

EXAMINATION

26 May 2017 (am)

Subject F105

Finance and Investment Principles

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1. *Use the instructions and password provided at the examination center to log in.*
2. *Submit your 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 regularly throughout the examination on the supplied computers' hard drive.*
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 supervisor.*
6. *Mark allocations are shown in brackets on exam papers.*
7. *Attempt all nine (9) 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 AND hand in 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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QUESTION 1

- i. List the money-market instruments available for companies to facilitate short-term borrowing. [3]
- ii. Discuss how overnight repos could be used as a short-term financing tool. [3]

[Total 6]

QUESTION 2

A life assurance company applies Liability Driven Investment (LDI) to a portfolio of without-profit life annuities and determines that the appropriate affordable assets are a portfolio of highly marketable corporate bonds.

Define market risk and explain why credit risk would be the primary risk for the LDI portfolio.

[Total 6]

QUESTION 3

You are evaluating the investment performance of two companies, one which has grown organically and the other which has expanded by acquisition and with substantial goodwill on its balance sheet, which forms part of its Net Asset Value (NAV).

Briefly outline the potential shortcomings of using NAV to analyse the investment performance of the companies.

[Total 7]

QUESTION 4

The financial services supervisor in a developing country aims to encourage institutional investors to consider Socially Responsible Investment (SRI) factors when formulating their investment mandates.

- i. Briefly outline three different approaches in terms of which the supervisor's SRI objectives can be achieved. [3]
- ii. Discuss the relative merits of each method in achieving the SRI aims of the supervisor. [6]
- iii. A life insurance company is prohibiting investment in companies that manufacture or distribute tobacco products. Discuss the relative merits of this restriction. [4]

[Total 13]

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QUESTION 5

- i. Briefly describe how a government's labour policy can influence the commercial and economic environment.

[4]

Two similarly sized large banks, Bank A and Bank B, are domiciled in two different developing countries which form part of a continent-wide economic union. The banks are concluding an involved merger process with each other.

- ii. Classify, with reasons, the type of merger.

[3]

The government where Bank A is domiciled has imposed the largest cross-subsidisation of national health within the economic union, with high salary earners heavily cross-subsidising low salary earners. The government where Bank B is domiciled has implemented the highest minimum wage within the economic union. The economic union requires free movement of labour between countries that are members of the union.

- iii. By considering the comparative advantage created by the two governments' differing labour policies, discuss how the free movement of labour could affect the gross profitability of both Bank A and Bank B.

[8]

The government where Bank A is domiciled has just held a referendum where the majority of the voters have elected to exit the economic union. The primary reason for the decision appears to be a nationalist fear that employees from other member countries will reduce employment opportunities for domestic job seekers due to free labour movement.

- iv. Discuss how this and, using behavioural finance concepts, the framing of the referendum question could have affected the result.

[4]

[Total 19]

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QUESTION 6

- i. Outline three advantages and three disadvantages of an unweighted geometric index relative to a weighted arithmetic index as a measure of price changes.

[3]

The bond exchange of a developing country recently launched a fixed-interest price index. The table below shows values for the capital index (based on *dirty* prices), accrued interest (ACC) and the ex-dividend (XD) adjustment (based on calendar year to date) for the period 1 July 2015 to 30 June 2016:

	<i>1 Jul 2015</i>	<i>31 Dec 2015</i>	<i>30 Jun 2016</i>
Index Value	1 345	1 354	1 388
ACC	97	99	105
XD	34	76	42

- ii. Assuming a fixed 25% tax rate on interest income for all investors, calculate the total net return for an investor over the year ending 30 June 2016.

[4]

- iii. Outline the practical problems that could be encountered by an overseas-based fund manager in tracking this index.

[5]

[Total 12]

QUESTION 7

A UK-based asset manager who manages a domestic equity portfolio with about 30 stocks intends to use market indices as a basis for the creation of derivative instruments to manage the risks arising from movements in the domestic equity market. UK equity index futures are available on the FTSE100 Index and the FTSE250 Index.

- i. State the main characteristics of the two FTSE indices.

[2]

- ii. Describe how the asset manager could use equity index futures to protect the equity portfolio.

[6]

- iii. Explain why the type of hedge in part (ii) may not completely eliminate market risk.

[4]

[Total 12]

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QUESTION 8

A large institutional investor has suggested changing its investment strategy from a balanced (multi-asset) to a specialist investment strategy.

- i. Explain the difference between a balanced and a specialist investment strategy. [6]
 - ii. Discuss the relative merits of a specialist investment strategy. [6]
- [Total 12]

QUESTION 9

A bank specialises in providing both fixed- and variable-rate amortising mortgage loans to a wide customer base. Due to historically low interest rates, the bank has experienced a strong demand for new loans and for refinancing existing loans on better terms. The bank now requires additional funding to continue meeting this demand and to invest in new projects.

The bank has been advised to set up a mortgage-backed security (MBS) issued via a special purpose vehicle (SPV). The bank will transfer ownership of some of its mortgage loans to the SPV in exchange for a lump sum, and the SPV will then issue the MBS in 3 tranches differing with respect to credit risk and outstanding terms as set out below:

<i>Tranche</i>	<i>Credit rating</i>	<i>Term</i>	<i>Tranche size</i>
Senior	AA	5 years	\$2bn
Mezzanine	BB	10 years	\$3bn
Equity	n/a	15 years	\$5bn

- i. Discuss the advantages to the bank of this form of funding. [6]
 - ii. Discuss the default risk and how it might impact a purchaser of the Mezzanine tranche. [4]
 - iii. Discuss the prepayment risk and how it might impact a purchaser of the Equity tranche. [3]
- [Total 13]

[Grand Total 100]

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END OF PAPER