

# EXAMINATION

7 September 2006 (pm)

## Subject ST5 — Finance and Investment Specialist Technical A

*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 7 questions, beginning your answer to each question on a separate sheet.*
6. *Candidates should show calculations where this is appropriate.*

### **AT THE END OF THE EXAMINATION**

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

<p><i>In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator.</i></p>
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- 1** You are employed by a national government to oversee all aspects of the national debt management policy.

Discuss how you might use an asset liability model, outlining the inputs, in this task. [8]

- 2** An equity portfolio has a target beta of 1.2 relative to the market index.

- (i) Explain the term beta, and the meaning of a value of 1.2. [2]
- (ii) Describe the investigations you would make to determine the value added by the fund manager to the portfolio, assuming full data is available. [3]
- (iii) List reasons why the performance of the portfolio might differ from that of the index. [3]
- (iv) The beta of the portfolio has moved away from the target of 1.2. Explain how individual stocks can be used to correct the beta. [2]

[Total 10]

- 3** A futures exchange is considering setting up a new European equity futures contract and there are several existing indices on which the contract could be based.

- (i) Outline the attributes of the relevant indices that you would consider in deciding which index to use, and name two potentially suitable indices. [6]

Two years after launch of the new contract, it consistently ranks in the top five contracts on the exchange. The exchange is however concerned that take-up in the asset management community has been lower than initially anticipated.

It believes that this reflects the widespread usage of restrictions in mandates for European equity managers.

- (ii) Describe the types of restrictions that might be made on a European equity mandate, giving suitable examples. [4]

The exchange decides to expand its range of contracts by splitting the European equity contract into constituents that can be combined to re-create the existing contract.

- (iii) List four classifications by which the contract may be sub-divided, and two other variations on the original contract that might expand its appeal. [3]

[Total 13]

**4** ABC plc has a share price of 57 pence and paid a dividend of 2 pence per share in the previous twelve months. It is considering issuing:

- a convertible debenture, with a zero coupon, which is convertible into ordinary shares on the basis of 150 shares per £100 nominal at any time over the next five years; or
- a zero dividend preference share at £100 that will be redeemed in five years' time at £138

(i) Evaluate the returns that might be achieved from each of these investments stating any assumptions. [5]

(ii) Explain which investors may prefer each investment giving reasons. [7]  
[Total 12]

**5** An investment trust provided the following information to shareholders:

<i>Balance Sheet</i>	<i>£m</i>		<i>£m</i>
Investments	130	Shareholder Funds	110
Cash	10	Debenture 2016 (nominal value)	30
Total	140	Total	140
<i>Income Statement</i>	<i>£m</i>		<i>£m</i>
Dividends	5.0	Interest Expense	2.4
Interest Income	0.5	Management Expenses	0.9
		Other Expenses	0.3
		Dividends Paid	1.9
Total	5.5	Total	5.5

The current share price is 170 pence per share and there are 55 million shares in issue.

(i) Calculate appropriate accounting ratios for the above trust and comment briefly on them. [7]

In the recent past many trusts have been paying off their long-term debt.

(ii) Calculate the effect that paying off this trust's debt might have on the results in (i). You may assume that there are no restrictions to paying off the investment trust's debt. [7]  
[Total 14]

**6** You are the broker to a UK charitable foundation with assets of £1bn invested in a diversified portfolio of assets. The foundation is considering making large changes to its asset allocation and the trustees are particularly concerned about the possibility of moving market prices (both on sales and purchases of lines of stock).

- (i) List four approaches that might help mitigate this problem, explaining how these will help. [4]
- (ii) Describe the assets for which the problem might be particularly acute, and for which the solutions listed above are unlikely to be effective. [2]

At a meeting with the trustees, they explained that they would like to implement the switch in stages, and that their rules currently prohibit them from using derivatives. For the first stage of the switch they will be investing £100m in Japanese equities and financing this by selling £50m of UK and £50m of US equities. They wish the switch to proceed as soon as possible.

- (iii) Describe the practical problems of carrying out such a switch by transferring physical stock, in addition to the risk of moving market prices. [10]
  - (iv) Explain how the switching process would operate if derivatives were used, and list the advantages of doing this rather than a physical asset switch. [5]
- [Total 21]

**7** You are an investment manager specialising in equities. You want to set up a fund that will track the FTSE All-Share index. The fund will match the index weight in each industry sector, but will not necessarily include every index stock to achieve the sector weight.

- (i) List the eight economic groups in the FTSE Actuaries Classification and briefly explain their key characteristics. [10]
  - (ii) Explain in detail why the fund manager will not include every index stock to achieve the sector weight. [7]
  - (iii) Outline the quantitative investigations that could be made to ensure that the fund effectively tracks the index after the fund has been set up. [5]
- [Total 22]

**END OF PAPER**