EXAMINATION

20 April 2010 (pm)

Subject CA1 — Actuarial Risk Management

Paper Two

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 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 An insurance company is considering expanding by buying smaller insurance companies and has enlisted the help of a consultant to identify possible targets.

Discuss the issues that the consultant needs to consider in order to do a professional job. [9]

2 An investor wishes to assess the value of an equity holding by calculating the value of the estimated future dividends payable.

(i) Set out, defining any terms and assumptions you use, the following models for carrying out this assessment:

(a) the general model;

(b) the simplified model assuming both the discount rate and dividend growth rate are constant.

[4]

The next annual dividend on this holding is due tomorrow and will be 100 cents.

(ii) (a) Calculate the value of the equity holding, using the simplified model in (i), and assuming dividend growth rate of 2% a year and discount rate of 5% a year.

(b) Calculate the effect on the value if dividend growth is 10% for each of the first two years, and then reverts to 2% a year. [2]

(iii) Explain how the calculated value of the equity holding could allow for uncertainty. [3]

[Total 9]

3 (i) State the three pillars used in many regulatory environments. [1]

(ii) Explain why a regulator may use a number of different thresholds for assessing the solvency of financial institutions. [3]

(iii) Discuss why economic capital can be used when assessing the solvency of financial institutions. [8]

[Total 12]

4 (i) Explain the term Value at Risk (VaR). [2]

(ii) Outline the limitations of VaR as a method of measuring risk. [4]

(iii) Define the Expected Shortfall as a measure of risk. [2]

(iv) (a) Outline two examples of low probability, high impact risks that exist for a small manufacturing company in terms of how they would affect its business.

(b) Suggest how these risks could be mitigated. [4]
[Total 12]

5 A defined benefit scheme is being discontinued.

(i) State the options available for the provision of benefit payments due after the scheme has been discontinued. [3]

The managers of the scheme have proposed that the scheme's benefits will be transferred to an insurance company in exchange for an upfront premium.

(ii) Discuss the main risks that the insurance company will be taking on. [5]

The managers have received quotes from a number of insurance companies.

(iii) Explain why the quotes from the insurance companies may differ. [6]
[Total 14]

6 An insurance company has been selling term assurance and annuities for over 25 years.

Discuss the features of the external environment that affect these two products, highlighting any significant differences. [16]

7 A charity that exists to promote the interest of elderly people has prepared a report on the cost of travel insurance. The findings are that people aged over 65 are charged, on average, 80% more than people under age 65 for similar travel insurance products. The charity argues that this is a clear case of age discrimination and profiteering by insurance companies. It is pressing the government to introduce legislation that will require insurers to charge the same amount for the same policy to all policyholders irrespective of age.

To support its case, the charity points out that the vast majority of claims under travel insurance policies are for events such as cancellations, delays, loss of luggage, theft of property or inadequate standards of service or accommodation. It argues that these issues are not dependent on the age of the policyholder and so elderly people should not be charged more.

The charity states that elderly people do not engage in high risk behaviour or dangerous activities such as skiing, whereas younger people's travel tends to involve more risk and hence they are more likely to claim.

A representative of the insurance industry has been asked by a prominent media organisation to make a statement and answer questions in response to the report.

(i) Outline the introductory remarks that the representative could make to explain the influences on the travel insurance market and the insurance industry's approach to elderly travellers. [5]

(ii) Discuss the specific points the representative should make when analysing the charity's report and justifying current industry practice. [9]

The marketing director of a large insurance company believes that the charity's report presents an opportunity. The director argues that by introducing a travel insurance policy where premiums are the same for all ages, the company's market share can be increased significantly.

(iii) Outline the risks to the insurance company inherent in following such a strategy. [7]

(iv) Describe how the insurance company could structure and market a travel insurance product that does not involve higher premiums for elderly people but could control the risks in (iii). [7]

[Total 28]

END OF PAPER