EXAMINATION

6 October 2009 (pm)

Subject SA5 — Finance
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 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 both 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 XYZ Capital is a hedge fund which follows a strategy of investing in the bonds of UK companies which are in financial distress. XYZ Capital is managed by a team of portfolio managers from RockSolid Advisors. RockSolid implements a strategy that profits by actively working with management and other creditors to influence the affairs of the company to the benefit of bondholders. RockSolid seeks to structure the XYZ Capital portfolio so that it is insensitive to changes in interest rates as far as possible. RockSolid is a small firm and each investment is very time-consuming.

RockSolid is remunerated by receiving a 20% share of any returns generated in the XYZ Capital portfolio.

Investors may subscribe into XYZ Capital on a monthly basis and redeem at the end of every calendar quarter.

(i) Derive an expression for the variance of a portfolio consisting of a long position in an asset and a short position in a futures contract which is designed to hedge the exposure of the asset. You should use the following notation:

σ^2_S = the variance of the underlying asset

σ^2_F = the variance of the selected futures contract

ρ = correlation between the returns of the underlying asset and the futures contract [4]

(ii) Show that the hedge ratio, h, which minimises the portfolio variance is given by $h = \rho\, \sigma_S / \sigma_F$. [2]

(iii) Explain why RockSolid may not be able to use the formula in (ii) to determine its optimal hedge for removing interest rate risk from the XYZ Capital portfolio. [3]

(iv) Outline the principal investment and business risks of both XYZ Capital and RockSolid. [10]

(v) Discuss how RockSolid could mitigate any of the risks identified in (iv) without significantly compromising expected investment returns or business results. [16]

Lighthouse Investment Management, a competing business which manages assets with a similar strategy to RockSolid, has approached RockSolid with a proposal that the two management companies should merge. Lighthouse further proposes to combine the assets of its flagship fund with those of XYZ Capital. The Lighthouse flagship fund is of a similar size to XYZ Capital.

(vi) Outline the key questions the investors in XYZ Capital and the owners of RockSolid should ask before agreeing to a merger. [10]

XYZ Capital has historically added to its total investible assets by borrowing money from various banks. As collateral for these loans, XYZ Capital pledges bonds from its portfolio to the banks.

(vii) Explain the difficulties the banks could face in determining how much collateral to demand from the hedge fund. [5]

[Total 50]

2 The Association of Independent Financial Advisers (AIFA) is a UK mutual association offering a range of services to its independent financial adviser member firms. An independent financial adviser (IFA) offers advice on investment products and pensions to members of the public. IFAs either work on their own or join a specialist IFA firm. The number of IFAs in a given firm can range from 1 to 100 or more.

IFAs are regulated by the Financial Services Authority (FSA). The FSA requires that every firm maintains professional indemnity insurance (PII) with an aggregate limit of £150,000 multiplied by the number of IFAs in the firm and a per claim limit equal to the lesser of £1m and the aggregate limit.

In each of the past three years insurers have made very substantial losses from PII and as a consequence most of AIFA’s member firms are finding that either premium rates have doubled this year or they are unable to obtain PII at any price. In the light of these extreme conditions AIFA is considering whether to establish a mutual insurer offering PII exclusively to its member firms. If established, the mutual insurer would be named Captivity Mutual (CM).

(i) Discuss the key issues that AIFA should consider before deciding whether to establish CM. [9]

(ii) Describe suitable approaches for the efficient management, administration and advertising of CM. [4]

(iii) Compare and contrast the regulatory capital setting regime introduced by the FSA for non-life insurers in 2004 with the proposed Solvency 2. [9]

AIFA have provided you with the following information:

Membership Information
- 230 member firms with three or fewer IFAs each
- 20 member firms with 50 IFAs each

Proposed PII Policy Terms Information
- Per claim limit equal to the lesser of £1m and the aggregate limit
- Aggregate limit per member firm policy equal to £150,000 multiplied by the number of IFAs in the member firm
- No per claim deductible or excess

Proposed PII Premium Information
- Market premium in each of the past three years equal to £1,000 per IFA including a £200 expense loading
- Current market premium equal to £2,000 per IFA including a £200 expense loading

Proposed PII Claims Information
- Before adjustment for either per claim limits or aggregate limits, 99.5% of claims cost £10,000 or less and 0.5% of claims cost £1m or more.
- On average, 100 IFAs will incur seven claims in any given year.

Proposed Aggregate Claims Cost Distribution Information

- The standard deviation of the distribution is assumed to be 30% of the mean.
- The 99.5th percentile of the distribution is assumed to be 3.5 standard deviations away from the mean

(iv) (a) Calculate, stating your reasons for making the various calculations, the initial minimum regulatory capital requirement for CM.

(b) State two practical factors the FSA will consider when setting the initial minimum regulatory capital requirement for CM. [9]

(v) Describe the additional research you would conduct and the likely changes you would make to your answer in (iv) once you have been given the extra information that in each of the past three years the very poor claims experience has been the result of systemic losses. [3]

(vi) Compare and contrast the ways in which mutual insurance and proprietary insurance companies are taxed in the UK. [5]

(vii) Describe a suitable initial capital structure for CM. Your answer should consider the main sources of capital including bank debt, capital market debt, reinsurance and AIFA's internal surplus. [7]

(viii) (a) Outline the real options that are likely to be available to AIFA whilst running CM in the first three years following inception.

(b) Propose suitable methods for valuing these options. [4]

[Total 50]

END OF PAPER