Written Exam for the course

Behavioral Economics and Finance

Master's Course

Date: …

(2-hour, closed book exam)

The exam consists of 3 different questions (with sub-questions).

Good luck.

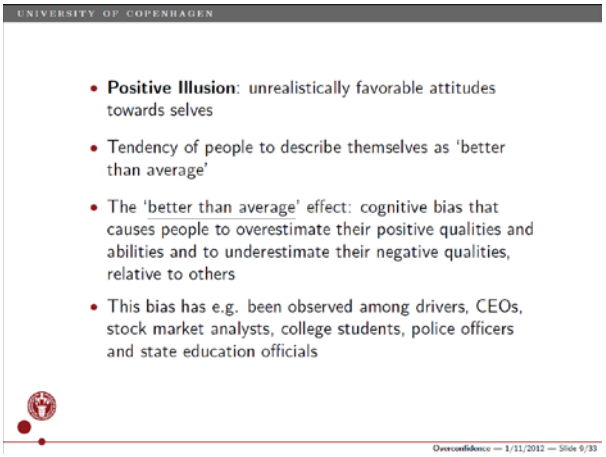
(1) Overconfidence:

(a) Define overconfidence and explain the three facets of overconfidence discussed during the course.

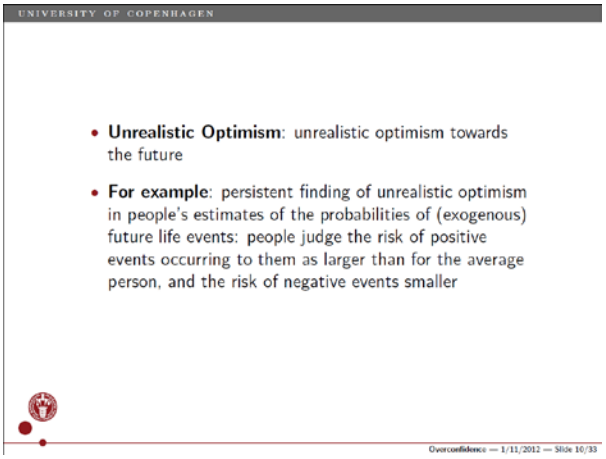
Points that should be included in the answer are:

- Overconfidence is a bias in which people are correct in their judgments far less often than they think they are.
- Overconfident people have the tendency…
  … to overestimate their skills and predictions for success
  … to perceive themselves more favorably than others perceive them
  … to perceive themselves more favorably than they perceive others.
- Connected to this, the three facets of overconfidence are…

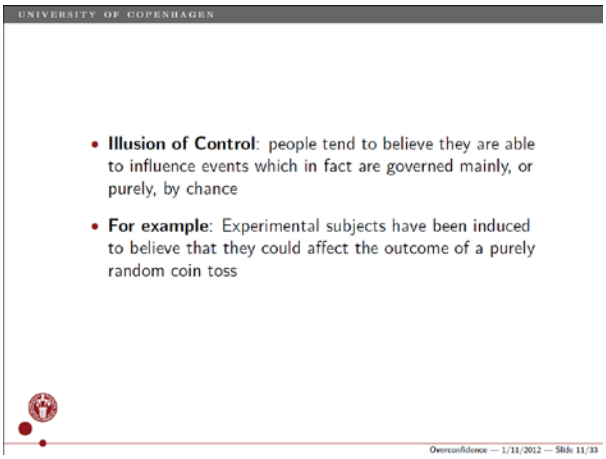
…**Positive Illusion**:



…**Unrealistic Optimism:**



…and the **Illusion of Control:**



(b) Explain how overconfidence is tested for in the experimental paper by Camerer and Lovallo (AER, 1999)

Points that should be included in the answer are:

- Camerer and Lovallo (AER, 1999) experimentally investigate behavior in a market entry game.
- More specifically, in this experiment participants play different rounds of a market entry game with limited capacity.
- In case they enter they receive a payoff which depends on their rank.
- The rank of participants depends either on their answers to a trivia test (skill rounds) or a random draw (random rounds).
- Only participants with a rank lower or equal to the market capacity receive a positive payoff from entering the market – they share a payoff of 50$.
- All others receive a negative payoff.
- Entry in random rank rounds: participants should rationally enter as long as they believe that the total number of entrants (including themselves) is less or equal to the capacity + 5.
- Capacity + 5 implies an industry profit of 0.
- The major question is whether participants reveal overconfidence by entering more when ranks are decided on by the answers to the trivia test rather than the random draw.
- This would then imply a negative industry profit – i.e. on average participants are overconfident.

- These are just the major points. Other points that should be included can be found on the lectures slides 19-39 of the lecture on "Experimental Economics" and the article by Camerer and Lovallo (pp 307-313).

(c) Explain the type of overconfidence discussed in Malmendier & Tate (JFE, 2005)'s article entitled `CEO Overconfidence and Corporate Investment´ and its consequence for the investment decisions of overconfident managers.

Points that should be included in the answer are:

- The type of overconfidence discussed and analyzed by Malmendier and Tate (JFE, 2005) differs from Camerer and Lovallo's type.
- They look at CEOs that are overconfident with regard to the returns of their investment projects. The precise specification can be found on p.2665 of their article.
- They show that managers that are overconfident with regard to the return of their investment projects invest more than rational CEOs would do.
- Furthermore, they show that in case their preferred level of investment exceeds the companies cash and debt capacity, their actual level of investment increases with the amount of cash in the company.
- Again, these are just the major points. Other points that should be included can be found on pp 2665-2667 of their article.

(2) Myopic Loss Aversion: Consider the idea of myopic loss aversion discussed during the class.

(a) Explain the concept of myopic loss aversion and why prospect theory implies that people are myopic loss averse.

Points that should be included in the answer are:

- Can be found on lectures slides pp 11-14 of the lecture "Myopic Loss Aversion".

(b) Explain the equity premium puzzle and explain how myopic loss aversion has been used to `rationalize´ it.

Points that should be included in the answer are:

- Can be found on lectures slides pp 3-5 of the lecture "Myopic Loss Aversion".

(c) Explain how the implications of myopic loss aversion have been tested for in economic experiments. In particular refer to the experimental papers discussed in class: (i) Gneezy, Kapteyn & Potters (JF, 2003) and Haigh & List (JF, 2005).

Points that should be included in the answer are:

- Can be found on lecture slides pp 23-33 of the lecture "Myopic Loss Aversion".

(3) Self control problems: Consider the discounted-utility model as well as the βδ-model of intertemporal choice discussed during the course.

Imagine you have a 3-day holiday and you can spend some time with your friends. You friends have already organized an activity for each day. Unfortunately you know that you have to skip one activity, because you have to visit your parents. Participating in your friends' activity today gives you a utility of u_0=3, participating in the activity tomorrow gives you a utility of u_1=5 and participating in the activity on the last day of your holiday gives you a utility of u_2=8. Assume that β=½ and δ=1.

(a) When would you visit your parents, if you were a discounted utility maximizer? Explain why.
(b) When would you visit your parents, if you were a naïve βδ maximizer? Explain why.
(c) When would you visit your parents, if you were a sophisticated βδ maximizer? Explain why.

Points that should be included in the answers are:

For (a):

- Today the discounted utility maximize will compare:
  (i) skipping today's activity (i.e. visiting parents today):
  $$U^0(\text{skipping today})=5+8=13$$
  (ii) skipping tomorrow's activity (i.e. visiting parents tomorrow):
  $$U^0(\text{skipping tomorrow})=3+8=11$$
  (iii) skipping the day after tomorrow's activity (i.e. visiting parents the day after tomorrow):
  $$U^0(\text{skipping day after tomorrow})=3+5=8$$
  As can be seen skipping today's activity caries the highest utility.
- From this follows that the discounted utility maximizer will skip the worst activity and simply visits his parents 'today' (t=0) because skipping today gives the highest intertemporal utility.

For (b):

- Today the naïve βδ-maximizer will compare:
  (i) skipping today's activity (i.e. visiting parents today):
  $$U^0(\text{skipping today})=½(5+8)=6.5$$
  (ii) skipping tomorrow's activity (i.e. visiting parents tomorrow):
  $$U^0(\text{skipping tomorrow})=3+½(8)=7$$

(iii) skipping the day after tomorrow's activity (i.e. visiting parents the day after tomorrow):

$$U^0(\text{skipping day after tomorrow})=3+\tfrac{1}{2}(5)=5.5$$

- This means, from today's perspective the naïve maximizer plans to visit his parents tomorrow.
- Tomorrow he considers again and compares:

  (iv) sticking to his plan (i.e. visiting parents and taking part in activity on third day):

  $$U^1=\tfrac{1}{2}(8)=4$$

  (v) postponing visit again (i.e. taking part in activity on second day and visiting parents the day after):

  $$U^1=5$$

- Clearly, as the naïve person takes part in the activity on the first day of his holiday and considers again whether to visit his parents on day 2 or 3 of his holiday, he postpones until day 3 because on day 2 sticking to his original plan gives a lower utility (4) than postponing his visit again.

For (c):

- What about the sophisticated? The sophisticated βδ-maximizer forsees today that he prefers visiting the parents tomorrow, but he also forsees that his tomorrow self will have a self-control problem ending up visiting the parents on the last day of the holiday.
- Hence, at t=0 the sophisticated maximizer anticipates that he actually chooses between today and day 3, because if he leaves the choice to his tomorrow self-he will end up visiting the parents on day 3.
- Given this, today (i.e. at t=0) he compares

  (i) skipping today's activity (i.e. visiting parents today):

  $$U^0(\text{skipping today})=\tfrac{1}{2}(5+8)=6.5$$

  (ii) skipping the day after tomorrow's activity (i.e. visiting parents the day after tomorrow):

  $$U^0(\text{skipping day after tomorrow})=3+\tfrac{1}{2}(5)=5.5$$

- Clearly, from today's perspective skipping today's activity is better than skipping the activity on day 3. Hence, the sophisticated βδ-maximizer will behave as the discounted utility maximizer.