Faculty of Actuaries **Institute of Actuaries**

EXAMINATIONS

September 2001

Subject 401 — UK Fellowship Investment

Paper One

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.

K Forman
Chairman of the Board of Examiners
20 November 2001

Examiners' Comments

Paper 1

Overall candidates did not do well in this paper. Although the bookwork was done reasonably well, application of it was very poor. There was some evidence that candidates were not reading questions carefully enough and not taking note of information given in the question when formulating their answers.

Q1. Most candidates gave too little detail. There was a tendency to dwell on one or two main points in detail rather than cover all the possibilities.

Q2. This question was reasonably answered but a number of candidates knew very little about it and one or two did not give any answer. This is worrying.

Q3. Whilst (i) was reasonably answered, (ii) got a very poor response. This was a good example of candidates being unable to demonstrate how to deal with the problems thrown up in practice from a bookwork situation.

Q4. There was a suggestion of problem of interpretation in this question with the use of the words “international” and “structuring”. Candidates' answers were often far longer than the marks allocated justified and covered a number of topics not envisaged by the solution.

Q5. Answers to this question were superficial with many obvious points being missed.

Q6. This question was better answered than most others were. However (ii) raised a number of issues as candidates fail to recognise that value managers believe that value stocks are under priced and their prices will rise to more reflect the value they perceive. Most answers talked about returns coming from the dividends that value stocks pay with no mention of price movement. Perhaps there is a need to ensure that the course work is not causing this error.

Q7. Good marks were often scored on this question but a number of candidates were unable to transfer a definition from (i)(c) to (iv)(b). Candidates often answered (ii) and (iii) as time value rather than intrinsic value – an example of the question not being read properly as it has been usual to ask for time value to be explained. A number of candidates did not attempt this question.

1 Advantages

May allow better management of style risk exposure.
Indeed, a style neutral "manager-of-managers" fund is possible…
…that is designed to perform in all market cycles…
…and so would contain value and growth managers…
…and large cap and small cap managers.

May allow better management of outperformance targets…
…by combining managers with different risk controls…
…and tracking errors…

Allows assets to be managed by the best managers by each asset class…
…and region

Reduced organisational risk

Benefit from research of investment managers by the "manager-of-managers"

Should allow problem managers to be detected earlier…
…because of constant monitoring…
and allows action to be taken earlier

Can be argued that this approach has the benefit of simplicity

Disadvantages
Too many managers for a given asset class may lead to benchmark returns…
…because while one style is outperforming the opposite style may be underperforming by a similar margin

Can be expensive…
…because two layers of investment manager to be paid

Can be argued that this approach is complicated

Can be argued that the trustees should be picking the investment managers

Can be argued that this is transferring a US approach to the UK market without consideration as to whether it is truly applicable

2 The underlying theme is the protection of the interests of the client investor.

In framing the rules a balance is sought between protecting the investor and the cost of doing so.

Independence
A firm must not have any association or arrangement which might tend to cause it to recommend some investments but not others, or to recommend dealings with some third parties but not others…
…unless the nature of the association is fully disclosed to the client

Charging
Charges to the client must be fair and reasonable.
Any benefits which the advising firm receives, such as reciprocal business from another firm, must not prejudice the interests of the client.

Training of the individuals within the firm
Individuals within the firm must be adequately <u>trained and supervised to advise clients</u> appropriately (must have the underlined text for the mark)

Complaints
There must be a written procedures in force, detailing how complaints are to be dealt with.

Unsolicited calls or "cold calling"
This is an activity which is curtailed

Know your client
When a firm is advising an investor, or potential investor, his existing circumstances and degree of expertise must be taken into account.
This is clearly based on FSA Principle No.4

To allow for this investors may be placed into one of the following classes, enabling some of the regulations to be relaxed:
- Business investor
- Experienced investor
- Professional investor

Client agreement
For nearly all situations it is necessary for there to be a client agreement which details the relationship between the client and the firm providing the investment service.

A full customer agreement is required for some clients, whilst for more experienced clients such as business investors, the contents of the customer agreement may be restricted.

Best advice and best execution
These are important concepts in the legislation, although it can be difficult in practice to specify precisely what constitutes best advice and best execution.
The concepts centre very clearly on putting the interests of the client before those of the firm offering the advice…
…and also on undertaking adequate research and enquiries so that the advice is best advice and not simply good advice.
It is also necessary to keep detailed records of the reasons for giving particular advice.

Other rules cover
- Advertisements and their content
- Custody of clients' money
- Personal dealings of individual employees in investments
- Internal compliance procedures and review
- Records of client information, advice and transactions
- The information to be given on a contract note

3 (i) The equity part of the proposal will involve direct ownership of the property and the rental income it generates. The capital will be realisable by ultimately selling the pension fund share.

The debt part of the proposal will mean a third party owns the property and the pension fund will be rewarded with a stream of interest payments and (usually) eventual repayment of the debt.

The security of the investments will differ slightly. By owning property, the pension fund will be directly exposed to possible rental voids and, if the property is to be sold, falls in the capital value.

The debt option would mean that the third party would have a liability to pay interest and capital, irrespective of the fortunes of the property.

This distinction would disappear if the property was such a significant part of the third party's business that a failure to collect rent led rapidly to a default on the debt.

Additional risk could be attached to the debt option if other parts of the third party's business caused a default on the debt. This risk would be reduced by securing the debt on the property.

The shape of the income would differ. Rental income is likely to be subject to periodic (uncertain) review and generally, protects against inflation over the long term. Similarly, the capital value would be expected to be inflation-linked over the long term.

Debt income is likely to be fixed at outset (or stepped in an agreed way at agreed times) and the repayment a fixed amount at a set time in the future.

Certain types of debt (particularly quoted mortgage finance) will prove far more marketable than the underlying property itself. However, non-securitised debt would reduce this attraction.

The equity option could be more administratively inconvenient. A managing agent would be required to deal with the day-to-day issues. This would not be the case with the debt option.

All differences which led one option or the other to carry additional risks would need to be assessed and reflected in an improved yield.

(ii) The pension fund portfolio should already be invested in an appropriate mix of assets reflecting the risk/return-focused investment objectives of the Trustees. The inclusion of property has already been agreed.

At the extreme, the real nature of the equity option could be used as an argument for reducing the allocation to other real assets.

Similarly, a fixed income debt programme could justify reducing the quantity of other fixed interest assets held.

The development proposal is best viewed as a property investment rather than an extension of the other asset classes held. Whichever method of finance is chosen, the risk within the portfolio is likely to be increased by the proposal. This could be argued as a reason for increasing the proportion of risk-reducing assets.

Against this, with the property unlikely to form a major portion of the total assets, the risk/return balance within the portfolio is unlikely to be dramatically affected.

4 (i) Advantages:

- increased funds under management (good for profitability and industry profile)
- potentially profitable business (there is existing demand)
- potentially improved return from overseas assets (benefit if "easier" to grow assets overseas because income linked to fund size)
- improved asset diversification (no longer dependent upon demand for domestic products only)

Disadvantages:

- additional expertise required (either in-house or brought in — suitable resource will be expensive)
- seed capital required will need initial asset pool to start product working
- more volatile return (may suffer from periodic lack of demand)
- potentially lower return (and hence, lower income)
- cost of marketing and launch of product
- cost of regulation, reporting and other on-going administrative functions
- potential for distortionary taxes plus other political and liquidity problems (this could impact on overall return, potentially disadvantaging investors and hence, impacting on demand)

(ii) (a) Existing customers are likely to compare the fund with domestic equities in terms of risk and return, costs, etc. It will not, however, be reasonable to merely compare performance with the domestic market. Instead, a clear global benchmark is required to define the objectives and performance aspirations of the fund.

The benchmark will help to define the structure across the world's equity markets. Active or index-tracking managers can then be used to implement the structure. The key choices include:

Benchmark to World Index (Market Capitalisation-based Fund):

- truly a measure of world economy by size of market
- will be dominated by biggest market so full exposure in line with opportunities available
- diversification reduced because of dominance of western economies and ignores some markets with low capitalisation (e.g. Germany, where debt capital dominates, and "non-emerged" emerging markets)
- timing issue — sense of investing "after" market has grown
- most rational way of allowing "best in class" stock selection (regardless of company's domicile)

Benchmark against Fixed Distribution across Major Markets:

- diversification ensured by fixing market capitalisation in major markets (North America, Europe, Asia)
- simple approach — easy to understand
- maintaining balance forces timing issue (market sold after it has performed and become overweight compared with benchmark)
- rebalancing can be major problem if market in long-term decline
- setting fixed weights fairly arbitrary

Alternative Structure based on Economic Power:

- structure stock choices based on economic strength of countries (e.g. GDP)
- need to find appropriate measure of economic strength (may be delay in getting reasonable statistics)
- includes markets with high proportion of debt rather than equity capital
- again, reflects past growth rather than potential for future growth
- no guarantee that selecting stocks based in countries of great economic power implies greater return to shareholders
- difficult concept on which to market the product

(b) Fund for each country of origin
Funds based on global industries
Funds based on particular currencies
Fund based on combination of multi-national and local companies
Fund of domestic companies with high level of overseas trade

5 (i) The assets and liabilities can be stated as follows:

Assets

- insurance policy
- salary generation
- share options
- house (part)
- deferred pension (uncertain current provision)
- inheritance

Liabilities

- mortgage
- money required day-to-day (including pension provision, any private health care, further education fees, life cover, etc)
- potential need to put further money into business
- tax

The overriding investment objective will be to ensure that assets exceed liabilities. This is less clear for an individual than for an institution. Still, the individual must ensure that capital is available to repay mortgage, fund retirement and leave income sufficient to pay for day-to-day living expenses. Salary income has been received this year but the amount is uncertain for the future, given the nature of the business. Subject to meeting liabilities, the individual will be looking to generate an acceptable real return …

If calls on wealth can be satisfied, it is sensible to ensure return maximised. The returns should also provide protection against inflation.

… keeping risk at a reasonable level

Overall risk of the assets should be kept at an acceptable level. Striving for additional return will increase risk and an overall balance should be struck.

The term of the investment is important.

Given the uncertain nature of the business, liquidity may be preferred in case there is an emergency need for cash. Otherwise, gearing investments toward retirement might be sensible (medium to long-term) or specific known expenses (children at university).

Diversification

Care should be taken to avoid wealth being concentrated in particular assets. This is an extension of the need for risk control and will include a spread of currencies (unlikely to need to concentrate on local currency despite "liabilities" being in local currency).

Return after tax and expenses important.

Where possible, the tax burden should be minimised. Note that this objective can be complicated where return enhancement or risk control benefits of assets sufficiently attractive. Note that there may be a liability for inheritance tax. Similarly, value for money spent on managing assets will be desirable.

Consistency with partner's assets

The partner is likely to have a similar asset/liability structure. The balance of risk and return should be set for the whole as far as possible.

(ii) Further Investment in Existing Assets

The money could be used to reduce the mortgage on the house. This is attractive from the point of view that a sizeable part of the living expenses would be immediately "bought out". This option would involve concentrating investment in a single asset. A fall in the value of the property would destroy wealth, although it would only be crystallised upon sale. The desire for return may be better served by investing elsewhere (if the interest on the mortgage is less than the rate of return elsewhere). It would also be difficult to realise cash in the future unless the house was remortgaged. Alternative property investment is unlikely to be favoured from either a risk reduction or return enhancing angle.

The benefit of use associated with investing in the family home makes it a special case.

Investing further in the business may be an option. The nature of the business could mean that this is a high risk, potentially high return, asset. Again, this would mean concentration of wealth in a single asset. Additional risk is generated by tying up wealth with the ability to generate more wealth (i.e. salary). It would be difficult to realise this money to cash in an emergency.

Other Assets

Equities

Equities should provide a real return over long periods of time. Income from dividends, capital gains when assets sold and potentially volatile returns over short periods. The individual's lack of investment expertise and time will mean advice would have to be bought in.

Overseas equities carry additional volatility due to the currency effect and other risks. Quoted equities should be adequately liquid. The individual might be forced into dealing at a poor price if there were a need to realise cash at short notice.

Equity investment carries risk (companies do fail with little or no return for shareholders). The return is expected to be higher to cope with this and the associated volatility. The portfolio possible with a £200,000 investment will allow adequate diversification.

There is no tax advantage associated with equity investment other than the individual's annual capital gains allowance.

Bonds

High quality bond-based investment (government, local authority, AAA, etc) will provide a secure, fixed or index-linked income and capital redemption. Security and stability mean lower risk and consequently, expected returns lower than equities. Potentially, a lower return than the mortgage rate being paid. There will be a variety of terms available and the assets can be readily sold, if required.

Return can be enhanced by taking more risk on. Lower credit ratings on corporate bonds can be bought with associated higher default risk, reduced liquidity, etc. These will require a yield premium to government-backed assets.

Foreign bonds, too, should provide higher yields than the local equivalent because of the additional uncertainties.

Cash

Obvious liquidity benefits. Potentially higher risk for this investment as long-term cash is not a match for the liabilities. The return is likely to be the lowest available (although guaranteed).

Derivatives

High risk, potentially higher return. Given the balance of other assets and liabilities, this is unlikely to be suitable for investment.

(iii) Pension Scheme

Pension provision will be required for the future. The only pension mentioned is a deferred benefit from the previous employer.

It may be possible to make additional voluntary contributions to an occupational pension scheme. The inheritance could be used over time in this way to supplement benefits.

Alternatively, a personal pension could be used over time to build up retirement funds. Stakeholder products will also be available.

Employee contributions are granted relief at the marginal rate and the employer contributions are made before tax is paid within the business. There will be no capital gains tax within the fund and tax-free cash at retirement.

The investment strategy within the personal pension can be set according to investment objectives. The occupational pension scheme must have an investment strategy geared towards the liabilities of the entire fund but AVC investments are likely to be controllable.

The deferred pension can be brought into a new arrangement and the investment strategy for that controlled.

Individual Savings Account

As a saving vehicle, an ISA would have to be used over time to build up the investment strategy. A wide range of asset classes can be held in the ISA, including life company policies. The investment strategy can, therefore, be controlled.

Contributions are made from taxed income up to an upper limit. The insurance policy proceeds and income and capital gains are exempt from tax. UK equity dividends carry a 10% tax credit for the first five years of the scheme. Charges tend to be low.

Life Assurance Products

Regular savings vehicles with "qualifying policy" status pay benefits to policyholders with no further tax charged beyond what the company has paid on investment return.

Unit-linked policies allow investment in the full range of asset classes with the proceeds dependent on investment performance. Total strategic control of assets will be possible.

With-profits funds will generate regular and terminal bonuses. Commitment to pay declared bonuses will mean underlying assets set for the entire asset pool by the provider.

The whole sum could be invested immediately in certain types of life assurance products. Such policies would not be qualifying and, hence, redemption proceeds would be subject to tax at the higher rate. Capital gains tax and basic rate tax are not payable (having been paid within the underlying fund).

National Savings

This will be appropriate for cash and bond-based holdings. Individual holdings are restricted.

6 (i) (a) A summary of the US economic and investment market background to illustrate the conditions the managers were operating in. Also useful would be a summary of the benchmarks and targets governing decisions.

Next, a summary of the performance versus:

- the benchmark
- broad US market indices (e.g. S&P 500)
- one another (existing managers)
- the average fund manager (median within a sample, if available)

Comparisons should be made for the quarter and also for the longer term (say, three year performance and performance since inception).

Detailed analysis of the performance, if sensibly recorded and presented, should be accessible to the whole Board:

- analysis by sector (to illustrate success/failure of sector decisions and to identify successful sectors in particular)

- analysis by size of companies (similar to above)
- analysis by company (was a particular stock or a small number of stocks responsible for the performance? Was there an anomaly in otherwise good underlying results?)

(b) Tracking error or variance of return to indicate risk being taken.

Performance versus house (is there a specific problem with this portfolio?)

Further stock analysis (is the portfolio dominated by certain types of stock, e.g. defensive/growth, low/high price earnings ratio, etc, which will perform in a particular way in certain economic conditions?)

(ii) (a) The value investment style is defined in different ways by the investment community.

The term refers to a preference for certain types of stocks, specifically those which are believed to be "cheap" relative to their earnings potential.

The value investor will expect the price to be corrected over time. Early purchase will, hence, lead to outperformance of broad market-based benchmarks.

Generally, such stocks might be expected to display the following characteristics:

- low price earnings ratio
- high book price ratio
- high dividend or earnings yield

An additional mark is available for a suitable comment on the "appropriateness for the pension fund".

(b) Style should not be used as an excuse for underperformance. However, if the Trustees are happy with a stated process and this process implies a style bias, further analysis is required to strip out the effect of the style.

Compare performance with value index:

- some index providers calculate a universe of value stocks which can form a rational basis for comparison

Compare performance with other value managers:

- information on a universe of managers of the same style can be gathered and used for comparisons

Increased term of measurement:

- as measurement periods are increased, the times during which a style is either in or out of favour should average out. Performance measurement then helps to assess long-term skills with reduced (if not eliminated) style contributions.

(iii) The process should start with a reaffirmation of the Trustees' objectives. Any changes in these should be addressed (possibly with a change in investment strategy) before moving on to manager issues.

The overall structure of the investment managers should be considered. Is another value manager required? Should alternative styles be considered (growth, passive, etc)? Part of this would be consideration of whether a two manager, equal shares structure is right.

The benchmarks and targets need to be agreed before suitable managers can be selected from the universe of available candidates.

When the terms of reference are clear, a long list of managers could be considered and preferred candidates selected to form a short list (say, three or four managers).

These managers could then be interviewed (preferably including a tour of their operation and hence, the opportunity to meet all influential people). The interview process should lead to a firm decision, subject to legal agreement, detailed fee quotes, etc, being acceptable.

7 (i) (a) An option strategy combining the purchase and sale of two puts or two calls with different strike prices.

(b) A calendar-spread is created by selling a call option with a certain exercise price and buying a longer maturity call option with the same exercise price.

Similar use can be made of put options.

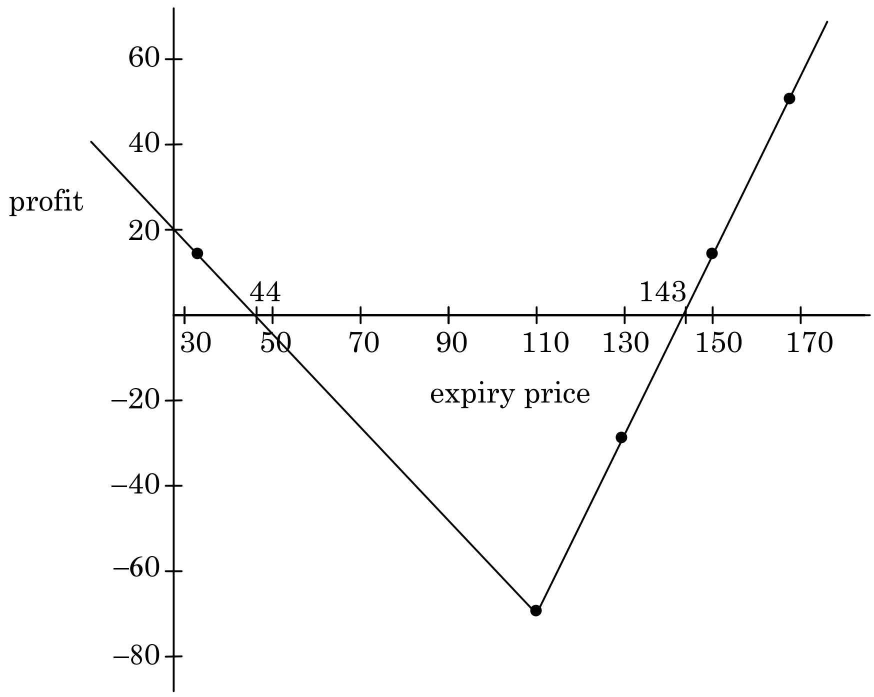
(c) An option strategy involving the purchase of one put (or call), the sale of two puts (or calls) at a higher exercise price and the purchase of one put (or call) at an equally higher exercise price.

(ii)

	Calls			*Puts*		
	May	*August*	*November*	*May*	*August*	*November*
100	6	6	6	0	0	0
110	0	0	0	4	4	4
120	0	0	0	14	14	14

(iii) Intrinsic value varies directly in value with the movement in share price, subject to a minimum of 0 when stock is at or out of the money

(iv) (a) Buy 1 Aug 110, Buy 2 Aug 110 @ 22 each = 66



(b) Buy 100 Aug Call, Sell 2 110 Aug Call, buy 120 Aug Call.

At August expiry, profit profile is: