INSTITUTE OF ACTUARIES OF AUSTRALIA

COURSE 1 INVESTMENTS **APRIL 2010 EXAMINATIONS**

Marking Guide

Level of difficulty

Question	Units	Knowledge & Understanding	Straight-forward Judgement	Complex Judgement	Total Marks
1 (a)	1			6	6
1 (b)	1	6			6
1 (c)	1	6			6
2 (a)(i)	1	3			3
2 (a)(ii)	1		1		1
2 (a)(iii)	1		1		1
2 (a)(iv)	1		1		1
2 (b)	1		2		2
2 (c)	1		5		5
2 (d)	1			6	6
3 (a)	2	2			2
3 (b)	2		3		3
3 (c)	2		3		3
3 (d)	2			3	3
3 (e)	2			4	4
3 (f)	2		2		2
4 (a)	2			6	6
4 (b)	2		5		5
4 (c)	2		3		3
5 (a)	3	2			2
5 (b)	3		3		3
5 (c)	3			6	6
5 (d)	3		4		4
6 (a)	3		3	3	6
6 (b)	3	1	2	2	5
6 (c)	3			6	6
TOTAL		**20**	**38**	**42**	**100**

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COURSE 1 INVESTMENTS **APRIL 2010 EXAMINATIONS**

Answer all 6 questions.

QUESTION 1 **(18 Marks)**

You are a member of the Investment Committee of a large Australian superannuation fund. The Committee has been considering whether or not to invest in infrastructure for some time and, if so, in what form. The fund has now been offered participation in an international rail transport syndicate to be constituted as an unlisted company (IRT).
The company is taking a diversified approach to raising equity capital and debt:

(i) Short term (up to 3 years) debt

(ii) Longer term (5, 10 and 15 year tranches) debt with coupons varying with the revenue performance of the syndicate

(iii) The formation of a special purpose entity (SPE) to be listed on a major international stock exchange whose only investment will be IRT. The listed SPE will be offered a substantial share of IRT.

(iv) Direct equity in IRT.

IRT has obtained long term (25 year) operating rights to the passenger rail systems of several large UK and European cities with ticket prices agreed with the relevant authorities.
The maintenance of these operating rights will be subject to periodic regulatory reviews that will take account of the rail system's safety record and operating performance amongst other items.
Ticket pricing will also be overseen by a regulatory process on an ongoing basis.
Existing rolling stock (carriages etc) and network control systems will be transferred to the syndicate but the track, stations, tunnels etc will remain the property of the various provincial and national Governments.

(a) Outline 6 other items of general information [i.e. NOT specific to the actual investment securities in (i) to (iv)] about the IRT and its intended operations that you would like as an Investment Committee member to assist you in considering the business merits of IRT.

Give your reasoning as to why you consider each of the six items outlined would be useful to you as an Investment Committee member.
(6 marks)

(b) Briefly outline six items of additional information for the debt securities in (i) and (ii) above that you require from the security issuers or your investment staff and advisors to assess their attractiveness. Where it is appropriate, note any differences between short term and longer term securities that may be relevant. (6 marks)

(c) Briefly outline six items of additional information for the equity interests in (iii) and (iv) above that you require from the security issuers or your investment staff and advisors to assess its attractiveness. Where it is appropriate, note any differences between the listed and direct equity that may be relevant. (6 marks)

Solutions Question 1

(a)	Key issues are indicated below. A full discussion is not required to score each mark, merely an outline of the item, with a reason why it is important.	1 mark for each bold item indicated below with associated reasoning up to a total of 6 marks

Note to markers
What follows is a "full" answer. Very few students will have the background to match such an answer but good students should be able to pick up critical unknowns more or less from common sense and a general appreciation of infrastructure's features from the course – Who the fund's partners are likely to be? What expertise and experience do they bring? What is the state of the assets the syndicate will take on and how well do they fit the systems' requirements? What onus will there be on the Governments to maintain track etc? How will the tariffs be determined? How competitively secure will the operations be? How profitable will they be?

Identities and expertise of IRT's key shareholders

The identities of IRT's key shareholders would be of special interest because it is expected that key shareholders will be assisting with the provision of experience and skills in

(i) Infrastructure, and passenger rail operations, and
(ii) Government and regulatory relations.

Ideally, IRT's key shareholders will have a track record of success in these areas, and be prepared to make a long-term commitment to maintaining their shareholding in IRT e.g. through a lock-up period. The existence of a right to approve any change in ownership from the sale of the shareholdings by IRT's key shareholders would ensure that appropriate expertise remains available.

Proposed capital structure of IRT

Items that are important in the proposed capital structure of IRT are:

i. Balance sheet and related ratios such as the gearing and interest cover ratios.
ii. An assessment of their sustainability under stress scenarios such as the recent GFC.
iii. An assessment of the operating and capital expenditure budgets will provide insight as to whether future calls for capital are likely
iv. Details of board structure, voting rights and other protections for minority equity participants and pre-emption rights for existing shareholders. For example, when any shareholder wishes to sell, the sale price may not be market related but on an agreed formula. Typically pre-emptive sale rights will disadvantage selling shareholders because prospective buyers will be discouraged from bidding due to the lack of certainty from the pre-emption available to existing shareholders.
v. Distribution policy etc
vi. Management fees charged to the IRT project, and details of the contractual rights held by the managers to the IRT project. Existence of any poison pills in the management and shareholder structure.

Competitive standing

The competitive standing of the various railways should be assessed, e.g. monopoly or quasi-monopoly status in their regions would be preferred. Such status affords greater cashflow certainty (subject to usage rates etc) but may bring with it pricing or other restrictions as well affecting the initial purchase price of the 25 year operating concessions.

Usage rates and trends would provide insight on the volume counterpart to price, and the availability of transport substitutes and their capture rate trends would fill out the competitive picture (à la the Porter model). Government plans and undertakings in the area of transport substitutes would be informative.

Ticket Pricing and Tariffs

Terms of the various tariffs and the nature of the regulatory regime - Pricing restrictions may be built into the tariffs (passenger ticket prices and rights to increase them), so information on the tariffs will be critical. Fixed re-pricing formulae provides more certainty than periodic tribunal reviews. Some form of inflation protection would be desirable.

Spread of Operations

A large number of cities and countries involved will diversify geographical and regulatory risk but add complexity. The information provided should demonstrate the importance of each operation to the overall syndicate.

Transition issues (including terms and conditions for the employment of existing staff)

Existing staff are likely to assist a smooth transition in services. On the other hand, employees will probably be coming from a public services background and staffing levels and the terms of employment will have to be made consistent with the IRT's commercial objectives. IRT's operations may face rigidities in the transition process. For this reason the IRT's own experience or the quality of the expertise it contracts to manage such a transition would be important. If the projected financial results depend largely on operational improvements, an investor may well attach some kind of risk weighting to this. The details of any such improvement plans should be reviewed.

Transferred assets

Given that the operating concessions require the take-on of rolling stock etc and are subject to things like safety and operating performance records, the rolling stock and the network control systems should be audited for their fitness-for-service and expected capital expenditure.

Assets retained by government and contract of performance of such assets

Track, stations, tunnels etc will remain the property of the various provincial and national Governments. This retained infrastructure will affect operating performance, which will be the subject of regulatory review but will not be within the syndicate's control.

IRT's ability to generate passenger patronage through good service will also be partly affected by the condition of this infrastructure. The contract terms under which the various provincial and national governments will bear responsibility in respect of track, stations, tunnels in terms of their good repair, capital expenditure and effect on operating standards must be examined and, ideally, there should be some incentive for the various provincial and national governments to properly maintain and improve the under-rail infrastructure.

Safety and operational performance – historical and expected

The retention of the operating concessions will depend on these. Earlier points mention the effect of rolling stock and under-rail infrastructure on these factors but the Committee should gain insight into the various networks' historical performance under these headings and how they stand in relation to the standards the syndicate will be held to by the regulators. Ideally they should also be benchmarked against peer networks, including any operated by syndicate members.

Financial projections

The full range of operating cashflows, profit projections and underlying assumptions should be available for review, as well as analysis of their principal drivers and sensitivities and how they compare to similar operations.

(b)	Nine general points are listed below for securities (i) and (ii). Differentiation is made under the SPV, coupon and balance sheet levels.	1 mark for each item with brief explanation up to a maximum of 6 marks total

i. Amount of issuance for the short term debt and per each tranche for the longer term debt.

ii. Direct holding of debt or indirect holding through an interposed issuing entity.
   - If the latter then information on that entity (who will oversee it, whether related to the syndicate or assisting investment banks, and how will they oversee it) and the various constituent documents for both.
   - For the longer term debt, such an entity may be set up across the three tranches or an entity set up for each tranche. Should the former apply, then any contingencies e.g. cross default provisions, within the structure need to be carefully studied.

iii. Coupon structure
   short term debt: whether fixed or floating and the rate, repricing optionality of the bank/syndicate group
   longer term debt: method by which initial and later coupons will vary with the revenue performance of the syndicate, e.g. passenger tariff structure may give the debt inflation or growth linked characteristics

iv. Credit rating (an internal credit review will be required in any event and this will cover items such as the effect on profit and **short** term balance sheet ratios for the short term debt and **long** term balance sheet ratios for the longer term debt)

v. Existence of credit enhancement (if any), and credit status of provider of credit enhancement. The super fund's existing exposure to the provider of credit enhancement must also be considered
vi. Credit priority within the overall capital structure e.g. senior, junior, subordinated etc. If secured in any way, what is the security provided.
vii. Likely demand for the short term debt and what, if any, liquidity mechanisms will be made available e.g. buy back facilities, the identity of investment banks supporting the issue through market-making in the debt securities
viii. valuation/return analysis, and
ix. Treatment of resultant currency exposure that would presumably reflect the nature of the asset, and the super fund's stance taken on similar foreign assets.

(c)	Eight general points are listed below. Points (iii), (iv) and (v) contain differentiated comment as between the listed and unlisted equity.	1 mark for each item with brief explanation up to a maximum of 6 marks total

i. Intended size of equity raisings
ii. Pricing of issue (relative to each other);
iii. Governance arrangements –
Listed special purpose entity (SPE): whether an independent board versus a board controlled or influenced by shareholders of IRT or its advisors, voting structure (especially in relation to the acquisition and disposal of major assets), management, accountabilities, management fees or rewards (should be aligned with shareholder interests), constituent documents.
Direct equity in IRT: Board structure and any board representation for the super fund, voting rights on major issues, management (and their remuneration, with information on how management will be incentivised).

iv. Liquidity –
SPE: identity of the relevant exchange, trading volumes of like entities.
Direct equity in IRT: Details of any market making mechanisms to provide secondary liquidity and, in particular, terms of any liquidity events allowing assets to be sold, syndicate members rotated or IRT wound up, and capital gains or losses distributed.

v. Financing –
SPE: whether there will be any debt within SPE over and above its proportionate share of the debt mentioned above as a shareholder in IRT and, if so, the level thereof and its sustainability.
IRT: in general, syndicate members would want much the same information as intending debt holders and would focus on balance sheet and interest cover ratios

vi. Distribution policies where applicable

vii. Valuation/return analysis.

viii. Treatment of resultant currency exposure that would presumably reflect the nature of the asset, and the super fund's stance taken on similar foreign assets.

QUESTION 2 (19 Marks)

You are a member of the investment team at Weadd Value Investment Management (WVIM), a quantitative manager of listed Australian equities. Your investment process is factor-based as follows:

Factor	**Basis**
Earnings Growth	
Historic earnings per share	3 year moving average
Earnings per share outlook	Consensus estimates over next 1 and 2 years
Earnings quality	3 year moving average of earnings realisation ratio (actual earnings ÷ earnings guidance, where given and calculable)
Dividends	
Dividends per share	3 year moving average
Dividend sustainability	3 year moving average of ratio of operating cashflow to dividend
Value	
Price relativity	Price to historic earnings, price to projected earnings
Momentum	
Price momentum	3 and 6 month factors, reviewed monthly

Composite measures are formed for the above as required.

These factors feed into 1 and 3 year return regression equations (that also incorporate a risk free rate estimate).

An iterative apportionment process which gives highest active weights to the highest returning stocks and lowest active weights to lowest returning stocks is used to construct 1 and 3 year return portfolios.
Active weights relative to index weight are limited to +/- 0.75% so if stock XYZ has an index of 5% the allocated weight may range from 4.25% to 5.75%. These portfolios are weighted to produce the model portfolio which is then subjected to optimisation techniques that seek to ensure a reasonable diversification in factor risk exposure and to avoid undue sectoral concentrations.

The factors are tested for explanatory power and the regression equations are recalibrated every twelve months or at other frequencies as circumstances dictate.

WVIM's PR (public relations) consultant is concerned that the industry and quantitative managers, in particular, have been criticised for under-performance during the global financial crisis (GFC) - your firm's portfolio under-performed the index over the period of the crisis - and for slavish adherence to models and assumptions that don't reflect reality and proved incapable of dealing with the crisis. She is planning a series of thought-pieces to counter this criticism and to position WVIM as an exception.

The PR consultant has been undertaking a reading program in preparation for the series and you have been asked to assist her in this regard.

(a) The PR consultant has encountered the term "rational expectations", the "efficient markets hypothesis" (EMH) and "capital asset pricing model" (CAPM).

i. Give a separate explanation for each of these three terms in a way that she might understand. (3 marks)

She has asked, out of general interest, whether there are other approaches in the literature to the issues that underlie each of these three terms.

ii. Provide and briefly explain an alternative approach to "rational expectations" (1 mark)

iii. Provide and briefly explain an alternative approach to EMH. (1 mark)

iv. Provide and briefly explain an alternative approach to CAPM. (1 mark)

(b) The PR consultant has asked to what extent your firm's processes depend on EMH and CAPM. Provide a response to her that briefly discusses how WVIM's investment process depends or does not depend on each of the efficient markets hypothesis and CAPM and leads to above average investment performance.
(Hint: Consider the assumptions required for WVIM's factor-based investment process to work.)
(2 marks)

(c)

Explain what the theoretical basis of above average investment performance may be for WVIM's choice of the following items as part of WVIM's investment process:

- **earnings factors**
- **dividends factors**
- **value factor**
- **momentum factor**
- **active over- and under-stock-weights relative to index weight are limited to ± 0.75%**

(5 marks)

(d) Discuss three reasons as to why WVIM's investment process might have led to under-performance relative to the index over the period of the global financial crisis (GFC). (6 marks)

Solutions Question 2

(a)	Explanation of rational expectations, EMH and CAPM Identification and brief explanation of one alternative for each of rational expectations, EMH and CAPM. (Marks may be awarded for non-financial economics arguments if they are well-based)	1 mark each = 3 marks 1 mark each = 3 marks = 6 marks total

Note to markers
There is a lot of detail provided for the marking guide to assist future students in understanding the question. Markers are to be lenient in terms of not requiring every single point to be put down in order to get the 1 mark.

Rational expectations –
"Rational expectations" describes an assumption of how people behave in the face of uncertainty. It holds that, when people make forecasts (hence "expectations"), they have unfettered access to all the information and knowledge they need for the purpose and their forecasts are objective and consistent with that information and knowledge. Moreover, on average, they tend to be right in the aggregate.

Alternatives to rational expectations

Students need only identify and briefly explain <u>one</u> of the following.

- **Bounded rationality** – This holds that people are not necessarily capable of the rationality required by rational expectations. They may not have all the information they need, face hurdles in gathering it, their cognitive processes may operate in a particular way or the time in which they are required to make decisions may be limited. People will tend to enquire to the point they are satisfied they are ready to make a decision or to forecast. This is known as "satisficing".

- **Rational beliefs** – This holds that expectations are informed by beliefs as well as knowledge and data. These beliefs constitute "endogenous risk". Expectations may seem irrational on the surface but, if consistent with the beliefs that underlie them, are not so on closer inspection. Kurz, the author of this approach, analysed beliefs according to the balance of pessimism, neutrality of outlook and optimism as sources of forecast bias.

- **Adaptive intelligence** – This challenges the notion of independence that seems to be inherent in rational expectations. Rational expectations does not differentiate between the times at which forecasts are made or the environments in which they are made. As people gain knowledge and experience in varying conditions, this knowledge and experience are likely to shape their outlook at some level. For this reason adaptive intelligence is said to allow for learning effects.

- **Behavioural finance** - Behavioural finance has no theory of behaviour per se but more uses psychological (and increasingly neurological) methods and evidence to study decision making. From this research, various commentators report observed phenomena and deduce biases and situational influences on decision making. These include the framing effect (the response in part depends on how the question or situation is framed), preference reversal (the nature of the bias depends on whether people are confronting gain or loss), loss aversion (as opposed to risk aversion) etc.

- **Utility theory** – Utility describes the weights applied to potential outcomes by the person facing a decision. Utility is thus a kind of personal value measure. Each expected outcome and the weighting applied to it contributes in some way to the decision made. In investment management this is sometimes referred to risk-return indifference or risk tolerance, but utility does not have to be framed in such terms. For example, it could reflect a preference for ESG-based investments ("doing good while doing well").

There may be some interdependence between the above alternatives. For example, utility may reflect beliefs and/or psychological biases and/or lessons learned from past experience. Also, different utilities could be overlaid on rational expectations – for example, CAPM stresses end-period outcomes rather than through-the-period outcomes, both of which could be determined rationally.

(iii) Efficient markets hypothesis (EMH) –
The EMH deals with the extent to which security prices take account of information that is known or available about the security or the operation that lies beneath it.

The weak form of the hypothesis holds that security prices reflect all information that is revealed by past security prices; the semi-strong form says that prices reflect this plus all that is known from publicly available information; and the strong form holds that prices reflect all information.

Accordingly, if the weak form holds, then any analysis based on the study of historic prices (technical analysis) will not add value; if the semi-strong form holds, then neither technical analysis nor any analysis based on publicly available information (fundamental analysis) will add value; if the strong form holds, then no analysis will add value – price movement will be random, or will reflect coincident sentiment from time to time or ebbs and flows in the supply-demand balance that arise for other reasons.

Alternatives to EMH

Students need only mention one of the following.

Adaptive markets hypothesis (AMH)
The AMH treats "informational efficiency" (the take-up of information into prices) as an episodic phenomenon.

The market or the environment can change under different influences. Such changes can be quite severe – often called "shocks" in economic literature. When such changes occur, not everyone will read their effects in an appropriate manner. Efficiency will fall. Those who do read things correctly will be successful, those who do not less so. As awareness of successful strategies emerges, some people will emulate them, efficiency will increase and the effectiveness of the strategies will wane. Efficiency is a function of the ruling market conditions and the numbers of groups of market participants that are acting in common.

The AMH is the only formal alternative mentioned in the course notes.

Non-Financial Economics Argument

Investors such as Warren Buffett hold hat efficiency is an irrelevant concept. Prices reflect the trade-off between buyers and sellers; how they determine the prices they will pay or accept is up to them. What is important is how those prices relate to perceived value at the individual level. There is a "literature" (as per the question's wording) around such views. Such an answer should, therefore, be acceptable provided it is articulated and developed sensibly.

(iv) Capital Asset Pricing Model (CAPM) –
In essence CAPM says that expected return is a function of two things –

- the risk free rate of return; and
- the security's sensitivity to the expected market return (called β) - the difference between the market return and the risk free rate is multiplied by β.

This relationship holds at the portfolio level (the capital-market line) and the individual security level (the security-market line). Acceptance of the model requires acceptance of a series of assumptions that are regarded as contrary to experience by critics of the model. These include rational expectations, efficient markets, risk being only analysable by specific security contribution and market-level contribution and that risk is adequately measured by mean (average) and variance (deviation from average), with investors holding common expectations on their future values, the existence of a risk free asset, a focus on end-of-period wealth (as opposed to what happens in the interim) etc.

Alternatives to CAPM

Students need only mention one of the following.

Arbitrage pricing theory (APT) –

- CAPM suffers from the perceived weaknesses of requiring acceptance of the specified risk factors and a large number of assumptions. APT requires fewer assumptions and does not specify the risk factors. It does require, though, agreement on what the risk factors are and the absence of a "free lunch" (riskless additional return) once the risk factors are known and agreed. Provided these and a few other assumptions apply, the expected return for a security uses the same approach as used in CAPM but note that the factor sensitive returns have to be summed together for each of the factors used in the APT model (factor β x factor return – risk free return), and then the sum added to the risk free rate.

APT is the only formal alternative mentioned in the course notes

Non-Financial Economics Argument

Just as some market participants may regard efficiency as an irrelevant concept, they may also regard CAPM as irrelevant (and all the more so because it requires efficient markets). The substance of an objection of this kind will generally be that agreement on common risk factors defies the actuality of markets. The need for an equilibrium model may said to be a purely theoretical concern. People will have different views on what drives markets or security prices or different investments needs and it is the interaction of all this on the balance between supply and demand over time that determines prices and, therefore, returns (apart from dividends and corporate actions).

To such an approach might be added a line of argument that says it is not always necessary to compute expected returns for listed shares (and perhaps other securities) under the Buffet-style view of thinking as a business owner who will be more concerned with the operating return from the underlying economic activity as the important item of analysis. Listed market pricing merely provides occasional buying and selling opportunities that an investor may or may not avail himself/herself of. This requires investors to be satisfied with buy-and-hold as a default strategy. Alternatively, this may be represented as a "market reverts to fundamentals over the long term" argument.

The marks awarded should reflect the quality of the underlying arguments and how well they are presented in respect of ascertaining the expected return for a security from the underlying business.

(b)	Key features: **EMH** – non-reliance on EMH with a suitable reason **CAPM** – Difference of factors used by CAPM vs. APT Other explanations may be acceptable	 1 marks 1 mark = 2 marks

EMH

WVIM's APT based investment process relies upon the EMH being false. Taking each form of the EMH in turn:

Weak form - The price momentum factor relies on share prices over the last 3 months and this part of the process, therefore, implicitly rejects the weak form of the EMH.

Semi-strong form - The earnings compound factor relies on publicly available information (earnings, company profit forecasts, analyst predictions), as does the dividend compound factor (dividends) and the value factor (earnings). This part of the process, therefore, implicitly rejects the semi-strong form of the process.

Strong form – The process takes no account of the strong form of the EMH. Any argument that sentiment might be linked in some way to momentum and analyst predictions would be hard to sustain because the EMH has nothing to say as to what might drive sentiment at this level.

CAPM

WVIM's APT based investment process does not depend on CAPM. CAPM is a specific application of the APT with the CAPM factors being security-level and market-level risk.

However, the factors embodied in APT are unspecified and the assumptions required are less onerous. The earnings and dividend factors in WVIM's investment process play no part in CAPM and relate more to a fundamentals view of the world than do the CAPM factors.

(c)	In terms of investment rationale, • earnings factors • dividends factors • value factor • momentum factor • active over- and under-stock-weights relative to index weight are limited to ± 0.75%	1 mark for each of the five items = 5 marks

WVIM's investment process has the following elements:

Earnings factors
WVIM uses
(i) historical trend of earnings,
(ii) future growth through consensus and company estimates of prospective earnings relative to (i) and
(iii) earnings reliability.

The first two factors suggest that **reliable earnings growth leads to sustainable investment performance** over the preferred investment horizon. The earnings reliability factors inform estimate reliability by **preferring companies with a good track record in delivering guidance**.

Dividends factors
WVIM uses (i) historical trend of dividends, and (ii) dividend sustainability (ratio of cashflow to dividends).
DPS is a **measure of cashflow back to the investor (one of the sources of return**, the other being the return on retained earnings and undistributed capital) - a higher dps improves short term returns relative to a lower dps for equivalent price movements.
While not specifically mentioned the higher the franking, the more tax attractive the dividend.
A **well financed dividend will be more likely to be sustained** as well as being more likely to enjoy higher franking over the longer term than a less well financed dividend.

Valuation factor
Using a valuation factor to time entry and exit suggests a belief in mean reversion or price cyclicality.

Momentum factor
Momentum factors can capture the effects of serial correlations, as well as avoiding significant variations in short term performance

Active over- and under limited to ± 0.75%
The uniformity of active bet size over all capitalisation weights implies a belief in a size factor.
Active bets are proportionally bigger as the market capitalisation of the stock becomes smaller – for 5% and 2% cap stocks, an active bet of 0.5% means a 10% overweight for the former and 25% for the latter.
The system also constrains tracking error and, therefore, relative performance drift by limiting deviations from benchmark weights.

(d)	• Effect of discontinuity on relevance of historical inputs • Earnings estimates as somewhat lagging indicators • Dividend factors • Momentum factor • system over-weighted small caps	Maximum of 2 marks for each item up to total of six marks. It is not necessary for an answer to go into as much detail as for the fuller answers below to score the maximum 2 marks per item =6 marks

Effect of discontinuity on relevance of historical inputs

In general WVIM's investment process operates on historical inputs and consensus estimates to calculate the factors on which it is based. Moreover, the moving average inputs cause the process to adjust incrementally to changes to earnings and dividends, and the momentum factor assumes prices have three and six months of performance memory.

WVIM's process will flourish as long as its factors retain predictive power and inputs remain relevant.

The GFC presented as a market discontinuity which disturbed trend lines, caused historical data not to reflect then current market dynamics and made incremental adjustment an inadequate response to them.

It was marked by a sharp market-wide decline in share prices after a reasonably prolonged period of strong performance. It then continued in a downward trend for some time thereafter. The trends identified by the historical measures would have provided little insight into this given they reflected a buoyant past.

A quantitative manager generally does not intervene in the execution once the model is running so as to maintain objectivity. If some kind of intervention was thought to be necessary, e.g. adjusting the earnings or dividends inputs, the following obstacles would exist:
1. the investment process would require reconfiguration to use external information,
2. appropriate internal resources, e.g. staff skilled in making or assessing earnings estimates, would have to be sourced, and
3. the change from a pure quantitative process to a mixture of quantitative factors and subjective elements would have required advice to clients that this was occurring. Such a change may be outside the investment mandate.

Earnings factors

Earnings came under revenue threat as confidence and demand faltered and under expense threat as credit availability and costs tightened. The latter were important for businesses subject to debt rollovers or the need for new borrowings (equity capital being equally difficult to raise and also coming at a higher cost), and other businesses to the extent that falling assets values affected debt covenants.

Revisions of earnings estimates often tend to either lag reality or only gradually capture the effects of a downturn owing to the business risk for an analyst of being significantly out-of-line with his/her peers.

Hence, both trend measures and growth estimates feeding into the process did not match market conditions.

In terms of the earnings realisation measure, many firms were withdrawing guidance, making both earnings estimates less well-based and the application of past reliability experience harder to justify.

Earnings guidance is a required input into earnings growth, hence the earnings realisation ratio (actual earnings ÷ earnings guidance) could not be calculated or would have depended on inexact proxies.

Dividend factors

Dps is eps multiplied by (1 – pay-out ratio). To the extent eps was affected as noted above, so was dps. Pay-out ratios were also under threat as earnings retention because a more important source of capital.

The historical sustainability measures (dividends/cashflow) suffered in the same way as historical eps.

Momentum factors

Momentum factors depend on trend continuation to add value. Trend disturbance and ongoing volatility deprives them of predictive power.

+/- 0.75% over- and under-weights

To the extent that this system over-weighted small caps, it would detract from performance as better capitalised companies generally display more resilience under stress.

To the extent that the system constrained tracking error, it would have placed a limit on the deterioration of relative performance.

QUESTION 3 **(17 Marks)**

You are the portfolio manager for an investment bank. You are designing an investment vehicle which is to be authorised to invest in Australian cash, bonds, shares and direct property. Your potential clients are all institutional investors. You have a good reputation as a tactical asset allocator and to take advantage of this, the vehicle will have wide permissible ranges in the asset allocation for each asset class.
The liquidity risks that your fund will experience will be driven by the behaviour of your clients in investing or withdrawing from the fund, in response to the future economic and financial environment that they face.

(a) Define liquidity risk in the context of the above fund.
(2 marks)

(b) Give three examples of why an institutional investor may wish to make an unexpected redemption request.
(3 marks)

(c) Under stable financial conditions, outline three situations that will cause the fund to require liquidity. **(3 marks)**

(d) Outline three examples of how another Global Financial Crisis might impact the fund's liquidity risk situation.
(3 marks)

(e) Outline four features that could be incorporated in designing the new vehicle to mitigate these liquidity risks. (both in stable conditions and at times of extreme market events)
(4 marks)

(f) What essential features of new asset classes would you investigate in deciding whether they have appropriate liquidity?
(2 marks)

Solutions Question 3

(a) All liquidity risks ultimately can be reduced to

- the risk of being forced to sell(purchase) an asset at a time not of one's choice and
- of encountering a thin market for that asset at that time resulting in a sale(purchase) at a significantly lower(higher) price than might otherwise have been achieved.

As an asset manager, you will only encounter this situation if your clients request you to

- redeem all or part of their interest in your fund, or increase significantly their interest in your fund at a time, or to an extent, that you did not anticipate or plan for.

[1 mark for each dot point up to maximum of 2 marks]

(b) As institutional investors, your clients may be expected to issue unexpected redemption requests under three types of circumstance:

- They are unhappy with the way in which you have been managing their assets (this should not come as a surprise as you should be aware of this through normal communications with your clients)
- They are changing their investment policy – again you would be likely to be aware of this being under consideration
- They require liquidity (cash) to meet levels of liability outflows that they had not anticipated. Such outflows could be driven by deterioration in the economic and financial environment. These deteriorations when they happen are often relatively rapid events (such as the 1987 crash, the dot-com crash or more recently the crash of October 2008). Because the events happen rapidly, although they may not be entirely unexpected, they are nonetheless difficult (even impossible) to predict as to their precise timing.

[1 mark for each point = 3 marks]

(c) Under "normal circumstances" the fund's requirements for liquidity would arise from:

- Anticipated redemptions required to meet planned client cash requirements
- A possible requirement to rebalance the portfolio asset allocation (this will depend in part on the level of positive cash flow being experienced by the fund as well as changes to the investment strategy/targets)
- Tax payments if and when the fund is required to pay tax (it may not if it is a fully distributing trust)
- Fund distributions.
- Payment of management fees and expenses.

As an aside, note that these liquidity requirements will only create difficulties to the extent that they require the sale of direct property investments, as all of the fund's other permitted investments (cash, bonds and shares) trade in markets which, in stable conditions, are deep enough to provide easy liquidity when required.

[1 mark for each dot point = maximum 3 marks]

(d) Were there to be another GFC the following could impact the fund's liquidity risk situation:

- Clients could experience sudden and unusually large requirements for cash to meet their liabilities leading them to issue unexpected redemption requests
- Severe market falls may lead to a further need to rebalance. This may incur significant transaction costs due to the price impact of a forced sale in a thin market where bid-ask spreads may be unusually wide
- Market liquidity for lesser quality assets will diminish with consequent impact in price if a forced sale occurs. The markets for those bonds seen as having higher credit risk and for shares in smaller companies and/or in emerging markets could become very thin, resulting in significantly reduced prices for achievable sales due to the price impact of a forced sale in a thin market where bid-ask spreads may be unusually wide.
- **Only source of market liquidity.** The fund might well find that the only assets that it could sell on reasonable terms were its highest credit quality bonds (government bonds of major economies) and shares of the larger corporates listed on major stock exchanges.
  All markets could become much thinner than usual, so that it could become almost impossible to sell a direct property investment within a reasonable timeframe. This increases the property weight and therefore liquidity risk.

- **[1 mark for each dot point up to a** maximum of 3 marks]

(e) All of these risks could be mitigated by appropriate design of the investment vehicle. In particular the following features could be incorporated:

- The fund could be allowed to use derivatives (e.g. share price index or bond options or futures contracts) to temporarily increase or reduce exposure to asset classes (as required) until new positive cash flows could be invested or until assets could be redeemed to meet new negative cash flows. In this context listed property could be used as a proxy for direct property exposure.
- The fund could be allowed to hold higher levels of cash, say, 10% in cash at any time. Higher levels of cash will mitigate liquidity risk issues but may also cause difficulties with potential clients who may argue that they are not paying you to invest in cash!
- The fund manager could be allowed to suspend redemptions or the acceptance and application of new money if in his judgement this is in the best interest of the fund's then current investors. This ability is particularly important and useful in the event of any "run" on the fund developing.
- Automatic redemption gates may be used whereby no more than 15% of a fund's units may be redeemed in any defined period e.g. one month. Excess redemption requests will be placed in a queue for actioning in the next redemption period.
- The fund could be allowed to borrow, to the extent permitted by law and the investment objectives, to provide a source of short term finance for redemptions. This gearing will increase the risk sensitivity of the fund to market price fluctuations entailing a requirement to closely monitor the level of gearing.
- Some managers may choose to be selective about their clients. A manager would be in a much better liquidity position if all of his clients were like minded long term institutional investors.

[1 mark for each item up to a maximum of 4 marks]

(f) The features of other asset classes that are relevant in managing the fund's liquidity position are as follows:

- The means of trading of the assets, whether on public or private markets, and the depth of such markets in terms of volume.
- The size of asset parcels in relation to the market as a whole (e.g. direct investment in a large property project vs. units in a single property trust). This issue relates to how the assets are securitised and whether there is an ability to trade a small fraction of the asset or whether the whole asset must be transacted.

- The legal and other restrictions on transacting in the assets.
  An example would be - offshore investors wishing to invest in Chinese equities listed in Shanghai must generally use the Qualified Foreign Institutional Investor (QFII) quota held by various investment banks. A fee will be charged, and ownership of the shares is indirect[1].

- The existence of a derivatives market which can be used to manage market liquidity risk.

[1 mark for each item up to a maximum of 2 marks]

[1] See http://www.hg.org/articles/article_1531.html

QUESTION 4 **(14 Marks)**

You are the Actuary to a General Insurance company that is considering a proposal to expand certain existing long tail business lines. A Director of the company has requested the use of a simple approach to modelling the profit impact of the proposal and presenting it to the Board. The Director suggests the use of a simple asset model: the mean-variance (MV) model. That is, an asset model where each asset class' returns are independent and identically distributed from year to year, with a stationary covariance structure.

(a) **Explain to the Director why it would be unwise to use a simple asset model as exemplified by the MV model to model assets (6 brief points, 3 marks) and even more unwise to model profit impact (3 points, 3 marks) with this model.**

(6 marks)

(b) **State your recommended asset model and outline what your recommended asset model will need to be able to do. Give reasons why it is more suitable to the task at hand**

(5 marks)

(c) **What dependencies would you establish with the insurance company's liability model, so as to arrive at an integrated asset-liability model (consider how underlying economic and financial variables affect both the assets and the liabilities).**

(3 marks)

Solutions Question 4

(a) The advice to the Director will need to be clear and straightforward. The main points to be covered are that:

Shortcomings as an asset model:

- It does not generate the long term serial correlation (bull and bear runs) that is regularly observed.
- It does not capture the fact that correlations between asset classes are not stable.
- It does not generate the "volatility clustering" behaviour observed by real markets in the short term.
- It does not respond to changes in economic variables such as the rate of inflation or GDP growth. This aspect is of particular relevance to business decisions, which have to be made in the context of an economic climate.
- It does not reflect any linkages to yield curve or to exchange rate movements.
- It does not reflect the observed distribution of year by year returns (skewness and kurtosis).
- It does not describe the term structure of interest rates.
- In particular, long term serial correlation of debt returns, together with mean reversion in interest rates, are thought to be distinctive features of debt markets. In addition, short term movements in the yield curve as suggested by derivative prices may be useful for short term applications.

[.5 marks for each point to a maximum of 3]

Shortcomings as a profit model:

- A simple model, as has been suggested, will not contain any linkages between the assets and the liabilities, whereas it may be expected that general insurance liabilities will be influenced by future rates of unemployment and that these and general claims experience may be expected to be driven by the same economic factors (inflation rates, rates of interest) that may also be expected to influence the assets.
- The projection of the company's reported liabilities, calculated in accordance with the relevant accounting standards, will require a projection of the yield curve, so that a rate of interest corresponding to the duration of the liabilities can be used. Unfortunately, a simple asset model will not provide this information.
- A simple model will tend to understate the risks inherent in the business. This is because simple models do not capture the regular "extreme events" experienced by the financial markets.
- It may be desirable that the features of the model also be compatible with purposes other than business development and long term profitability, for example pricing, reinsurance and solvency. In this case short term features such as volatility clustering may be important.

[1 mark for each item up to a maximum of 3 marks, so total of 6 marks]

(b) The recommended asset model will need to be able to

- model the term structure of interest rates
- reflect the non-stationarity of equity and debt returns and
- reflect the dependence of equity and debt returns on the rate of inflation.

[1 mark for each item up to a maximum of 2 marks]

This could be achieved by the construction of a VAR or multivariate GARCH model.

[1 mark for either VAR or multivariate GARCH]

Such a model is more suitable because it

- would enable evaluation of projected liabilities,
- would realistically reflect market behaviour, and
- could be integrated with a liability model which itself used inflation rates and rates of interest as input variables.

[1 mark for each item up to a maximum of 2 marks]

[Total of 5 marks for part (b)]

(c) As mentioned previously, **rates of inflation** and **rates of interest** may be expected to influence factors such as the **rate of unemployment** and thus in turn the **overall level of claims experience** (especially for lines such as Workers' Compensation as an example. It is not necessary to mention WC as part of the answer to score the marks).

A **regression analysis** of past levels of claims experience against the rate of inflation and the rates of interest at, say, two points on the yield curve, could be carried out to explore these expected relationships. The results of this analysis could then be utilised in the construction of an integrated asset liability model.

[3 marks in total; 2 mark for connections between inflation / interest rates and unemployment / claim rates, 1 mark for regression analysis being required to quantify relationship.]

QUESTION 5 **(15 Marks)**

You are the investment manager of an unlisted Australian equities unit trust of $4.5 billion. The unit trust holds a 10% stake in XYZ, a financial services conglomerate; the stake is worth $250 million. XYZ has two businesses

- **a life insurance company, and**
- **a mortgage fund asset management business.**

The Board of Directors of XYZ are proposing to sell the mortgage fund asset management business so as to concentrate on the life insurance business i.e. XYZ will become only a life insurance company. The proceeds from the sale of the mortgage fund asset management business will be returned as a cash distribution to the shareholders. (Assume negligible transaction costs).

According to your analysis, the life insurance business forms 75% of the company's current market value and the remaining 25% is attributed to the mortgage fund asset management business. The life insurance business has relatively stable earnings and is managed by a conservative management team. The mortgage fund asset management business has over the past three years been a significantly unprofitable business and hence is being sold.

You are now considering a review of your current investment portfolio in light of this proposal by XYZ.

(a) Explain how this proposal by XYZ affects your current portfolio.
(2 marks)

(b) If the XYZ proposal succeeds, you must decide whether to increase or decrease the number of XYZ shares held in your portfolio.
Discuss two aspects of the investment portfolio you will review before making your decision.

Give an example for each aspect to illustrate whether the investment manager will choose to increase or decrease the number of shares held after the demerger.
(3 marks)

(c) The asset management company that manages the Australian equities unit trust (of which you are the investment manager) is reviewing whether to purchase XYZ's mortgage fund asset management business.
The internal review is recommending that if the purchase of the mortgage fund asset management business occurs, then the mortgage fund and your Australian equities unit trust will be managed by a single team, but the assets are to be kept in separate funds. The aim of this arrangement is to minimise costs.
Identify and explain three key <u>operational</u> risks associated with this recommendation of an integrated management structure.
(6 marks)

(d) Given your fund's $250 million stake in XYZ, your vote regarding whether XYZ's proposal to sell the mortgage fund, return the sale proceeds as a cash distribution, and focus on the life insurance business is important.
Who will you consult to gather further information to help you vote at the shareholders' meeting? Explain your answer.

(4 marks)

Solutions Question 5

(a) XYZ's proposal changes the following :

- The portfolio composition will change, with greater weighting to the life insurance industry as opposed to exposure to broadly based financial services companies. Alternatively, this may also be expressed as the portfolio will have proportionally greater exposure to the non-financial industry sectors because the unit trust has effectively sold its shareholding in a mortgage fund as a result of the XYZ proposal.
- The portfolio has more cash assets due to XYZ distributing the proceeds from the sale of the mortgage fund as a cash distribution.

Marking Guide (KU – 2)

Award 1 mark for each of the above items.

(b) The following fund aspects should be considered :

- The unit trust risk profile will fall because of the cash distribution from the sale proceeds of XYZ's mortgage asset management business. If the fund wished to maintain the same amount of portfolio risk, the fund will need to buy more XYZ shares after XYZ has sold the mortgage fund, returned the sale proceeds as a cash distribution, and become a pure life insurance business. This is an application of Markowitz mean-variance portfolio theory.

- Industry preference. Within the financial services sector, the unit trust will be more heavily weighted towards the life insurance industry. The unit trust may hold its XYZ shares, or even purchase more shares in XYZ if the unit trust has a favourable outlook towards the life insurance industry.
  The unit trust will reduce its holding of XYZ shares if the unit trust has a non-favourable outlook towards the life insurance industry.

- Overall equity market diversification levels. The unit trust will be less weighted to financial services sector assets relative to the benchmark.
  The unit trust will purchase more shares in XYZ if the unit trust has a favourable outlook towards the financial services sector.
  The unit trust may hold its XYZ shares, or even reduce its holding of XYZ shares if the unit trust has a non-favourable outlook towards the financial services sector.

- The fund may have identified a good investment opportunity elsewhere but delayed investing in this because they needed to incur unnecessary and potentially significant transaction costs to sell their XYZ shares. However, this demerger gives them an opportunity to sell a portion of their XYZ shares without incurring any transaction costs.

Marking Guide (SJ – 3)

Award 1 mark for identifying an aspect up to a maximum of two aspects (i.e. 2 marks maximum for this part)
Award 0.5 marks for explaining how each aspect influences the decision to buy or sell more XYZ shares (i.e. 1 mark maximum for this part based on two aspects, each requiring a decision to buy or sell.)

(c) The key operational risks must be associated with the way the daily fund operations will be affected, including the following :

- IT system clashes and complications. The two funds are likely to have used different IT systems. Trying to merge the data from the mortgage fund into the existing IT system used by the equities fund is expected to be fraught with many complications.
  Examples include
  - Different formats for investor details
  - One system is an equity system with readily available ASX market prices for daily valuations. The mortgage system is likely to be more complex with fixed and floating coupons that require indirect valuation by formulae. Mortgage prepayments will also need to be modelled for valuation purposes.
  - Security and encryption of data may pose problems in the data merger process. Given the sensitive nature of the data from both systems, substantial work needs to be done to unlock the data and then secure them after the data is merged.

(Students should not be marked down for excluding detailed examples of IT system clashes, as this is not the main emphasis of the question. A general understanding of the potential IT issues suffices.)

- Paperwork and procedure confusion. The two funds are separate in nature but jointly managed by a single team. This may cause problems in the administration of the fund as documents from one fund may be mistaken for documents from the other fund.

- Staff skills mismatch. The two investment teams will be working together in a single team which is likely to lead to complications as the culture and procedures are likely to be different.
  Alternatively, if none of the existing staff of the mortgage asset management business are employed, then the staff of the Australian equities unit trust will have to be trained to handle matters relating to both funds. The equity investment managers may lose focus, and the equity unit trust performance may suffer. Additionally, there may be a longer period of time before the mortgage fund performance improves because it will take time for an equity investment manager to learn the skills required to manage a mortgage fund.

- Staff disputes due to staff bonus scheme linked to fund performance. An overall bonus scheme based on fund performance will be difficult to implement in a single team managing two funds having different levels of risk and performance. Staff may become discontented from lower bonuses and leave for other employers. The performance fee system will be difficult to implement in a single team managing two funds having different levels of performance.

Marking Guide (CJ – 6)

Award 2 marks for each well-explained item up to a maximum of 6 marks for three items.
The key operational risks should be around administration, procedures and systems. An item of discussion relating to the risks of individual funds, or the investment portfolio will not be awarded any marks.

(d) The following parties need to be consulted :

- Key investors in the Australian equities unit trust may need to be consulted to seek their opinion as XYZ would be one of the larger holdings in the unit trust.
- Independent equity brokers and internal stock analysts. These analysts are able to provide us with their views on whether the transaction is likely to add value to XYZ shareholders in the longer term.
- Insurance brokers. These brokers may provide useful insights on the outlook for the life insurance industry.
- Management of XYZ to understand the future direction of the stand-alone life insurance business and to assess whether the management possess the right skills to manage XYZ's new direction.
  (An answer that seeks the motive for the proposal is not a valid point as this would already be known through the independent expert's report).
- Auditor. The auditor assists to confirm whether the company's accounts and their operations are sound and undertaken in accordance with regulatory standards.
- Independent actuary and writer of independent expert's report. They will have opinions on the state of the life insurance industry and possibly their view on this life insurance company's prospects post-demerger.
- Other major shareholders of XYZ. Their views help you understand their sentiment on whether the current arrangement or the new XYZ proposal is optimal.

Marking Guide (SJ – 4)

Award 1 mark for each well-explained point up to a maximum of 4 marks.

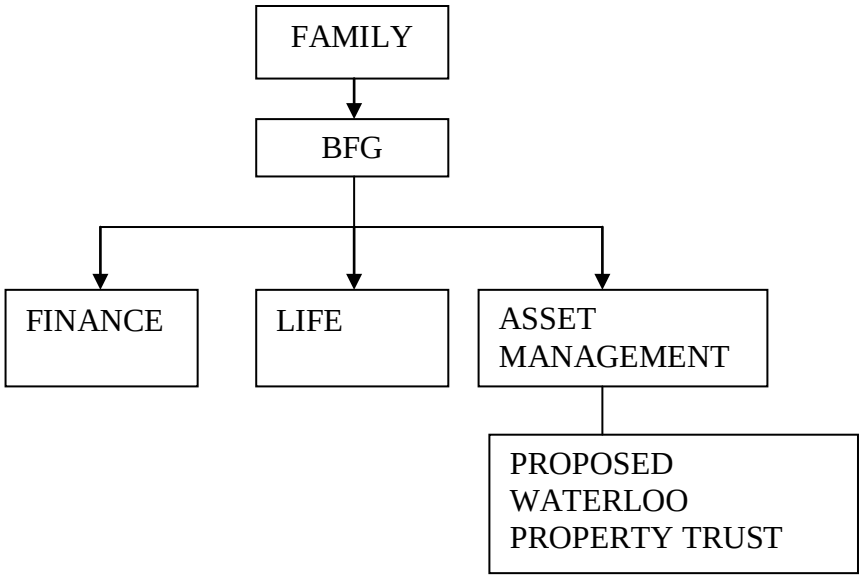
QUESTION 6 **(17 Marks)**

The year is 2011 and the global economy has recovered from the most devastating effects of the global financial crisis (GFC). Retail and commercial lending have loosened to levels similar to 2004. The Reserve Bank of Australia has set the Target Cash Rate at 4.25%. A very rich Australian family wholly owns an unlisted diversified financial services group, Bonaparte Financial Group. BFG has three operating divisions:

- **A finance company offering personal and commercial mortgage loans, and funds the loans with retail and wholesale deposits. Gross assets on the balance sheet are $2.0 billion.**

- **A life insurance company that only offers yearly renewable term life insurance with non guaranteed premium rates, and**

- **An asset management division exclusively managing BFG's other family assets excluding the finance company and life insurance company mentioned above. These family assets under management total $15 billion of which $11.4 billion is in equities and $3.6 billion is in uncommitted cash that is available for investment purposes such as acquisitions.**



The Australian family wishes to take advantage of the current conditions by expanding the scope of the <u>asset management division</u> to include both direct and listed property in the existing equity portfolio. The domestic retail and commercial property markets are still significantly underpriced. A number of existing listed property funds are trading at values well below their last reported Net Asset Value. Assume the Target Cash Rate will remain unchanged for 12 months.

The Australian family has sought your advice as their external adviser on acquiring a mid-size listed property trust, Waterloo Property Trust. WPT has $9 billion of retail and commercial properties at their last reported book value. The share price is $1.83, while the last reported Net Asset Value is $2.45. The current market capitalisation of the trust is $2.2 billion.

(a) Discuss the asset profile of Bonaparte Financial Group (BFG) by analysing the three operating divisions forming this group. Your answer should consider BFG's customer diversity, liquidity, risk profile and asset-liability matching capacity.

(6 marks)

(b) Give reasons for and against BFG considering expansion into property investment in the context of the current environment and their investment portfolio.

(A total of five reasons are required. There must be at least two reasons in the 'for' category, and at least two reasons in the 'against ' category. The five reasons are to relate to property investment in general, and not to any specific issues of WPT)

(5 marks)

(c) The Board requests you to submit a report detailing the <u>various risks</u> associated with acquiring Waterloo Property Trust (WPT). Give three aspects relating to WPT's portfolio that you would highlight in your report.

Explain how this information contributes to the report.

(6 marks)

END OF PAPER

Solutions Question 6

(a) The profile of BFG includes the following key features :

- Moderate diversification of services provided due to a variety of socioeconomic segments. The life office will have individuals and superannuation funds as policyholders. The finance company will have individuals as personal loan customers, and property investors of various sizes as commercial mortgage loan customers. BFG will not be expected to have medium to large size corporations as clients of the finance company. (SJ – 1.5)
- BFG has relatively comfortable level of liquidity at 24% of the assets are uncommitted. Irrespective of the percentage of the finance company that is funded by short-term wholesale funds, BFG can meet any finance company liquidity requirements from the $3.6bn cash. In fact, the finance company can be expanded further especially if term funding from retail deposits become readily available because retail deposits are generally more price insensitive than wholesale deposits. (BFG would already hold an ADI license from APRA to take deposits.) Additionally, any listed equities should be able to be sold within reasonable timeframes to raise liquidity. Hence, BFG is likely to weather adverse financial changes. (CJ – 1.5)
- BFG would be relatively more comfortable with the risk profile of the finance company portfolio with the economy having recovered in 2011. Hence, the finance company loans are expected to have a low default rate while improved consumer confidence should stimulate life insurance sales. Furthermore, the outlook appears to be of low risk for both finance company loan assets and the equity market in light of the normalisation of the RBA cash rate at 4.25% within the neutral band for monetary policy, and the RBA indicating stability of the RBA cash rate for the next 12 months. It is worth noting though the asset management division is heavily weighted towards equities, which may be somewhat risky. (CJ – 1.5)
- Finance company assets typically have a slightly longer duration than finance company liabilities. Retail deposits and wholesale funds will tend to be of shorter term and re-price more frequently than personal and commercial mortgage loans. On the other hand, the premium in advance nature of yearly renewable term life insurance has slightly shorter duration than the death benefits. The asset management arm does not seem to hold any derivatives (swap contracts) designed to rectify the asset/liability mismatch (SJ – 1.5)

Marking Guide (SJ – 3, CJ - 3)

Award 1.5 marks for a reasonably explained statement for each of the 4 items. Total 6 marks.

(b) For expanding into property funds management :

- Low economic rate of interest means a potential for greater demand for property and hence the returns are likely to be rewarding. (SJ – 1)

- WPT, like most property trusts, is undervalued meaning a recovery of the property market may provide higher investment returns. (SJ – 1)
- BFG can diversify the asset portfolio from mainly equities and cash to include property thus potentially reducing the overall portfolio risk, assuming the economy remains stable as forecasted. (KU – 1)
- BFG will complement their commercial mortgage loans portfolio with direct investment in retail and commercial property assets. (SJ – 1)

Against expanding into property funds management:

- Property assets are capital intensive and this takes up at least 60% of the group's available liquidity, which constrains their ability to invest in other assets or meet sudden liquidity needs. (SJ – 1)
- BFG does not have previous exposure nor experience of direct investment in retail and commercial property assets - so this may provide additional risk if the direct property investment portfolio is poorly managed. (CJ – 1)
- Similarly, the addition of the property portfolio requires the recruitment of new highly skilled property managers to ensure that the direct property investment portfolio is well managed. This may incur significant extra costs and there is a risk that the new managers may not perform satisfactorily. (CJ – 1)
- BFG will increase their risk in economic downturns when property prices slump and loan defaults increase. (SJ -1)
- Property is very illiquid and BFG will need to have a strategy for dealing with this.

Marking Guide (KU – 1, SJ – 2, CJ – 2)

The key issues candidates need to recognise are diversification benefits, favourable economic conditions, the capital intensive nature of property and their current lack of experience in property management.

Award 1 mark for each reasonable point up to a maximum of 3 marks for each "for", "against" category; and a maximum of 5 marks in total.

(c) The information to review include :

- Debt maturity profile.
  WPT may have a large level of debt maturing in a short period of time. If this is the case, BFG may have to commit further funds to repay these loans, further straining the BFG group liquidity.

- Loan conditions of WPT debt.
  The loan conditions of WPT debt may include the right for lenders to demand debt repayment (i.e. maturity acceleration) upon certain events such as takeover or change of control. BFG will then need to re-finance all the debt of WPT upon any takeover. This will be a challenging task in the current financial conditions, and any re-financing shortfall will likely place extreme pressure on BFG's own solvency and liquidity position.

- The leverage or gearing ratio of WPT.
  The fact that WPT has a lower market capitalisation relative to net asset value is likely to be due to a high gearing ratio. Post-acquisition, BFG itself may become too heavily geared and threaten BFG's own solvency and liquidity position.

- The timing of the property valuations on the books.
  If the book values are outdated, these assets may need to be revalued to ensure Bonaparte Partners does not pay an unnecessarily high acquisition premium.

- Cash flow generated by WPT.
  Bonaparte Financial Group will be interested in how much cash their newly acquired business generates. A poor operational cash flow may lead to Bonaparte Financial Group having to draw down their existing cash reserves rather than expanding their current business.

- The geographic concentration of the properties.
  WPT's property portfolio may be centralised in a particular location and this potentially increases the risk concentration for Bonaparte Financial Group post-acquisition.

Marking Guide (CJ – 6)

Three items are required to be covered satisfactorily in order to receive all six marks.
Award 0.5 marks for each information item.
Award 1 mark for explaining how each information item is used.
Award 0.5 marks for explaining how each information item relates back to the risk of acquiring Waterloo Property Trust (liquidity, solvency, concentration risks).