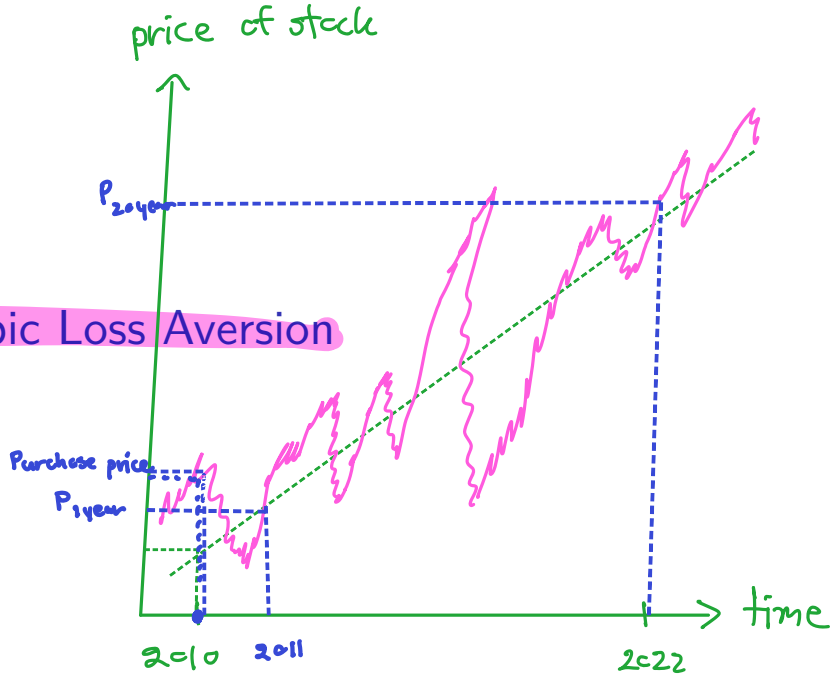
Myopic Loss Aversion & The Equity Premium Puzzle

Benartzi & Thaler (QJE 1995)

Sunsiree Kosindesha

The Faculty of Economics, Thammasat University

EE434 Behavioral Finance, Semester 1/2022

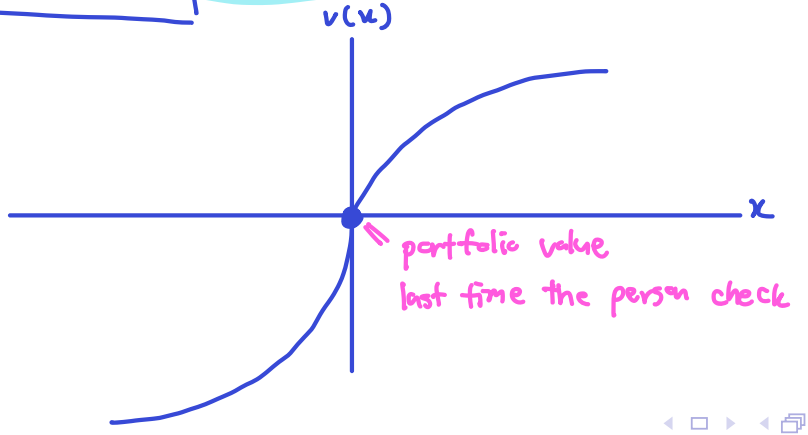


Myopic Loss Aversion & The Equity Premium Puzzle

- Identify an empirical anomaly, accommodate with loss aversion.
- **The equity premium puzzle** (Mehra and Prescott, 1985)
  - The difference between the returns on stocks and the returns on fixed-income securities.
  - Equity premium has been quite large. Over 1926-1990, the real return on stocks was about 7%, and the real return on T-Bills was about 1%.
  - The puzzle: The equity premium is too large they estimate that investors would need to have absurd levels of risk aversion to explain the historical equity premium.

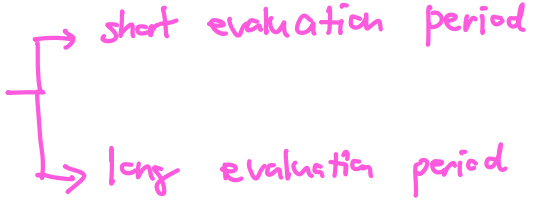
Myopic Loss Aversion & The Equity Premium Puzzle

- **Myopic Loss Aversion**
  - From time to time, a person evaluates her portfolio and experiences joy/pain from watching it grow/shrink.
- **Reference point**: portfolio value last time person checked.



Myopic Loss Aversion & The Equity Premium Puzzle

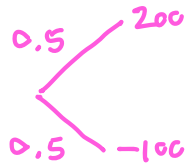
- **Myopic Loss Aversion**
  - Investors are assumed to be "loss averse": the tendency for individuals to be more sensitive to reductions in their levels of well-being than to increases
  - Long-term investors are assumed to evaluate their portfolios frequently. They have a short evaluation period.
    - Mental accounting
    - People follow the dynamic aggregation rule.



Samuelson(1963)'s colleague

- A colleague of Samuelson was asked whether he would be willing to accept the following bet:

$$A = (\$200, 0.5; -\$100, 0.5)$$

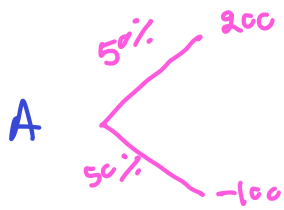


- The colleague turned this bet down, but announced that he was happy to accept 100 such bets.
  - "He won't bet because he would feel the \$100 loss more than the \$200 gain."
  - "He would accept two or more as long as he did not have to watch the bet being played out."
- The distribution of outcomes created by the portfolio of two bet:

$$B = (\$400, 0.25; 100, 0.50; -\$200, 0.25)$$

Behavior

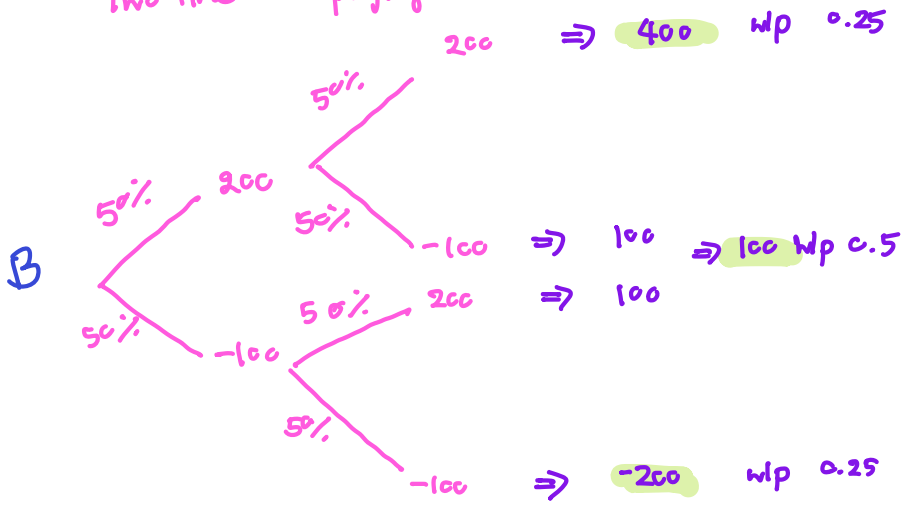
One time of playing this bet :



⇒ I don't play

Investor with short evaluation period sees this

Two time of playing this bet :



But

⇒ I will play this "long period"

① $U(A) = (0.5 \times 200) + (0.5 \times 2.5(-100)) = -25$

⇒ Utility (value) I have if I have short evaluation period

② $U(B) = 0.25 \times 400 + 0.5 \times 100 + 0.25 \times 2.5(-200) = 25$

⇒ if I have long evaluation period

myopic loss avasion

⇒ myopia (short evaluation period)

+ loss aversion

Samuelson(1963)'s colleague

- IF $U(x) = \begin{cases} x & , x \geq 0 \\ 2.5x & , x < 0 \end{cases}$, prospect A has negative expected utility, while prospect B has positive expected utility.
- When decision-makers are loss averse, the single bet are unattractive if evaluated one at a time. They will be more willing to take risks if they evaluate their performance (or have their performance evaluated) infrequently.

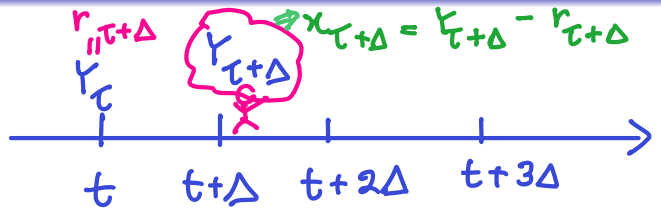
Myopic Loss Aversion & The Equity Premium Puzzle

- Suppose that the investor must choose between:
  - a risky asset that pays an expected 7 percent per year with a standard deviation of 20 percent (like stocks)
  - a safe asset that pays a sure 1 percent
- The attractiveness of the risky asset will depend on the time horizon of the investor.

Myopic Loss Aversion & The Equity Premium Puzzle

- The longer the investor intends to hold the asset, so long the investment is not evaluated frequently, the more attractive the risky asset will appear.
- Two factors contribute to an investor being unwilling to bear the risks associated with holding equities:
  - loss aversion
  - a short evaluation period

Benartzi & Thaler (QJE 1995)'s model



The model for how people choose their portfolio allocation between stocks and bonds:

- Suppose a person evaluates her portfolio at dates t, $t+\Delta$, $t+2\Delta$, $t+3\Delta$,...
  - Let Y_τ be the value of her portfolio at date τ.
  - Let $r_{\tau+\Delta} \equiv Y_\tau$ be the reference point that will be used at $\tau+\Delta$.
  - Let $x_{\tau+\Delta} \equiv Y_{\tau+\Delta} - r_{\tau+\Delta}$

Benartzi & Thaler (QJE 1995)'s model

The model for how people choose their portfolio allocation between stocks and bonds:

- At date t, person makes this allocation choice to maximize

$$\max \sum_{x_{t+\Delta}} \pi_{x_{t+\Delta}} v\left(x_{t+\Delta}\right)$$

  - $\pi_{x_{t+\Delta}}$: the decision weight associated assigned to outcome $x_{t+\Delta}$
  - Value function & the probability-weighting function taken from Tversky & Kahneman (1992) using parameter values that they suggested

Conclusions

- With the use of historical data and model simulation, the size of the equity premium is consistent with the previously estimated parameters of prospect theory if investors evaluate their portfolios annually.
- With the parameters used, the actual equity premium in the data is 6.5 percent per year.
- Someone with a twenty-year horizon would be indifferent between stocks and bonds if the equity premium were only 1.4 percent.
  - The remaining 5.1 percent is potential rents payable to those who are able to resist the temptation to count their money often.
  - 5.1 percent is the price of excessive attentiveness