EXAMINATION

1 October 2007 (am)

Subject SA6 — Investment Specialist Applications

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

Graph paper is required for this paper.

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 the 2002 edition of the Formulae and Tables and your own electronic calculator.

1 You are the investment consultant to a medium sized final salary pension scheme which has a significant shortfall in its assets compared with the cost of securing the accrued pension benefits with an insurance company. One of the trustees has attended a seminar run by an investment manager who has recently launched a range of pooled funds that apparently are a better investment as they are related to the liabilities of pension funds. The trustees have asked you to advise whether such a liability-driven investment approach is suitable for them.

(i) Set out the points you would include in a report for the trustees, explaining:

(a) the concepts of liability driven investment

(b) why such an approach has gained popularity in many countries

(c) the principal liability-related risks that should be considered in pension fund investment

(d) the extent to which the investment manager's products are likely to be suitable for this pension scheme

[24]

The Government of the country has established a Pension Fund Regulator who has recommended that all pension schemes should have sufficient assets to buy out all their liabilities with an independent insurance company within 15 years. The investment manager has provided you with details of a Structured Deficit Repairing Fund that uses equity derivatives to generate the required returns.

The trustees have asked you to provide a short presentation on how equity derivatives work and their appropriateness in funding the Scheme's current shortfall.

(ii) Outline how equity options can be used to alter the shape of the equity return distribution. [5]

(iii) Draw charts to show the value of a £100 equity investment after 1 year under both options-based strategies shown below. You may assume that the equity index is currently 100, and that the options strategies are self-financing. Dividends may be ignored. [6]

(a) Sell 1 at-the-money European call option.
Buy 2 European put options at a strike price of 80.

(b) Sell 2 European put options at a strike price of 80.
Buy 1 European put option at a strike price of 90.
Buy 1 European call option at a strike price of 110.
Sell 2 European call options at a strike price of 120.

(iv) Explain why an investor might choose to follow the second strategy over a 1 year time horizon, commenting on the impact of the prices of the options.

[4]

One of the trustees has read that the price obtained by writing a deeply out-of-the-money call can be lower than the cost of buying a deeply out-of-the money put.

(v) (a) Explain why this might occur.

(b) Outline how would you expect this to change as the calls and puts move closer to at-the-money. [6]

(vi) Describe why a derivative based product may be a suitable investment for the pension scheme trustees to consider in helping to reduce the deficit. [10]
[Total 55]

2 You are an investment consultant and have been approached by the Chairman of Trustees of a UK based charitable foundation supporting local projects. The Chairman has recently returned from a holiday in China and read that infrastructure developments in the country have created an excess demand for commodities such as copper with prices reaching historic highs. While he was on holiday, he met a group of local property developers in a bar who assured him that the boom was certain to continue for many years and that smart investors were buying up investments in raw material supplies to benefit from rising prices due to future demand. He wants you to prepare a report for the trustees recommending the appropriate allocation of the foundation's assets to commodities.

(i) (a) Describe the information you would require on the foundation.

(b) Explain how this information would be used to develop a framework for assessing the appropriateness of commodities investment for the foundation's investment fund.
[12]

Historically the foundation has only invested in Pan-European equities and bonds with a small allocation to real estate.

(ii) (a) Explain the principal benefits from investing in alternative asset classes such as commodities.

(b) State ways in which the foundation could invest in commodities.

(c) Outline the benefits and disadvantages of each method.
[12]

Prior to issuing your report, you meet the trustees for the first time. One of them argues that the only reason they are considering commodities is the recent holiday experience of the Chairman. Indeed, he is concerned that they are making a decision based on sentiments rather than facts and that any recommendation you produce will be biased.

You have discussed your draft report with a colleague, who identified three possible biases in your draft:

- anchoring
- framing and question wording
- overconfidence

He suggests that you redraft the introduction to your report and explicitly make reference to these issues in the context of the proposal and suggest ways in which they could be overcome.

(iii) Explain the nature of the three biases identified. [9]

(iv) Suggest ways that investors might avoid each bias. [12]
[Total 45]

END OF PAPER