

EXAMINATION

4 November 2010 (am)

Subject F105 — Finance and Investment Specialist Technical

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 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.*
- 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 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.

QUESTION 1

You are the investment consultant to the board of trustees of a small defined benefit retirement fund with a young membership profile. A proposal in respect of a specific investment opportunity has been made to you by the manager of a private equity fund.

The private equity fund specialises in venture capital for firms with shareholding structures which entitles them to significant tax breaks. It is currently invested in six firms, each of which has delivered a return on investment of in excess of 20% p.a. over the respective periods of investment (between six months and three years).

The manager is seeking to raise capital for a new tranche of the private equity fund which will invest in new start-up companies and is seeking a commitment of an amount equal to 12% of the pension fund's assets.

- i. State the two primary motivations for investing in private equity. [2]
 - ii. Outline the factors you should consider to assist you in deciding whether or not to recommend the investment to the trustees. [10]
- [Total 12]

QUESTION 2

A company with total assets currently valued at R100 billion is financed by zero-coupon bonds, with eight years to maturity and a face value of R60.45 billion, as well as common equity.

- i. The risk-free rate on government bonds of the same duration is 8% p.a. (continuously compounded) and the volatility of the company's assets is 40% p.a.

Calculate the market yield (continuously compounded) of the company's debt in accordance with the Merton model.

[5]

- ii. In fact, the market yield of the company's debt is 11% p.a. (continuously compounded).

Outline possible reasons for the discrepancy between this yield and the yield calculated in (i) above.

[3]

[Total 8]

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QUESTION 3

As the investment adviser to a pension fund domiciled in the USA, you are suggesting to the trustees a core-satellite approach in line with the fund's strategic asset allocation benchmark as part of an optimisation strategy for its US\$200 million domestic equity portfolio.

- i. State the general uses of investment indices. [4]
 - ii. Distinguish between active and passive investment strategies. [2]
 - iii. Discuss the benefits of a "core-satellite" investment portfolio (i.e. an active-passive combination). [4]
 - iv. An index-tracker fund constitutes the 'core' of the portfolio. Outline the key benefits of index-tracking. [6]
 - v. Discuss the relative merits of tracking the Dow Jones Industrial Average (DJIA) and the Standard and Poor's Composite Index (S&P500) as the 'core' of the portfolio. [4]
- [Total 20]

QUESTION 4

You are the investment advisor to a pension fund which offers investment choice to its members. The following data relates to the performance of the Medium-Risk Balanced Fund over the past year:

Sector	Actual fund		Benchmark fund	
	Allocation	Return	Allocation	Return
Equity	47%	16%	45%	15%
Bonds	42%	11%	45%	12%
Property	5%	32%	3%	21%
Cash	6%	6%	7%	6%

- i. Calculate the total performance of the fund relative to its benchmark, and attribute this between sector and stock selection profits. [5]

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- ii. Noting that the fund's property benchmark outperformed the other asset classes by a significant margin, and furthermore that the fund's property portfolio outperformed the benchmark, one of the trustees argues that the fund ought to significantly increase its exposure to property.

Outline your response to the trustee, highlighting important areas for consideration in evaluating the argument.

[6]

- iii. The expected return on the equity portion of the portfolio over the next year is 13%, with an annual standard deviation of 19% and a beta of 1.15. Assume a risk-free rate of interest of 7% over the next year.
- a. Define and calculate the prospective Sharpe and Treynor measures for the equity portion of the portfolio. [4]
- b. Outline the circumstances in which each of the measures in (a) might be considered most appropriate as a measure of risk-adjusted performance for an individual investor. [2]
- c. Briefly discuss limitations common to both the measures in (a). [3]

[Total 20]

QUESTION 5

- i. Define Value at Risk (VaR) and state its uses in portfolio management. [3]
- ii. Discuss the limitations of using VaR as a risk measure. [5]

[Total 8]

QUESTION 6

An institutional investor has taken a long position in a put option that is deep in-the-money and with a short term to expiration. The option is based on one unit of a non-dividend paying security.

- i. Discuss the uses which an institutional investor might make of options. [7]
- ii. Discuss two ways in which the issuer of the put option could hedge its position. [3]
- iii. State the approximate hedging portfolio that the issuer will implement to hedge its position. [2]

[Total 12]

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QUESTION 7

The global economy is in a recession. SOL, a listed international hotel chain, requires additional financing and approaches an investment bank which proposes a structure as follows:

- SOL issues a US\$100 million bond. The offer will be fully subscribed by a hedge fund.
- The hedge fund enters into a US\$100 nominal credit default swap: In the event of a specified credit event by SOL, US\$100 million nominal traded bonds, issued by counterparty bank X at a coupon of 50% of the original bonds (issued by SOL), redeemable at par and with a maturity of 5 years longer than the original bond, are delivered to the hedge fund in exchange for the value-impaired SOL bonds.
- The hedge fund pays a 3% annual premium.

The investment bank approaches the hedge fund manager with the offer.

- i. Discuss the merits of the company using an investment bank. [5]
 - ii. List four credit events that may trigger payment under a credit default swap. [2]
 - iii. Discuss the considerations that may be of concern to the hedge fund managers, specifically commenting on issues related to settlement. [8]
 - iv. Briefly outline the expected development of the company's price-earnings ratio through an economic cycle. [5]
- [Total 20]

END OF PAPER