

Chapter 1 – Introduction

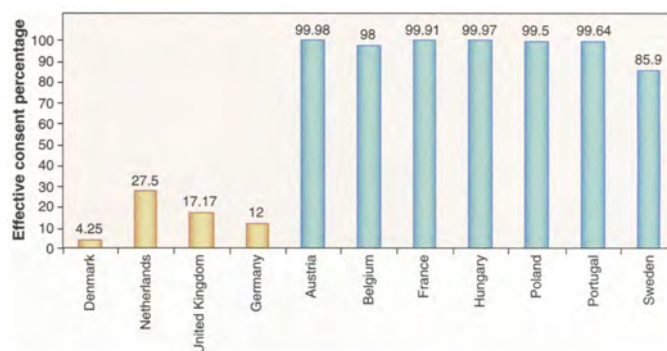


- Financial Decision Making
 1. We are more vulnerable to financial decision-making mistakes than other basic cognitive mistakes
 2. Further, we are less able to demonstrate these mistakes than others (e.g. optical illusions)

Default Option Bias = when people are uninformed about a decision, they are more likely to select the default option

Two Reasons behind default option bias:

1. Defaults can be perceived as suggestions by the policy-maker
 2. Selecting the default option is effortless
- Default option bias in professionals: the more complex the action of the alternative, the more attractive the default becomes
 - Told first group of surgeons that they forgot to try **one** medication on their patient. When given the choice to let the patient go or try the medication, most chose to try the medication.
 - Told second group of surgeons that they forgot to try **two** medications on their patient. When given the choice to let the patient go or try the medication, and the choice of whether to try A or B, most chose to let the patient go.



Decoy Effect = the particular options with which we are presented can influence our decision, even if they are not our final selection

Experiment:

- Part (1): subjects given a choice between all expenses paid trip to either Rome or Paris
 - No option clearly dominates
 - Half choose Paris, half choose Rome
- Part (2): subjects given a choice between Rome, Paris, and a trip to Rome without food included
 - The final option is clearly dominated and should not influence the results
 - However, this time, more subjects choose Rome

Greed and Fear = forces other than reason drive human negotiation

- The Dollar Auction
 - Greed explains the initial stage; attraction of cheap money
 - Fear explains the latter stages; top bidder is determined to stay on top, lower bidders afraid to drop out
 - Same logic applies in markets to mutual bloodletting and mergers and acquisitions

3 ways to improve welfare:

1. **Legislation** = choosing on *behalf* of people or *forcing* them to make a particular decision
2. **Education** = abating behavioural biases by making people *aware* of their effect
3. **Nudging** = *using* behavioural biases to nudge people into making particular decisions
 - Changing human behaviour on the basis of scientific understanding of what real people are like (e.g. the fly in the urinal case)

Expected Utility Theory = the linear combination of the possible outcomes, weighted by their respective probabilities

$$EU = (p) * (U) + (p) * (-U)$$

- The St Petersburg Paradox: hypothetical lottery game demonstrating a violation of the EU theory (not related to PT)
 - EU of a lottery game with an increasing prize but diminishing probabilities should be infinite
 - A prospective player should choose to play the game at an infinite price
 - This is not the case – the utility function is concave

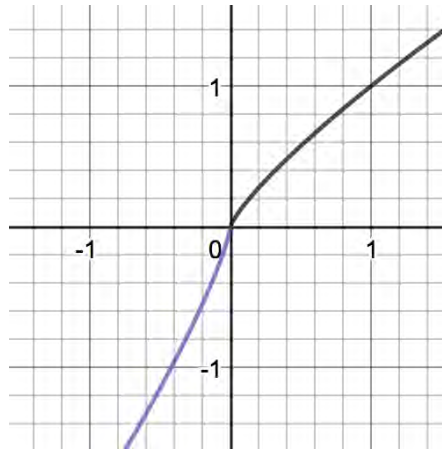
Chapter 2 – Prospect Theory

Prospect Theory = a theory about why investors violate the expected utility theory because of the way they assess prospects

$$EU = (w) * (v) + (w) * (\lambda) * (-v)$$

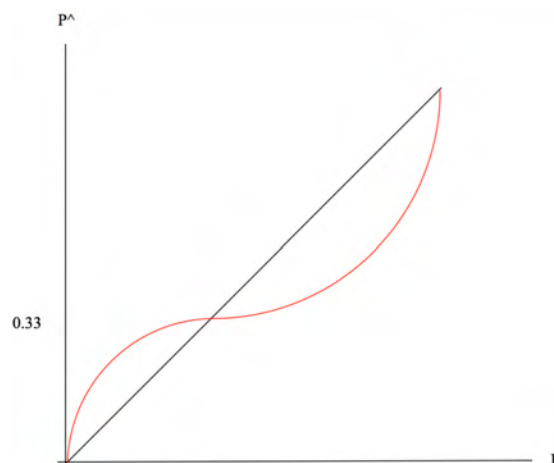
The Value Function

1. People view gains and losses with respect to a reference point, not a final wealth position
2. People are risk-averse for gains (accept less gain for the guarantee) and risk-seeking for losses (take risk for a greater recoup)
3. People have a greater sensitivity to losses than gains (the gradient in the negative domain accounted for by ' λ ')



The Probability-Weighting Function

1. At small real probabilities ($p < 0.33$), people overweight perceived probabilities ($p = 0.2$; $p^{\wedge} = 0.25$)
2. At large real probabilities ($P > 0.33$), people underweight perceived probabilities ($P = 0.8$; $P^{\wedge} = 0.75$)
3. Certainty Effect = slope of the perceived probability curve approaches infinity around the extremes



Successes of PT	Limitations of PT
<ul style="list-style-type: none"> - Predicts key violations of EU theory: disposition effect, common ratio effect, 4 fold pattern of risk aversion and some framing effects 	<ul style="list-style-type: none"> - Does not predict some framing effects (e.g. choice v pricing) - Does not describe how the reference point adjusts dynamically in a sequence of gambles (e.g. framing effect and house money effect)

Disposition Effect = investors have a tendency to sell assets that have increased in value too early and keep assets that have dropped in value too long; they sell winners and hold on to losers

Common Ratio Effect = people are more sensitive to losses at higher levels; e.g. a 20% jump in probability is felt greater at higher probabilities

$$\delta_{3000} > (4000, 0.8; 0, 0.2) \text{ but } (4000, 0.2; 0, 0.8) > (3000, 0.25; 0, 0.75)$$

4-Fold Risk Aversion =

People are risk averse for small-p losses

People are risk-seeking for small-p gains

People are risk-seeking for large-p losses

People are risk averse for large-p gains

Framing Effect = the way information is presented affects the way people make decisions; seemingly minor changes in the way information is framed can cause dramatic changes in behaviour

Experiments:

1. Asian Disease

- 1st proposal = if A is adopted, 200 people will be saved; if B is adopted, 1/3 probability that nobody will die, and 2/3 probability that 600 people will die.
- 2nd proposal = if A is adopted, 400 people will die; if B is adopted, there is 1/3 probability that nobody will die, and 2/3 probability that 600 people will die
- Subjects generally preferred A to B in the 1st proposal but preferred B to A in the second proposal, despite the fact that there is no substantive difference between them

2. Frequency of Portfolio Evaluation

- Subjects asked to allocate their portfolio between two funds, A (bond) and B (stock)
 - Group 1 = given monthly observations of B's returns
 - Group 2 = given annual observations of B's returns
 - Group 3 = given 5-year observations of B's returns
- After 200 months of observations, final allocation made to apply over the next 400 months
- Final allocation chosen by subjects in Group 1 was much less tilted towards B; preferred A
- **Myopic Loss-Aversion Effect**: more frequent evaluations cause increased risk aversion
 - i. Pleasure felt after observing gain is inferior to the pain felt after equivalent loss.
 - ii. Losses experienced frequently at narrow time scales; frequent losses = more risk aversion

3. Choice v Pricing

- Problem 1 = choose to play either A(4,0.9; -2,0.1) or B(16,0.3; -2,0.7)
- Problem 2 = state the price you would sell a ticket to play A(4,0.9; -2,0.1) and B(16,0.3; -2,0.7)
- Subjects would choose to play A, but state a higher price for B
- **Compatibility Effect**:
 - i. Problem 1 = choice problem: subjects focus on the probabilities
 - ii. Problem 2 = pricing problem (expressed in monetary terms): subjects focus on the payoff