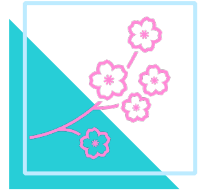


PROSPECT THEORY

EPISODE 3

EE 434 Behavioral Finance, SEM1/2022

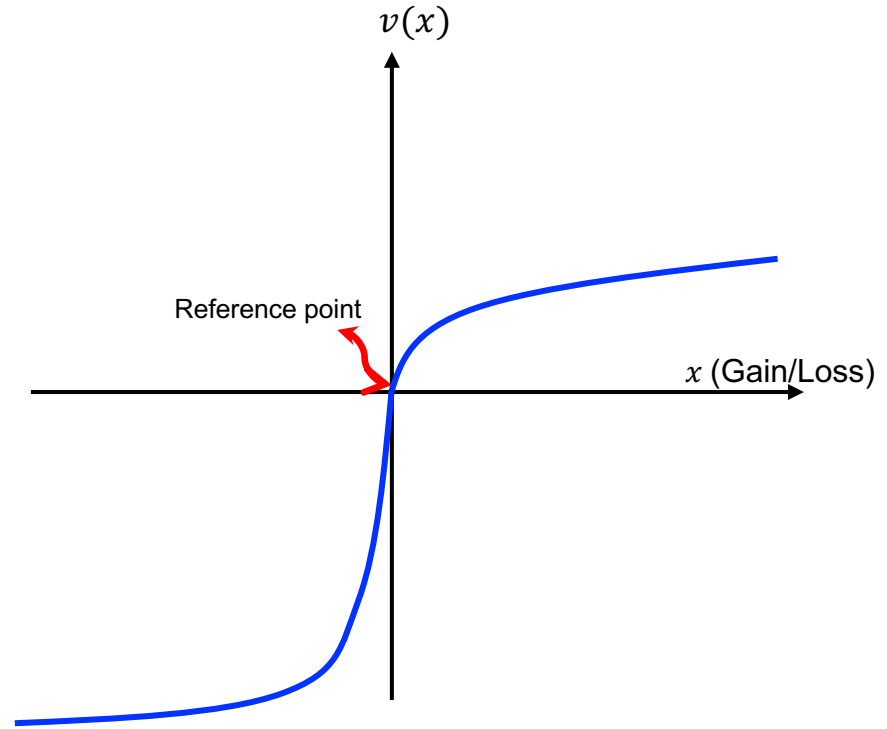
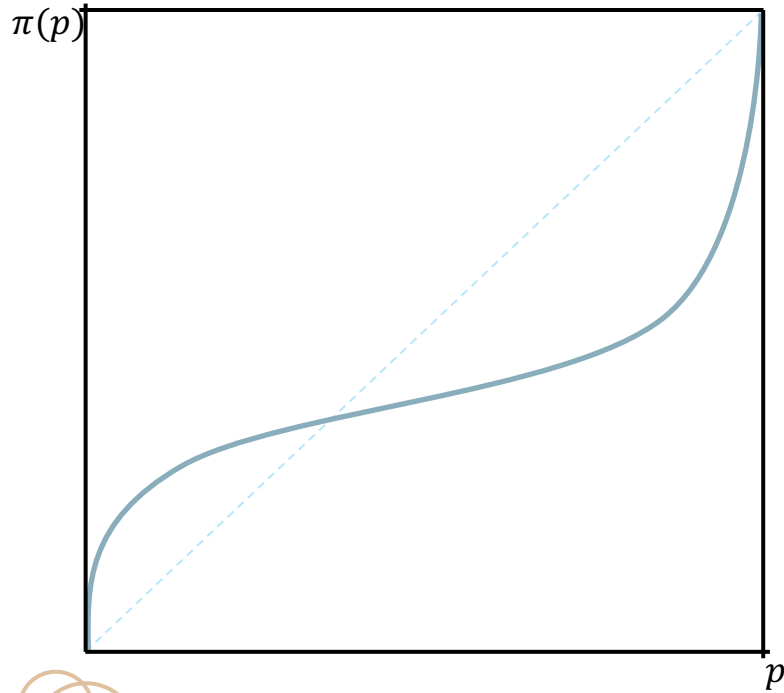
Sunsiree Kosindesha



Fourfold patterns of choices under risk



$$V(x, p; y, q) = \pi(p)v(x) + \pi(q)v(y)$$



The core achievement of prospect theory

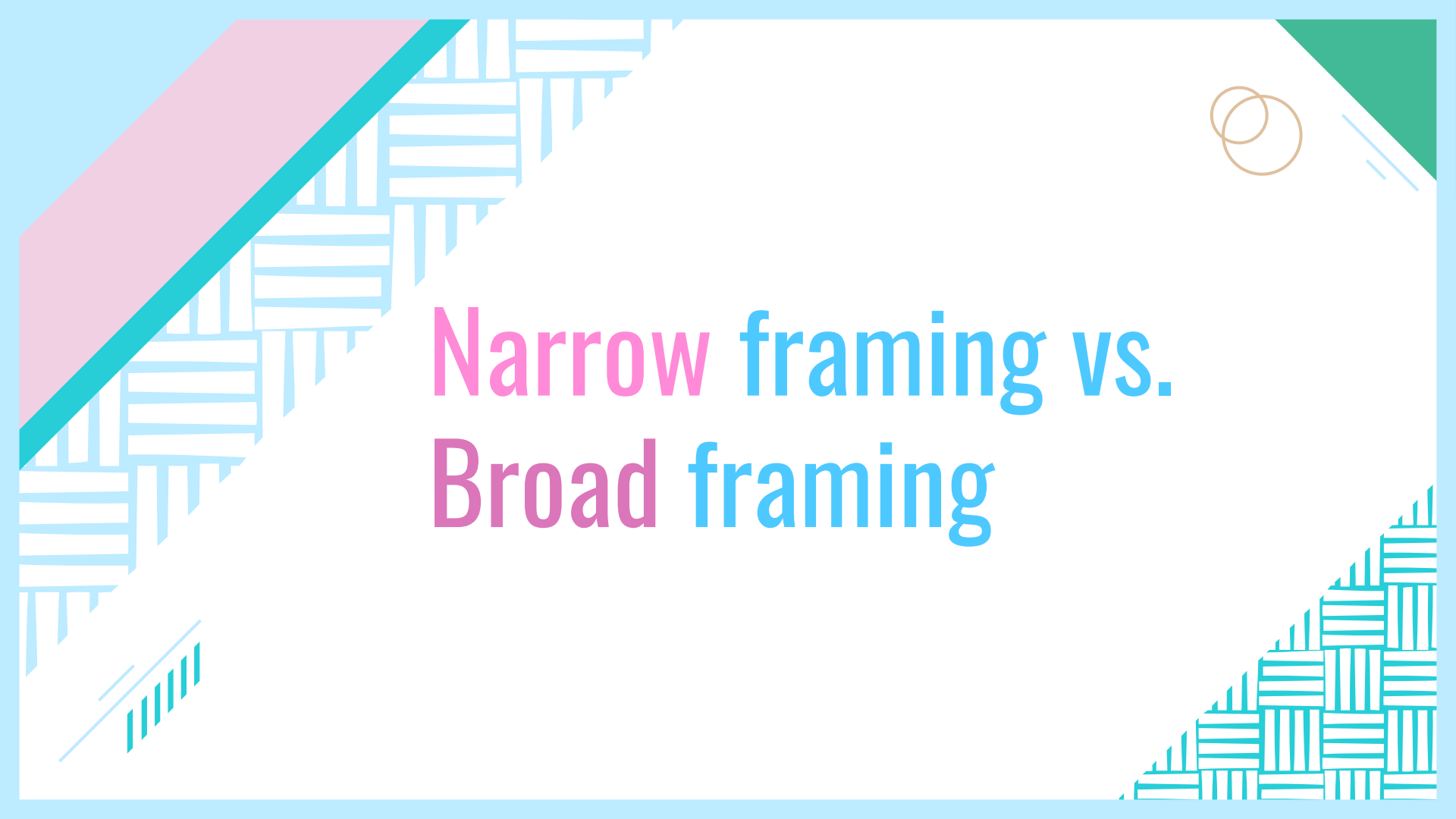
The fourfold pattern of choice under risk:

	GAINS	LOSSES
HIGH PROBABILITY Reinforcing forces	95% chance to win \$10,000 Risk averse + Underweighting Fear of disappointment RISK-AVERSE BEHAVIOR Accept unfavorable settlement Ex: refusing low-risk high return business opportunity	95% chance to lose \$10,000 Risk seeking + Underweighting Hope to avoid loss RISK-SEEKING BEHAVIOR Reject favorable settlement Ex: taking desperate gambles for a small hope of avoiding large loss
LOW PROBABILITY Competing forces Influence of PWF wins.	5% chance to win \$10,000 Risk averse + Overweighting Hope of large gain RISK-SEEKING BEHAVIOR Reject favorable settlement Ex: buying lottery tickets	5% chance to lose \$10,000 Risk seeking + Overweighting Fear of large loss RISK-AVERSE BEHAVIOR Accept unfavorable settlement Ex: buying insurance policies

Choices are:
risk averse if less-risky option is preferred;
risk seeking if more-risky option is preferred.

The fourfold pattern of choice under risk:

- ❖ For intermediate/large probabilities, we have risk-averse behavior over gains and risk-loving behavior over losses.
- ❖ For small probabilities, we have risk-loving behavior over gains and risk-averse behavior over losses.

The background features a light blue border. On the left, a pink trapezoid is partially covered by a teal diagonal band. Below these, there are patterns of horizontal and vertical teal lines. In the top right, there are two overlapping orange circles and a green triangle. In the bottom right, there is a pattern of teal vertical lines. In the bottom left, there are several short teal vertical lines.

Narrow framing vs. Broad framing

Decision (i)

❖ Choose between

A. sure gain of \$240

B. 40% chance to gain \$1,000 and 60% chance to gain nothing

Decision (ii)

❖ Choose between

C. sure loss of \$750

D. 60% chance to lose \$1,000 and 40% chance to lose nothing

Decision (iii)

❖ Choose between

A&D. 40% chance to win \$240 and 60% chance to lose \$760

B&C. 40% chance to win \$250 and 60% chance to lose \$750

Narrow framing is costly.

- Majority of respondents chose:
 - A. in decision (i)
 - D. in decision (ii).
- AD is dominated by BC.

It is costly to be risk averse for gains and risk seeking for losses.

Narrow framing vs. Broad framing

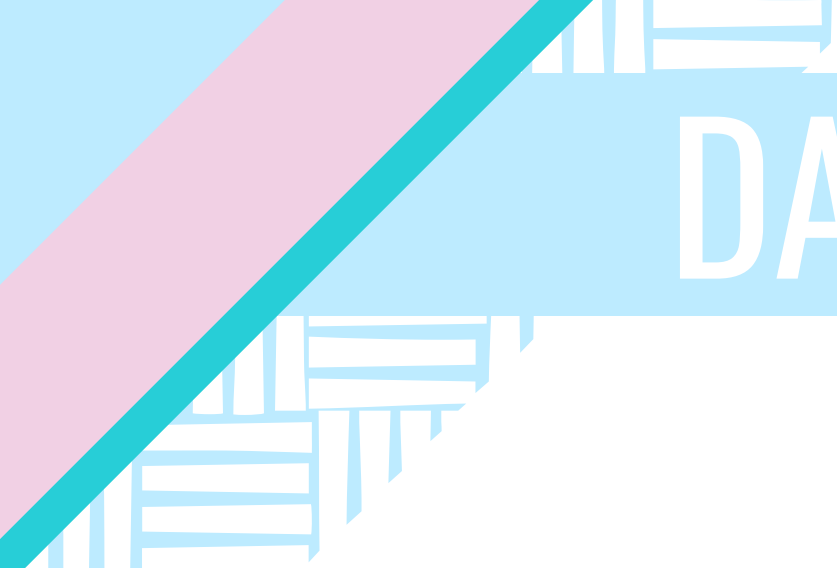
- Narrow framing: a sequence of two simple decisions, considered separately
 - Think about A vs. B
 - Think about C vs. D
- Broad framing: a single comprehensive decision, with four options
 - Think about A, B, C, D together: AC, AD, BC, BD

Narrow framing vs. Broad framing

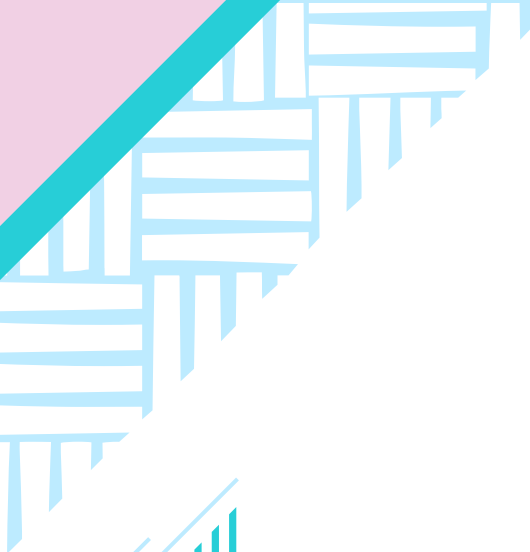
- A rational agent will engage in broad framing.
- A rational agent will use mental efforts to enforce consistency.
- Econs will be coherent in their choices.
- Humans are naturally narrow framers.
- We are susceptible to WYSIATI (What You See Is All There Is). That is, we use the information we have as if it is the only information.
- We are averse to using mental effort.

Inducing to use broad framing

- ✓ “To think like a trader” helps with loss aversion and endowment effect
- ✓ “Treat this problem as one of many monetary decisions, which will sum together to produce a portfolio”
- ✓ Broad framing blunt the emotional reaction to losses



DANKE!



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