EXAMINATIONS

September 2004

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 questions and comments are based around Core Reading as the interpretation of the syllabus to which the examiners are working. They have however given credit for any alternative approach or interpretation which they consider to be reasonable.

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Chairman of the Board of Examiners

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1 **Default risks**

Counterparty risk — in the event of default the fund may have an inappropriate strategy, and will incur the expense of realigning the portfolio or taking out a new swap with another investment bank.
What if the bonds held to back the swap default — will the swap increase the potential loss?

Expenses

What are the costs of entering into swap, including legal and transition costs (if any)?
What are the termination costs of exiting from the swap?

Liability matching

How closely do the resulting cashflows match expected pension payments, particularly at the longer durations — after all this is a key selling point of the swap?
Is there any flexibility to vary the size of the swapped cashflows over time to meet the desired cashflow profile — can this be varied during the lifetime of the swap?
How robust are the pre-swap cashflows to changes in the yield curve over time, both in absolute level and shape/gradient?
How robust are the post-swap cashflows to changes in the yield curve over time, both in absolute level and shape/gradient?

Transitional issues

Are any changes needed to the current bond holdings to ensure that there is sufficient income to meet the expected net payments to pensioners after adjusting for the effect of the swap?

General issues

Are there any trust deed restrictions on entering into such an arrangement, either explicit or implied?
How does this proposal compare to competitors' offerings?
Can a closer match to liability requirements be achieved by altering the mix of index-linked and fixed interest bonds, without entering into a swap?
Will the swap permit a greater investment in risky bonds (due to the limited supply of inflation linked bonds), thereby permitting the fund to benefit from the expected returns by taking credit risk
Who will monitor the arrangement over time?

Other points

Term: 30 years too long, 20 years, excess over 20 years in equities.
Governance: now or rolling window, monitoring.

2 **Taxation changes**

Life insurance products will now be more tax efficient for both basic and higher rate taxpayers, whereas the tax position for PEPs, TESSAs and ISAs will be unchanged.

The taxation of 20% of assets in excess of the maximum (not just income or capital gains) is a powerful disincentive to contributing or retaining assets above this level within the new vehicle.

Simplification

The new regime is simpler than the existing regime.
This is particularly true for life office taxation,
It is likely to lead to lower total taxation on personal savings.
A single regime will reduce arbitrage between different taxation regimes for savings.
Financial advice for individuals will be simplified, due to fewer tax considerations.
This should be reflected in the cost of advice (except for wealthy individuals).

Competition/provider issues

Some providers or products with relative tax advantages under the current regime will become less competitive in relative terms under the new regime, whereas others will benefit.
Compliance costs for providers are likely to fall as less specialist tax advice will be needed.
This may lead to lower charges on savings products.

Transitional issues

There may be initial costs of moving to the new regime, particularly for existing products.
These initial costs could be borne by the provider or by the consumer.
There will be difficulties for wealthy individuals who have holdings under existing tax-favoured vehicles in excess of the maximum.

Behavioural changes

For those with total savings below the maximum the simplified regime will promote savings.
However this may be offset by wealthy individuals reducing their savings.
It may lead to increased pensions savings for individuals who are approaching the maximum.
It may lead to a preference for wealthy individuals to "save" more wealth in their own residential property, as this is exempt from capital gains taxes.
There is likely to be an increased level of gifts within families so that a family can take advantage of several individuals' maxima.
Individuals who are approaching or above the maximum towards the end of a year will almost certainly reduce their tax-favoured savings to avoid a tax charge.
These withdrawals will be significant when asset values are rising, whereas when asset values are falling individuals may choose to top-up their arrangements.

Existing taxed savings (e.g. residential property) is likely to still persist, as individuals have entered into these arrangements even though tax-favoured products have been in existence.
There will be little or no impact on non-residents, many of whom have substantial UK investments.
Comments on any other unforeseen consequences will receive credit if valid.

3 (i) The three main methods used to issue Government Debt are auctions, taps and the shop window.

Auctions:

- The primary method now used for public offerings of conventional gilts.
- Bids can be made on a competitive basis or a non-competitive basis.

Taps:

- The issue of a relatively small amount of an existing stock directly to gilt-edged market makers (GEMMs)

The Shop Window

- The "shop window" is the listing of gilts that the Bank of England is prepared to offer for same in response to offers from GEMMs
- The amounts available are relatively small and offers must be at, or above, the existing market price

(ii) UK gilt strip market

- The gilt strip market began in 1997
- Strips are zero coupon bonds created by separating the individual coupon payments and the principal repayment of fixed coupon bonds
- Coupon dates available are 7 June, 7 December, 7 March and 7 September
- The longest maturity is up to 2032 (also accept 2036)
- There are 14 stocks available (Also accept 16)
- All coupon strips with the same payment dates are treated as equivalent despite possible different parentage.

Strips derived from principal repayments and coupons are not equivalent.

(iii)

- It has a high coupon so there is less demand from investors that pay a higher rate of tax on income than capital gains.
- The government is currently issuing more of this bond
- The issue size is small
- It is a temporary anomaly
- There is excess supply of this bond compared to demand

4 (a) Convertibles

Income:

- Income from convertible loan stock is taxed in the same way as from normal loan capital
- Income from convertible preference shares is taxed in the same way as from normal share capital

Capital Gains:

- Convertibles are non-qualifying securities so there is no capital gains tax exemption

(b) Money market instruments

All of the return is taxed as income. This is even the case where a security is issued at a discount to its redemption value.

(c) Derivatives

For authorised unit trusts all proceeds from options and futures are free of tax.

For most other institutions, proceeds from derivatives are treated as capital gains.

5 The insurance company could arrange with an investment bank to put in place an asset backed securitisation arrangement.

The investment bank could arrange for part of the insurance company's corporate loan portfolio to be used to set up a collateralised debt obligation (CDOs) arrangement.
The arrangement works by setting up the portfolio into a series of tiers.
The order of the tiers is important as if there are defaults in the underlying portfolio the first tier absorbs the loss.
Once this is exhausted the next tier would absorb the loss.
To compensate the earlier tiers for their greater probability for loss, the insurer will sacrifice some of the yield on the portfolio so that the overall yield on the earlier tiers reflects their higher credit risk.
Could also consider spread protection derivative and increased diversification.

6 (i) Commodity futures and forward contracts are used for risk management by commodity producers who wish to reduce the uncertainty in the future cash flows that they will receive for their product; and commodity consumers who wish to reduce the uncertainty in the amount they will have to pay for their future supplies.

(ii) The common UK agricultural products that there are futures for are sugar, potatoes, wheat and barley. These could be used to increase the certainty over the price that will be achieved at harvest.

Agricultural yields are affected by the weather, so weather futures contracts could be used to reduce the impact of low yields due to poor weather conditions.

(iii) It could be argued that commodity futures should be considered as "short term equities".

They are real assets whose value is determined by short term economic factors rather than expectations over the longer term.

It gives some diversification from the traditional institutional real assets of property and equity shares.

7 The company needs to comply with the City Code on Takeovers and Mergers

- The principal aim of the code is to ensure fair and equal treatment of shareholders involved in takeovers.
- The company would need to carry out the takeover within the framework of the Code.
- The principle requirements centre on the information provided to shareholders and the conduct of directors.

The company needs to also comply with rules governing substantial acquisitions of shares:

- There is a set of rules dealing with the transfer of ownership of large shareholdings.
- Their aim is to restrict the speed with which a person may increase a holding of shares in a company, where the result of the increase would be a holding of between 15% and 30% of the voting rights of the company.

The company needs to work and comply with the Competition Commission that:

(i) hears appeals against prohibition decisions made by authorities responsible for enforcement of UK competition law; and

(ii) holds enquiries into mergers and monopolies referred under the Fair Trading Act 1973

The political environment needs to be taken into account as the Secretary of State for Trade and Industry has specific responsibilities under the application of UK competition law.

The company needs to know and comply with the Competition Act 1998 that strengthened UK competition law and brought it into line with the European Union.

The company also needs to consider EU competition legislation that is enforced by the European Commission and the courts.

8 (i) What the investment researcher is suggesting is that you can sell UK gilts that you do not own (sell short).
This can be achieved by borrowing the stock from another institutional investor.
The money raised by selling the UK gilts can be used to invest in UK corporate bonds.
Little capital is required because the money raised by selling the gilts short is used to invest in corporate bonds.
The income received from the corporate bonds is used to pay for the cost including interest income of borrowing the gilts from another investor.

(ii) Corporate bonds pay a higher yield than comparable UK gilts. The extra yield is available because of the higher credit risk and market risk. Credit risk is the risk that the borrower fails to meet their obligations in full, i.e. does not pay the coupon payments, or not on time, or does not repay the capital in full at maturity. A historical analysis of corporate bond defaults shows that the extra yield available on corporate bonds more than covers the expected losses from defaults.

It is this extra yield, the yield in excess of the credit risk that the investment researcher is referring to as the source of the large profits.

If corporate bonds are not held to maturity there is market risk, the risk that the credit spreads widen (and prices fall) because of changes in credit rating of the corporate bonds held or general widening in credit spreads, for example due to weakening economic environment.

However, the investment researcher is incorrect to say that you are guaranteed to make profits because defaults may be higher in future than that indicated from historical default data. Also if the corporate bonds have to or are sold prior to maturity and credit spreads have widened then there will be a losses.

9 (i) First we have to calculate β's of two investment trusts

$$\beta_i = \frac{\mathrm{Cov}(R_i, R_m)}{V_m}$$

$$\beta_A = \frac{(0.75)(0.1678)(0.1221)}{(0.1221)^2} = \frac{0.015366}{0.014908}$$

$$= 1.0307$$

$$\beta_B = \frac{(0.36)(0.2363)(0.1221)}{(0.1221)^2} = \frac{0.010358}{0.014908}$$

$$= 0.69673$$

Investment trust A

Treynor measure $= \dfrac{0.14 - 0.085}{1.0307} = 0.05336$

Sharpe measure $= \dfrac{0.14 - 0.085}{0.1678} = 0.32777$

Jenson measure $= 0.14 - (0.085 + 1.0307\ (0.13 - 0.085)$

$= +0.008619$

Prespecified SD $= 0.14 - \left(0.085 + \dfrac{0.13 - 0.085}{0.1221} \times 0.1678\right)$

$= -0.00684$

Investment trust B

Treynor measure $= \dfrac{0.15 - 0.085}{0.69673} = 0.09329$

Sharpe measure $= \dfrac{0.15 - 0.085}{0.2363} = 0.27507$

Jenson measure $= 0.15 - (0.085 + 0.6967\ (0.13 - 0.085)$

$= 0.03364$

Prespecified SD $= 0.15 - \left(0.085 + \dfrac{0.13 - 0.085}{0.1221} \times 0.2363\right)$

$= -0.022088$

(ii) **Comments**

(a) On the basis of SD of return (Sharpe and Prespecified SD
Trust A outperforms B.

(b) On the basis of systemic risk (Treynor and Jenson)
Trust B outperforms A.

Limitations (*any were sufficient*)

(a) The data is based only on 3 years. There is no guarantee that the same will hold in future.

(b) It is not known whether the returns are gross or net.

(c) We have not considered the suitability on the basis of life office liability.

(d) The Treynor and Jenson measure are based on the validity of the capital asset pricing.

10 (i) Major factors affecting asset allocation

- Nature and duration of claims liabilities
- Uncertainty of claims experience — output of asset and liability model
- Level of existing reserves
- Cash management process — premium collection and settlement of claims and thus the need for Liquidity
- Capital market projections of expected return, income yield and risk
- Attitude to risk of fiduciaries
- Shareholder equity/reserves to absorb shortfall in assets
- Cost of investment and management
- Statutory or legal restrictions on type of investment or securities (may not be able to invest in client companies)
- Tax

(ii) Comments on director's proposal

- Private equity and high yield are acceptable alternatives to quoted equity for institutional investors generally but not necessarily for captive insurers.

- Both offer opportunity for diversification from mainstream assets and higher expected returns

- Both are generic — actual type and quality of underlying investments would need to be investigated before policy implemented e.g. high yield could be limited to relative higher quality non-investment grade bonds (BB) rather than C or worse, private equity encompasses venture capital and buyout areas

- Private equity is probably too illiquid — duration of investment can be 10 years and requires cash commitments that can be called at short notice.

- Size of potential commitment to private equity would need to be a significant part of total assets to be attractive to manager and have a material impact on performance. Total allocation to all equity is probably low anyway (<20%) so 1–4% private equity allocation may be too small to justify selection and monitoring process. Given fund size, would look at fund of funds route which may be excessively costly and introduce secondary currency risk considerations.

- High yield may offer additional income yield but be too risky overall, although offers opportunity to invest in fallen angels at this stage of cycle. Would use commingled fund to facilitate investment. Universe of investment opportunities very biased to US market which increases currency risk.

- Tactical investment environment may or may not be conducive to investment at this time.

11 (i) Sources of loss

- Investment return less than that assumed at previous valuation
- Prospective lower returns going forward so reducing discount rate and so increasing liabilities
- UK equity underperformance relative to bonds (proxy for liability growth) during transfer period
- Losses made at transfer — excessive reorganisation costs or out of the market impact (holding cash in rising markets pending reinvestment)
- Transfer value based on share of fund — ceding scheme was under funded and so paid across less than sufficient.
- Investment strategy has underperformed liability growth since payment
- Investment managers have underperformed benchmarks since assets received

(ii) Ways to mitigate impact of next transaction

- Negotiate purchase but not take on pension scheme
- Negotiate stronger transfer basis than ongoing valuation
- Cap prospective transition/reorganisation costs — ensure in specie transfer of securities available
- Use gilt based asset adjustment factor
- Use derivatives to underpin asset transfer value and/or to implement notional higher expected return strategy
- Minimise transition period

- Include penalties for late settlement
- Minimise out of the market risk and make any cash balances interest bearing

12 Problems in constructing trackable US small cap index

- Discussion needs to reflect situation of non-domestic investor and the ability to replicate or otherwise track smaller companies. To be successful, index must have broad acceptance as representative and investable and be perceived as superior to alternative index offerings.
- There may be limited standardised derivatives available to develop synthetic approaches.
- Problem with definition of smaller company — will vary between investors and index providers.
- Lack of homogeneity between companies means alternatives for stock/sector exposures may not be closely correlated with index, thus sampling methods may be inefficient.
- There may be (foreign) ownership restrictions, different share classes and different definitions of capitalisation according to free float.
- There may be implications for investors with caps on exposures to particular companies.
- Marketability and availability of stock will vary and so grounds for inclusion/exclusion within index with limited notice of change. Default probability high so methodology required to adjust index for constituent changes. Ex/Inclusion may impact materially the price of security.
- 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 withholding taxes.
- Pricing and valuation information may be poor/infrequent 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.

END OF EXAMINERS' REPORT