the Financial Investment Corporation's mutual fund you may (not) be able to build a strong financial foundation and may (not) obtain important opportunities in the future.

Remember, you stand to (lose) gain important financial benefits if you (don't) take advantage of our offer!

In compliance with the Securities and Exchange Commission (SEC) regulations, please be informed that the average annual return of the Financial Investment Corporation's mutual fund over the past 10 years is 9.3%. Performance is historical and does not represent future results, as the value of an investment may fall as well as rise.

Table W4
Potential Confound Variables Testing

Potential confounds examined	Source	Measurement	ANOVA testing for differences in potential confound variables across experimental conditions		
			Study 2	Study 3	Study 4
Perceived risk	Weber and Hsee (1998)*	Single item 1 = “not risky at all” to 9 = “very risky”	F (1,100) = .76 $p < .4$	<i>Fund A:</i> F (1, 92) = 9.84 $p < .01$ <i>Fund B:</i> F (1, 90) = 1.37 $p < .3$	F (1,181) = 1.20 $p < .3$
Cognitive elaboration	Shiv, Edell, and Payne (2004)	Three items $\alpha_{S1} = .81$; $\alpha_{S2} = .88$; $\alpha_{S3} = .83$ 1 = “strongly agree” to 9 = “strongly disagree”	F (1,100) = .02 $p < .9$	F (1, 92) = 3.05 $p < .1$	F (1,181) = .95 $p < .4$
Issue involvement	Maheswaran and Meyers-Levy 1990	Three items $\alpha_{S1} = .73$; $\alpha_{S2} = .68$; $\alpha_{S3} = .80$ 1 = “strongly agree” to 9 = “strongly disagree”	F (1,100) = .31 $p < .6$	F (1, 92) = 2.01 $p < .2$	F (1,181) = .09 $p < .8$
Self-efficacy beliefs	Block and Keller (1995)	Two items 1 = “strongly agree” to 9 = “strongly disagree”	F (1,100) = .25 $p < .7$	NA	NA
Feelings of fear, nervousness, and discomfort	Block and Keller (1995)	Three items $\alpha_{S1} = .73$; $\alpha_{S2} = .91$; $\alpha_{S3} = .85$ 1 = “not at all” to 9 = “very much so”	F (1,100) = 1.95 $p < .2$	F (1, 92) = .17 $p < .7$	F (1,181) = .00 $p < .9$
Offer description		Amount of info: 1 = “credible” to 9 = “not credible” Ease: 1 = “difficult to comprehend to 9 = “easy to comprehend” Credibility: 1 = “contains little information” to 9 = “contains great deal of information”	Amount of info: F (1,100) = 1.42 $p < .3$ Ease: F (1,100) = .37 $p < .6$ Credibility: F (1,100) = .37 $p < .6$	NA	Amount of info: F (1,181) = 3.36 $p < .1$ Ease: F (1,181) = .04 $p < .9$ Credibility: F (1,100) = .32 $p < .6$

* Source of this measure: Weber, Elke U. and Christopher Hsee (1998), “Cross-cultural Differences in Risk Perception, but Cross-cultural Similarities in Attitudes Towards Perceived Risk,” *Management Science*, 44 (9), 1205-17.

Table W5
Alternative Explanations Testing

	Model Statistics	Frame	EPO	EPO X Frame Interaction	Control Variable	Control Variable X Frame Interaction
Study 2						
Model 1	F (3, 97) = 3.16 p = .02; R ² = .09	-3.09 t = -2.58; p = .01	.08 t = .73; p = .70	.50 t = 2.33; p = .02	NA	NA
NFC						
Model 2	F (3, 98) = 2.08 p = .11; R ² = .10	- 1.42 t = -1.65; p = .10	NA	NA	- .33 t = -1.56; p = .12	.42 t = 1.31; p = .19
Model 3	F (5, 95) = 2.15 p = .06; R ² = .11	- 3.39 t = -2.69; p = .01	. 14 t = .64; p = .52	.45 t = 1.99; p = .04	-.25 t = -1.15; p = .25	.21 t = .63; p = .53
Involvement						
Model 2	F (3, 98) = 7.08 p = .001; R ² = .17	.39 t = .87; p = .38	NA	NA	.38 t = 3.79; p = .001	- .16 t = -1.61; p = .11
Model 3	F (6, 94) = 5.17 p = .001; R ² = .24	-7.41 t = -2.62; p = .01	.09 t = .44; p = .65	1.39 t = 2.83; p = .005	.41 t = 3.85; p = .001	1.25 t = 2.05; p = .04
Depth of processing						
Model 2	F (3, 98) = 2.72 p = .05; R ² = .08	-.44 t = -.75; p = .45	NA	NA	.22 t = 2.08; p = .04	.02 t = .21; p = .83
Model 3	F (5, 95) = 2.54 p = .03; R ² = .12	-2.82 t = -2.20; p = .03	.05 t = .21; p = .83	.45 t = 2.10; p = .04	.18 t = 1.76; p = .08	-.01 t = -.04; p = .96
Study 3						
Model 1	F (3, 90) = 6.46 p = .001; R ² = .18	-4,346 t = -2.65; p = .01	952 t = 3.11; p = .002	692 t = 2.26; p = .02	NA	NA
NFC						
Model 2	F (3, 90) = 2.83 p = .04; R ² = .08	-82 t = -.06; p = .95	NA	NA	376 t = 1.37; p = .17	-136 t = -.50; p = .62
Model 3	F (5, 88) = 4.42 p = .001; R ² = .20	-3,264 t = -1.83; p = .07	922 t = 2.81; p = .006	874 t = 2.66; p = .01	77 t = .28; p = .78	-420 t = -1.51; p = .14
Involvement						
Model 2	F (3, 90) = 2.24 p = .09; R ² = .07	236 t = .19; p = .85	NA	NA	67 t = .23; p = .82	-243 t = -.84; p = .40
Model 3	F (5, 88) = 4.11 p = .002; R ² = .19	3,411 t = -1.86; p = .06	938 t = 2.96; p = .004	770 t = 2.43; p = .01	-64 t = -.23; p = .82	-321 t = -1.14; p = .26
Depth of processing						
Model 2	F (3, 90) = 2.63 p = .06; R ² = .08	-2,668 t = -1.91; p = .06	NA	NA	3.70 t = .01; p = .99	430 t = 1.28; p = .20
Model 3	F (5, 88) = 4.31 p = .002; R ² = .20	-4,970 t = -2.77; p = .01	1,124 t = 3.33; p = .001	705 t = 2.10; p = .03	-452 t = -1.40; p = .17	113 t = .35; p = .73

	Model Statistics	Frame	EPO	EPO X Frame Interaction	Control Variable	Control Variable X Frame Interaction
Study 4						
Model 1	F (3,103) = 10.73 p < .001; R2 = .24	-7.70 t = -4.08; p < .001	.83 t = 2.39; p = .02	-1.30 t = -3.27; p = .001	NA	NA
Involvement						
Model 2	F (3, 103) = 6.45 p = .001; R2 = .16	-1.09 t = -.82; p = .41	NA	NA	.02 t = .11; p = .91	.11 t = .44; p = .66
Model 3	F (5, 101) = 7.05 p < .001; R2 = .26	-7.60 t = -3.27; p = .001	.86 t = 2.45; p = .02	-1.40 t = -3.48; p < .001	.10 t = .51; p = .61	.13 t = .52; p = .60
Depth of processing						
Model 2	F (3, 103) = 7.01 p < .001; R2 = .17	-3.70 t = -2.52; p = .01	NA	NA	.22 t = .97; p = .33	-.41 t = -1.47; p = .14
Model 3	F (5, 101) = 6.72 p < .001; R2 = .25	-9.32 t = -4.06; p < .001	.84 t = 2.42; p = .02	-1.28 t = -3.20; p = .002	.23 t = 1.10; p = .27	-.33 t = -1.23; p = .22

Notes. Model 1: DV = Frame + EPO + Frame × EPO; Model 2: DV = Frame + Control variable + Frame × Control variable; Model 3: DV = Frame + EPO + Frame × EPO + Control variable + Frame × Control variable; Study 4 results refer to the no-manipulation condition only.

Table W6

Study 4 Stimuli

Imagine you have \$5,000 available and you have to decide how to invest the money for the coming year. You can invest the money in one or both of two mutual funds that we describe below.

** Note that gains or losses will be realized in one year*

*** Returns are reported before fund fees and expenses*

You are offered the following two mutual funds to choose from:

1) Fund A, which has an average annual return over the past 10 years of 9.9%
and

2) Fund B, which has an average annual return over the past 10 years of 11.1%

Fund A - which offers a fee **discount** of 1% - has an annual fee of 3.5%, while the annual fee for fund B is 4.5%.

(Alternative frame: “The annual fee for fund A is 3.5%, while the annual fee for fund B - which adds a **surcharge** of 1% - is 4.5%.”)

When a mutual fund charges an annual fee, this reduces the amount of your gain (or increases your losses) for the year.

Table W7

STUDY 3 STIMULI

Please read the following scenario carefully:

Imagine you have \$5000 available and you have to decide how to invest the money for the coming year. Please carefully read and review the following offer.



**Invest your money in the Financial Investment Corporation
mutual fund**

*The average annual return for this fund
for the best (worst) 5 of the past 10 years is 12% (negative 2%)*

In compliance with the Securities and Exchange Commission (SEC) regulations, please be informed that the Financial Investment Corporation mutual fund is a variable financial instrument and its average annual return over the past 10 years is 5.03%.

Disclaimer: Performance is historical and does not represent future results, as the value of an investment may fall as well as rise.