BEE2027

University of Exeter

Business School

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FINANCIAL MARKETS AND DECISIONS I

Module Convenor: Julian Neira

Duration: 90 Minutes

Answer ALL questions from Sections A and B.

Section A is a Multiple Choice section.

Answer multiple choice questions on MCQ answer sheet.
You should fill in your details in your MCQ sheet, including your student ID AND your candidate number, and this should be inserted in your answer booklet.

Materials to be supplied:
Multiple choice answer sheet (MCQ)

Materials to be supplied on request:
None

Approved calculators are permitted.

This is a closed note paper.

Section A: Multiple Choice Questions (Total 20 points)

Answer all questions. There is one correct answer for each question. Each correct answer is worth 5 points, as indicated in each question. Incorrect answers score zero, i.e. there is NO negative marking. Answers should be marked on your MCQ Answer Sheet. Double-check the question numbers to make sure that you are marking on the right rows. Good luck!

1. (5 points) Bank 1 offers a deal on deposits of £1,000 or more. You must leave your money in the bank for three years, but bank 1 will pay you 4% interest for the first year, 4% interest for the second year, and 7% interest for the third year. In response, bank 2 offers a deal that it claims is even better. It also requires you to deposit at least £1,000 and to leave it in the bank for three years, but it will pay 7% interest in the first year and then 4% in the second and third years. After three years, you can take your money out of either bank and do what you want with it. Both banks compound interest annually.
   (a) Bank 2 offers a better deal than bank 1.
   (b) Bank 1 offers a better deal than bank 2.
   (c) The two offers are equally valuable.
   (d) The offer of bank 2 becomes relatively more attractive as the size of your initial deposit is larger.
   (e) None of the above.

2. (5 points) Firm A sells lemonade and firm B sells hot chocolate. If you invest £100 in firm A, in one year you will get back £(30 + T) where T is the average temperature (Celsius) during the summer. If you invest £100 in firm B, in one year you will get back £(150 - T), where T is the average temperature during the summer. The expected value of T is 70 and the standard deviation of T is 10%. If you invest £50 in firm A and £50 in firm B, what is the standard deviation of your return on your investment?
   (a) 10%
   (b) 20%
   (c) 5%
   (d) 0%
   (e) None of the above

3. (5 points) Mabel and Emil were contemplating marriage. They got to talking. Mabel said that she always acted according to the expected utility hypothesis, where she tried to maximize the expected value of the log of her income. Emil said that he too was an expected utility maximizer, but he tried to maximize the expected value of the square of his income. Mabel said, "I fear we must part. Our attitudes toward risk are too different." Emil said, "Never fear, my dear, the square of income is a monotonic increasing function of the log of income, so we really have the same preferences." Who is right about whether their preferences toward risk are different?

(a) Mabel is right.

(b) Emil is right.

(c) Emil is right about small risks but wrong about large risks.

(d) Mabel is right about small risks but wrong about large risks.

(e) They are both wrong.

4. (5 points) A large (subterranean) pool of oil lies in a remote region of Ohio. Oil companies have explored this region and know how much oil there is. They have purchased the rights to drill and extract oil when they wish to do so. Because of the extremely forbidding geography the companies have decided to postpone extraction until the price of oil is higher. The theory of intertemporal arbitrage predicts that

   (a) the companies are behaving irrationally.

   (b) the price of rights to this oil must rise at the interest rate.

   (c) the oil companies will not drill unless production costs fall.

   (d) the price of rights to this oil will stay constant until it pays to extract.

   (e) None of the above.

Section B: Show-Your-Work Questions (Total 80 points)

Answer all questions. Correct answers with no work or explanation receive 0 points.

1. (50 points) Harry James has a choice of two assets. The first is a risk-free asset that offers a rate of return $r_f = 5\%$ and the second is a risky asset that has an expected rate of return of $r_m = 30\%$ and a standard deviation of $\sigma_m = 10\%$.

   (a) (10 points) Suppose that Harry's utility function has the form

   $$u(r_x, \sigma_x) = r_x - 2\sigma_x^2.$$

   Plot Harry's budget line and a few of his indifference curves in a graph. Be sure to label everything in your graph. How much of his portfolio will he invest in the risky asset? What is the expected return and standard deviation of his portfolio?

   (b) (10 points) Suppose that Harry's utility function has the form

   $$u(r_x, \sigma_x) = r_x - 3\sigma_x.$$

   Plot Harry's budget line and a few of his indifference curves in a graph. Be sure to label everything in your graph. How much of his portfolio will he invest in the risky asset? What is the expected return and standard deviation of his portfolio?

   (c) (10 points) Suppose that Harry's utility function has the form

   $$u(r_x, \sigma_x) = \min\{r_x, 20 - 2\sigma_x\}.$$

   Plot Harry's budget line and a few of his indifference curves in a graph. Be sure to label everything in your graph. How much of his portfolio will he invest in the risky asset? What is the expected return and standard deviation of his portfolio?

   (d) (10 points) Harry has the utility function as in (c). Suppose that Harry is confronted with the decision to either invest ALL of his money in the risk-free asset or all in the risky asset, but nothing in between. Plot this scenario in a graph, and label everything in your graph. Which option does Harry prefer? What is the expected return and standard deviation of his portfolio?

   (e) (10 points) Harry has the utility function as in (c). Is Harry risk averse? Discuss.

2. (a) (5 points) Define "efficient market" according to the Efficient Markets Hypothesis.

   (b) (5 points) List the assumptions underlying perfect markets. What is the relationship between perfect and (informationally) efficient markets?

3. (20 points) Discuss two ways of evaluating the performance of portfolio managers.