

# EXAMINATION

8 October 2010 (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 before 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 nine 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.*

*In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator from the approved list.*

- 1 Outline the main stages in an Asset-Liability Modelling exercise. [6]
- 2 Outline the issues associated with the use of Net Asset Value as a measure of investment performance. [7]

- 3 You have recently taken over as the pension manager for a declining manufacturing company which has had a defined benefit pension scheme for more than 35 years. The fund accounts for the pension scheme for the last two years are set out below.

	2009	2010
	£000's	
<b>Contributions and benefits</b>		
Contributions received	2,621	2,778
Transfers in	400	408
Benefits payable	(11,000)	(12,320)
Administration expense	(385)	(400)
<b>Return on Investment</b>		
Investment Income	1,265	1,151
Return on investments	5,500	5,005
Investment fees	(300)	(330)
Balance brought forward	88,655	86,756
<b>Total</b>	<b>86,756</b>	<b>83,048</b>

Comment on what the fund accounts for 2009 and 2010 indicate about the pension scheme. [4]

- 4
  - (i) Define the term Value at Risk. [1]
  - (ii) Calculate the daily Value at Risk with a 95% confidence level for a stock holding with a current value of £20,000. Assume that log-returns on the stock show a mean of zero and an annualized volatility of 15%. [2]
  - (iii) Outline the deficiencies associated with using Value at Risk to monitor and control market risk for a portfolio. [6]

[Total 9]

**5** The government of a small island population, whose livelihood mainly depends on fishing, has become increasingly concerned at the lack of private provision for retirement. In order to ensure islanders are provided for in retirement the government plans to introduce a compulsory saving scheme. The government has no prior financial experience of such saving schemes.

- (i) Discuss the different objectives of the islanders that should be considered when designing the new scheme. [4]

A young adventurous fisherman with no dependents and who earns a below average salary is considering his investment options for retirement.

- (ii) Discuss, for each of the objectives identified in (i), which asset type(s) could be suitable to meet the objectives of the young adventurous fisherman. [7]  
[Total 11]

**6** You are employed as a retail analyst at a well respected investment bank. A very successful national pizza delivery company is planning to expand into a new overseas market and is looking to raise additional capital. The company has approached your bank for financial assistance. You have been asked to prepare a report for the investment bank on whether they should provide the requested finance.

- (i) List the factors that you would consider when evaluating the pizza delivery company. [3]
- (ii) Outline the areas you would investigate to form a view on the factors in (i). [3]
- (iii) Comment on any potential issues the management of the pizza delivery company should consider when entering an overseas market. [3]  
[Total 9]

- 7 A washing machine manufacturer, WashCo, is looking to purchase two rival businesses, CleanCo and SpinCo, which are located in two different overseas countries from WashCo. As at the end of the last financial year the three companies posted the following profits:

	<i>WashCo</i>	<i>CleanCo</i>	<i>SpinCo</i>
Gross Profits	100m	75m	50m
Company Tax	30m	25m	10m
Dividend paid	40m	30m	20m
Tax rate paid by shareholders on distributed profits	30%	10%	0%

SpinCo pays an extra 10m tax on the dividends paid. In all three countries companies are required to distribute 40% of gross profits as dividends.

- (i) (a) Identify the tax system in place for each company.  
(b) Outline the structure of each tax system in (a). [3]
- (ii) (a) Calculate the total tax payable on each company's profits and dividends.  
(b) Calculate the tax payable by each company as a percentage of gross profits. [3]
- (iii) (a) Express the tax payable by each company as a percentage of gross profits.  
(b) Comment on the differences between the results in parts (ii)(b) and (iii)(a). [5]

If WashCo is successful in purchasing its two rivals, the board of directors will locate the company in one of the three locations of the current companies. The board have asked you, as an independent tax advisor, to help them make the decision.

- (iv) Explain which country you would recommend the board moves the company to. [2]
- (v) Suggest other taxation factors that the board of directors should consider when making a final decision. [2]

[Total 15]

- 8
- (i) Explain, using the principles of behavioural finance, the types of biases that can affect an investor's view of the probability of an event occurring that is outside their control, such as an equity market crash. [4]
  - (ii) Describe the additional forms of bias that are introduced when an active investor has the discretion to improve an outcome compared with a passive (index) investor. [3]

In a developing country, house prices have been rising rapidly for several years fuelled by loans of up to 100% of the value of the house. The government has introduced rules that restrict the amount of borrowing to 50% of the value of the house. Following the restriction in lending, house prices have started to fall and are expected to do so for the next couple of years.

- (iii) Explain the behaviours exhibited by the following people:
  - (a) An investor who has been successful in the past buying residential property to profit from capital appreciation, who has decided to continue to buy residential property over the next couple of years.
  - (b) An economist who has written a recent article commenting that house prices were always expected to fall. The economist uses historic data to prove this point. All news articles written prior to the borrowing restriction only indicated that prices would continue to rise. [5]

A couple have taken advantage of the falling house prices and purchased a new house. As part of the move they wish to review their house insurance options. They are deciding whether to stay with their current insurance provider or to move to a new entrant into the market.

Details of the two policies are as follows:

	<i>ExistingCo</i>	<i>NewCo</i>
Premium	650	500
Excess payable	100 per claim	80–120 depending on profitability of company
Policy schedule	Detailed booklet setting out all terms and conditions	Limited information provided on terms and conditions

The couple have not made a claim in the past and it is unlikely that they will make a claim over the coming year. The couple decide to take out the policy with ExistingCo.

- (iv) Outline, with reasons, three possible behaviours which explain why the couple have stayed with ExistingCo. [5]
- [Total 17]

**9** A large investment fund currently has \$500 million invested in US equities. As a result of a recent asset allocation meeting, the decision has been taken to invest a further \$400 million in US equities by selling the corresponding amount of UK equities. The asset allocation team has emphasised the need for the switch to go ahead as soon as possible.

(i) Describe the practical problems of carrying out such a switch without the use of derivatives. [6]

(ii) Explain how this switching process can be made easier by the use of derivatives. [4]

You decide to buy US equity exposure by buying the S&P500 December futures contract. You know that you have sufficient cash to cover the margin position. The unit of trading is \$500 per index point and you have been quoted a price of \$800 for the December contract.

(iii) Calculate the number of contracts you would need to buy to gain the required US equity exposure. [2]

Prior to this additional US equity investment, the fund had no holdings in the telecommunications sector. Telecommunications stocks constitute 18% of the S&P500 index.

(iv) Calculate the exposure of the fund to telecommunications after the purchase of the futures. [1]

(v) Discuss how you might attempt to eliminate the telecommunications weighting. [6]

The asset allocators of the fund are bullish on US stocks but they are worried about the level of the dollar, which they think may depreciate in the short-term against sterling. As a result, they would like only one half of the fund exposed to the dollar.

(vi) Explain how you might achieve this reduced exposure, including in your answer details of the problems that would have to be overcome. [3]

[Total 22]

**END OF PAPER**