

EXAMINATIONS

April 2001

Subject 401 — UK Fellowship Investment

Paper Two

EXAMINERS' REPORT

Examiners' Comment

Overall Q2 was better answered than Q1. There was evidence of candidates wanting to answer the question they would rather had answered rather than the ones posed to them. This was especially true in Q1 where there was a tendency to try and ignore the new proposed statutory basis.

Q1 (i), (ii) & (iii). Candidates picked up reasonable marks on the first and third parts but many had difficulty in relating what annuity investments represented in comparison to direct investments.

Q1 (iv) Many candidates failed to explain what the issues were suggesting that they did not understand transfer values. Often answers were muddled despite the question setting three clearly defined groups for whom answers would be different.

Q1 (v) Marks were reasonable for this section.

Q1 (vi) Scores for this part were very mixed with better candidates showing a good understanding of the issues, explaining the features of the proposed investments and the issues raised by such a strategy.

Q2 (i) Bookwork that was covered well in the main.

Q2 (ii) Well answered although some candidates made different assumptions than shown in the solution. Subsequent sections, provided the candidate made reasonable arguments, were given appropriate marks even if the solutions were very different.

Q2 (iii) & (iv) (a) Both are standard bookwork and so were reasonably well answered although it was disappointing that many answers were too superficial in nature especially in the latter part. Answers tended to concentrate on organisation structure rather than the essentials that made it work.

Q2 (iv) (b) Answers were poor with many showing a lack of understanding of what needed to be done to effect the proposal and hence the issues that needed addressed.

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(i)

- Volatility in the solvency position would result from the scheme's assets not moving proportionately with changes in the schemes liabilities, which will move in line with annuity prices.
- The matching assets are annuities (immediate and deferred) from insurance companies.
- The prices for annuities will reflect the prevailing yields on fixed interest stocks (principally UK government bonds but also high quality corporate bonds) of an appropriate duration.
- Bonds could be held as a proxy for annuities but there is an element of mismatch as the prices for annuities also reflect the balance of supply and demand for annuities. Further there may be mismatching by term and quality.
- A typical UK pension scheme will hold the majority of its assets as UK and overseas equities with bonds being a minority holding.
- Although the movement in equity and bond prices (and hence equity prices and annuity premiums) are positively correlated, the correlation is not that strong. This mismatch by type of asset will be the biggest source volatility in the solvency position.
- Although the typical scheme may hold other types of asset e.g. property, and the prices changes of some of these may be positively correlated with changes in bond prices, the effect is not likely to significantly diminish the volatility introduced through equity investment.
- The implementation of the investment strategy could be a further source of volatility e.g. if investment managers are briefed to adopt a high return/high risk approach.

- (ii) The volatility can be reduced by increasing the proportion of assets held in either matching investments or investments which are strongly correlated with matching investments.

The closest a scheme could get to matching would be to buy non-profit annuities/deferred annuities in respect of all of the membership.

An alternative would be to buy bonds equal in value to the liabilities on the solvency basis, with the mix of bonds by duration and quality consistent with the bond portfolios held by insurance companies to back non-profit annuities.

A further alternative is to search for other asset categories or sub categories with returns that are positively correlated to the prices changes

of annuities; this could be cash, high yielding equities or property. By this stage, the correlation although positive, may be such that significant disparate movements can occur between annuity prices and the returns on the asset category considered.

The implementation of the investment strategy could be reviewed to reduce any extra volatility from that source e.g. by moving to passive investment management rather than active management.

Permutations are available by mixing the above for different parts of the portfolio.

The effectiveness of these suggestions could be investigated by asset liability modelling whereby the distribution of the projected solvency position at future points in time can be reviewed and the effects observed of adopting alternative investment strategies. Whilst the question only talks about limiting the volatility of the solvency position, the effectiveness of strategies would be assessed also having regard to the other key measures for the fund e.g. cost.

- (iii) From the perspective of the plan sponsor; the traditional view of adopting a matching strategy is that it is likely to have the following effects:
 - (a) the likelihood for unplanned cash contributions is reduced
 - (b) the long term costs of running the plan are likely to be increased

An alternative view based on financial economics is that whilst (a) above is true (b) is not and that the long term cost of pension provision is independent of the assets the scheme invests in.

- (iv) (a) The trustees have a liability to pay a specified amount (or an amount determined on a specified basis) and as such they will want to meet that in the most efficient manner i.e. at the least expense to their scheme but without any other adverse affects.

If they pay in cash then the units they sell will be priced on a bid basis i.e. based on the bid prices of the underlying investments. If the transfer is settled in stock then the value of the stock transferred can be based on a more favourable basis, subject to the agreement of the relevant parties. Typically, the basis would be to value the transferred stock on mid market prices. In this way, the managed fund avoids the transaction expenses of selling the stocks (although there may be some administrative expenses) and this saving can be passed onto the existing scheme in the unit prices it encashes units at. The saving achieved includes half the market turn and commission to the broker (if any).

The transaction expenses for a block trade have reduced substantially over the last decade but the existing scheme may achieve a saving of the order of ½% of the value transferred.

With regard to the payment due being adjusted between the assessment date and the payment date in line with returns on the FTSE All Share Index, this introduces an element of mismatch for the existing scheme. There is no particular advantage to the existing scheme from this proposal. This could go either way for the existing scheme and the size of the potential disparity will depend on:

- (1) the length of the period between the assessment date and the payment date
- (2) the assets held by the managed fund

To eliminate this mismatch the trustees of the existing scheme will either have to:

- (A) on the assessment day, reduce their exposure to the managed fund by the expected transfer amount and obtain exposure to UK equities of an equivalent amount, or
- (B) alter the basis of the investment linking to something consistent with the asset distribution of the managed fund e.g. link the return directly to the published price of the managed fund

In considering (A), the trustees could gain a satisfactory degree of exposure to UK equities through derivatives but there are no easily available single instrument derivative contracts for use to reduce the exposure to the managed fund. It would be possible to use contracts related to the asset categories in which the managed fund is invested but the practicality of this would need to be considered.

The alternative of (B) appears the more attractive course. By linking the transfer payment to the price of the managed fund the existing scheme will be placed in a matched position.

- (iv) (b) The issues from the perspective of the trustees of the new scheme are similar i.e. if they receive cash they will incur transaction expenses on reinvesting which may be avoided if they accept stocks. Further, they may suffer purchase price related tax that a stock transfer may avoid. However, the stock received may not be what their new investment manager (when one is appointed) will wish to hold. In which case, they will be worse off as they will incur not only the purchase transaction costs but also the sale transaction costs that would have fallen on the

existing scheme if the payment had been in cash. If cash is received then the new scheme is effectively mismatched by term and type and they will not want to be out of the market for long. A stock transfer keeps them in the market. In order to receive stock, the new scheme will need appropriate vehicles to be in place i.e. an investment manager and a custodian. To receive a cash payment they need only a bank account.

With regard to the investment linking, similar points apply as for (a) except the all equity exposure in the linking mechanism may be more consistent with the liability profile for their scheme and with the trustees desire for a more aggressive strategy.

- (c) The managed fund will wish to meet their clients requirements but in a way that is fair to all remaining unit holders and the encashing unit holders. Therefore they would like to provide a stock transfer but subject to constraints. In theory the stocks transferred should be a cross section of the managed fund in order to avoid altering the investment profile of the managed fund. The exception to this would be where such alteration suits the manager of the managed fund. There may be some investments that could not be included in the transfer because they are indivisible e.g. direct property holdings or private equity investments. There may be some investments that will not be acceptable to the yet to be appointed manager e.g. units in other funds run by the life office. The life office would also need to consider the cash position of the managed fund and the expected cash flows in the immediate future. If strong flows in were expected shortly then the life office may be able to match buyers and sellers of units thereby enabling a cash transfer but with units encashed on a more favourable price basis. This does not help the new scheme with their reinvestment problem.
- (v) Increasing the bond holding will dampen the volatility of the scheme's regulatory solvency position provided the bond portfolio is of the appropriate duration and quality, but the target of 70% is not high enough for "matching" (for this, bonds would be held in respect of all the liabilities). The range around the target weighting is very high at 20%, such a wide range (if used) is inconsistent with the objective of stabilising the regulatory solvency position. Similarly, the appointment of an aggressive bond manager would be expected to entail an increase in volatility that is inconsistent with the primary objective. The suggestions made by the company contains an inherent conflict i.e. a desire to stabilise whilst maintaining high returns. The strategy and its implementation need to be coherent. Suggested modifications should be aimed at achieving this consistency

i.e. using a narrow range of variation in the bond weighting and a low risk approach to the management of the bond portfolio (the purchase of annuities could also be considered).

The proportion allocated to bonds rather than equities is the principal determinant of the long-term return on the scheme's investments.

If the company is reluctant to give up the higher returns expected from equities then the proposed allocation to bonds should be reviewed.

To assist in this, asset liability modelling can be used to show the different volatility/return characteristics of alternative portfolios and to indicate "efficient" portfolios.

- (vi) [A candidate could provide the financial economics answer that the pension cost is independent of the assets invested in. A coherent argument to this effect gained marks but the candidate was still required to deal with the specific characteristics of the investments suggested.]

The trustees need to recognise the risk characteristics of these investments and consider

why they should include them; what purpose is served by holding these investments?

How can the trustees justify the reduction in the security of members' benefits?

If the higher returns are achieved, who will benefit? If the trustees can justify holding these investments, how much can be invested in them and how to make such investments?

In considering these potential investments, the trustees would also have regard to the rest of the composition of the rest of the portfolio.

[Candidates were expected to give a brief description of each of these types of investment.]

The potential effects on the projected solvency position and contribution requirements (and other measures identified as key e.g. the likelihood of falling below a specified level) should be considered for alternative portfolios on a range of economic scenarios with various allocations to these asset categories (including a nil allocation).

If stochastic projections are used, particular regard may need to be paid to the validity of the models; is there enough relevant data for setting key model parameters e.g. volatilities and correlations.

The investments suggested have the particular characteristics of expected high return, high volatility, poor marketability, back end cash flows and relatively high management charges.

As the new scheme is comprised of current employee members only the lack of immediate cash flow should not be a problem but the volatility (in particular the significant risk of a very poor return) may give rise to deficits on the regulatory solvency basis and incur the need for accelerated cash contributions from the company.

The trustees would need to consider this possibility and the likelihood that the company would be able to meet such contributions. The size of the new scheme's fund is likely to be of the order of magnitude of £50m.

At this size it is unlikely that the fund will be able to undertake direct investments; the scheme would need to invest in pooled vehicles to achieve the exposure. The tax position of investing via such collective vehicles would need to be considered.

The trustees would be aware of the typical investment strategy adopted by other funds and would wish to ensure the company recognised the difference between the typical strategy and the proposed strategy as an adverse outcome in the short term could put the company at a competitive disadvantage.

Further, to the extent that the trustees are out on a limb compared to other schemes, their strategy is more likely to attract criticism e.g. from members, especially if it under performs other schemes.

2 (i) Purpose — measure of absolute return

- assess performance relative to an index
- assess performance relative to other funds

but also used for secondary purposes e.g.

- to incentivise key staff
- to reward staff and organisations appropriately
- to monitor and assess decision making of all or parts of a process
- to establish where the risks are in funds or in a process (through attribution)
- ultimately to aid improvements to an investment process

Methods

Money weighted

- measure of absolute return
- relatively easy to calculate
- compare with actuarial return expected of fund
- affected by cash flows and especially by the timing and size of them
- not good for comparing with an index or with other funds

Time weighted

- overcomes the problems caused by cash flows

- more difficult and time consuming to calculate -fund values needed each time there is a cash flow
- good for comparative purposes
- a good e.g. of a perfect time weighted return is the unit price of a pooled fund

Approximations to a time weighted return can be made

e.g. money weighted returns over short periods e.g. monthly or quarterly and chain linked together.

Better approximations to the returns can be made by day dating any cash flows.

Analysts test which makes use of the fact that the relative money weighted return is a very good approximation to the relative time weighted return i.e.

$$\text{MWR of fund} / \text{MWR of index} = \text{TWR of fund} / \text{TWR of index}$$

Risk adjusted measures try to factor in the risks taken in achieving the returns e.g. 1% out-performance achieved with a low level of risk should be regarded as a better result than the same level of out-performance from a very risky portfolio.

Various measures include

Treynor
Sharpe
Jensen
Pre-specified SD

(ii) Formula used is

$$(\text{EMV} - \text{SMV} - \text{Net Cash flow}) / (\text{SMV} + \text{time weighted cash flow})$$

Assumptions

For Manager A cash flows are uniformly spread throughout the quarter.

For Manager B cash flows are exactly at the end of each quarter.

There are no other cash flows.

Income can be ignored or is similar to both funds and to the benchmark.

Expenses on the raising and investing of cash flows is ignored.

	31/12	31/03	30/06	30/09	31/12	Total
Index	100.00	110.00	104.50	114.95	120.70	
% Return		10	(5)	10	5	20.70
Manager A						
Fund value	50	56.5	55	61.5	65.5	
% Return		10.891	-4.386	9.910	4.839	22.173
Manager B						
Fund value	50	56	50	65	66	
% Return		12	-7.407	12.069	4.762	21.754

Both started with the same amount of money.

Both have received £4m of new money on average roughly half way through the year.

However results have been affected by the timing of the cash flows.

Both A and B out-performed the benchmark.

Although B has more money at the end of the year, A has performed better.

B was helped by the fact that it received a large inflow of money when the markets were at a low point. This was out with the managers control and he should not be given credit for this.

A outperformed steadily each quarter.

B had a much more volatile ride and hence if risk adjusted measures were used this would tip the balance even further in favour of A.

- (iii) Full details of the actual dates and amount of the cash flows to improve accuracy.
A full portfolio valuation at each date so that detailed analysis can be done.
If the analyst test were to be used a full valuation would not be needed at every date. However the index value would be required. (This may not be available if it is a peer group index.)
Information on the costs of investing and realising the relevant amounts.
So that the effects of being forced to put new money to work can be eliminated.

- (iv) (a) Unit 13 Section 3

Organisation of business

Scale of operation

Split of retail and institutional funds

Organisation of investment teams — research, portfolio management and marketing/client servicing

Active or passive

Top down/ bottom up balance

Style factors

Assessment — look at

Philosophy

- clear definition
- clear understanding of this throughout the organisation

People

- overall quality of staff
- quality of leadership
- overall resources
- motivation and commitment
- enthusiasm
- clear understanding of roles, responsibilities and boundaries
- stability of personnel

Process

- look at stock selection, asset allocation, and portfolio construction
- look for clear definitions
- perceived advantages
- concentrate on the key inputs and outputs
- dealing and settlement
- robustness
- repeatability
- flexibility
- responsiveness
- bottlenecks
- risk controls
- performance measurement, attribution and reporting processes

- (b) Does the proposed split play to the various managers strengths. Examine the individual track records of each asset class.
Should anyone else be considered.
Decide on appropriate split in view of nature of liabilities, the overall funding position and the attitude of the trustees and plan sponsor to risk and the possibility of cash injections (or a volatile funding rate).
Agree strategic benchmark e.g. 40% UK, 30% overseas, 30% bonds.
Agree benchmarks for each category and out-performance targets e.g. UK Eq — FT Allshare.
UK bonds — Index of appropriate duration e.g. 10–15Y gilts or a blend of gilts and corporates.
Overseas Eq — suitable index e.g. MSCI global (ex UK), or an appropriate peer group overseas benchmark.

Agree risk controls and other guidance/restrictions for the fund managers
Decide on mechanism for reviewing and rebalancing or varying the
UK/Overseas/bond splits.
Decide if a TAA strategy is to be employed.
Consider use of currency hedging.