Investment Management 1999 (vers 6 Sep)

Paper 2, Question 1 (10 marks)

Where a student gives what you believe to be a valid comment which is not part of the marking guide, then award marks according to your own judgement, but:

- It is preferable that you make a note of the additional comments
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(a)
1 mark for basic approach :
- Basic formula is Cap x FME / # shares (1 mark)

1 mark for demonstrating an understanding of the terms, which can include <u>either</u> :
- Base "Cap" on domestic / global comparisons based on companies of similar industry and size (1 mark)
- Adjust "Cap" for growth / risk (higher for higher growth outlook, lower for higher risk)
- Base maintainable earnings on reported profits after tax
- Estimate future maintainable earnings by making adjustments to past earnings, to allow for items not expected to be maintained, and make estimates of future.

(If the student gives a long and detailed answer to this part of the question, you may give an additional mark, subject to the total for this question not exceeding 10 marks)

(b)(i)
- If controlling parcel of shares, then more likely to pay premium for control, so increase Cap. (1 mark)

(b)(ii)
- The convertible notes may increase the number of ordinary shares on conversion, and so are "potential" ordinary shares.
- The number will depend on the share price at the time of conversion, and will need to be estimated.
- So increase the number of shares
- However, convertible note interest will not be payable after conversion, so reduce the interest cost.

(1 mark for each point, to a maximum of 2 marks)

(b)(iii)
- Currency translation profit could not be expected to be maintained, so deduct from earnings (and perhaps also deduct a notional hedging cost) (1 mark)
- Unhedged currency exposure may be indicative of a greater degree of risk in future earnings, which would indicate a reduction in the Cap rate. (1 mark)

(b)(iv)
- Reduced doubtful debts is non-cash item, and cannot be maintained, so deduct from earnings (1 mark)

(b)(v)
- If there are three separate businesses in the group, then value each separately if there is sufficient information, using Cap rates appropriate for each business. (1 mark)
- For the unprofitable company, the approach will not yield useful results, so it may be better to use an asset valuation approach, based on orderly realisation of assets. (1 mark)

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Paper 2, Question 2 (12 marks)

Where a student gives what you believe to be a valid comment which is not part of the marking guide, then award marks according to your own judgement, but:

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(a)

Students need include only two of the three columns

	Expected Bond A return relative to Bond C	Expected Bond B return relative to Bond C	Expected Bond A return relative to Bond B
3 months time	0.20% x 3 / 12 = 0.05%	0.50% x 3/12 – 0.10% x 1.99 = -0.07%	0.05% + 0.07% =0.12%
12 months time	0.20%	0.50% – 0.15% x 1.40 = +0.29%	0.20% – 0.29% = -0.09%

(1 mark for each result, to a maximum of 4 marks)

(b)

- Investment in either ABC or XYZ will further increase the exposure to corporate bonds, which is already higher than the index (risk for index tracking). In particular, investment in XYZ will increase corporate exposure from 35% to 40%. (1½ marks)
- XYZ is lower-rated than ABC, so effectively entails more credit exposure (per $ face value) than ABC. (1½ marks)
- If XYZ is downgraded, then one would be a forced seller of the bond at a time when its credit spread would be considerably higher – risking substantial under-performance. (1½ marks)
- However, for XYZ to under-perform CGS over the next 12months, its spread to CGS would need to rise by around 2.00% (to off-set the high yield). This is a substantial buffer. Also note that the ratings outlook is stable. (1½ marks)
- As ABC Ltd is a new offering, and is being offered for the first time, it may be difficult to assess a fair yield. (1 mark)
- As XYZ Ltd is only AUD$70 million on issue, it is not included in the WDR index (risk for passive investor relative to index). (1 mark)
- As XYX Ltd is a lowly-rated issue of only AUD$70 million, it is not likely to be liquid (risk if sold prior to maturity). ABC Ltd is more likely to have liquidity. (1 mark)
- Given that the offering is for 30% of the ABC issue, it is quite possible that it will be held by very few investors, which may reduce the liquidity of the issue. (1 mark)
- Investment in ABC entails taking on overseas exposure. This could be beneficial (diversification), however one may need to understand the country-specific risks. (1 mark)

(to a maximum of 8 marks)

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Paper 2, Question 3 (25 marks)

The answers below are a general guide. As many of the questions are open to debate, marks should be allocated to any reasonable points. To achieve full marks, a student would not have to put as many valid points down as shown in the answers.

(a)

- Reducing amount of Commonwealth (and Semi) Government debt on issue, due to budget surpluses largely resulting from privatisations, such as Telstra (Commonwealth) or electricity (State). This alone increases the relative weightings of corporates, and also creates a "supply gap".
- Increasing corporate bond issuance to fill the "supply gap".
- "Supply gap" exacerbated by continued growth in amount of superannuation funds under management
- Removal of interest withholding tax on issues since July 1998 has had a moderate positive impact on the corporate market by encouraging foreign investment.
- Low interest rates and strong growth have improved corporate balance sheets, allowing scope to raise further debt.
- Increased issuance by overseas entities in Australia.

(b)

- Successful inflation-targeting by central banks has created a low, stable inflation environment.
- Success in targeting inflation has resulted in more stable monetary policy generally around the world.
- Increased market confidence in the ability of central banks to maintain low, stable inflation.
- Reduced supply of debt has resulted in much lower fixed interest allocations, which will tend to support the market in a sell-off.

(c)(i)

(c)(ii)

- Performance should be used primarily as a check on consistency with other factors, rather than for rating a manager alone.
- Qualitative criteria (such as organisation, people, investment policy and process) are expected to provide a better guide to future relative performance.
- Due to volatility in returns relative to a benchmark, it can be difficult to attach statistical significance to performance rankings over 3 years.
- It is theoretically possible to attach greater statistical significance to relative performance over the long term. However, there is the problem that, over the long term, there will be changes in things such as the fund manager's style, the fund manager's personnel, and structural changes in the market that render such comparisons meaningless.

(c)(iii)

- Low interest rate volatility makes it harder to out-perform the market by way of timing into and out of the market.
- The low proportion of corporate bonds on issue meant that the market was dominated by issues of similar credit quality (i..e. Commonwealth Government bonds). This is very different to the equity market, where credit research can add significant value.
- There was/has been some credit around, but most fund managers have had very tight restrictions. These are gradually reducing.
- The market may have been unprepared for the credit crisis in 1998, which saw considerable under-performance by corporate bonds.
- Floats and large cap shares (institutional market) have out-performed.

(c)(iv)

The following is one reasonable answer in the current market. If the market outlook changes dramatically in coming weeks, then this answer will be less appropriate.

- Increases in corporate bonds on issue will improve the scope to add value by credit research, allowing active fund managers to add value.
- However, it remains to be seen whether active fixed interest fund managers have developed sufficient credit expertise – so perhaps one should wait and see before deciding an active fixed interest fund manager.
- Central banks continue to be successfully vigilant against inflation – there appears to be little reason to expect that inflation will rise or fall dramatically in the next few years. (Award marks if the student plausibly argues otherwise).
- With continued stable inflation (and moderate growth) monetary policy should result in fairly stable short-term interest rates. (Again, award marks if the student plausibly argues otherwise).
- The last two points indicate that interest rate volatility could be expected to remain at levels much lower than in previous decades. This would indicate continued difficulty for active fixed interest fund managers to add value.

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Paper 2, Question 4 (25 marks)

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(a)(i)

- Formula is : X(t) = X(t-1) + independent uncorrelated noise with constant variance
- Best prediction of next value is the current value
- Knowledge of past movements in value are of no use in predicting future movements in value

(1 mark for each point, to a maximum of 2 marks)

(a)(ii)

Fitting the model to data from one period, then testing how well the model performs over subsequent periods. (2 marks)

(a)(iii)

Variable volatility, for example the volatility of inflation may be assumed to be higher when inflation is higher, or following large movements in asset values. (2 marks)

(b)

Out-of sample testing: (up to 2 ½ marks)

- A test of a model using the data used to fit the model will not be a useful test of the general usefulness of a model, as it should (if fitted properly) provide a reasonable fit.
- Out-of sample testing gives an objective test of the model as a predictor of the future.

Randomness of residuals: (up to 2 marks)

- If the residuals are not random, it suggests that the model could be improved by incorporating the non-random information from the residuals.

(Maximum : 4 marks)

(c)

- Reserving for capital requirements requires close attention to the tails of distributions – the probabilities of extreme reductions in asset values.
- The random walk model will probably be useful for simply determining the mean and variability of some measure such as profit – this does not rely on accuracy at the tail.
- The independent random walk model ignores any correlation between the assets.

(1 mark for each point, to a maximum of 2 marks)

(d)

Candidates may take different approaches to this part of the question, so it maybe advisable to read several answers before marking.

- Putting answer in the form of a letter (1 mark)

Addressing comments of CFO (1 ½ each valid point, to a maximum of 6 marks) :

- ALM is a method for converting judgement into recommendations – it still requires judgment.
- Highlights the fact that it is difficult to compare models – should be comfortable with basis of model
- Long-term models should not have to perform well in the short term, and vice versa. Long term modelling for reserves is used mainly to determine the probability of large adverse movements in assets over time, not to predict asset movements in the short-term.
- In any case, asset models should not be terribly efficient in predicting asset movements in the short term, as this would imply extreme inefficiency in the markets.
- With ALM, at least one can quantify the risk taken. The determination of a probability level is the responsibility of a well-informed management.
- Stochastic models apply monte-carlo simulation to determine a range of reasonable outcomes. By using a large number of simulations, the modelling should give a reasonable representation of the underlying expected distribution

Why you will use ALM: (1 mark each)

- Explicitly allows for future cashflows (which may be positive and/or negative over time)
- Can be used to convert the management's risk parameters directly into the quantification of reserves
- Can be used to estimate the spread of possible outcomes

Reasonable approach to modelling: (1 mark each, to a maximum of 3 marks)

- Base outcomes on a model chosen based on its accuracy in reflecting the likelihood and extent of extreme asset price moves
- Possibly present the results of more than one model
- Test the sensitivity of the results to changing the underlying parameters of the model
- Compare the results to "rule-of-thumb" approaches which will be easier to communicate, such as reserve required if there is a X% fall in equities with a Y% rise in yields etc.

(To a maximum of 10 marks)

(e)

- Crediting rate
- Policy termination values
- Resilience reserve

(1 mark each)

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Paper 2, Question 5 (28 marks)

Where a student gives what you believe to be a valid comment which is not part of the marking guide, then award marks according to your own judgement, but:

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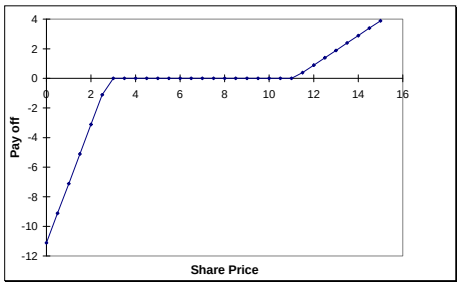
(a)

- if the share price is above $11.11, then receive 1 share
- if the share price is below $2.77, then receive 4 shares
- if the share price is between $2.77 and $11.11, then receive $11.11
- pay-off diagram : (excluding $11.11, which is fixed bond maturity component)



- Option details :

Long/short	Long	Short
put/call	Call	Put
American/Eurpoean	European	European
Strike	$11.11	$2.77
Expiry date	30 Sep 2003	30 Sep 2003

- Bond details :

Maturity	30 Sep 2003
Face value	$11.11
Effective coupon-rate	7%x0.9/(1-0.36) =9.84%

Marking guide:

- For each correct option detail (½ mark each, to a maximum of 5)
- For each correct bond detail (1 mark each, to a maximum of 3, deduct only ½ mark if coupon not grossed up)
- Pay-off diagram (2 marks, deduct only ½ mark if pay-off diagram includes the $11.11)

(b)

S = Spot price - grossed-up value of dividends = $5.00 - $0.64/0.64 = $4.00.

Marking guide:

- Knowing that the value of dividends should be deducted from the spot price (1½ marks)

- Grossing up the dividends (½ mark)

(c)(i)

(from 1997 exam)

- Is less secure than a bond, both in terms of coupon and principal (1½ marks)
- Franking credits will be valued at less than 100 cents in the $ (1½ marks)
- Less liquid than a bond (1 mark)
- Traded on equity markets, and equity investors may prefer pure equity, rather than debt/equity hybrid (1 mark)
- Fixed interest investors may not attribute full value to the option component (1 mark)
- Higher transaction costs - brokerage (½ mark)

(to a maximum of 6 marks)

(c)(ii)

Volatility can be estimated by either :

- ETO implied vol (if there is an ETO option for that company).
- Historical vol, however this can jump around due to occasional large movements – need to consider what period to use as rolling period.
- Based on ETO information from similar company.
- Modify result by comparing SPI historical vol with SPI implied vol – however SPI options are much shorter term than most embedded cps options.
- Judgement (perhaps of the equity manager).

Bond yields can be estimated by either :

- It will be significantly higher than senior unsecured bond yields.
- Rank cps bond yields by credit ranking of company
- Perhaps consider relative betas of companies.
- Judgement (perhaps of the equity manager).

Marking guide:

- For each valid point (1½ mark for each, maximum 10 marks)