Myopic Loss Aversion

October 14, 2020

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  - 1889-1978 annual return on S&P 500: 7%
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  - Dollar in bonds grows to 12.97 from 1926 to 1995, dollar in stocks grows to 1100
  - Very high implied risk aversion coefficient!!!

Thaler's explanation

- Results are due to **loss aversion** and **mental accounting**
- **Mental accounting:** how you frame your decisions, in this case time horizons
- If investors evaluate losses frequently, stocks are unattractive

Samuelson (1963)

[...] a few years ago I offered some lunch colleagues to bet each $200 to $100 that the side of a coin they specified would not appear at the first toss. One distinguished scholar - who lays no claim to advanced mathematical skills - gave me the following answer:

"I won't bet because I would feel the $100 loss more than the $200 gain. But I'll take you on if you promise to let me make 100 such bets."

–Samuelson (1963)

MLA explanation

- Decision H: $L =$(200, 0.5; -100, 0.5) vs. 0
- Decision L: 2L vs. 0
- Loss aversion assumes:

$$u(x) = \begin{cases} x & \text{if } x \geq 0 \\ \lambda x & \text{if } x < 0 \end{cases}$$

- Any DM with $\lambda > 1$ will be at least as likely to accept one lottery than two lotteries

Thaler et al. (QJE, 1997)

- 200 periods, decide how to allocate 100 shares between two funds in each period
- Fund A (period return): mean 0.25%, s.d. 0.177 (truncated at zero)
- Fund B (period return): mean 1%, s.d. 3.54
- Numbers chosen to correspond to actual returns of stocks and five-year bonds over 6.5 weeks
- **Treatments**
  - Monthly: 200 decisions
  - Yearly: 25 decisions (decision binding for eight periods)
  - Five yearly: 5 decisions (decision binding for 20 periods)
  - Inflated monthly: returns translated upward by 10%

Thaler et al. (QJE, 1997)

TABLE I
ALLOCATIONS TO BOND FUND

	Percent allocation to bond fund			
Feedback group	n	Mean	SD	SE
		A. Final decision		
Monthly	21	59.1	35.4	7.73
Yearly	22	30.4[b]	25.9	5.51
Five-yearly	22	33.8[b]	28.5	6.07
Inflated monthly	21	27.6[b]	23.2	5.07
		B. During the last five years		
Monthly	840	55.0	31.8	1.10
Yearly	110	30.7[a]	27.0	2.57
Five-yearly	22	28.6[a]	25.1	5.36
Inflated monthly	840	39.9	33.5	1.16

In each column, means with common superscripts do not differ significantly from one another ($p > .01$).

Gneezy and Potters (1997)

- Subjects to choose how much of 200 to invest in a risky fund
- Probability 2/3 of losing the bet
- Probability 1/3 of getting $2.5 * X$, where X is the bet
- Treatment H: Decision made one at a time
- Treatment L: Decisions made three at a time

Gneezy and Potters (1997)

TABLE I
AVERAGE PERCENTAGE OF ENDOWMENT BET (PART 1)

	Treatment H[a]	Treatment L[a]	Mann-Whitney z[b]
Rounds 1–3	52.0 (30.2)	66.7 (29.5)	−2.08 [0.018]
Rounds 4–6	44.8 (30.0)	63.7 (30.3)	−2.78 [0.003]
Rounds 7–9	54.7 (28.9)	71.9 (29.4)	−2.51 [0.006]
Rounds 1–9	50.5 (26.7)	67.4 (27.3)	−2.86 [0.002]

a. # obs. = 41 (42) for treatment H (L). Standard deviations are in parentheses.
b. One-tailed significance levels (p-values) are in brackets.

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- Hgher stakes $\Rightarrow$ less likely to make a mistake $\Rightarrow$ less likely to choose the safe option

Formal explanation

- Consider Samuelson's thought experiment
- Let $U(L) = 50 + \epsilon$, $U(2L) = 100 + \epsilon$, and $U(0) = \epsilon$.
- ϵ i.i.d. extreme value on (0,1)

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- ϵ i.i.d. extreme value on (0,1)
- $P(L) = \frac{1}{1+\exp(-50)} < \frac{1}{1+\exp(-100)} = P(2L)$
- Intuition: higher stakes $\rightarrow \epsilon$ has less of an influence
- **No less aversion!!**

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- When risky option is less attractive, people should be less likely to choose it with higher stakes

Our classroom experiment

- L=(60, 0.5; 0, 0.5)
- $s \in \{20, 30, 40\}$
- Treatment H: L vs s
- Treatment L: 3L vs 3s
- 20 periods in Treatment L, 60 periods in Treatment H
- Decisions in blocks of 3 in Treatment H
- s for each period/block chosen randomly