This paper is not to be removed from the Examination Halls

UNIVERSITY OF LONDON 279 0023 ZA

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.

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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) Explain how a swap agreement works. Explain also, using the example of currency swaps, how these contracts originally became popular. **(10 marks)**

(b) Historically we have observed the following for US based investments:

Investment	**Average return**	**Standard deviation**
Small-company stocks	17.74%	39.30%
Large-company stocks	12.04%	20.55%
Long-term treasure bonds	5.68%	8.24%
US T-bills	3.82%	3.18%
Inflation	3.14%	4.37%

Explain these findings. What conclusions can you draw about the relationship between risk and return from this data? **(5 marks)**

(c) Assume investors have an expected utility function which is increasing in expected return and decreasing in variance, $U(r) = E(r) - 0.5\rho \text{ Var } (r)$, where r is return and ρ is risk aversion coefficient. Based on the data in (b), how risk averse are the investors who are indifferent between small-cap and large-cap stocks? And between large-cap stocks and long-term treasure bonds? **(10 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)

4. (a) What characterises a hedge fund? Do hedge funds 'hedge'? Discuss, drawing on both individual examples and academic research. **(12.5 marks)**

(b) Research into mutual fund performance has focused on both the long-term return on such funds and the ability of fund managers to 'time the market'. What are the main findings? Is there an overall trend in the findings? Discuss and explain. **(12.5 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) Explain what we mean by yield-to-maturity for a bond. Explain what we mean by the term structure of (spot) interest rates. **(5 marks)**

(b) You are given the following data from the government bond market.

Bond	**Price**	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**
A	100.00	104	-	-	-
B	100.57	4.5	104.5	-	-
C	97.81	3.5	3.5	103.5	-
D	99.27	4	4	4	104

The first and second columns list the names and prices of four different bonds; the next four columns list the cash flows of the bonds from year 1 through year 4. All cash flows arrive at the end of the year. Work out the term structure of (spot) interest rates over the 4-year period. **(20 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) What is a long straddle position? A short straddle position? Explain using examples. When is it appropriate to use straddle positions for volatility hedging? Explain. **(10 marks)**

(b) The portfolio insurance model of Basak and Shapiro demonstrates that fund managers may seek to insure small portfolio losses rather than large portfolio losses to meet value-at-risk criteria. Explain, using an example, why this is the case. Discuss the implications of for the distribution of portfolio losses of managed funds and, if you can see any, for regulators of the financial system. **(15 marks)**

END OF PAPER