

EXAMINATIONS

April 2003

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 examiners are mindful that a number of interpretations may be drawn from the syllabus and Core Reading. 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.

The report does not attempt to offer a specimen solution for each question — that is, a solution that a well prepared candidate might have produced in the time allowed. For most questions substantially more detail is given than would normally be necessary to obtain a clear pass. There can also be valid alternatives which would gain equal marks.

Mrs J Curtis
Chairman of the Board of Examiners

17 June 2003

- 1**
- Legal constitution of charity and objectives and constraints
 - Duties, authorities and responsibilities of trustees and other parties in process
 - Experience and resources available to trustees to decide, implement and monitor
 - External advice available
 - Differences between strategy and tactics
 - Objectives and their prioritisation — look at purpose of charity, operating considerations, need for income and capital, existing commitments and plans
 - Size and appraisal of current portfolio
 - Broad theoretical alternative options to consider including expected returns and risks for equities, bonds, cash/other and property (may have operational use as well as investment aim)
 - Secondary issues e.g. domestic/overseas split, nature of bonds, choice of benchmark, tactical limits, timing
 - Risks affecting fund and stakeholders and their priority/relevance – short and long term income requirements, fund raising, inflation, capital protection, statutory returns, general market volatility, currency, peer group comparisons, ethical or SRI considerations
 - Impact of tax exempt status on expected returns and risks
 - Attitude to risk of trustees and contributors
 - Implementation factors nature of existing and proposed investments, timing, liquidity, income requirements, dealing frequencies, costs of reconstruction and ongoing management
 - Existing and prospective compliance requirements (could Myners and trustee legislation be extended to charities)

Overall this was done “reasonably” well by candidates although few scored high marks. Most got the obvious points re the fund objectives, restrictions and attitude to risk but few went further and developed their answers into the more detailed points which were needed to score better.

- 2**
- (i) General formula and assumptions as per unit 12, section 1 plus allowance for factors referred to in 12.4 for portfolio based indices including costs
 - (ii) Issues as per 12.4:
 - Uniqueness of property — lack of homogeneity and available comparators, definition of sector, investability restricted with large lot sizes indivisible, rules required for changes to index constituents, impact of obsolescence and redevelopment or other change of characteristics (e.g. tenancy) on constituents
 - Cashflow pattern for deciding typical yield
 - Subjectivity, timing and variation of valuation methods and cost of frequent appraisal
 - Actual return only known at point of sale with price kept confidential
 - Infrequency of sales in some sectors
- (i) *Most candidates scored well.*
- (ii) *The standard points re the difficulties in valuation (subjectivity, frequency, cost, etc.) were made by most candidates. Few however, went on to explain sufficiently how these and other points created problems when constructing a quarterly index. This was the essence of the question.*

- 3
- (i) Principal features of IT and communication (and service/ non-general industrial companies by implication) companies as per Unit 4 (3.2.3, 3.2.5 and 3.2.8) plus general comment on current market trend.
- (ii) Consider prospects for equity and bonds generally plus specifically factors that will affect the investment performance of all the companies in the sector and the particular company concerned
Look at level of existing debt and equity (if any) exposure to this and sector generally, security available, expected return, costs of restructure, business plan, priorities on income and capital repayment, levels of cover, actions of peers, bank policy and experience, statutory requirements, secondary marketability
Look at existing capital structure and change proposed
Look at actual swap terms proposed
Looking for formal recommendation (yes or no) with argument and comment on the consultant's recommendation, including any further information required. Points to cover include:
- Consultant may be biased (has vested interest) and so need to also consider other independent sources for recommendations, industry outlook, company announcements, views of suppliers and competitors
 - What is negotiating strength — are we lead lender?
 - Fundamental analyses of company covering management, product, market growth, competitive position, and accounting data. May need company visit
 - Earnings not the same as profits – what is real impact of new product and how close to completion is it
 - What is point in economic cycle and general outlook for sector/market
 - Investor demand for IT sector low and “burnt fingers” but volatile with limited profitability or dividend records. Assets generally intangible.
 - Other companies in sector may have similar plans or products with better prospects
 - What are other investors perceptions of future capital and dividend growth and risk

- (i) *Surprisingly badly done for a largely bookwork question. Very few candidates scored full marks here although most got at least some of the points.*
- (ii) *Not well done by the majority of candidates. Few made the various points about looking around on a broader basis to establish the health of the sector etc. and even fewer made the point that revenues are not the same as profits.*

- 4
- (i) Rack rent is the rent that would be received from a property if it were subject to an immediate open market rent review.
Marriage value is the value added by combining several different interests in a property.
- (ii) Sale and leaseback situation, so rent is below market rate
Rack rents have increased since the last review

Rent linked to an index (e.g. RPI) between infrequent full reviews, leading to drift over time
Government controls on permissible rents
Strong covenant of tenant, leading to lower rent

- (iii) The tenant may have purchased a lease with an upwards only rent review clause. Rents have since fallen, but the tenant is unable to react to changed conditions without surrendering the lease.

Parts (i) and (ii) were done well, but many dropped some marks in part (iii).

- 5** Unrecoverable taxes (withholding tax)
Accounting information may be less reliable
Accounting standards may be different compared to the domestic market
Less information may be available than in the domestic market...
....and this may be less timely
Language problems may exist/translation delays
Time delays may exist
Market regulation may be weaker in some countries than others
Political changes may result in changes in how overseas investors are treated
Marketability — many overseas markets have low liquidity or concentrated ownership (e.g. cross shareholdings)
Currency complications
Ownership restrictions may exist in certain industries (e.g. airlines, utilities)
All adds to overall costs and the level of admin expertise required

Standard bookwork question which was answered well in most cases.

- 6** (i) Can invest small sums
Diversification possible with small sums
Specialist expertise
Simpler to arrange (e.g. salesman/bank teller)
Tax advantages in some cases
Smoothed investment return (with profits)

(ii)

| Investment trust | Unit trust |
|--|---|
| Closed fund | Open fund |
| Price may be above or below net asset value of underlying assets | Always priced at net asset value |
| Company — governed by company law | Trust — governed by trust law |
| Price may be more volatile due to discount varying over time | No discount, so volatility follows underlying assets only |
| Can borrow (gearing possible) | Not permitted to borrow |
| Shares traded on a stock exchange | Units bought/sold by trust manager |

- (iii) **Discount** — The discount will vary over time, due to market sentiment about the managers and their investment style.

Marketability — Investment trust shares are often less liquid than the underlying investments, whereas the unit trust manager guarantees that units will always be marketable (with a few exceptions, e.g. property unit trusts).

Unquoted investments — Investment trusts typically have higher holdings in unquoted or unmarketable assets, for which market values are not readily available.

Gearing — Investment trusts are often geared, so they will have a higher volatility than the value of the underlying assets.

Closed vehicle — When demand is rising for a particular investment trust, new shares cannot be created unlike in a unit trust where the manager would issue new units. The converse also applies when a trust falls out of favour. This creates additional volatility.

Most candidates scored well on parts (i) and (ii). In part (iii) few candidates scored well. The basic points that gearing and changes in the level of discount would introduce volatility were often made but most did not explain them sufficiently. Very few mentioned the three other factors at all.

- 7 (i) Discount rate of 8% p.a.

$$i(4) = 7.77\% \text{ p.a.}$$

$$\begin{aligned} \text{PV variable interest rate loan} &= 10,000,000 \times \left[5\% \times a_{\overline{7}|}^{(4)} + 7\% \times v^7 a_{\overline{8}|}^{(4)} \right] \\ &= £5,096,491 \end{aligned}$$

$$\text{PV fixed rate loan} = 10,000,000 \times \left[5.5\% \times a_{\overline{15}|}^{(4)} \right] = £4,846,680$$

$$\text{Premium} = £5,096,491 - £4,846,680 = £249,811$$

| | | |
|-------------------|--------------|-----------------|
| | i4 | 0.0777 |
| | Fixed | Variable |
| Annuity1 | 8.812 | 5.360 |
| Annuity2 | | 3.452 |
| PV | 0.485 | 0.510 |
| PV × 10m | 4,846,680 | 5,096,491 |
| Difference | 249,811 | |

- (ii) The bank is taking a credit risk in the event of a client default...
...but the bank will only lose out if the lost future quarterly payments are expected to be paid from the client to the bank
This risk is much more significant if the fixed rate is lower than the initial variable rate...
...which is more likely if the yield curve is downwards sloping
The bank may have entered into offsetting transactions, so it will be exposed to interest rate fluctuations if the client defaults
The calculation does not allow for the expenses of setting up a swap (e.g. legal expenses, sale and negotiation)...
...nor the cost of any additional regulatory capital required
The bank is exposed to an interest rate risk...
...which the client is not
This risk can be valued using a Black-Scholes approach, or a proprietary model
The bank will have priced the swap based on the client's current credit rating, and is locking into the rate for a 10 year period. This may result in capital strains if the client's credit rating worsens and more capital is required to back the swap
- (i) *Many candidates scored quite well here with the majority understanding the basic idea as to the cash flows involved. However, an alarming number made elementary arithmetic mistakes resulting in odd answers which should have raised alarm bells. A few demonstrated that they have little or no idea how to value a simple annuity!*
- (ii) *Not well done in general. The points on credit risk, interest rate risk, expenses and margin for profit were generally the only ones made and frequently only some of these were made.*

8

- (i)
- company taxed at one rate on retained profits and another on distributed profits
 - an investor is subject to income tax on the whole of distributions and capital gains tax arising from increases in the share price.
- (ii) Each investor, individual or institutional, will attempt to maximise after tax returns and will therefore attempt to find tax-efficient investments.
The government wants to encourage longer term investment, however, it would prefer to avoid a taxation system that curtails an efficient market from operating

Purchase & Sales of investments

Tax on purchase of investments

Tax on sale of investment

Both of these will discourage frequent purchase and selling of investments

Income (Dividends etc.)

Income is effectively a withdrawal of value from an investment, so to encourage longer term investment the government could:

Tax income at a higher rate
Reduce tax on income reinvested in same company

Capital

Higher rate of tax on gains for investment held for a short period, say a month
Reducing rate of tax on gains or proportion of gains taxable depending on the length the investment is held
Reduced or deferred tax on gains where capital is reinvested
Taxing capital gains only when an asset is disposed of

- (i) *Most scored well here.*
- (ii) *It seems that many candidates overcomplicated this part. Many answers developed ideas designed to encourage capital investment on the part of companies e.g. encouraging retained earnings, etc. Few made the simple points re transaction taxes and stepped CGT rates. Very few introduced any ideas designed to encourage re-investment of gains or income.*

- 9 (i) The option premium reduces the cost of raising capital.
Convertible delays any dilution of the existing ordinary share capital.
Conversion only occurs if the share price increases sufficiently.
Interest payments on the convertible loan stock are normally made out of pre tax profits, unlike dividends on ordinary shares. This may appeal to gross investors.
Lifeco may be unable to issue additional shares because either a rights issue would be extremely unpopular with shareholders or because it is constrained by restrictions on the issue of further share capital.
Lifeco may be constrained by restrictions that prevent it from issuing further conventional loan stock.
- (ii) By maximising the option premium it reduces the cost of raising additional capital.
The dividend yield is higher than the coupon rate so setting a hurdle price will delay exercise of the convertible from the first point the price exceeds the conversion price.
The limitation on when Lifeco can redeem the convertible increases the option value because provided the convertible exercise conditions have been satisfied there is effectively a call option operating.
- (iii) Assume dividends are paid annually in arrears.
The optimal conversion date occurs when the price of the ordinary share first exceeds the conversion price ($€1.00 \times 1.25 = €1.25$)

Dividend growth rate year 1, 13%, year 2, 11%, year 3, 9%, year 4, 7%, year 5, 5% and thereafter 3%, assuming that a dividend yield of 3% is maintained.

Price at issue: €1.00
1 year $€1.00 \times 113\% = €1.13$
2 year $€1.13 \times 111\% = €1.2543$

| | |
|-----------|-------------------------------------|
| 2.5 years | $€1.2543 \times 1.09^{.5} = €1.310$ |
| 3 years | $€1.2543 \times 1.09 = €1.367$ |
| 4 years | $€1.367 \times 1.07 = €1.463$ |
| 5 years | $€1.463 \times 1.05 = €1.536$ |

The earliest we can convert is about 2.5 years when we anticipate that the trigger price will be above €1.30, i.e. forego the dividends in the first 2 years and receive the coupon instead.

€100 nominal of loan stock converts to 80 shares.

$$2.75a_{\overline{2}|6.09\%} + 80 * 0.03 * (1.13 * 1.11 * 1.09v_{6.09\%}^3 + 1.13 * 1.11 * 1.09 * 1.07v_{6.09\%}^4 + 1.13 * 1.11 * 1.09 * 1.07 * 1.05v_{6.09\%}^5) + 80 * (0.03 * 1.13 * 1.11 * 1.09 * 1.07 * 1.05 / 0.03)v_{6.09\%}^5 =$$

$$5.035 + 8.2626 + 91.4363 = €104.73 \text{ plus option premium/time value}$$

Assuming that conversion does not occur is equal to: €100 nominal of loan stock pays annual interest of €2.75. The value as a loan stock is:

$$2.75a_{\overline{5}|} + 100v^5 @6.09\% = €85.97$$

Thus, the value of the convertible loan stock will be equal to 104.73%, plus an element of time value.

- (iv) The company wants to avoid a dilution of existing share capital. It is more capital efficient to pay the invested out of pre-tax profits rather than dividends out of post tax profits. The capital loss of purchasing the bond at €101.6 and cancelling it at €100 could be used to reduce the company's corporation tax. This is akin to the company repurchasing its own shares, without the regulatory difficulty this might entail. The company believes it's shares are undervalued

Poorly done in general. Very few candidates really grasped what was involved. This was especially noticeable in the very few marks gained (in general) from parts i) ii) and iv). Most of the marks which were gained were scored in section iii) where many candidates had a go at calculating the value of the convertible. However, in many cases, these attempts were undermined by a basic misinterpretation of the terms involved e.g. often candidates missed the point that conversion price was 125% of the share price at issue i.e. that every £100 nominal of loan stock would become 80 shares or that the dividend growth rate dropped by 2% each year i.e. 13, 11, 9, 7, 5, etc.

- 10** Coupon/yield
Credit rating
Duration
Term

Size of issue
Liquidity
Country of origin
Exchange traded on e.g. Eurobonds
Type Fixed/Index linked/Hybrid

Quite well done on the whole although few achieved full marks.

11 All forms of regulation have a cost.

The aim of regulation should be to maximise the benefits and minimise cost so that the benefits outweigh the costs

Direct costs arising from regulation:

Administering the regulation

Compliance for regulated firms

Other economic costs of regulation:

Altering behaviour of consumers, who may be given a false sense of security...
... and a reduced sense of responsibility for their own actions.

An undermining of the sense of professional responsibility amongst intermediaries and advisors.

A reduction in consumer protection mechanisms developed by the market itself.

Reduction in product innovation

Reduction in competition

A fairly standard bookwork question which was tackled quite well by the majority.

12 The investment mix and performance information of the unitised with-profit (UWP) fund unitised at any will be between 3 and 7 weeks out of date

The actual investment performance of the UWP fund will depend on:

- The actual asset mix at any point in time, and
- The actual investment performance of each separately managed fund

The actual investment mix at any time will depend on the relative investment performance of each separately managed fund and the net inflow/outflow of money from each fund.

To avoid very frequent trades and money movements most fund operate an account for everyday cash movements, for example premiums, claims and expenses, and on a periodical basis will transfer larger amounts between the account and the investment funds.

The investment manager may make a tactical investment switch of money between individual funds that could significantly alter the investment mix. A procedure is required for the investment manager to notify where money is moved into or out of the individual funds. This will allow the reported investment mix to be adjusted on a more frequent basis.

The investment performance of each fund, and fund valuations are not known on a daily basis, so more frequent data is not available. Therefore it will be necessary to estimate the investment performance between valuations and to update the performance when the actual investment mix and performance data becomes available.

The investment performance needs to be monitored on a daily basis.

The required accuracy of the fund performance estimate depends on importance of the sub-fund, and the volatility of the investment performance, i.e. there is a need to be more accurate for UK equity that forms 45% of the UWP fund than the Cash that forms 2% of the fund.

For each of the segregated fund the appropriate indices to be investigated and compared with previous actual investment performance to determine appropriate investment performance indicators are:

UK Equities

An insurance company is likely to have a broad spread of UK equity investment covering both small and large companies.

Therefore the FT-SE All Share index investment performance should be investigated

It will be necessary to compare the actual investment held by the UK equity fund to FT-SE All Share in order to verify that this is a suitable index, rather than using a weighted combination of sub-indices

Non-UK Equities

This fund could hold investment in any non-UK equity. The actual investment mix by country needs to be investigated.

Available international equity indices that could be investigated include FTSE World Indices series and Morgan Stanley Capital International Indices series as they both cover both developed and emerging markets.

Based on the actual investment mix by country it is likely that no one index will be suitable, but that a weighted combination reflecting the actual distribution by country or region will be required

It is important that the price indices and XD adjustments are in the domestic currency, i.e. already adjusted currency fluctuations.

Fixed interest medium gilts

The FTSE Actuaries Government Securities UK Indices provides a series of price indices sub-divided by term

Investigate the current holdings and amounts of those holdings and compare these with each category of the price indices to determine appropriate weights.

Check with the investment manager whether a short term policy switch has been undertaken in case the investment holdings being analysed are not representative.

It is unlikely that any one index will be appropriate by itself however; gilts only form about 4% of the whole UWP fund, so there will be less impact of a simplification to use one index that broadly represents the fund.

Property

Investigate the current holdings of the property fund to determine the level of direct property holding to indirect property holding (property shares)

For the indirect property proportion a sub-index of FTSE actuaries share indices is likely to be appropriate

Direct property investment tends to have a stable performance over a short period because valuations are only carried out only periodically for each property

Investigate the recent monthly past performance and, say calculate an average performance for use.

If the recent performance has not been reasonably stable because of the effect of property revaluations, then a procedure for the investment manager to notify you of significant property revaluations will be required.

Fixed Interest medium corporate bonds

A suitable benchmark for a bond portfolio can be more complicated because they are constructed subject to specific constraints such as duration or credit rating.

Many different series of international bond indices are produced, mostly by brokers. The exact calculation methods and input data vary and no single series is likely to be suitable.

To estimate the fund performance between valuations it would be suitable to use the benchmark combination of indices

Cash and commercial mortgages

Both these funds only constitute a very small part of the UWP fund, so we do not have to do anything too complicated.

The fund performance is unlikely to be volatile for either cash or commercial mortgages, so could use the average performance from say, the previous three months

Undoubtedly the question which caused the most difficulty in the paper. The vast majority of answers concentrated almost entirely on whether or not more frequent valuations were necessary or even desirable. There were many suggestions as to what else would be done to stop selection against the office e.g. closing the fund, arbitrary MVAs, etc. and a lot of suggestions as to how the fund assets could be restructured so as to remove or reduce volatility, e.g. switch it all into bonds or cash!

However relatively few candidates answered the question actually asked i.e. how to provide more frequent valuations and estimates of performance especially after sudden adverse market moves.