EXAMINATION

3 June 2013 (am)

Subject F105 — Finance and Investment
Specialist Technical

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1. *Use the instructions and password provided at the examination centre to log in.*
2. *Submit your answers in Word format only using the template provided.*
3. *Save your work regularly throughout the examination on the supplied computer's 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 six (6) 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.

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.

QUESTION 1

A recent case of insider trading in the domestic financial markets was investigated and successfully concluded.

i. Outline the key risk for the disadvantaged party in a case of insider trading.

[2]

ii. Describe the possible actions that the financial regulator can take following their successful investigation against the perpetrators.

[4]

[Total 6]

QUESTION 2

You are the Chief Investment Officer of an asset manager whose client base consists predominantly of retirement funds. The firm has built its market profile on the view that passive management presents a preferable option for institutional investors due to the lower fees associated with the strategy.

Your firm has recently recruited a young portfolio manager with an impressive, if short, track record of outperformance based on behavioural insights, including identifying trends based on underreaction due to anchoring and adjustment and overreaction due to overconfidence.

Your analysis of her style reveals a short-term tactical favouring of stocks with strong recent performance, as well as increasing equity exposure in falling markets and selling out of rapidly-rising markets. As a result, you are considering launching an actively-managed portfolio under her management.

i. Explain the rationale for passive as opposed to active equity management.

[2]

ii. Your passively-managed equity portfolios have been managed by partial rather than full replication. Explain the mechanics of full and partial replication, discussing the advantages and disadvantages of the former relative to the latter.

[6]

iii. Name and briefly describe one alternative to full or partial replication.

[1]

iv. Discuss the primary opportunities and risks presented to your firm by the introduction of the actively-managed portfolio.

[4]

v. Name and briefly describe the two equity management styles employed by the new portfolio manager.

[2]

vi. Discuss how anchoring and adjustment may lead to underreaction to news, and the effect this may have on price movements.

[3]

vii. Describe the two main sources of overconfidence in investors.

[2]

[Total 20]

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QUESTION 3

You are the investment advisor to the trustees of a large defined benefit pension fund. The assets of the fund are currently invested in listed shares, property, bonds and cash. One of the trustees has just returned from an investment conference, where he learned about commodity futures. He is curious as to why the pension fund has not invested in this asset class.

i. Discuss the return and diversification merits of investing in commodity futures for the fund.

[5]

The trustee was confused about the terms “contango market”, “convenience yield” and “backwardation” at the conference, and has approached you about this.

ii. Explain each of these terms, by referring to the price of a futures contract relative to the price of the underlying contract.

[3]

An investment bank has just launched a global commodity index based on a basket of the 20 most commonly-used commodities based on global production over the last year. The index is an arithmetic weighted average index, with weights based on the US dollar value of the last available annual global production figures. The constituents are revised once a year.

iii. Explain the suitability of futures contracts based on this index for the fund. You should assume that the trustees have agreed to invest a proportion of the fund in commodities.

[6]

[Total 14]

QUESTION 4

A life insurer which writes annuity, term assurance and savings business holds an investment portfolio which consists of bonds, equities, property and cash.

i. Describe six types of risk faced by the life insurer related to its investments.

[6]

ii. For each of four of these types of risk, give an example of an event which could lead to that risk being realised and of a technique which could be employed to manage the risk.

[4]

[Total 10]

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QUESTION 5

The free assets of a life insurer have a strategic asset allocation as follows:

Core domestic equities	50%
Value domestic equities	25%
Growth domestic equities	25%

The life insurer employs a multi-asset manager to pursue tactical asset allocation. The tactical asset allocation has remained unchanged over the calendar years 2011 and 2012 and is currently:

Core domestic equities	45%
Value domestic equities	40%
Growth domestic equities	15%

The multi-asset manager invests/disinvests all cashflows according to the manager's prevailing tactical asset allocation view, and rebalances the portfolio to the tactical asset allocation at the end of each calendar year.

The multi-asset manager invests in three separate Open Ended Investment Companies (OEIC's), one for each of the domestic equities' strategies. Each OEIC has a specialist mandate. The all-in unit prices for the OEIC's are as follows:

	31 Dec 2011	30 Jun 2012	31 Dec 2012
Core domestic equities	100	105	110
Value domestic equities	100	104	112
Growth domestic equities	100	106	105

The benchmark for all domestic equity strategies is the domestic all share total return index, with values as follows:

	31 Dec 2011	30 Jun 2012	31 Dec 2012
All share total return	100	105	110

20% of the free assets were disinvested on 30 June 2012 to fund a new project.

As at 31 December 2012, the split of the value of free assets, as a percentage of the starting total portfolio value, is as follows:

	31 Dec 2012
Core domestic equities	39.6236%
Value domestic equities	35.7754%
Growth domestic equities	12.6371%

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You are the life insurer's investments actuary and have been tasked to analyse the performance of the free assets' portfolio for the 2012 calendar year. You have calculated the time-weighted rate of return (TWRR) and the money-weighted rate of return (MWRR) for 2012 as follows:

	TWRR	MWRR
Core domestic equities	10.000% p.a.	10.028% p.a.
Value domestic equities	12.000% p.a.	11.567% p.a.
Growth domestic equities	5.000% p.a.	5.796% p.a.
Total fund	10.045% p.a.	10.010% p.a.

i. Distinguish between strategic and tactical asset allocation.

[2]

ii. Distinguish between value and growth stocks and explain how a company's earnings can be used to determine whether a particular stock is best categorised as growth or value.

[4]

iii. Show that the performance attribution of the free assets for 2012, as a percentage of the starting total portfolio value, is as follows:

	Stock Selection	Style Selection
Core domestic equities	0.024%	-4.400%
Value domestic equities	0.575%	13.200%
Growth domestic equities	-0.563%	-8.800%

Also, calculate the overall relative performance and performance attribution for the total fund, as a percentage of the starting total portfolio value.

[9]

iv. Discuss the inferences that may be drawn from the performance attribution, commenting on any limitations of the analysis.

[7]

The following additional information is provided:

	Free Assets' Portfolio	Average Equity Portfolio
One-year risk free rate at 31 December 2011	7%	7%
2012 portfolio return		9%
2012 Beta	0.8	0.9
2012 standard deviation	7%	6%

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v. Calculate the Sharpe and Treynor measures for each of the free assets and average equity portfolios. Discuss which of the two risk-adjusted performance measures is the most appropriate for evaluation the performance of the free assets portfolio, and briefly discuss the inferences that may be drawn from the appropriate risk-adjusted performance measure and any additional investigations that may be warranted.

[6]
[Total 28]

QUESTION 6

A fund manager offers a "global stable" segregated portfolio for investment by its pension funds clients. In the mandate, the following restrictions specific to the use of derivatives are stated:

- The portfolio may hold derivative instruments which comply with the regulations.
- Derivatives shall not be used for speculation and there must be no leverage of any nature in the portfolio.
- Where over-the-counter (OTC) contracts are entered into, counter-parties must have a short-term Fitch (or equivalent) rating of F1 or higher, or a long-term Fitch (or equivalent) rating of AA- or higher.

i. Apart from the restriction on the use of assets, in this case derivatives, state four other restrictions that may apply to investment mandates.

[2]

ii. Define "mandate" and distinguish between the two different types of mandates that a fund manager would typically offer.

[3]

iii. List the items that must typically be included in an investment mandate.

[7]

iv. Explain why it is desirable for no leverage of any nature to be allowed in the portfolio.

[4]

v. Explain the purpose for assigning minimum credit ratings to the types of OTC contracts than can be entered into.

[4]

vi. List permissible uses of the derivatives in this portfolio.

[2]
[Total 22]

END OF PAPER

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