Faculty of Actuaries **Institute of Actuaries**

EXAMINATIONS

April 2001

Subject 401 — UK Fellowship Investment

Paper One

EXAMINERS' REPORT

Examiners' Comment

The paper represented a balance between knowledge, applications and higher level skills with the former two being roughly equally weighted and higher skills representing about 20% of marks. Overall candidates scored reasonably on knowledge, showed mixed understanding of applications and were generally weak on higher level skills.

1 (i) Very few candidates came up with more than two reasons, re-investment in business and growth, non-dividend paying company prominence being the main ones.

(ii) Answers to this part were reasonable.

2 Most answers covered the obvious points but many failed to incorporate the information on "regular monthly amounts", "major overseas markets" and "existing small portfolio" into the answer.

3 (i) Many scored maximum marks on this section
(ii) (a) Well answered
(b) Good answers in the main but "purpose of the article, pricing and costs" were often forgotten about.
(c) Obvious points made but many failed to fully understand what was being proposed and therefore omitted many of the solutions later points.

4 (i) Bookwork that was answered reasonably.
(ii) Very poor understanding of the issues.
(iii) Reasonable attempts at this in the main.

5 (i) Good answers to this part
(ii) Many failed to grasp the features and explain their importance.

6 (i) Most candidates knew about styles and could explain them but few added much more to their answers. In particular they failed to relate it to strategy.
(ii) Reasonable answers for both parts.

7 (i) & (ii) Well answered although "sales tax" seldom got a mention.

8 (i) Almost perfect marks in this part.
(ii) Generally a poor understanding of Eurobonds coupled with some evidence of a lack of understanding of strips despite the fact that (i) was answered well!

9 (i) Most candidates scored at least half marks on this part. "Concentration in single stocks, dividend payments and total returns and lack of homogeneity" were the main points missed.
(ii) Few scored well on this part.

1 (i) ACT removal, consequent move to offering share buybacks as alternative to dividend, increased focus by companies on reinvesting in business or building up cash for acquisitions, prominence of companies with low or no dividend payout policy e.g. telecoms, market at historic high anticipating future growth (yield is historic measure).

(ii) For UK and overseas consider relative real economic growth and earnings forecasts, inflation outlooks, exchange rate outlooks, real interest rates, other investors' perception of markets. Future direction of markets will be driven by general supply and demand considerations e.g. changes to tax rules, institutional flow of funds, attraction of alternative investments, particularly bond markets.

2 Issues to consider include:

- Why invest overseas — match liabilities (unlikely) or to increase returns/ reduce risk by diversification into industries/companies not available domestically and to increase universe of stocks generally to access "best in class".
- discuss briefly the structure of overseas economies as appropriate
- Problems include currency risk (could be hedged at a cost which might be more acceptable to a collective) and increased expertise/ knowledge required. General list of problems as per Unit 8(2) of 301
- Benefits of collective — more efficient overseas i.e. get better diversity, specialist skills, overseas custodian, possible hedging, pound cost averaging for savings, smoothing of returns
- Disadvantages — loss of control over which stocks/markets (inconsistent with individuals needs e.g. for income), higher charges, limited to manager's style and competitive aspirations, legal restrictions on fund e.g. maximum exposures, need to hold cash within fund, dealing frequency and costs
- Taxation — may or may not be better v individual position, need to look at relative tax status of fund on income and capital gains, scope to recover taxes, levies and duties payable
- Other considerations — what to do with existing holdings, when does fund start, who are other investors, what is size of funds expected, what are abilities of managers, why increase overseas now, advantages/limitations of open ended unit trusts/oeics v investment trusts
- It is assumed that I am licensed to give advice or if not that I make this clear before outlining the issues

3 (i) (a) The future accrual of benefits may result in cash flow to the fund that can be used to finance cash outflows. The fund may then choose to favour investments that do not generate income, thereby avoiding the expense of reinvestment.

(b) It may be very important that the fund achieves a competitive return in order to attract new business and to avoid being significantly behind the competition. In order to anticipate how the fund's return may compare to that of competitors' funds it is important to understand the strategy followed by other funds.

(c) Subject to observing the other constraints on the investment strategy, the fund should be invested to achieve the highest return for competitive reasons or to maximise shareholder value or to minimise the cost of providing for the liabilities.

The expected long term return from each asset category would be considered in order to identify the most attractive categories.

(ii) (a) Possible sources of underperformance are choice of stocks, sectors, capitalisation bias, manager style, countries, currencies, timing and tactical cash holdings in a rising market.

(b) The newspaper article might not be a valid basis for comparison because of:

- an incomplete universe,
- sample bias,
- incomparable funds (different benchmarks or styles or fund type — segregated/pooled),
- retail funds rather than institutional (or a mix),
- effect of fees on performance,
- inconsistent time of unit pricing for valuation/measurement purposes in volatile market,
- purpose of article (to shock/inform),
- lack of consistency with last year's table,
- numbers are not (all) from an independent source but supplied by participants?

(c)

- Right to be concerned for members since they bear investment risk (but trustees have responsibility for choice) but should base concerns on independent and comparable information and decisions should involve expert, written advice. Need to investigate and clarify whether manager is unskilled or unlucky (is style out of favour?) and so refer to reasons for underperformance as set out in (i).
- If justified, then time to transfer may be significant in terms of selecting alternative, completing notifications or authorities to transfer, informing members and getting consent of required
- Strategic choice of markets is more important than style/choice of implementers in making up return. The chairman is proposing a tactical switch that is likely to reduce expected return over time and trustees should be aware of this market risk, particularly given term. Given money purchase nature, objectives are to maintain the purchasing power of invested contributions and thereafter deliver a real (above inflation) return after fees and taxes to enhance the level of benefits ultimately secured. Only in the period before benefits become payable, might it be desirable to secure the accrued position by investing in a portfolio of bonds and cash that "match" the changes in value of pension and lump sum due. Bond fund is not currently available. Consequently this switch may not be best advice without strong grounds for expecting sustained short-term underperformance of global equities.
- Need to consider costs to members' funds of subsequent switches including commission, spreads, and duties.
- Should investigate feasibility of passive alternative or derivatives if cash route followed and associated costs
- Could let existing arrangements run pending switch, but make announcement to members
- If switch imminent, avoid investing contributions only to disinvest immediately at reduced value
- New arrangements could consider expanding fund choice to include bond fund that proxies annuity cost
- Trustees are probably concerned about their own position and stewardship role despite not being experts and advice should take this into account

4 (i) Recent returns have been very good, often in the 10–20% pa range (nominal)

10Y to 1999

Real	8.3% pa
Nominal	12.1% pa

This compares to average returns of around 5%pa (nominal) and 1%pa (real) over the last hundred years. During the high inflationary period of the late 70s and early 80s nominal returns were much higher (>20%pa) but real returns were lower (bringing the 25Y return down to 6.6% pa). As inflation was brought under control and investors became more accustomed to a low inflationary environment nominal yields fell and the strong returns from bond markets mentioned above were experienced. Returns were also boosted by supply/demand factors. There were lower budget deficits and even surpluses from time to time restricting the issue of government debt. There was strong demand from maturing pension schemes prompted by legislative changes (MFR).

(ii) A very low and flat yield curve is likely to be associated with deflation. In a deflationary environment economic growth is likely to be poor. Correspondingly corporate performance is likely to be poor. The fixed interest investor must be aware that there is increased risk of corporate default.

The government is likely to be trying to stimulate the economy, implying an increase in rates and hence the potential for capital losses on long term bonds.

The investment manager is therefore likely to choose to invest in relatively short term securities and probably money market securities.

The manager may also choose to invest more funds overseas hoping that the additional interest offsets any relative currency decline.

Finally, the investment manager must continue to consider investment in higher yielding short term corporate bonds but only after careful analysis of their default risk.

(ii) In a deflationary environment demand for money might be so low that a very small real rate of interest is outweighed by the deflation rate. If the negative rate was significant and if capital was free to move internationally then one would expect capital to do so. As a result the Government is likely to employ monetary policy to ensure that interest rates are not negative. Monetary policy and movement of capital takes time and for the intervening months interest rates would be negative.

5 (i)

- Proposed investment amount and currency — Probably a range of amounts would be offered.

- Amortising profile — What is the formula for amortising. It might be a relatively fixed profile and based on very conservative predictions of future receipts. Alternatively it might be that future receipts are passed through in order to amortise the bonds as quickly as possible. What is the proposed frequency of payments?

- Interest rate structure — How is the fixed rate to be set at the time of issue. It is likely that the rate will be set in advance and the price allowed to vary. What is the proposed frequency of payments?

- Security issues — The financial prospects for the football club over the potential maximum term of the bond. The condition of the stadium. The ownership/ control of the stadium. Does it meet all current environmental and safety laws. Is the insurance adequate?

- Security issues — The quarterly aggregate gross ticket sales over the past several years at least as far back as the potential maximum term of the bond. The number of supporters over the same term. The proportion of season tickets in each period and over the same term. Guarantees offered by the football club e.g. to stay and play, maintain the grounds.

- The priority of the bond's call on the future receipts. The securitisation may have a series of tranches. Does the bond offered have first call?

- Will the bonds be listed?

- Will the bonds have a credit rating from a recognised rating agency?

(ii) Unusually, the asset backing the security is not yet an asset at all in the conventional sense. The asset is the expected future flows arising from expected future ticket sales.

- The bond does not have a floating charge over the assets of the club. Nor does the bond have a fixed charge over a traditional asset. The bondholders have a charge over expected future income. As such the future income must be carefully estimated and the risks associated with the generation of the income must be as far as possible insured, transferred, mitigated or priced appropriately into the bond pricing.

- The timing of the principal repayment is also uncertain as it depends on the timing and amount of the future ticket sales. As such the timing of the reinvestment of the principal is uncertain.

- The security of the bond is unusual. As such the bond will have unusual risks and the documentation will contain unusual terms and conditions. This adds to the time and effort needed to analyse the investment.

- It is likely that the bond will be relatively unmarketable. Listing on a recognised exchange and a rating from a credit rating agency would both help. Also the bank may make a market in the security for a time. Regardless the bond is likely to be relatively difficult to sell.

- Ongoing valuation of the security may be relatively difficult given the uncertainty over the timing of the principal repayment. A listing should help even though the security is not likely to be actively traded.

6 (i)

- style defines a clear process or portfolio construction method
- active managers outpeform either by a superior style or by superior implementation of a particular style
- consistency of performance is needed to produce superior results whatever the process
- jury is out on whether one style can be successful
- different styles have different levels of risk
- volatility of returns also varies with style and time
- economic conditions and regulatory change have an influence
- there are four principal styles — value, growth, large cap, small cap
- value in low price to book or low price earnings
- large cap will be stocks in say the FTSE 350 or above a certain size, say £1 billion
- small cap will be stocks in defined small cap index or below a certain size, say £250 million
- there are two "further" styles — growth at right price and mid cap
- to determine style requires measurement against style indices

- stocks and managers' styles can change — e.g. growth stocks go value and small cap grow large
- putting styles together gives diversification
- implementation of style is important

(ii) (a) Anomaly switching between fixed interest securities

Compare the prices of two securities over time. Purchase security A and sell security B when security A appears relatively cheap compared with security B after adjustment for the costs of the trade.

Securities are traded in batches. Offers are made to buy and sell particular securities (at/up to/down to) a given price and for up to/down to a given amount. Depending on the depth of the market a large trade (and sometimes even a small trade) in one security will temporarily move the market in that security and make it relatively cheap or dear. The costs of trading (e.g. brokerage, stamp duties) will also contribute to price discrepancies which cannot otherwise be explained. A quick and low cost trader can take advantage of these anomalies.

(b) Compare the historical performance figures and league table positions over identical time periods.

Despite the evidence that the link between past and future performance is tenuous, historical performance plays a major role in the selection of a fund manager. Historical performance is a relatively hard fact whereas all of the other considerations are largely qualitative. The primary objective of the selection will likely be future performance. Qualitative determinants and infrastructure do not directly translate into future performance. The only data which are available and seems to directly translate is historic performance.

7 (i) Income tax — Revenues minus costs are subject to income tax from year to year

Capital gains tax — Net realised gains/ losses arising from asset disposals may be subject to normal income tax or may be subject to a separate capital gains tax in the year of receipt. Losses likely to be used to offset gains either in the tax year or carried forward for future tax years.

Sales tax — Goods and services bought and sold may be subject to a sales tax e.g. 10% of the good or service bought or sold. Generally the company would pay the sales tax on purchases and receive sales tax on sales. The company would then reclaim most if not all of the sales tax paid from the government and pass on all the sales tax received to the government.

Stamp duty – Real estate purchases are often subject to stamp duty

(ii) Withholding tax — If foreign subsidiary pays dividends to overseas parent the foreign subsidiary may need to deduct a tax (known as withholding tax) from the dividend prior to payment. Foreign subsidiary will then pass the tax to the tax office. These withholding taxes can be set against UK tax liabilities.

Double tax treaty — The overseas investment income will be subject to UK corporation tax. However the UK and the Foreign Country may have entered into a double tax agreement where tax paid in the foreign country is fully or partly offset against UK tax. For example, if the rate of tax paid on the profits from which the dividends are paid in the foreign country is greater than or equal to the UK rate then no UK corporation tax is payable on the dividends received.

8 (i) Strips are zero coupon bonds created by separating the individual coupon payments and the principal repayment of a fixed coupon bond.

(ii) Supply side issues

- Need a supply of strips with a wide range of different maturity dates.
- The total issue amount of each strip needs to be large to increase marketability of the strip.

The supply of strips as described will be very difficult.

- Companies must issue strippable bonds i.e. bonds which allow for different owners of each of the coupons and the principal.

- The eurobond market has many different issuers with different credit risks. The strips cannot therefore be fungible across issuer. This will greatly reduce the potential size of issue and corresponding marketability.

- It may be possible to urge companies wishing to issue strippable eurobonds to choose relatively common coupon and principal repayment dates. This might help create some depth in the market but not to any great extent without fungibility across issuer.

- Eurobonds are issued in different currencies. The euro should help to standardise the currency of eurobonds. Nevertheless coupons in different currencies reduces the market liquidity.

Demand side issues

- If the demand was high then companies would be expected to fill this demand and in effect issue strippable bonds at lower margins than the unstrippable equivalent. It would be expected that demand would be low as most gilt strips are used to match future cash out flows. The match is not perfect if there is a risk of default attaching to the strip. Hence another reason for investor demand would need to be found.

9 (i)

- Needs to reflect situation of non-domestic investor and the ability to replicate or otherwise track individual markets.
- There may be limited derivatives available to develop synthetic approaches.
- Problem with definition of emerging market — will vary between investors and index providers.
- Lack of homogeneity means alternatives for stock/sector exposures may not be closely correlated.
- At individual market level and relevant weights, there may be foreign ownership restrictions, different share classes and different definitions of capitalisation according to free float.
- Some markets may be very concentrated with associated liquidity issues — this could have implications for investors with caps on exposures to particular companies.
- Marketability and availability of stock will vary and political instability can cause capital control issues and so grounds for inclusion/exclusion within index with limited notice of change.
- For total return, income adjustment should reflect investor circumstances in terms of reinvestment (actual receipt may be long after dividend declaration) and taxation e.g. unrecoverable taxes.
- Pricing and valuation information may be poor and untimely which will affect dealing and monitoring of tracking.
- Costs of dealing may be higher and may need to be reflected in judging tracking success.

(ii)

- restrictions on investment in certain countries imposed either by trustees or regulation may render index less appropriate
- taxation will be a particular problem especially capital against tax
- if making direct investment, unlikely to have portfolio similar to index