

EXAMINATIONS

11 September 2002 (am)

Subject 301 — Investment and Asset Management

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1. *Enter all the candidate and examination details as requested on the front of your answer booklet.*
2. *You have 15 minutes at the start of the examination in which to read the questions. You are strongly encouraged to use this time for reading only, but notes may be made. You then have three hours to complete the paper.*
3. *You must not start writing your answers in the booklet until instructed to do so by the supervisor.*
4. *Mark allocations are shown in brackets.*
5. *Attempt all 13 questions, beginning your answer to each question on a separate sheet.*

AT THE END OF THE EXAMINATION

Hand in BOTH your answer booklet, with any additional sheets firmly attached, and this question paper.

In addition to this paper you should have available Actuarial Tables and your own electronic calculator.

- 1** You are the investment manager of a unitised fund which holds a diversified portfolio covering all major asset categories. Equity markets have recently received a severe shock. There are concerns that your fund may experience a very high level of encashments and it has been suggested you should protect the fund by selling futures contracts.

State the main comments you would make in reply to this suggestion. [4]

- 2** A large pension fund holds a substantial diversified portfolio of US equities that is managed by a specialist manager. The manager's brief is to modestly outperform over rolling three-year periods relative to a benchmark index. The return on his portfolio for the latest twelve months was -20% as measured in US\$ whilst the benchmark index fell 25%. The chairman of the trustees has written to you as the fund's investment advisor stating this return is a disaster and that the fund has lost a fortune. He argues the manager should be sacked immediately and a claim commenced against the manager for the loss the fund has suffered.

Outline the main points you would make in your reply and identify what further information you would require. [5]

- 3** (i) State the different characteristics of offices and residential properties. [4]

(ii) A unitised fund invests in commercial properties. There are no derivative contracts available which are relevant to the properties in which the fund invests.

(a) Explain the particular difficulties that large encashments cause such a fund.

(b) State two alternative approaches this fund could take to manage large encashments and describe any adverse aspects associated with them.

[6]

[Total 10]

- 4** By the end of 2001 the global economy had slowed to the point where it wasn't growing. The monetary authorities in many countries cut short term interest rates to historically low levels.

Explain what the monetary authorities were hoping to achieve and how equity and bond markets could be expected to react. [6]

- 5** State the formula used to incorporate liabilities in portfolio theory, defining all components. [2]

Explain briefly how the formula may be used in practice. [2]

[Total 4]

- 6**
- (i) Explain why a pension scheme might consider investing in non-government debt securities. [4]
 - (ii) State the various factors that may influence the difference in yield between government and non-government debt securities. [2]
 - (iii) Describe briefly how risks associated with an individual corporate bond may be reduced. [4]
- [Total 10]

7 You have been called as an expert witness to advise on a suitable discount rate to calculate the value of a lump sum award to a 50-year old individual in compensation for his claim for loss of earnings following an injury at work. The amount of the award is based on the annual earnings lost and the number of years out of work and makes use of a discount rate in order to create a present value. In prior cases the discount rate has been the real yield available on an index of long dated index-linked government securities with the individual stocks weighted by their respective market capitalisation.

- (i) Give reasons why the yield on a long dated index-linked government securities index could be an inappropriate discount rate at this time. [2]
- (ii) Discuss whether the average yield on an unweighted index of all index-linked government securities available in the market could be a more appropriate discount rate. [2]
- (iii) It has been suggested that a more reasonable discount rate would be the expected return above inflation on a portfolio of mixed assets.

Discuss the type of assets that a typical individual investor would hold in such a portfolio and the factors you would need to consider in determining an appropriate discount rate. [4]

[Total 8]

8 You have been asked to develop an index against which to judge an equity portfolio.

- (i) Set out the formula for measuring the relative changes in the constituents' share prices. [2]
- (ii) Describe briefly the reasons for only including the level of "free float" of shares available for investment. [2]
- (iii) Modify your formula to take account of the "free float". [2]
- (iv) State two limitations of your formula. [2]

[Total 8]

- 9** A project sponsor has decided to build a small power plant to supply steam and electricity to a paper mill. The sponsor has asked your bank to lend money to the special purpose company which will own the power plant.
- Outline the various ways that the bank may be able to reduce its risk in respect of both repayment delay and default. Your answer should consider features of both the loan and the project. [10]
- 10** (i) Describe briefly the three main corporation tax systems. [3]
- (ii) State with reasons which system(s):
- (a) might be expected to encourage dividend payments [1]
 - (b) might be expected to encourage companies to diversify [1]
 - (c) might be expected to be favoured by tax exempt investors [1]
- [Total 6]
- 11** (i) State a formula relating the expected return with the required return for conventional government bonds.
- State another formula relating the expected return with the required return for property. [2]
- (ii) List the main simplifying assumptions made to derive the above formulae. [2]
- (iii) Discuss briefly why actual returns over a 12 month period may differ markedly from the expected returns for:
- (a) a portfolio of government bonds
 - (b) a portfolio of property leased to the same government [4]
- [Total 8]
- 12** You are an analyst working for a merchant bank that is responsible for the first public share offering of a company. You have been asked to quote a price range for the share offer.
- (i) Describe the process you will follow to determine the price range. [4]
 - (ii) List the information you will require to value the company. [3]
 - (iii) Give two reasons why you might recommend a price range lower than the fair market value. [2]
- [Total 9]

- 13** You are given the following total return data for a fund and relevant indices:

| | <i>Year 1</i> | | <i>Year 2</i> | | <i>Year 3</i> | |
|----------------------|---------------|-------------|---------------|-------------|---------------|-------------|
| | <i>Index</i> | <i>Fund</i> | <i>Index</i> | <i>Fund</i> | <i>Index</i> | <i>Fund</i> |
| Equities | +31% | +35% | −2% | +2% | +24% | +26% |
| Fixed Interest Bonds | +14% | +13% | +17% | +14% | +1% | +2% |
| Index Linked Bonds | +11% | +12% | +17% | +16% | +7% | +7% |

The fund's strategic benchmark was set at the start of year 1 as 60% Equities, 20% fixed interest bonds and 20% index linked bonds; it was not rebalanced. The fund manager adopted a strategy of 50% equities, 40% fixed interest bonds and 10% index linked bonds at the start of the period and did not rebalance. Ignoring the fund's cash flows and stating any assumptions you make:

- (i) Calculate the total return on the fund and the strategic benchmark over the period and state the relative performance. [3]
- (ii) Estimate how much of the fund's relative performance is attributable to stock selection and how much is attributable to asset allocation and comment on your results. [9]
- [Total 12]