Institute of Actuaries of Australia

2009 PART III EXAMINATIONS

Subject Title: **C1**
Investments

Date: **Monday 4th May 2009**

Time**: 9:15 am – 12:30 pm**

Time allowed: Three (3) hours plus fifteen (15) minutes of reading time

Instructions: Each new question (but not each section of a question) must be commenced in a new answer book.

Number of Questions: **Six** (6)

Question	Marks
1	16
2	17
3	15
4	20
5	20
6	12
Total	**100**

Candidates are required to answer <u>ALL</u> questions.

This paper has six (6) pages (excluding this page and the blank back page).

INSTITUTE OF ACTUARIES OF AUSTRALIA

C1 INVESTMENTS **MAY 2009 EXAMINATION**

Answer all six questions

QUESTION 1 **(16 Marks)**

The Efficient Market Hypothesis and Private Equity:

(a) Consider the three forms of the Efficient Market Hypothesis (EMH):

(i) What differentiates each form from the others?

(ii) What are the implications of each form of the EMH for investment analysis? (4 Marks)

(b) How does the Adaptive Markets Hypothesis differ from the EMH? (2 Marks)

(c) Briefly discuss what differentiates private equity from public equity and the potential attractions of private equity in the context of the EMH. (4 Marks)

(d) You are advising an accumulation superannuation fund on its investment policy. You have been asked to consider the role of private equity within the fund's asset allocation which is currently 70% in listed growth assets and 30% in defensive assets.

(i) Discuss the merits and pitfalls of private equity as an asset class.

(ii) Why might you decide to have private equity as a separate asset class in the asset allocation and how might it change the existing asset allocation? (6 Marks)

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QUESTION 2 **(17 Marks)**

You are the Chief Investment Officer of a small and relatively little-known listed financial services company, with $1.2b of assets under management. It is currently the beginning of June 2008 and the Executive Chairman of the company has decided to launch a new managed fund in order to generate more profits. The fund aims to invest in undervalued small-cap stocks listed on the Australian Stock Exchange, in the belief the credit crisis has led to these stocks being oversold.

The fund's investment philosophy is based on investor overreaction relating to market shocks and the belief that substantial value is currently appearing in well-managed companies. Hence the fund aims to invest in these companies in the medium term to generate returns exceeding the ASX Small Ordinaries Index.

External specialist fund managers are being employed to manage the portfolio. The fund will pay half-yearly distributions depending on the corresponding period's financial performance.

The company itself, however, has been affected by the credit crisis. As a result, the company's financial position has been markedly weakened due to the company being burdened by a substantial amount of short-term debt. The company's share price has fallen by 70% over the past 6 months.

(a) Explain the observable characteristics of stocks classified as "value stocks", referring to suitable quantitative financial metrics and ratios. (3 Marks)

(b) Discuss this financial services company's role in forming an investment portfolio. (3 Marks)

(c) Explain the advantages and disadvantages of this company operating the fund under this particular structure. (5 Marks)

(d) Discuss three major risks faced by potential retail investors in this fund. (6 Marks)

QUESTION 3 **(15 Marks)**

You are the Chair of the Investment Committee for a large multinational general insurance company. The committee is meeting to discuss the management of the investment portfolio for the newly set up personal liability insurance business. The insurance department has sent to the committee financial projections of future premium income and claim payments.

The recent subprime crisis has led to a severe decline in the capital markets, especially the corporate debt securities market. Typically, the committee would recommend using a combination of government and corporate fixed interest securities to match the estimated future liabilities. However, the current market conditions have led to the committee considering alternative solutions.

(a) What do you believe are the three necessary investment objectives which apply to the portfolio in question? In your answer, refer to the timing and certainty of the future liabilities. (3 Marks)

(b) Suppose the committee has decided the investment portfolio will have a strategic asset allocation of 70% government fixed interest securities, 20% local equity and 10% cash.

i.) Explain two factors you would consider in determining whether this portfolio should be managed by a single fund manager or multiple specialist managers? (3 Marks)

ii.) For the equity component of the portfolio, list the four investment restrictions you believe are most important given the investment objectives you provided in (a). (2 Marks)

iii.) Discuss the role of benchmarks in monitoring the portfolio performance on an annual basis for this situation. Evaluate the appropriateness of market index benchmarks for this scenario. What is a reasonable alternative? (4 Marks)

(c) Provide two mathematical risk measures, other than volatility, which may be useful in assessing the investment risk for this portfolio. Give reasons to support your proposed risk measures. (3 Marks)

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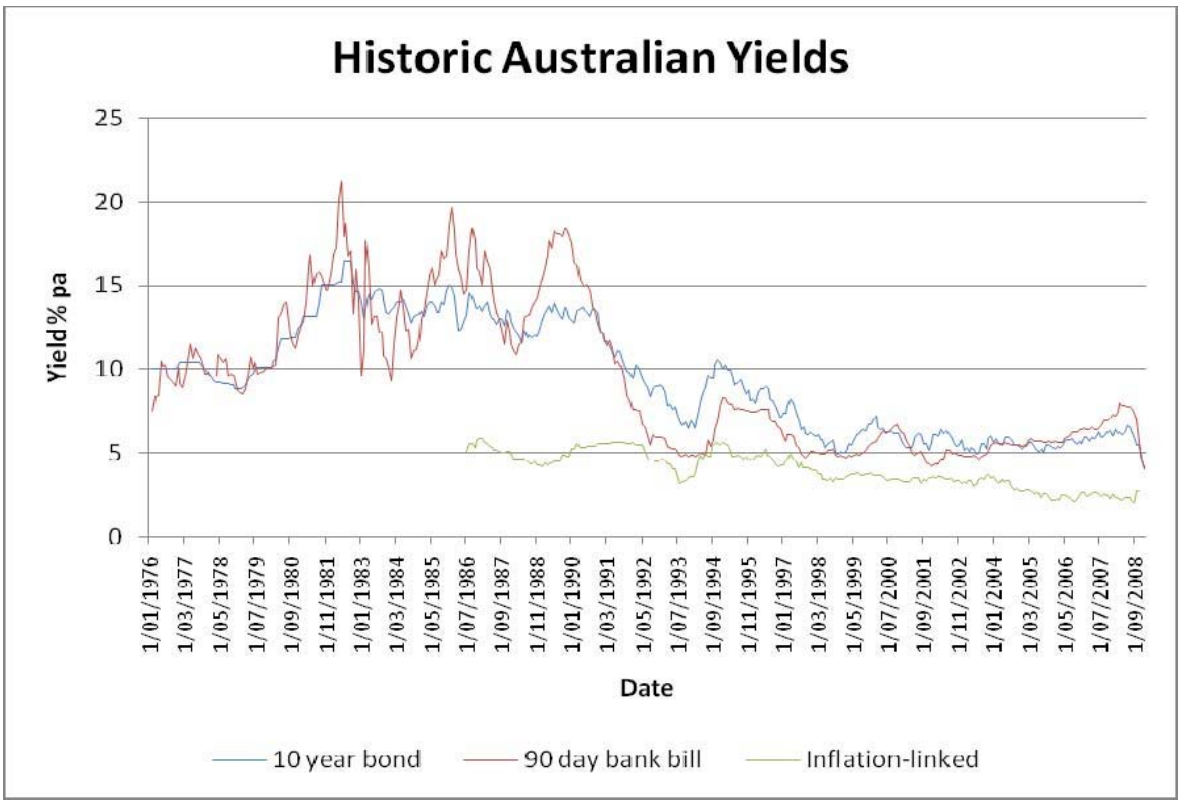
QUESTION 4 **(20 Marks)**

You are an adviser in an investment bank, responsible for the debt investment of your institutional clients. In recent months, interest rates in Australia (and worldwide) have fallen to historic lows, as may be seen in the following chart of Australian yields:



- **The inflation linked bond series commenced on 1/7/1986**
- **The 90 day bank bill yield exhibits more variability than the 10 year bond yield, particularly prior to the 1990's**

You are concerned to explain the implications of these developments for your clients.

(a) Suggest reasons for the recent fall in cash rates, as measured by the 90 day bank bill rate. (3 Marks)

(b) Suggest reasons as to why 10 year Australian bond yields have tended to track cash rates, whilst tending to be less volatile. Would you expect the same in other countries? In your answer, refer to theories of the term structure of interest rates. (4 Marks)

(c) Discuss the factors that are relevant to the prospects for bond yields at the present time, and the investment implications for your clients. Justify your answer. (6 Marks)

(d) What assumptions as to the long term return on debt investments would you currently recommend for asset modelling purposes? Justify your response. (3 Marks)

(e) How would you advise clients who have adopted an investment strategy of immunising inflation-linked liabilities about whether they should remove this immunisation strategy in the current low yield economic environment? (4 Marks)

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QUESTION 5 **(20 Marks)**

You are an investment consultant advising institutional investors on asset allocation.

One of your clients is a general insurer that is concerned primarily with solvency. Partial immunisation of liabilities has been used for this purpose.

It has been traditional to consider a Static Asset Allocation for meeting investor objectives, usually in the framework of the client's liabilities. However it is becoming increasingly common to consider an Asset Allocation Strategy. This is a set of rules which allow asset allocations to be varied from time to time, according to the occurrence of particular triggers that are related to the prevailing conditions.

You are considering how such strategies can be formulated and modelled for your client.

(a) **Outline how Static Asset Allocations for a solvency objective may be assessed under an asset liability framework. You should include a discussion of the type of asset model that you would adopt for this purpose.** **(6 Marks)**

(b) **Discuss how Asset Allocation Strategies may be more useful than Static Asset Allocations for meeting investor objectives.** **(4 Marks)**

(c) **Discuss whether the scope of asset models for investigating Asset Allocation Strategies needs to be greater than the scope for Static Asset Allocations. What different features have to be modelled?** **(4 Marks)**

(d) **In an asset modeling context, why is it that Asset Allocation Strategies are more difficult to formulate in practice than Static Asset Allocations.** **(4 Marks)**

(e) **For asset modeling purposes, what is the main difference between Asset Allocation Strategies, of the type described above, and Tactical Asset Allocation as practiced by active managers?** **(2 Marks)**

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QUESTION 6 **(12 Marks)**

The investment firm, Lightning Rod Investments, has recently hired you as an investment analyst in its property securities team following the resignation of the previous incumbent.

The SAA (strategic asset allocation) of the Lightning Rod Balanced Fund, offered as an unlisted fund through financial planners, allows for both property security exposures and domestic equities.

The equities team, which is separate to the Australian property securities team, may also invest in property securities should it see superior return opportunities in them from time to time. This team is responsible for managing the Australian equity exposures in the Balanced Fund and your team is responsible for managing the property securities exposures.

Within the property securities sector, the SAA allows for exposures to both domestic and international securities. The fund manager of the Balanced Fund is allowed discretion to adjust sectoral allocations within preset ranges.

(a)

(i) What issues might the fund manager of the Balanced Fund face when the equity team chooses to exercise this discretion (to invest in property securities)? How might these issues be dealt with? (3 Marks)

(ii) What issues might the fund manager of the Balanced Fund face when the equity team chooses not to exercise its discretion? How might these issues be dealt with? (3 Marks)

(b)

(i) Why might the fund designers have decided to allow exposure to both domestic and international property securities? (3 Marks)

(ii) What additional management challenges does the introduction of international investments pose for the fund manager? (3 Marks)

END OF PAPER