Queen Mary
University of London

January Examination Period 2022-23

ECN103 Principles of Finance *Duration: 2 hours*

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Answer ALL questions

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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Examiner: Dr Radoslawa Nikolowa

Question 1

a) Briefly discuss the different forms of the efficient market hypothesis.

[12 marks]

b) Briefly explain the main purpose of money markets. In your explanation refer to the role they play for borrowers and investors.

[8 marks]

Question 2

Define the Net Present Value (NPV) investment rule and the Internal Rate of Return (IRR) investment rule. Explain in detail in what cases the investment recommendations of the IRR rule would be different from those of the NPV rule.

[20 marks]

Question 3

Explain the asset transformation function of banks.

[10 marks]

Question 4
Your bank is offering you an account that will pay 12% interest in total for a one-year deposit. Determine the equivalent discount rate for a period length of three months.

[5 marks]

Question 5
Consider the following scenario analysis for Stock A (See Table 1):

Table 1:

	Recession	Normal	Boom
Probability	0.2	0.5	0.3
Stock A returns	-20%	12%	25%

a) What is the expected return and standard deviation for Stock A?

[6 marks]

Now assume that there is a Stock B with expected return equal to 8.5% and a standard deviation of 17%.

b) Discuss the following statement: "In light of the apparent inferiority of Stock A, no one should invest in that stock".

[5 marks]

Question 6
ABC Incorporated has just issued a five-year, zero-coupon corporate bond with face value $100. There is a 20% probability of default. In case of default, the bondholder would recover 55% of the face value of the bond. The expected return, adjusted for the risk of the bond, is 6%.

a) Find the price of the bond.

[5 marks]

b) Find the yield to maturity of the bond. Discuss your result.

[7 marks]

Question 7
Consider a security with a beta of 1.2, when the market risk premium is 6%, and the risk-free rate is 3%. What is the fair expected return for this security?

[5 marks]

Question 8

Consider an entrepreneur with initial wealth of $150. The entrepreneur has an investment opportunity in which she can invest $150 today (year 0) and receive $250 three years after the initial investment. In year 4 the entrepreneur will have another investment opportunity that again costs $150 and delivers $250 three years after the investment. The discount rate for the investments is 8%.

a) Suppose that the entrepreneur cannot borrow or save. What is the net present value (NPV) to the entrepreneur of this sequence of investment opportunities?

[3 marks]

b) Suppose now that the entrepreneur can save money from one period to the next at zero interest rate. What is the net present value to the entrepreneur of this sequence of investment opportunities?

[5 marks]

c) Suppose now that the entrepreneur can borrow freely at a rate of 8%. What is the NPV to the entrepreneur of this sequence of investment opportunities?

[5 marks]

d) In light of this example, explain how financial markets help with the allocation of capital in the economy.

[4 marks]

End of Paper

End of Examination/ Radoslawa Nikolowa