1. Abstract

How do risk attitudes change after experiencing gains or losses? For the case of losses, Imas (2016) shows that subsequent risk-taking behavior depends on whether these losses have been realized or not. After a realized loss, individuals’ risk taking decreases, whereas it increases after an unrealized (paper) loss. He refers to this asymmetry as the realization effect. We replicate this result (N=203) and in addition find a realization effect for the gain domain. Independent of a prior gain or loss, risk taking is higher when outcomes remain unrealized. In several further experiments (N=775), we test theoretical predictions about risk taking and skewness for paper and realized outcomes as well as examine the robustness of the effect with respect to the realization mechanism. In line with the predictions, we find no realization effect for non-positively skewed lotteries and show that the effect is only reliably observed if money is physically transferred.

2. Introduction

- Inconsistent findings on risk taking after previous gains/losses:
  - Risk seeking
    - Langer and Weber (2008), Weber and Zuchel (2005), ...  
    - Thaler and Johnson (1990), Suhonen and Saastamoinen (2017), ...
  - Risk averse
    - Shib et al. (2005), Frino et al. (2008), ...
    - Clark (2002), Coval and Shumway (2005), ...

- Unifying framework proposed by Imas (2016): Realization. People react differently to realized as compared to unrealized (paper) losses.
- Realization effect (RE): People tend to become more risk-seeking after a paper loss and more risk-averse after a similar realized loss.
- Cumulative prospect theory and mental accounting can explain this behavior.
- More evidence that realization matters: 
  
  Realization utility (BX, 2012; IJ, 2013), deliberate versus forced sales (WC, 1998)

Study Questions

1. Generalizability: Does the effect exist for gains?
2. Testing theory: Does the effect depend on the skewness of the lottery?
3. Robustness: How does the realization mechanism need to look like?

3. Theoretical Background

**Basic Model:** Utility is derived from fluctuations of financial wealth (BHS, 2001)

- Investment in a lottery:
  \[ p \quad kx \]
  \[ 1-p \quad 0 \]

- Realization closes the mental account. Gain/loss is internalized, no cushion against loss/no possibility to break even.

**H1:** RE for gains and losses

**Model with Contingent Planning:**

- Lower skewness → lower upside potential and larger downside risk
- Time inconsistent behavior and realization

**H2:** No RE for non-positively skewed lotteries

4. Experimental Design

- Participants get an envelope with 8.00 Euro. Over four rounds they can invest up to 2.00 Euro each round in a lottery (0 ≤ x ≤ 2).
- Participants are randomly assigned to the realization treatment (paid out after round 3) or the paper treatment (not paid out after round 3).

5. Results

- Analysis of the change in investment between round 3 and 4 across treatments

**Experiment 1 (N=203)**

- Change in invested amount

**Experiment 2 (N=95)**

- Change in invested amount

**Experiment 3 (N=209)**

- Change in invested amount

6. Discussion

- Realization matters in subsequent risk taking.

1. **RE is more generalizable:** After realized gains and losses risk aversion increases while it decreases after unrealized gains and losses.
2. **Evidence for existing theory:** No RE for non-positively skewed lotteries.
3. **RE is sensitive** to the realization mechanism.

References