Preference Reversals and the Reflection Effect: the Moderating Role of Uncertainty Avoidance

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Prospect Theory’s reflection hypothesis predicts that people are risk averse in gains and risk seeking in losses. In three experiments, we show that the reflection effect is moderated by an individual’s tendency to avoid uncertainty (UA). While lower UA individuals show the predicted reflection effect, higher UA individuals prefer certainty in both gains and losses and demonstrate uniform risk aversion. The latter tend to focus on avoiding the worst outcome (e.g., lose the most money) and avoid a risky loss, contrary to their lower UA counterparts who focus on getting the best outcome (e.g., lose nothing). Implications of the findings are discussed in the context of introducing new products in higher UA cultures.

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Risk Reversals and the Reflection Effect: The Moderating Role of Uncertainty Avoidance

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EXTENDED ABSTRACT
Prospect Theory (Kahneman and Tversky, 1979), perhaps the most influential theory of risk of our era, posits that people are generally risk averse in gains and risk seeking in losses (reflection effect). For example, although people prefer a sure $3,000 to risking an 80% chance of winning $4,000, they would rather risk an 80% chance of losing $4,000 than accept a sure loss of $3,000. Such risk reversals, however, are not always obtained (e.g., Schneider and Lopes, 1986), and, in this paper, we propose that the individual difference variable, uncertainty avoidance (UA; Hofstede, 1991, 2001), is an important moderator of the reflection effect.

Uncertainty avoidance is defined as the extent to which people feel threatened by “uncertain or unknown situations” (Hofstede, 1991, Page 113), a feeling that is communicated through anxiety, and a need for explicit and clear rules. We propose that the feeling of anxiety persists even when the risks of a decision are explicitly stated. For example, a lottery that offers a known 80% chance of losing $4,000 also includes a 20% chance of losing nothing. Thus, if people wish to avoid the anxiety associated with not knowing what the outcome will be (e.g., $4,000 or nothing), they are likely to select the sure outcome in gains as well as in losses, and thus violate the reflection effect. The latter tendency, we propose, will be manifest more in higher UA individuals and less so in their lower UA counterparts.

Our first experiment (Experiment 1) is divided into two parts. In the first part, we show that (1) the UA construct is separate from risk avoidance in general, and (2) contrary to the assumption that risk ceases to be a source of anxiety once the probabilities are known, a state of anxiety persists even when the probability information is made explicit. We measure UA using a five-item scale from Yoo and Donthu (2002) with items like “I avoid risky things.” We measure risk avoidance with a seven-item scale adapted from Donthu and Gilliland (1996) and Griffin, Babin and Attaway (1996), with items like “I have considered skydiving as a hobby (reverse scaled) and I avoid risky things.” A confirmatory factor analysis shows both convergent validity as well as discriminant validity for the two constructs. After the scale measurements, we asked some participants to imagine how anxious they would be to play a lottery where picking a white ball from a container of 80 white balls and 20 red balls meant winning (or losing) $40 (the risk condition). Other participants were asked the same question for a lottery that involved picking a white ball from a container with red and white balls in unknown proportions (the uncertainty condition). We measured anxiety using a six-item scale from Pham (1996) and Taylor and Claxton (1994). We found that participants were more anxious in losses than in gains, but their anxiety state did not differ across risk and uncertainty conditions.

In the second part, we asked participants to make two choices: (1) A gain lottery entailing a choice between a sure $3,000 and a lottery offering an 80% chance of winning $4,000, and (2) a loss lottery entailing a choice between a sure loss of $3,000 and an 80% chance of losing $4,000. The reflection effect predicts the choice of the sure thing in gains, and the choice of the risky lottery in losses. However, as expected the reflection effect prevailed strongly among lower-UA participants (81%) and weakly among higher-UA participants (59%). More tellingly, thirty percent of the higher-UA participants selected the sure option in both gains and losses compared to only 8% among their lower-UA counterparts. The participants’ risk attitude, on the other hand, did not matter. Seventy-two percent of the higher risk-averse participants followed the reflection effects, and 67% of their lower risk-averse counterparts did likewise, a difference that was not statistically significant.

In Experiment 2, we further tested for the generalizability of our results among higher and lower UA individuals by adapting two problems from Prospect Theory in a between-subjects design. The first problem was identical to the problem used in Experiment 1. The second problem entailed a choice between a near certain win or loss (e.g., 90% chance of winning or losing $3,000) and a probable win or loss (45% chance of winning or losing $6,000). When necessary, participants were divided into lower and higher UA groups based on the median split of their raw UA scores. As expected, the reflection effect was much weaker among higher compared to lower-UA individuals. Among the higher-UA participants, 80% preferred the certain (or 90%-certain) gain and only 47% preferred the risky loss. Among the lower-UA participants, the corresponding percentages were 85% and 70% respectively.

In Experiment 3, we tested for the reflection effect among participants belonging to two cultures, one purportedly higher in UA (Japan), and the other less so (United States). Hofstede (2001), for example, computed UA indices for countries based on employee response to three questions: rule orientation, stability, and stress. On an index, where the maximum score was 112 (Greece) and the minimum was 8 (Singapore), Japan ranked 7th (Score of 92) and the United States ranked 43rd (Score of 46; see Hofstede, 2001; Page 151). The participants from these two cultures were given two decisions (in gains, a choice between a sure $3000 gain, or taking an 80% chance of winning $4,000; in losses, a choice between a sure $3,000 loss, or taking an 80% chance of losing $4,000). As expected, an overwhelming majority of the United States participants obeyed the reflection effect (86%) but just half of the Japanese participants did so (50%).

In the fourth and final experiment, we tested for a motivational correlate of UA that has often been cited as a key difference between higher and lower-UA societies: higher-UA societies are driven by a fear of failure whereas lower-UA societies are driven by the hope of success (Hofstede, 2001; see for example, Exhibit 4.6, Page 169). Thus, if higher-UA individuals are driven by the motivation to reduce losses, they should more susceptible to frames that describe losses as non-losses compared to their lower-UA counterparts. For example, in a choice between a sure loss of $3,000 and an 80% chance of losing $4,000, the sure loss of $3,000 can be framed as avoiding an 80% chance of not losing $1,000 more. The results show that framing the sure loss as a non-loss resonates more strongly among higher-UA individuals. Interestingly, framing the risky loss as a non-loss (e.g., describing an 80% chance of losing $4,000 as a 20% chance of not losing a sure $3,000) had no differential effect on the preferences of higher and lower-UA individuals. It appears therefore that the non-loss frames appear attractive to higher-UA participants as long as such frames are not applied in a risky domain.
In a highly competitive, global marketplace, as firms become ever more dependent on product innovations to generate revenues and market share, gaining rapid acceptance of new products is critical for market survival. New products, however, always entail an element of uncertainty, given that, without history to fall back on, consumers can only make a probability assessment how likely the product is to work for them. Our results suggest that, among segments that are intolerant of uncertainty, promising the absence of harm may turn out to be more critical than an assurance of help.

REFERENCE


