

**Subject SA6 — Investment
Specialist Applications**

EXAMINERS' REPORT

September 2008

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.

R D Muckart
Chairman of the Board of Examiners

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General comments

A better answered paper than previous diets, reflected in a higher pass rate despite a higher pass mark. Candidates typically answered Question 2 better than the others, perhaps reflecting the worldwide topicality of the subject with Question 3 attracting the worst responses. Although structured products are less widely employed in final salary pension schemes, they are popular retail investments and so may see greater take-up in defined contribution arrangements. Hence a wider “general knowledge” could be employed to generate marks over and above the syllabus content.

This was the second diet to feature a third question and some candidates may have left insufficient time to complete the question, even if they understood the key issues. Given the diversity of issues affecting institutional investors and the direction of the paper to address practical solutions, then it is quite likely that future papers will also feature three questions.

Many candidates seemed to understand the key issues being examined and so appreciated the general content of solutions that the examiners were looking for – however those that were unsuccessful will find their solutions lacked sufficient (and often the most basic) detail and scored lower accordingly. Worse, some candidates deviated from the topic and included irrelevant material – although candidates will not be explicitly penalised for this, it gives an impression of a lack of understanding and, more importantly, wastes valuable time. Where candidates made relevant points in other parts of their solutions, the examiners have used their discretion as to whether to recognise these answers or not.

Again there were many candidates close to the pass mark whom were awarded an FA – most candidates would be very surprised to see just how tightly distributed the marks are; deciding where the pass mark falls will have a material impact on the numbers of candidates who are successful and the examiners take great care to ensure a consistency of standard across candidates, subjects and diets. It was fairly clear where the hurdle should have been set; as a result, the pass rate for this diet was slightly higher than last time and, encouragingly, the pass mark slightly higher too, continuing the recent trend. However the pass mark still remains lower than the examiners feel ought to be achievable by candidates, who are likely to be working as advisers or asset managers in this most practical of fields. Although no candidate was awarded an FD in this diet (which is a further positive improvement in the overall standard), the examiners remain concerned by the numbers of candidates still achieving only an FC grade since this too would imply little knowledge and understanding.

Candidates are reminded of a bias in the paper towards recognising higher level skills and practical application – this is intentional and will continue. Likewise the examination system does properly allow for prior subject knowledge to be assumed. Investment is a necessarily practical subject and at this level, the examiners expect candidates to demonstrate a breadth and depth of competency as would be expected from a practising actuary or senior student in a frequently evolving discipline. Hence simple regurgitation of bookwork will never be sufficient to ensure a Pass grade.

As noted before, in order to succeed, candidates must ensure they familiarise themselves with the prevailing investment issues and the general market background facing institutional investors in the 18 months preceding a diet, more so the solutions (and sources of) being debated by the various stakeholders. A recurring theme in recent years has been a move towards capital market rather than purely insurance and asset management solutions – hence

questions regarding banking and derivative approaches to asset and liability risk management or modern financial theory and commercial applications should be considered likely scope for examination. New asset classes and ways of investment will themselves generate new types of risk and so the need for new ways of monitoring and management.

All extenuating and mitigating circumstances were considered in awarding grades.

- 1**
- (i) Traditional fund invests in shares. If don't like a share then no holding. For long/short can also sell shares which the fund doesn't currently hold (going short) which fund believe will decrease in value to generate additional returns.
- (ii) Returns – can benefit from performance of shorted shares if they decrease in value as can buy in market and sell on for profit.
- Risks – If shorted shares increases in value then make additional losses (unlimited downside potential) compared with long only fund. Increase in operational risks associated with administration of shorted shares.
- (iii) Looking for the best value individual investment irrespective of their geographic or sectoral spread.
- (iv) (a) Tracking error is the percentage difference in total return between a fund and the benchmark the fund is being measured against, usually termed active risk.

The ex-post Tracking Error formula is the standard deviation of the active returns, given by:

$$T.E. = \sqrt{\frac{\sum_{i=1}^N (X_i - \bar{X})^2}{N-1}}$$

where X_i is the difference between the fund return and the index return for period i , that is, if d_i is the return for the asset in period i , and b_i is the return for the benchmark period in i , then $X_i = d_i - b_i$. N is the number of observations, and

$$\bar{X} = \frac{\sum_{i=1}^N X_i}{N}$$

- (b)
- The expected return is 6% above index of 10% so would expect return of 16%
 - Tracking error is 12% per annum, so range of returns could be -2% to 22% based on expected returns.
- (c) A long-short equity fund would typically aim to be “market-neutral”, i.e. it would have a beta of close to zero. Therefore a target return of MSCI + 6% would seem to be inappropriate, and similarly a tracking error of 12%. Long short funds typically have targets expressed in absolute/real terms, for example a target return of RPI + 6% and a target volatility of 12% might be more reasonable.
[Credit available for discussion on equitised long-short funds]

- (v)
- The degree to which the portfolio and the index have common stocks
 - Difference in country, market cap, sector, investment style of fund relative to index
 - Difference in weighting of individual stocks relative to benchmark
 - Volatility of the benchmark
 - Beta of portfolio
- (vi) Information ratio is defined as excess return of portfolio/tracking error. For the fund it would be $6/12 = 0.5$
- (vii) Long-only – potentially inefficient as limits the manager's scope to add value via underweight stances.
A 130/30 fund invests 130% long & 30% short
- (viii)
- From an investors perspective:
 - Increased performance: maybe
 - Reduced Risk: almost certainly
 - Better risk-weighted returns: should be
 - From an Asset Managers Perspective:
 - Current popularity will increase AUM
 - High net fees due to Incentives
 - Better staff retention
 - Take advantage of regulatory changes
 - More efficient ways to deliver Alpha
 - Access to Hedge Fund style
 - Wider acceptance of "Alternatives"
 - Fear of reduced Equity premium
 - Risk budgeting
- (ix)
- Assumes manager equally good long & short
 - Additional costs of shorting
 - Expertise in mitigating costs of shorting
 - 160% exposure – increased risk?
 - Differential Fees – Incentive Fees
- (x)
- Return Generation or Hedging?
 - Indices
 - Simple to trade
 - Low granularity
 - Stocks
 - Highly specific
 - Requires significant research/analysis
 - Sector shorts – indices versus individual
 - Which markets
 - Need high diversity levels within market

- Low index weight
- (xi)
- Familiarity & skill at shorting stocks
 - Cost efficient manner
 - Derivative structures – CFDs
- (xii) Is fund management an art form?
- Vague connection between skill & Alpha
 - Skills can be identified
 - Skills can be objectively analysed
 - Manager track records only show how funds have performed against target benchmark
 - Don't tell us about manager's investment process, strengths or weaknesses
 - Poor guide to the future
 - Track records are a quantitative measure
 - Say little about manager's fundamental skill
 - Timing skill important as selection
 - Ability to tell if a stock will do well or badly
 - Time the buying & selling decisions well
 - Have courage in their own convictions
 - Overweight winners
 - Managers are better buyers than sellers
 - Timing is very important – 100bps+
 - Different attitude to risk when buying than selling
 - Risk averse in profit – risk takers in loss
 - Behavioural factors
 - Each position viewed separately
 - Potential winners sold too early
 - Poor performers retained too long
 - Fail to run winners & cut losers
 - Managers value stocks more when they own them
 - More time devoted to research of stocks owned

	Traditional	Hedge Funds
Skilled at longs & shorts	Limited Evidence	Proven quality
Good risk management	Well developed	Under development
Operationally efficient	Should be	Larger players only
Ability to implement good product structure	High	OK
Scalability		Good

2

- (i)
- Sub-prime debt is graded less than BBB, also often referred to as junk bonds. Sub-prime attracts a rate higher than prime debt.
 - The “spread” over treasury or investment grade securities may vary significantly according to the environment and the perception of future default rates.
 - The expected default rate for sub-prime debt is higher than investment grade debt
 - Sub-prime debt is expected to be riskier than investment grade and therefore, expected return investors seek is higher than investment grade debt.
- (ii)
- Securitisation is term used to describe conversion of a bundle of assets into a structured bundle of assets which can be sold.
 - Government may wish to use SPV to reduce exposure to sub-prime mortgages, the structure of the vehicle means that the debt becomes bankruptcy remote.
 - Packaged into a tradable security might make it more attractive to investors in terms of diversity of holdings, exposure to market sectors not so easily accessible, improved pricing, valuation, comparability with other investments and monitoring or pledgable as collateral or as the base for some other structure
 - Alternatively it is possible to sell tranches or securities with different features to different classes of investor based on the pool of underlying assets.
- (iii)
- Senior debt, AAA rated, fixed rate, paid first, attract lowest coupon rate
 - Mezzanine, BB rated, paid out after senior debt, higher coupon than senior
 - Third tranche, high yield debt, paid out after other two tranches, highest coupon due to risk
 - Other tranches/structures are possible
- (iv)
- Senior debt still likely to be fully payable, however in a hard hit recession may have some default risk attached.
 - Mezzanine, due to high risk underlying assets maybe subject to some default risk or pre-payment risk
 - Third tranche, subject to high risk of default risk as people unable to keep up mortgage payments in recession. Likely to suffer from losses.
 - Although the default rate may vary and so the riskiness of the underlying asset pool resulting in the suggested payoff profile, much also depends on the ability of the SPV to finance its ongoing obligations and changes in the credit terms extended.
 - As in many issues of credit, perception of future creditworthiness may be more important than actual and markets may appear “irrational” in pricing and impacts for extended periods of time

- In addition, it is important to distinguish between a “local” recession and the impacts of a worldwide malaise since this may impact the term and depth of any recession and its consequences.

- 3** (i) **Bonds** issued by governments, banks and companies provide income in the form of regular coupons for a specified period of time until the face value of the bond (the “principal”) is paid back.
Coupons and/or principal can be linked to an inflation index or more commonly fixed in nominal terms.
Bonds provide a high degree of certainty in terms of how much money will be paid and when it will be paid.

Equity is an investment in the future profit stream of a company.
The investor buys a “share” of the company and receives dividends from the company until such time that the equity is sold.
Neither the dividends nor the future sale price of the share are known at the time of purchase, so the anticipated return is very uncertain.
History tells us that equities have the potential to provide much higher returns than bonds, if held for long periods of time.
It has on occasions, however, taken in excess of 30 years for this to happen!

Derivatives are financial contracts between two parties that “derive” their value from the performance of one or more underlying investments.

Structured products are financial instruments that combine various investments and derivatives to create a unique asset, which meets particular investment requirements.

The most common example seen in the world of retail investment is the “capital protected equity plan”. This structure typically involves:
A bond bought to guarantee part or all of the original investment
Derivative contracts (typically equity index call options) which provide a return in addition to the bond.
The range of available Structured Products has expanded considerably in recent years in response to different investors' particular needs.

- (ii) Structured products can be classified by:
- Investment objective e.g. income generation, capital growth/protection
 - The underlying investment e.g. equity, interest rates, credit, foreign exchange, commodities, property etc.
 - A product may derive its return from more than one asset, so called “hybrids”.
 - Maturity date
 - View on market e.g. high/low volatility, positive/negative view of future etc.
 - Amount of principal repaid at maturity (alternatively, a “cancellable” structure guarantees capital throughout the product life)
 - Amount of leverage
- (iii) Needs of all pension funds:
- Maximising returns with an appropriate level of risk for the corporate sponsor and members
 - Balancing affordability for the employer and security for the members
 - Diversification (i.e. avoiding concentration of risk in a particular security, sector, asset class)
 - Ensuring sufficient liquidity or income generation exists to meet short-term liability obligations (e.g. pension payments)
 - Capital growth and income at a level that ensures that total returns are sufficient to meet the funding objective (which should have regard to realistic prospective returns on the assets held)
- (iv) **Increasing security:** Pension funds can benefit from future market growth from their “risky” investments, whilst removing or reducing other risks e.g. higher inflation.

Maximising returns: Normally you can't increase returns without increasing risks – however some risks are not associated with increased returns! Removing these “unrewarded risks” can help the scheme to take risk where the rewards are greatest.

For example – equity-linked products that turn into high yielding fixed income investments once they have secured some profits may be particularly attractive e.g. a structure that pays out coupons equal to the capped positive performance of the underlying equity markets, so long as those markets don't fall below their starting levels.

Even in a falling market scenario, the pension scheme still gets its initial investment back. The typical “cap” on the annual return is surprisingly high – higher than the average long term return from equity and probably higher than most scheme sponsors' accounting assumptions.

Diversification: It is generally accepted now that getting the best risk/return balance involves spreading your investments among a wide range of different asset classes, rather than attempting to pick individual investments with the most attractive individual return potential. Pension schemes can use Structured Products to access a wider variety of markets or economic factors in order to complement their existing investments.

Easier access: Barriers to direct investment in an asset class, such as physical availability, taxes, lack of liquidity, regulation, make access difficult or simply unaffordable.

However a pension scheme wishing to diversify into the German industrial property market can achieve this through a structure which offers a payout in line with the German property sector index – with capital guaranteed.

Cash flow match: Pension funds are looking to remove duration and inflation risks from their pension obligations – and many are now using structured products to do just this.

A pension scheme which needs £1m a year, increasing in line with the retail price index to pay pensions for the next 30 years, can invest in a 30 year structured product that does just that.

The product could also be structured to increase payments when mortality rates improve.

Reduce costs: Products, once structured, need little maintenance or underlying trading so management costs fall significantly.

A pension scheme that wants exposure to FTSE100 equities could invest in a fund that “passively” tries to replicate the FTSE100 index. Management and rebalancing costs are charged against returns as the manager needs to continuously rebalance the fund to keep proportions in line with the index.

Alternatively the scheme could buy a product that guarantees that return (or even a small outperformance) for an initial fee much lower than the costs of the managed fund.

Flexibility/Customisation: Structured products are sufficiently flexible to be tailored to any individual pension fund's risk appetite or to satisfy a particular regulatory target affecting the whole sector.

For example, pension schemes may need to pay pension increases subject to a cap – there are no long-dated government bonds that pay out like this, but the scheme could buy a structured product that did.

Alternatively the sponsor might like to limit the potential size of any reduction in surplus (or increase in the deficit) for their scheme to a specific value (to say £50m) during the year or over a period of years.

END OF EXAMINERS' REPORT