

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

1 October 2014 (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 seven questions, beginning your answer to each question on a new page.*
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 from the approved list.</i></p>
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- 1** (i) Define the term risk budgeting in the context of portfolio construction. [2]
- (ii) Outline how the process of risk budgeting is carried out. [5]
- [Total 7]

2 The following information has been provided for an investment portfolio:

	<i>Year 1</i>	<i>Year 2</i>
Benchmark asset allocation:		
Equities index	30%	60%
Bonds index	70%	40%
Actual asset allocation of fund:		
Equities	50%	50%
Bonds	50%	50%
Investment returns:		
Average return for similar funds	6.0%	5.0%
Equity index return	10.0%	8.0%
Bond index return	2.0%	3.0%
Equity return in fund	12.0%	7.0%
Bond return in fund	3.0%	4.0%

- (i) (a) List three approaches that could be used to assess relative portfolio performance.
- (b) Outline the merits and shortcomings of each approach. [6]
- (ii) Calculate the past performance for the fund as a whole over the two year period, using the three approaches. [5]
- [Total 11]

- 3** (i) State the principal aims of financial regulation. [2]

The sales team in an investment bank has developed a new investment product that offers returns linked to a global equity index. Customer assets are to be pooled centrally to provide economies of scale. The bank will directly invest the funds into equity holdings and will also use derivatives.

The product is being marketed as a savings product via the internet and through direct selling. The sales team will be incentivised through commission payments after each completed sale.

- (ii) Outline the key issues within this scenario that financial regulation aims to address. [11]
- [Total 13]

- 4** In the country of Actuaria, the Society of Actuarial Actuaries has decided to change the format of some of its actuarial examinations to a multiple-choice format (with no negative marking for incorrect answers).

An examiner for the Society is in the process of setting questions and is seeking advice regarding the ordering of the correct and incorrect answers.

The examiner has heard about the theories of behavioural finance and wishes to ensure that the placement of the correct answers will minimise the chances of the students simply guessing the correct answers. He is seeking recommendations as to whether to put the correct answers as the first choice, the last choice or somewhere in the middle.

Based on the theory of behavioural finance:

- (i) Suggest where the examiner should place the correct answer in the list of choices (first, last, 2nd, 3rd or 4th) in multiple choice questions with five options, all outlined in considerable detail. [2]
 - (ii) Suggest where the examiner should place the correct answer (first or last) in multiple choice questions with two options, both outlined in considerable detail. [2]
 - (iii) Explain the reasoning behind your answers. [9]
- [Total 13]

- 5** A pension fund has seen its funding level improve in recent years from 85% to 102%. The pension fund has decided to “de-risk” its investment strategy by reducing its equity exposure and increasing its exposure to corporate bonds.

- (i) Discuss the relative advantages and disadvantages of direct investment by the pension fund in corporate bonds versus indirect investment using credit derivatives. [12]
 - (ii) Discuss to what extent these advantages and disadvantages would be different if the fund was a hedge fund rather than a pension fund. [3]
- [Total 15]

- 6** The following market data and information has been provided about a pension fund wholly invested in US equities:

<i>Date</i>	<i>Market Value of fund (\$000s)</i>	<i>Domestic Share Index (Capital only)</i>	<i>Dividend Yield on Domestic Share Index (% per annum)</i>
31 Dec 2012	3,600	1500	
31 Mar 2013	3,600	1603	4.3
30 June 2013	4,050	1776	4.2
30 Sept 2013	4,500	1797	3.9
31 Dec 2013	4,200	1680	4.2

<i>Period (2013)</i>	<i>Contribution Income (Outgo if negative) (\$000s)</i>	<i>Investment Income (\$000s)</i>
Q1	56	52
Q2	30	60
Q3	187	60
Q4	−52	68

Contributions and investment income all occur on the last day of each quarter.

- (i) Calculate for each period and over the full year:

- (a) the time-weighted return.
- (b) the money-weighted return.
- (c) the index return.

State any assumptions made. [9]

- (ii) Comment on these returns. [3]

- (iii) Compare the investment income actually received by the fund with the investment income that would have been received if the fund had been invested in the index. [2]

- (iv) Explain the conclusions that might be drawn about the stock selection policy of the fund, using the information from parts (ii) and (iii). [3]

[Total 17]

7 A wealthy individual has decided to diversify her portfolio and wishes to gain exposure to property returns.

(i) Outline the main characteristics of direct property investment. [4]

(ii) Outline the different ways in which the individual could gain exposure to property returns. [8]

The individual decides to invest directly in property and has narrowed down the investment choice to the following alternatives:

- a commercial office block in a major financial centre of a developed country
- a residential housing block on the outskirts of a city in a developing emerging market
- a portfolio of hotel rooms situated in, and managed by, a well known hotel chain

(iii) Compare and contrast the potential investments in respect of:

- (a) the overall characteristics each investment exhibits.
- (b) the stability of the income stream each investment is likely to produce.
- (c) the on-going management of each investment.

[12]

[Total 24]

END OF PAPER