UNIVERSITY OF LONDON 279 0023 ZB

BSc degrees and Diplomas for Graduates in Economics, Management, Finance and the Social Sciences, the Diploma in Economics and Access Route for Students in the External Programme

Investment Management

Friday, 19 May 2006 : 10.00am to 1.00pm

Candidates should answer **FOUR** of the following **EIGHT** questions. All questions carry equal marks.

A hand held calculator may be used when answering questions on this paper but it must not be pre-programmed or able to display graphics, text or algebraic equations. The make and type of machine must be stated clearly on the front cover of the answer book.

1. (a) Explain what distinguishes open-end from closed-end managed funds.

(5 marks)

(b) Explain the difference between the clean price for a bond and the dirty price.

(10 marks)

(c) You open an account to short sell 1,000 shares of BT, priced at 150p. The initial margin requirement is 50% and the margin account pays no interest. A year later the price of BT has risen to 185p and the share has paid a dividend of 12p per share. What is the margin based on the ending price and the rate of return on the investment?

(10 marks)

2. (a) What is the most common motivation for innovation of new financial securities? Give two examples, and explain their usefulness.

(10 marks)

(b) Explain why risk-averse individuals are willing to pay an insurance premium to remove risk.

(7.5 marks)

(c) Explain why the historical equity premium is perceived as being too large.

(7.5 marks)

3. (a) Contrast the actual performance of fund managers with that expected from the efficient markets hypothesis.

(5 marks)

(b) Identify two explanations put forth, by behavioural finance theorists, towards the patterns observed in asset prices.

(5 marks)

(c) An investor wants to implement a returns-based momentum strategy. What proportion of wealth should be placed in each of the three stocks given below? Explain your reasoning.

Stock	Price Yesterday (in pence)	Price Today (in pence)
X	23	25
Y	74	71
Z	102	105

(15 marks)

PLEASE TURN OVER

4. (a) Suppose a market maker clears incoming orders transaction by transaction. There is a probability 5% that a given transaction is carried out by an 'insider' with perfect knowledge of the asset value and 95% that the transaction is carried out by an uninformed 'liquidity trader'. The liquidity traders are equally likely to buy and sell the asset. The likelihood that the asset is worth 102 is 50% and the likelihood that it is worth 85 is 50%. What should be the market maker's bid price to the first arriving order according to the Glosten-Milgrom model? **(15 marks)**

    (b) Explain what is meant by 'stealth trading'. What impact might it be expected to have on stock exchanges? **(10 marks)**

5. (a) To construct the efficient frontier for a portfolio of 40 stocks, how many estimates are required with the Markowitz model? How many with the Single Index Model? Briefly explain the difference. **(5 marks)**

    (b) You estimate the following information about two shares, A and B:

	Stock A	Stock B
Beta-coefficient	1.13	0.80
Alpha-coefficient	0.03	0.02
Residual variance	0.200	0.009

    The market return is estimated to be 15% and the market standard deviation 20%. The risk free rate of return is 5%. If 60% of wealth is placed in stock A and 40% in stock B, calculate portfolio variance and expected return. **(10 marks)**

    (c) Outline the logic of the Treynor-Black model. **(10 marks)**

6. (a) A 9-year government bond has a nominal value of £100 and carries a coupon of 4% p.a. The coupon is payable once a year, with the first payment 12 months away. It stands on a yield-to-maturity of 6% p.a. Calculate the price and the Macaulay duration for the bond. Using the concept of duration, work out the approximate change in price for a rise in yield of 1%.

(15 marks)

(b) Explain how it is possible to guarantee meeting a future liability using a portfolio of bonds, even with uncertain reinvestment rates.

(10 marks)

7. Consider the following annualised data for two managed funds and the market. The first column shows the name of the fund; the second the average return; the third the standard deviation of return; the fourth the beta coefficient of the fund; and finally the fifth shows the proportion of total risk that is idiosyncratic (or non-systematic) risk:

Fund	Avg return	Std deviation	Beta coeff	Idiosync risk
Century	28%	27%	1.7	5%
Millennium	40%	33%	2.5	27%
Market	20%	17%	1.0	0%
T-bills	6%	-	-	-

(a) Calculate the following performance measures for the Century and Millenium funds: Sharpe, Jensen, Treynor, M2, and the Information ratio.

(15 marks)

(b) What can we infer, using the above data, about the success of the funds? Explain. **(10 marks)**

8.   (a)   Provide two ways of establishing an equity fund with guaranteed minimum payoff. Show the equivalence of the two approaches using put-call parity.

(10 marks)

    (b)   You are given the following option prices for shares in XYZ, which are currently priced at 300p.

Exercise price	****CALLS****			****PUTS*****		
	Nov	Feb	May	Nov	Feb	May
280	31	36	40	7	12.5	16.5
300	20	25	31	20	23.5	25.5
320	10.5	17.5	23.5	26.5	33	37.5

Using the above prices show the payoff diagram for a covered call and a straddle (for which maturity?). The net of cost payoffs for each instrument should be shown, along with the combination.   **(15 marks)**

END OF PAPER

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