Queen Mary
University of London

May Examination Period 2024

ECN107 Foundations of Finance Duration: 2 hours

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Answer ALL EIGHT questions

Non-programmable calculators are permitted in this examination. Please state on your answer book the name and type of machine used.

Complete all rough workings in the answer book and cross through any work that is not to be assessed.

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Examiners: Dr Manolis Noikokyris

Question 1

Explain how a bond's price changes in relation to its coupon rate and its yield to maturity.

[10 marks]

Question 2

a) Briefly explain why one might expect managers of corporations to prioritise the interests of their shareholders.

[5 marks]

b) Explain what it means for a portfolio to be on the efficient frontier of risky investments.

[5 marks]

Question 3

a) Explain why all stocks in an equivalent-risk class are priced to offer the same expected rate of return.

[10 marks]

b) Explain the difference between the Capital Market Line (CML) and the Security Market Line (SML).

[10 marks]

Question 4

Outline the factors insurance companies consider when determining the amount individuals and entities pay as a premium for coverage against various risks, including damage, loss, illness, or death.

[10 marks]

Question 5

a) Calculate how much an investor needs to invest today to receive £50,000 in five years, assuming interest is compounded quarterly at a nominal annual rate of 9%. Your results should be reported with a precision of two decimal points.

[5 marks]

b) Explain why companies with high operating leverage have high asset betas.

[5 marks]

Question 6

a) You invest in a portfolio consisting of two assets: Stock A, which constitutes 35% of the portfolio and has an expected return of 10% with a standard deviation of 12%, and Stock B, which makes up 65% of the portfolio with an expected return of 14% and a standard deviation of 18%. If the correlation coefficient between Stock A and Stock B is 0.2, calculate the expected return and the standard deviation of the resulting portfolio. Your results should be reported with a precision of two decimal points.

[5 marks]

b) A five-year government bond with face value of £1,000 has an annual coupon rate of 5%, paid semiannually, and a yield to maturity of 7% per annum. If in one year this bond has a yield to maturity of 6% what return have the bondholders earned over the 12-month period? Your results should be reported with a precision of two decimal points.

[15 marks]

Question 7

Table 1 reports the betas and actual expected returns of two stocks: Stock A and Stock B. Use the information in Table 1, and explain if the stocks are correctly priced according to the CAPM. The risk-free rate is 5%, and the market risk premium is 6%. Suppose that the Capital Asset Pricing Model (CAPM) holds. If these stocks are not correctly priced, what is your investment recommendation for someone with a well-diversified portfolio? Your results should be reported with a precision of two decimal points.

Table 1

Stocks	Beta	Expected Return (%)
Stock A	1.4	14
Stock B	1.2	11

[10 marks]

Question 8

a) Company A is financed by issuing bonds and common stocks. The market value of its bonds is £3 millions and their yield to maturity is 5%. The company's stocks have a market value of £8 millions. Company A's cost of equity capital is 12.05%. The corporate tax rate is 21%. In the financial statements, the common equity book value for Company A is reported at £4 million. Calculate Company A's weighted average cost of capital (WACC).

[5 marks]

b) Table 2 displays data concerning the equity beta (β_E) of three companies along with the standard deviation of their returns:

Table 2

	Equity beta (β_E)	Standard Deviation
Company A	0.48	12.5%
Company B	1.45	18%
Company C	0.75	11.2%

Explain which stock would be safest for a diversified investor and which one for an undiversified investor who puts all their money in one of these stocks.

[5 marks]

End of Paper