

Actuarial Society of South Africa

EXAMINATION

18 May 2018

Subject F205 - Investment

Fellowship Applications

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

- 1. Candidates will be issued with instructions to log in using a password (which you will be provided with at the exam centre).*
- 2. Candidates are required to submit their answers in Word format only using the template provided. You MAY NOT use any other computer program (e.g. Excel) during the examination.*
- 3. Save your work continuously throughout the exam, on your computer's hard drive that you have been provided.*
- 4. 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.*
- 5. You must not start typing your answers until instructed to do so by the invigilator/supervisor.*
- 6. Mark allocations are shown in brackets.*
- 7. Attempt all questions, beginning your answer to each question on a new page.*
- 8. Candidates should show calculations where this is appropriate.*

Note: The Actuarial Society of South Africa will not be held responsible for loss of data where candidates have not followed instructions as set out above.

AT THE END OF THE EXAMINATION

Save your answers on the hard drive.

Hand in your question paper with any additional sheets firmly attached.

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.
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QUESTION 1

South Africa, as an emerging market country with a population of 54m and levels of income inequality among the highest in the world, has had a prolonged housing shortage with large portions of the population living in informal settlements. Over the years, the government has implemented a range of government-led housing programmes but has decided that the pace of providing new houses is inadequate and so not meeting demand. It has, therefore, decided to turn to the private sector for help with a new initiative.

The government plans to provide prime-linked mortgages directly to citizens. The government's ability to fund these mortgages is, however, limited by other demands on capital resources. To overcome this hurdle, the government is planning on packaging the mortgages into collateralised special purpose vehicles referred to as Mortgage Backed Securities (MBS), in a process known as securitisation, and offering investment in these to institutional investors such as pension funds and insurance companies.

You are the chief investment officer of a fund management company which manages pension fund assets and unit trust funds in South Africa. You have been invited by a department within National Treasury to participate in the first auction of these securities.

- i. a. Outline how a typical MBS is structured.
- b. Discuss the issues that you should consider before submitting a bid for an allocation of these assets.

[18]

A trustee of a large pension fund client has queried whether it would not be better to gain exposure to the South African housing market by buying equity in some of the country's listed banks rather than invest in the proposed MBS.

- ii. Outline the main points you would make in your reply to the trustee.

[7]

After a two year period of very low demand for the MBS, the government is contemplating making it compulsory for pension funds to hold at least 5% of their assets in certain identified government issued securities, such as these MBS.

- iii. Describe the relative advantages of this proposal from both the government's and the pension funds' points of view.

[7]

- iv. Discuss the possible impact on the country's government bond market of making it compulsory for pension funds to hold at least 5% of assets in certain identified government issued securities such as MBS.

[3]

[Total 35]

REMEMBER TO SAVE

PLEASE TURN OVER

QUESTION 2

A developing country is rich in natural resources and mining is a key component of its economy. The government has, to date, been responsible for rehabilitating areas following the cessation of mining operations. This has been funded by way of a levy paid to the government's appointed mining regulator by mining companies. Mining companies have, to date, been exempt from making provision for environmental rehabilitation.

The government, together with the mining regulator, has decided that the current model is not sustainable. It has recently drafted a new regulation which obliges mining companies to perform environmental rehabilitation of their mining sites upon the decommissioning or termination of their mining activities for all new mining licences granted. To this end, companies are required to make provision for this environmental rehabilitation during the life of and by closure of the mine and are to set up their own mining rehabilitation funds. The following conditions apply to these funds:

- An investment vehicle is prescribed, which is funded over the life expectancy of the mine.
- This should be ring-fenced and separated from the assets of the mining company.
- Assets may solely be used for the objective of the environmental rehabilitation of mining areas. No other drawdowns are allowed.
- Tax incentives and concessions will be applied to funds with structure and underlying assets approved by the mining regulator.
- Mines must submit an environmental management plan to the mining regulator, which includes an estimate of the liability in respect of rehabilitation. This plan must be updated on a regular basis.
- Mines must contract with independent outside parties to assess and review the financial adequacy of the provisions and funding on an annual basis.

i. Discuss the nature of the liability underlying such a mining rehabilitation fund. [9]

ABC is an international mining company and has just opened a new coal mine in this developing country. Bearing in mind the new regulation, ABC has carried out a preliminary estimate of the rehabilitation cost as part of the exploration phase and has set aside cash assets in a separate bank account in the developing country to cover this liability. The mine is now operational and you have been approached by the mine to assist with the set-up and management of assets of the rehabilitation fund on ABC's behalf.

ii. a. Outline what information you would require before drafting your proposal in this regard.

b. Discuss the considerations you would take into account when you draft the proposal. [13]

iii. Suggest, with reasons, what assets you would include in the rehabilitation fund investments. [6]

[Total 28]

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QUESTION 3

You work for an asset management company which sells investment products predominantly into the domestic retail market. Clients of your company have highlighted that their investment portfolios have missed out on potential gains that could have been achieved by including exposure to cryptocurrencies in their investment portfolios.

A cryptocurrency can be defined as a digital or virtual payment system. It is used in a similar way to a normal currency in that it can be exchanged for either services or goods. The technology uses decentralized control (a public ledger) to verify, track and record transactions as opposed to a traditional central banking system.

You are conducting research into determining a fair price for a particular cryptocurrency, and decide to compare it with asset classes that your clients are familiar with.

- i. Describe the main drivers of value of each of the following investment classes, including reasons why an investor would be attracted to investing in each of them:
 - a. A basket of commodities;
 - b. An income generating asset such as bonds or money market instruments;
 - c. A foreign currency;
 - d. Collectibles such as art or antiques;
 - e. Gold.
- [8]

Your manager is convinced that a cryptocurrency should be defined, for investment classification purposes, as a currency.

- ii. Outline the characteristics a currency should exhibit before it can be used as a means of payment and whether you believe cryptocurrencies generally exhibit each of the stated characteristics.

[6]
- iii. Describe the general risks associated with including cryptocurrencies in client portfolios and explain how you would go about determining the impact each risk could have on the client portfolios as well as how these risks could be mitigated (aside from excluding it from the portfolio).

[12]

REMEMBER TO SAVE

PLEASE TURN OVER

Your company specifically targets individuals saving for retirement, as well as for discretionary needs. Two typical client profiles have been identified - an individual who has identified that she does not have sufficient assets saved to fund her retirement objectives and an individual saving up for a dream holiday in a year's time.

- iv. a. Briefly describe the liabilities of each of the client profiles mentioned above;
- b. Discuss whether including cryptocurrencies in their portfolios would be appropriate.

[5]

- v. State the main functions of the South African Reserve Bank (SARB), and describe why the SARB might consider restricting or prohibiting the use of cryptocurrencies.

[6]

[Total 37]

[Grand Total 100]

REMEMBER TO SAVE

END OF EXAMINATION