

EXAMINATIONS

September 2004

Subject 301 — Investment and Asset Management

EXAMINERS' REPORT

Introduction

The attached subject report has been written by the Principal Examiner with the aim of helping candidates. The questions and comments are based around Core Reading as the interpretation of the syllabus to which the examiners are working. They have however given credit for any alternative approach or interpretation which they consider to be reasonable.

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Chairman of the Board of Examiners

7 December 2004

Due to the change in the examination system from 2005, we believe that a large number of candidates entered for this examination to try and obtain a pass that would give them more flexibility in determining what elections to make with regard to credits for the new examination system. Consequently there were over 900 entries compared with around 650 in previous years. There was some evidence that candidates were not as well prepared as they might have been and this is reflected in the comments below.

1 (i)

| Portfolio relative to: | Published Indices | Other Portfolios | Benchmark portfolio |
|-------------------------------|--|--|--|
| Pros | Easy to do Data readily available, and accurate | Gives an indication of the cost or benefit of a strategy, relative to those adopted by other funds | Benchmark portfolio can be constructed to reflect fund objectives Can be helpful in aligning fund manager's interests with liability requirements |
| Cons | Index may be inappropriate for investor's objectives | Comparison may be inappropriate if other funds have very different objectives | |
| General cons | All methods look at past performance only, so are not a reliable guide to the future Assessments do not take account of risks taken by managers | | |

(ii)

| | Year 1 | Year 2 | Total | Actual-Expected |
|------------------|---------------|---------------|--------------|------------------------|
| Actual | 7.50% | 9.50% | 17.71% | |
| Index | 7.50% | 8.00% | 16.10% | 1.61% |
| Average | 7.00% | 8.00% | 15.56% | 2.15% |
| Benchmark | 8.00% | 6.40% | 14.91% | 2.80% |

This was answered well in the main for both the bookwork part (i) and the application part (ii).

- 2** (i) The purpose is to identify and analyse the key factors affecting the future profitability of a company. This is to determine whether a share is over- or under-valued by the market.

Investigations

Financial accounts and accounting ratios
Dividend and earnings cover
Profit variability and growth by looking at sources of revenue and expenditure
Level of borrowing
Level of liquidity
Growth in asset values
(Both for the company and also for similar companies in this sector and outside the sector)

- (ii) As there has been a refinancing, many of the above investigations will no longer be relevant. This particularly affects historical financial information, rather than prospective forecasts.

Care should be taken with the company's own forecasts, which may give an excessively optimistic picture of future prospects.

The key investigations to focus on will be:

sources of revenue and expenditure
interest and capital payments on borrowings
cash levels, and cash forecasts
changes in net asset values
quality of management
future earnings forecasts

Part (i) was well answered but (ii) was not with few candidates showing the understanding that the refinancing would be likely to distort financial ratios etc.

- 3** (i) Margin is the collateral which each party to a futures contract must deposit with the clearing house. It acts as a cushion against potential losses which the parties may suffer from future adverse price movements.

In the event of a party to a contract defaulting the clearing house will protect the other party to the contract by ensuring the contract is fulfilled.

Initial margin is deposited with the clearing house when the contract is first struck, by both parties to the contract.

To ensure that the clearing house's exposure to credit risk is controlled, the margin is changed on a daily basis through additional payments/refunds of *variation margin*.

If the price of a contract falls, the buyer has to put up additional margin whilst the opposite is true if the price rises.

(ii) State view

Euro/US dollar forwards are more flexible than futures so can have a longer term, whereas futures will need to be “rolled over” periodically (typically on a quarterly basis.)

A disadvantage is that adjusting the outstanding position weekly will be simpler with futures than with forwards as futures can be bought and sold easily on an exchange, whereas forwards can only be bought and sold from investment banks — this may result in an imperfect hedge being maintained at times.

Transaction costs may be an issue
Counter-party risk

Both parts reasonably answered.

- 4**
- (i) Authority and advice to switch — are approvals in place/required
Expected extra return to be made relative to additional risk (if any)
Are there portfolio/mandate constraints on the changes that can be made
Expenses of making the switch — that a profit will be made on return to neutral position
Problems of switching a large portfolio of assets
 - (ii) This is a switch between stocks with similar volatility, taking advantage of temporary anomalies in price.

Generally a relatively low risk strategy,
but the widespread use of computer based analysis by market participants limits opportunities to profit from significant anomalies in major markets.
 - (iii) Any 3 of yield differences, price ratios, price models, yield models.
 - (iv) The investor could:

buy the asset which is believed to be under priced and short sell a similar asset which is correctly priced or overpriced, or

buy the asset which is believed to be under priced and sell a derivative linked to the benchmark bond for the market.

The examiners were disappointed with the answers to this question. Many candidates appeared not to have a full grasp of the bookwork and missed numerous points in (i). Part (iii) was also poorly answered.

- 5** (i) In practice many regulatory regimes are not based solely on one system of regulation, but are instead based on a mixture of systems to enhance the strengths and address the weaknesses. A mixed regime is one that includes the following approaches to regulation operating in parallel:

Unregulated markets
Voluntary codes of conduct
Self-regulation
Statutory regulation

- (ii) A rigid code of practice is very precise in what exactly is and is not permitted.

A code of principle is a general guide to the fundamentals but not necessarily the detail.

Advantages

Codes of principle are more durable to changing market conditions.

Codes of principle should allow the market to operate more efficiently by allowing product innovation.

Should encourage competition.

Provides greater freedom of action.

There should be less ability to act against the spirit of the regulation.

Disadvantages

Regulation is less precise with more grey areas so market participants will be less sure that they are operating within the rules, leading to transgressions at the periphery going unchecked for longer.

Because the rules are less precise there is greater reliance on the regulator enforcing regulations, investigating suspected breaches and imposing sanctions.

Candidates knew the answers to (i) but were generally weak on (ii).

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(i)

- The gearing of investment trusts should enable them to outperform unit trusts in bull markets.
- Investment trust schemes may be bought at a discount to net asset value and if the discount narrows this should be a source of outperformance relative to unit trusts.
- Investment trust management charges are usually lower than for unit trust.
- Investment trusts can invest in a wider range of assets than unit trusts.
- Investment trusts may have a better tax position than unit trusts.

(ii) The discount to net asset value per share is defined as:

$$\frac{\text{net asset value} - \text{market price}}{\text{net asset value}}$$

expressed as a %

(iii) This may become a premium because:

- (a) the value of assets may be historic and due for re-rating
- (b) investors in the trust may be barred from direct entry to the markets in which the trust is invested and they may be prepared to pay a premium in order to gain the exposure they desire
- (c) investors in the trust may anticipate the trust management adding value on top of the current market prices of the trust's investments
- (d) pay a premium for geared exposure to a rising market

This was well done for parts (i) and (ii) but candidates often had few explanations in (iii).

7 (i) High equity — reasons why

- Highest expected return
- Historically successful (until 2000)
- Not possible to match liabilities by nature or term
- Surplus generation used to improve benefits and reduce company contributions
- Advance credit can be taken in actuarial valuation through equity risk premium in discount rate
- May offer hedge against inflation
- May match statutory funding test
- May match transfer basis following sale
- Common strategy for other schemes (herd instinct)

Reasons why not

- Maturity of fund
- No match for guaranteed benefits and no surplus
- Insufficient income generation
- Highest risk and maybe risk is too high for sponsor, especially if scheme large relative to the sponsor
- Doesn't match statutory funding test or accounting assessment
- Threat of deflation
- Availability of alternatives

As the question asks for strategy i.e. long-term benchmark allocation, no credit is available for references to short term under or over value of equity markets.

(ii) Advantages of government bonds

- Lowest risk — credit, currency and possibly inflation, could improve sponsor credit rating through lower volatility of contributions
- Match or immunise to annuity pricing/buyout solvency or statutory funding test bases
- Liquidity
- Income guarantees
- Lower dealing and management costs

(iii) Other issues to consider in setting strategy

- Nature and term of liabilities and any changes anticipated
- Level of funding and cashflow and any changes anticipated
- Statutory funding tests and horizons
- Capital market forecasts of returns and risks within asset and liability model
- Stochastic modelling of developing assets and liabilities
- Sponsor creditworthiness and tolerance of funding and contribution volatility

- Trustees' attitude to risk
- Market capitalisation or peer group target comparisons
- Cost of change and implementation

Good candidates did well on this question but poorer candidates did not give satisfactory answers to (ii) and appeared unaware of the factors to be covered in (iii).

8 Benefits of overseas investing

- Diversification of market and currency and creates opportunities for tactical asset allocation
- Expands the universe of available opportunities and allows active fund managers to invest in companies giving the best return/risk profiles, wherever the companies are listed
- Allows access to best of breed and specialist fund managers in regions
- Markets may be more inefficient than domestic market increasing outperformance opportunity
- May match real liabilities over the long term
- May feature in global market or consensus benchmark

This bookwork question was done reasonably well.

- 9** In comparing the three bonds one needs to be mindful of issues that will affect the sector and the company. The main issues are:
Airlines are cyclical service companies so there will be a greater impact from the economic cycle.
Airlines are both capital and labour intensive.
Generally subject to tight government regulation and vulnerable to other forms of political risk (e.g. terrorism).
The domestic market is the most important but they also have international exposure.

Bond A

The bond has a term of 20 years so corresponds to the period of expected use of the aircraft and there will be a residual value of the aircraft at the end, however, it would recoup the capital cost over the life of the aircraft not at the end. This should not be an issue as the company will have other aircraft and borrowings to meet.

The coupon at 7% p.a. is higher than the other bonds because more credit risk has been transferred to the lender.

The return from the risk transfer is greater certainty over the cost of borrowing.

In a cyclical industry this avoids cost of servicing debt varying and having to refinance in unknown future economic conditions.

Bond B

Again the bond has a term up to 20 years to match the expected use of the aircraft.

However, this can also be considered as a 10 year bond with the option to extend for a further 10 years.

In the first 10 years the coupon is lower because the credit risk over 10 years is lower than over 20 years, so the initial cost of the debt is lower.

At the end of 10 years the company can choose to refinance the debt and repay this loan or to extend it.

If the borrowing costs are lower for a new issue the company will repay this loan.

If the re-financing costs are more than 8% p.a., for example if the company's credit rating has deteriorated or the general cost of borrowing has increased the company will extend the debt.

The higher coupon after 10 years is the cost of the option to extend the borrowing with a known cost.

The disadvantage of the arrangement is that cost of the borrowing is less certain and may rise during a low in the economic cycle when it can be least afforded.

Bond C

This bond also allows the company to borrow for 20 years.

The initial coupon is 6.5% p.a. and offers the prospect of a lower cost if the company's credit rating improves,....
but the penalty is a higher cost if the credit rating deteriorates.

This arrangement retains more credit risk with the company.

If economic conditions are difficult and is the reason for the company's current credit rating then this arrangement may offer the best prospect of a lower borrowing requirement.

However, the arrangement has the highest liquidity risk as it results in less certain borrowing costs and...
more variable profitability as the cost of servicing the debt is most likely to increase when profitability is low and to reduce when profitability is high.

Of all the questions this was the one that candidates had most difficulty with and few got more than half marks. Candidates appeared unable to relate the bonds to the business in the context of cash-flow, useful life and options.

- 10** (i) Market risk — the risk relating to changes in the value of the portfolio due to movements in the market value of the assets held

Credit risk — the risk that a counterparty to an agreement will be unable or unwilling to fulfil their obligations, or fails to perform them in a timely fashion

Operational risk — the risk of loss due to fraud or mismanagement within the fund management organisation itself

Relative performance risk — the risk of underperforming comparable institutional investors

Liquidity risk — the risk that though solvent (on a balance sheet basis) either does not have sufficient financial resources available to meet obligations as they fall due or can only secure them at excessive cost

(ii) **Controlling Market Risk**

To control the risk a measurement is required such as variance of the return on the portfolio over a specified period of time or the maximum loss that could be suffered with say a 95% or 99% probability within the timescales. The returns and losses may be measured in absolute terms or relative to a performance benchmark.

Using the risk exposure measure, a risk control system can be set on the acceptable risk, such as limits on the value at risk.

Controlling Credit Risk

The key factors in managing credit risk are:

- Creditworthiness of the counterparties
- Total exposure to each counterparty

The credit risk can be controlled by placing limits and monitoring credit ratings and exposures for individual counterparties.

It can also be controlled in derivative transactions by dealing with recognised exchanges with a clearing house which stands as counterparty to all deals.

Credit risk needs to be controlled across the range of types of assets and not just by asset class.

Controlling Operational Risk

Operational risk may not generally be as easy to quantify or measure as credit or market risk.

Control of operational risk essentially depends on good management practice including having established and documented chains of reporting and responsibility.

Relative Performance Risk

The techniques for monitoring and controlling relative performance risk are essentially the same as those for controlling market risk except that performance is measured relative to the performance of the institution's competitors rather than in absolute terms or relative to the market as a whole.

Liquidity Risk

There are four essential elements to controlling liquidity risk.

Having credit facilities, for example bank overdraft facility or sufficient size to meet immediate cash requirements.

Having readily realisable assets with a low penalty for forced sales so that cash can quickly be accessed with a low cost for forced sales.

Monitoring and projecting cash flow so that the cash requirements and asset realisations can be planned to avoid forced sales.

Having terms of business that control or delay the timing of payments so that the cash flow and asset realisations can be planned.

Whilst (i) was done reasonably, many candidates failed to pick up the marks available in (ii) through being unable to describe how the risks could be controlled.

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(i) Key Variables

Operating costs including repairs, maintenance, administration, depreciations and the purchase of "lost" electricity.

Net interest bearing debt possibly separated into long term debt and short term debt to fund working capital.

Capital invested equals balance sheet total adjusted to reflect the technical replacement value of the network together with a number of other small adjustments.

Implied debt/equity ratio.

Key Features

Permitted total return on capital invested based on weighted average cost of capital formula.

Return on equity calculated using the capital asset pricing model, being based on a riskless return (annualised return from a government bond with an agreed term to maturity) plus a margin reflecting the (low) riskiness of the business.

Revenues received should reimburse actual operating costs.

- (ii) The three measures that could be introduced are price controls, tax and competition. A brief description of the nature and effects of each is required

Part (i) was done reasonably although many failed to get all the major points. Part (ii) was not done well with few candidates being able to outline a series of measures.

- 12** (i) The general formula is:

$$I(t) = K \frac{\sum_i w_i \frac{P_{i,t}}{P_{i,0}}}{\sum_i w_i}$$

where $I(t)$ is the capital index at time t ;
 $P_{i,t}$ is the price of the i th constituent at time t ;
 $P_{i,0}$ is the price of the i th constituent at time 0 — the last time at which there was a capital change;
 w_i is the weight applied to the i th constituent;
 K is a constant related to the starting value of the index at time 0.

The weights used are the market values of the constituents, usually the market values of the constituents at time 0.

Total return index is calculated from the capital index described above plus a

Rental Yield adjustment.

The income received over the 12 months prior to time t (measured in index points) is

$$I(t) \times y_t$$

where y_t is the average rental yield at time t .

(ii) The production of reliable indices requires knowledge of the market values of the constituents of the indices at frequent intervals. There are a number of problems in obtaining such information for property:

- Each property is unique.
- The market value of a property is only known for certain when the property changes hands.
- Estimation of value is a subjective and expensive process.
- Valuations will be carried out at different points in time.
- Sales of certain types of investment property are relatively infrequent.
- The prices agreed between buyers and sellers of properties are normally treated with a degree of confidentiality.

The heterogeneity of property magnifies the problems of obtaining price data. It is difficult to group properties into usefully homogeneous groups and still obtain sufficient price data for each group e.g. the underlying portfolio of properties will vary in size, regional spread and sector weighting (office, retail etc.).

As the current rental income (the historic yield) is fixed until the next rent review, any response to movements in rental values will be spread over time.

This was done reasonably although many candidates did not score as well as they should have due to poor definitions of terms used.

The solutions included in this report should not be viewed as definitive but as indicative of what was required to score full marks. Where additional points were made these were awarded appropriate marks. In total there were around 110 marks available rather than 100.

END OF EXAMINERS' REPORT