

# **INSTITUTE AND FACULTY OF ACTUARIES**

## **EXAMINERS' REPORT**

September 2013 examinations

### **Subject SA6 – Investment Special Applications**

#### **Introduction**

The Examiners' Report is written by the Principal Examiner with the aim of helping candidates, both those who are sitting the examination for the first time and using past papers as a revision aid and also those who have previously failed the subject.

The Examiners are charged by Council with examining the published syllabus. The Examiners have access to the Core Reading, which is designed to interpret the syllabus, and will generally base questions around it but are not required to examine the content of Core Reading specifically or exclusively.

For numerical questions the Examiners' preferred approach to the solution is reproduced in this report; other valid approaches are given appropriate credit. For essay-style questions, particularly the open-ended questions in the later subjects, the report may contain more points than the Examiners will expect from a solution that scores full marks.

The report is written based on the legislative and regulatory context pertaining to the date that the examination was set. Candidates should take into account the possibility that circumstances may have changed if using these reports for revision.

D C Bowie  
Chairman of the Board of Examiners

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## **General comments on Subject SA6**

As actuaries move into wider fields, the examiners are likely to focus on the practical application of core skills in what may appear unfamiliar situations. However, better candidates should be able to identify the key principles and considerations that a solution demands, since this should be a regular feature of their “day job”. Indeed, the ability to bring these familiar principles to bear on unfamiliar situations is, primarily, what is being assessed in this subject and others at SA level.

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 recently qualified actuary or senior student in a frequently evolving discipline. Hence simple regurgitation of bookwork will never be sufficient to ensure a Pass grade – and this was evident from the dispersion of candidates’ responses in the more differentiating parts of questions.

Whilst the examiners will tolerate bullet point style responses, some candidates’ handwriting was too poor to assess and they will have lost marks. Likewise “text speak” abbreviations will not be accepted.

Given the greater volatility in recent years and globalisation/integration of markets and economies, it has become more challenging to deliver an acceptable return from a long term strategy in the context of an increasingly short term focus, disclosure regime and political/regulatory backdrop. This challenge needs to be recognised as a more complex variant of the traditional risk/reward trade-off, particularly with the “return-free risk” becoming increasingly and unfortunately common. Investors generally only have assets because they have liabilities and it is the latter that will drive strategy. As investors are driven away from equities, inflation and interest rates become the greater components of risk (as measured by VaR or similar measure) and so it becomes necessary to find innovative ways to hedge these risks effectively.

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 12–18 months preceding a diet. This familiarity should include the solutions being debated by the various stakeholders. Hence questions regarding banking and derivative approaches to hedging, active and passive asset management and insurance solutions to asset and liability risk management should be considered likely scope for examination. Against a background of the credit crisis, new asset classes or ways of structuring investments will themselves generate new types of risk (such as benchmark, model, operations, liquidity, credit and counterparty) and also the need for new ways of regulation, monitoring and management. This is increasingly so for “alternative” investments where the associated illiquidity demands greater due diligence prior to investment as errors or poor judgements can rarely be easily or cheaply corrected.

Finally the examiners encourage candidates to recognise there are different types of investor and stakeholders beyond purely group/defined benefit pension funds where different risk perspectives/tolerances, taxation, time line and cost considerations will apply.

A clear trend has been the move towards solutions that balance risk and reward appropriately given the sophistication of the investor. All investors need to drive out costs given a lower nominal return environment, leading to larger investors insourcing or operating shared services or “club deals” which disenfranchise agencies and advisers. Given an overall appraisal framework of “quality, security, profitability and liquidity”, candidates need to be able to explore the trade off each opportunity represents and any new types of risk (such as reputation, operations, liquidity, credit, model and counterparty) and conflicts of interest incurred that justify new ways of regulation, monitoring (and against what benchmark) and management.

### **Comments on the September 2013 paper**

Another poorly answered paper consistent with recent diets. The pass mark was similar to the previous diet and the average mark remains much lower than the examiners feel ought to be achievable by candidates. This feeling is premised on an assumption that candidates are likely to be working already as advisers or asset managers in this most practical of fields, rather than being those looking to transfer from another discipline. If candidates don't have this practical experience, they will struggle in the application and higher skills parts of questions, being both unable to recognise the key issues to analyse in the problems presented and also communicate their answers in the language of capital markets.

Whereas previous papers had looked to examine capital market or government policy detail, this paper in many areas reflected some of the very practical portfolio management issues and conflicts faced in trying to source adequate returns and the interactions between sponsors and the funds they sponsor in mutually challenging times. Even where a paper includes topics not previously examined, candidates should be able to carry out their analysis using the same fundamentals of economics, portfolio management, investor requirements, etc. that underpin more familiar issues.

Candidates typically answered Question 2 better than the other two, with some good answers (albeit still foregoing more than 40% of the marks available). Question 1 attracted the worst response with average scores of around a third of the 27 available marks. This was disappointing as the first part of the question covered what should have been familiar ground and fairly common derivative types.

Those candidates that were unsuccessful will find their solutions lacked sufficient (and often the most basic) detail or application of knowledge and scored lower accordingly. Whilst some candidates are too narrow in their responses, a greater number still deviate from the topic and include irrelevant material or over emphasise minor points – although candidates will not be explicitly penalised for this, it gives an impression of a lack of understanding and, more importantly, wastes limited time. Time and priority management are key skills actuaries need to have. 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. Likewise the examiners share and agree alternative possible solutions to questions during the marking process.

## **1 (i) Hedging**

An investor that knows he/she is due to sell an asset at a particular time can hedge by taking a short derivatives position (known as a *short hedge*). If the price of the asset goes down, the investor does not fare well on the sale of the asset, but makes a gain on the short derivatives position. If the price of the asset goes up, the investor gains from the sale of the asset but takes a loss on the derivatives position.

### **Futures**

Futures contracts are agreements between two parties to trade an asset at a certain future time for a certain price. Futures are normally traded on an exchange. The exchange specifies certain standard features of the contract (e.g. the delivery date – when the contract is settled) and provides a mechanism whereby both parties have a guarantee that the contract will be honoured (consequently there is less credit risk as exchanges are generally AAA rated).

Examples: equity index futures (S&P 500 futures, FTSE100 futures) and bond futures (Gilt futures, Bund Futures).

Advantages over their cash equivalents – generally cheaper and easier to trade due to greater liquidity in the futures markets and consequently lower spreads

To hedge the risk in the portfolio – a short futures position is required

### **Forwards**

Forwards: an agreement to buy (or sell) an asset at a certain future time for a certain price. In this case to hedge the risk, the forward agreements would be to sell.

Generally traded OTC (over-the-counter)

Main uses: currency forwards and FRAs (forward rate agreements)

A forward-rate agreement (FRA) is a forward contract where the parties agree that a certain interest rate will apply to a certain principal amount during a specified future time period. Typically FRAs are short dated instruments.

Currency forwards are commonly used to hedge foreign currency risk and could be used to hedge foreign denominated investments

In the case of the pension fund assets, currency forwards would be the more likely to be used, as other forwards are typically short dated.

## **Swaps**

A *swap* is an agreement between two parties to exchange cash flows in the future. The agreement defines the dates when the cash flows are to be paid and the way that they are to be calculated. Usually, the calculation of the cash flows involves the future values of one or more market variables.

### **Interest rate swaps**

In an interest rate swap, company B agrees to pay company A cash flows equal to interest at a predetermined fixed rate on a notional principle for a number of years. At the same time, company A agrees to pay company B cash flow equal to interest at a floating rate on the same notional principal for the same period of time. The currencies of the two sets of cash flows are the same. (This is typically referred to as a “plain vanilla” interest rate swap).

Note that the notional principal is used only for the calculation of interest payments. The principal itself is not exchanged!

Typically traded OTC, but increasingly cleared centrally.

Uses: changing a loan from fixed to floating and vice versa, and hedging risks from fixed interest security investments (bonds).

In the case of the pension assets, the government is receiving a fixed rate on their bond assets, so to hedge they would “pay fixed” in an interest rate swap.

These derivatives are only useful for hedging the fixed interest exposure in the pension assets.

## **Swaptions**

Swaption (or option on swaps), which provides one party with the right to enter into a certain swap at a certain time in the future. Thus, a swaption can be used to provide companies with a guarantee that the fixed rate of interest they will pay on a loan at some future time will not exceed some level.

The company is able to benefit from favourable interest rate movements while acquiring protection from unfavourable variations (but at the cost of the price of the swaption). This can be particularly useful for insurers wishing to offer policyholders the option of a fixed rate product (e.g. guaranteed annuity options).

In the case of the pension assets, swaptions could be used to hedge some of the risk in the fixed interest assets, by buying the swaption to pay fixed in an interest rate swap.

## Options

Options are traded on exchanges and the over the counter market. The two types of option are:

- Call Option: gives the holder the right to buy the underlying asset by a certain date for a certain price;
- Put Option: gives the holder the right to sell the underlying asset by a certain date for a certain price.

The agreed price in the contract is known as the exercise price or strike price and the date is known as the expiration date or maturity date.

There are two different types of option which differ according to when they can be exercised. American options can be exercised at any time up to the expiration date and European options can only be exercised on the expiration date. These terms do not refer to the location of the option or the exchange, for example European options are traded on North American exchanges

When hedging using options, the hedge ratio (the number of options required for each unit of the asset) will be equal to the reciprocal of the derivative of the option price with respect to the underlying asset price (the “delta” of the option).

In this case buying put options would be required to hedge.

Buying put options is equivalent to buying insurance and consequently entails a cost in doing so (the expected return is less than zero). However, put options may also have a political advantage in that they still leave the portfolio open to upside potential.

## Credit Derivatives

Two key types of instrument that can be used to manage (increase or decrease) credit risk:

### *Credit Default Swaps (CDS)*

A CDS involves payment of a fee by the party that is looking to hedge their credit risk to the party that is selling the protection. In exchange for this fee, the seller of the protection will make a credit default protection payment if a credit default event on the reference asset occurs within the term of the contract. This hedges the default risk but does not explicitly hedge the price risk. The amount of the credit default protection payment is the difference between the original price of the reference asset and the recovery value of the reference asset (or in some cases, the CDS may be settled physically, i.e. the seller pays the full notional amount and receives in return the defaulted security). If the credit event does not occur within the term of the contract, the

buyer receives no monetary payment but has benefited from the protection during the tenure of the contract.

In the case of the pension assets, the government could be looking to hedge credit risk, in which case it would buy protection with a CDS

### **Total Return Swaps**

To hedge both the price and default risk, TRORS can be used. These are also known as Total Return Swaps. Here, the total return from one asset (or group of assets) is swapped for the return on another. This creates a hedge for both market (price) risk and credit (default) risk of the reference asset(s). Investors who cannot short securities may be able to hedge a long position by paying the total rate of return in a TRORS.

The liquidity of both the TRORS and the CDS may be better than the liquidity of the underlying asset(s). This is a possible advantage of using them as hedging tools rather than directly selling the underlying credit risk in the cash markets.

Both TRORS and CDS introduce counterparty risk with the other parties to the swaps.

In the case of the pension assets, the government would be looking to swap the total return on some or all of their assets for a more guaranteed return.

All of the above derivatives face the problem of *basis risk* which may arise if:

- The asset whose price is to be hedged is not exactly the same as the asset underlying the futures contract.
- The hedger is uncertain as to the exact date when the asset will be bought or sold.
- The hedge requires the futures contract to be closed out well before its expiration date.

### **(ii) Using volatility futures to hedge equity exposure**

Equity markets generally increase at a slower rate than the rate at which they decline. This can be seen in the negative skew in historical equity returns.

Consequently, market volatility indicators are typically depressed during long slow market advances and more elevated during market downturns, and indeed they spike to very high levels during market crashes.

This is empirically correct for historical volatility levels. Assumed (future) market volatility levels are quite correlated with historical volatility levels, e.g. the VIX index.

As on the above logic, a long equity portfolio can be hedged to some extent by a long volatility position – albeit it will be an approximate hedge.

Hedge ratios would need to be estimated in order to determine how many long volatility contracts would need to be used.

The type of hedging would work best to hedge against market crashes.

Ideally, this hedging technique would be used along with the other hedging techniques mentioned earlier in the question.

There could be some basis risk if the equities being hedged are significantly different from the reference equity asset (for the VIX it is the S&P 500 Index). However this hedging technique is an approximate one at best – although should there be a crash there is likely to be high correlation between assets, especially equity assets.

*Other sensible comments were also accepted.*

- 2** (i) In managing the investment strategy of any pension fund, there are key decisions that must be taken. These fall into five major areas:

- Setting the investment objective
- Setting the strategic asset allocation
- Making dynamic asset allocation changes
- Selecting and managing managers; and
- Rebalancing the portfolio to targets

Strategic decisions *must* be taken by the trustees (having taken advice and consulted the sponsor)

Pension funds are hybrid investors with ostensibly bond-like liabilities, but equity type asset exposures.

Moreover pension funds only have assets because they have liabilities; improving the funding level can be achieved from improving investment returns, increasing cash (and asset) contributions from the sponsor and/or reducing liabilities.

As any accrued deficit is not just the consequence of an asset management problem, it shouldn't just get an asset management solution; however, liability management exercises are outside the scope of this question.

That said, given the prevailing deficits, the biggest single “asset” that trustees have is the corporate covenant and maintaining the affordability of the fund for the sponsor (and not taking actions that could impact the solvency of the sponsor itself) are important considerations



Apart from making a mockery of any Employer Related Investment regulations, it is a concentrated risk and unlikely to be the most efficient balance sheet, capital or tax position for either party.

Fortunately, very few equity analysts yet price in “pension risk” and so it is still “off radar” for current and potential equity (and debt) shareholders.

Although accounting disclosures do not truly reflect a sponsor's cash flow obligations, providers of capital are taking an increasing interest in financing and security priorities.

Regulation and practice will in time no doubt drive analysts to focus on pension exposures as companies' access to capital can no longer be assumed to be freely available and prevailing deficits will absorb expensive liquidity, a better return on which could be achieved within the core business or expended on acquisitions.

Focusing on just the investment arrangements, expected returns should equal the “risk-free rate” (historically taken to be the yield on Treasury securities although this may be open to debate now) plus cheap market exposure (often referred to as “beta”) and manager outperformance skill (so called “alpha”).

The aim should be, therefore, to maximise the expected return, net of fees, per unit of risk.

Fundamentally there only three investable risks open to pension schemes – the economy, duration and volatility.

Only economic exposure is deemed generally to be a “rewarded” risk but can be accessed through multiple sources e.g. equity, real estate and credit instruments.

Duration (exposure to interest rates, inflation and risks such as longevity) is generally considered as unrewarded and so should be hedged if affordable – this would be consistent with most corporate sponsors approach to non-core business risks.

Volatility may or may not be rewarded – it depends at what price you buy, given most capital market instruments are sold with the aim of maximising the risk reduction/cost of capital position of the vendor, not the purchaser.

This is a crucial consideration as markets are inherently more volatile nowadays and relative volatility i.e. correlation, is the major underpin of all asset and liability analyses.

The choice of individual investments is the ultimate responsibility of the Trustee having regard to any prevailing regulation and advice received.

Regulations typically dictate that any investment should be considered having regard for:

- The best interests of the members and beneficiaries (which is usually taken to be financial interests)
- Security
- Quality
- Liquidity
- Profitability
- Nature and duration of liabilities
- Tradability in regulated markets
- Use of derivatives

In addition, there is often a general requirement to demonstrate prudence. Although the concept of prudence is undefined in UK law, it is widely accepted that diversification of investments is an important evidencing factor.

*Other sensible comments were also accepted.*

- (ii) Items to be included in a policy for alternative and illiquid assets would include:

#### **Pension Fund Requirements & Objectives**

- Objectives
- Return requirements
- Short Term and Long Term liquidity requirements
- Risk tolerance
- Determine alternative assets role within the overall plan
- Risk diversification
- Return objectives

#### **Governance Considerations**

- Board & investment committee must have working knowledge of such assets or be able to access necessary expertise
- Cash flow pacing
- Risks and returns

#### **Roles and responsibilities of staff, board, investment committee, execution committee**

- Approval of commitment pacing, investment policy, tactical plan, and new investments
- Voting and non-voting members and procedures
- Selection and termination of consultants
- Selection and hiring of legal advisers

## **Structure**

Definition of asset types and what the programme includes vs. excludes e.g. Infrastructure, Hybrid private equity/hedge funds and private equity/real estate funds, Hedge funds with private equity-like structures

Investment Policy Considerations – Structure with the long-term goal in mind (Four to six years to build a mature program)

- Allocation ranges by sector
- Risk tolerance
- Liquidity requirements
- Sub-sector usually addressed in tactical plan
- Diversification
- Limitations
- Investment limitations
- Geography restrictions
- Investment vehicle
- Primary funds
- Fund of funds
- Secondaries
- Benchmarking
- Public + premium
- Absolute
- Co-investments
- Separate accounts
- Private Equity
- Peers

## **Skill Requirements**

Complete understanding of all facets of PE and other alternatives, staying abreast of market trends, understanding of CAPM/capital market pricing

- Full understanding of PE and various sectors
- Understand regulatory limitations/environment
- Understand market trends
- Macroeconomic trends impact strategy allocation
- Political, economic, currency risks
- Debt markets
- Understanding of investment opportunity on approvers and constituents

## **Manager Selection**

- Knowledge of fund universe
- Understanding dynamic market environment
- Debt and equity markets
- Cycles within private equity strategies
- Current situation, trends, expectations

- Extensive and diverse network
- Cash flow modeling and sensitivity analytics
- Understanding the drivers of cash flows
- Access to top-quartile funds
- Relationship-oriented people who proactively build network
- General partners
- Limited partners
- Placement agents
- Data and Information Requirements
- Database to track investment opportunities
- Fundraise market intelligence
- Debt sponsors
- Service providers

### **Data and Information Requirements**

- Industry data
- Return expectations
- Expectations for other asset classes
- Alternative asset return and volatility assumptions
- Academic / industry research
- Historical cash flow data
- Data on PE drivers
- System to track program by diversification targets
- Industry periodicals
- Cash flow pacing model
- Historical cash flows (various strategies)
- Historical return data (various strategies)

### **Program objectives & limitations**

- Return target
- Current income vs. capital appreciation
- Liquidity management
- Commitment pacing plan
- Preferred commitment sizes
- Mature programs vs. new programs
- Diversification: manager, strategy, geography, industry, company stage
- Determine scope of investment strategies and vehicles within pipeline
- Strategies
- Regions
- Tactical plan to meet sub strategy allocation annually/over time
- Create forward calendar of funds marketing (3-4 year fundraise cycle)
- Re-ups vs. new investments
- Emerging managers
- First time funds
- Strategic vs. tactical
- Desire to consider tactical opportunities

- Number of manager and fund relationships
- Fewer relationships, larger commitments
- Some strategies don't scale well
- Diversification limitations to manage risk
- Potential for breaks on management fees
- More relationships, smaller commitments
- Administrative/expense burden
- Risk achieving index-like returns

#### **Sourcing Considerations**

- Direct calling effort
- Plan comfort with placement agents
- Gift policy with marketers

#### **Due Diligence Process – Methodology Considerations**

- Staged process to filter investments
- Deliverables at each stage
- Decision criteria
- Deal team and responsibilities
- Depth of diligence depending on plan's resources
- Re-up
- Due diligence process: comprehensive or condensed
- Deal lead: new team member or the same deal lead who previously led the diligence and monitoring
- Documentation requirements
- Qualitative due diligence
- Sound judgment – make decisions with uncertain or limited information
- Compile thoughtful questions
- Ability to read people/chemistry
- Ability to work with all types of people
- Solid and extensive industry relationships serve as references (e.g., team and firm history)
- Quantitative due diligence
- Quantitative valuation and return analytical skills
- Detail-oriented
- Creative and analytical thinkers
- Communicate confidently with general partners
- Knowledge of market terms
- Due diligence checklists for different types of investment vehicles
- Manager rating system should consider and weigh key components of a successful manager
- Team experience, network, turnover, incentive compensation
- Depth of firm resources
- Strategy – consistency, value creation, valuation discipline
- Deal flow volume and sources
- Performance – relative and absolute returns, loss ratio, exit experience

- Terms and conditions – alignment of interests with Limited Partners
- Templates for required documents

### **Operational Due Diligence Considerations**

- Regulatory requirements
- Ability to meet plan requirements
- Timeliness
- Controls
- Performed by specialized person or deal lead
- Keen understanding of how the back-office works within different strategies and environments
- Solid understanding of process controls
- Process-oriented to ensure in-depth review of fund operations
- Knowledge of plan requirements
- Business Review of Legal Terms
- Minimum requirements/deal breakers
- Legal and business requirements
- Regulation
- Tax

### **Partnership Closing – Timing Considerations**

- Early closing
- Greater leverage to negotiate Limited Partnership Agreement
- Economics
- Lack of clarity regarding final fund size
- Dry close
- Late closing
- Clarity regarding Limited Partnership base
- Investment visibility
- Payment of subsequent closing interest
- Greater comfort knowing final fund size
- Skill Requirements
- Good judgment
- Understanding of factors impacting fundraising
- Visibility into partnership fundraising process and status
- Visibility into limited partnership base
- Familiarity with manager history
- Reference calls

### **Legal Review Considerations**

- Preferred program terms should be developed for LPA and Side Letter
- Based on industry standards
- Alignment of GP and LP interests
- Consider unique situation of Fund
- Fund's preferred terms should be reviewed and amended regularly

- Program changes
- Regulatory changes (e.g., carried interest)
- Industry changes
- Minimum requirements vs. standard requests
- Most Favoured Nation status
- Risks identified in due diligence
- Advisory Board
- Tax considerations
- Vehicle selection (blocker, feeder or offshore entities)
- Currency conversion

### **Portfolio Management, Monitoring and Reporting**

- GP Meetings
- Annual
- Advisory Board
- GP On-site Meetings
- Other GP One-on-One Meetings
- Performance
- Partnership and manager
- Business issues
- Style drift
- Value creation
- Diversification
- Status vs. program objectives
- Depth of Review
- Partnership
- Manager
- Strategy
- Sub-strategy
- Vintage year
- Amendments
- Portfolio level
- Valuation
- Composition
- Cash flow forecasting
- Portfolio company level
- Geography
- Industry

### **Metrics**

- Commitment and unfunded
- Cumulative paid-in and distributions
- Net asset value
- DPI, TVPI, RVPI ratios
- IRR
- Benchmark

- Plan portfolio review
- Rebalancing
- Buy/sell-side secondaries
- Internal vs. external reporting
- Ad-hoc reporting requests

**Permitted investments and other considerations**

- Waterfall
- Fees
- Data analytics and valuation capability
- Understanding the various benchmarks
- Calculations
- Shortfalls
- Understanding of current market conditions
- Communication
- Detail oriented
- See the “Big Picture”
- Systems knowledge
- Impact of amendments
- Key man
- Investment & Fund Term
- Outsourced reporting provides access to sophisticated tools and skills
- Partnership cash flows and valuation data
- Fees vs. Investment
- Benchmark calculation capability
- Program Requirements/Limits
- Partnership characteristics (e.g., manager, vintage year, strategy, sub-strategy)
- Portfolio company information
- Cost and valuation
- Geography
- Industry

**Benchmark data**

- Public
- Periodic returns – necessary for TWR
- Periodic index values – necessary for Public Market Equivalent IRR
- Private
- By vintage year, sector and sub-sector
- Ability to pool returns
- Quartile breakpoints
- Metrics – IRR, DPI, RVPI, TVPI



### **Back Office Operations**

- Document management
- Maintain repository for documentation
- Hard vs. soft copies
- Route to applicable parties
- Regulatory requirements
- Organization policies
- Process requests
- Capital calls
- Cash and Stock Distributions
- Timeliness
- Penalties for failure to meet capital call
- Consent to partnership amendments
- Knowledge of unusual items
- Data entry
- Bookkeeping vs. performance data
- Chart of accounts
- Integration with other organization ledgers
- Reconciliation of data with managers and custodian
- Compliance with regulatory or overall program changes

### **(iii) Philosophical basis of passive investment**

The primary motivation for using passive strategies is usually to minimise costs

This pre-supposes that active management does not add more value by alpha generation than it detracts through costs

There is some evidence that through market cycles active and passive strategies alternate in effectiveness, at least in quoted securities

This is largely driven by varying levels of volatility (because high volatility causes all shares to move in unison, negating stock picking advantage)

... and the success or otherwise of large cap shares (because indices tend to have a higher weighting of them)

And the coverage of them that mitigates the ability to a unique insight, except through inside knowledge

Active bond managers appear to be able to outperform passive strategies more consistently

But the scope for outperformance is more limited

... and this may be purely a function of the benchmarks used as opposed to something more appropriate

passive exposure places the weight of the portfolio with the most heavily indebted companies and takes no account of the risks of the individual companies held (for example passive exposure may have a high weight in Financials which are potentially higher risk).

Likewise it is beholden to the high turnover of stocks within the index due to maturity and capitalisation of issues when a “buy and hold” approach may be better if liquidity is low.

Finally it ignores the fact that, unlike equities, bonds are not fungible and certain securities issued by a company, some of which may not be rated, may offer better terms for the same underlying credit risk.

And the fees are lower than for equities so the savings are also less

– Real estate and private equity are based on specific transactions and so it is much less easy to replicate the components and characteristics of an index

Another consideration is sensitivity to downside

It is often argued that passive management guarantees a return less than the index (after costs) while active management has the potential to outperform the index after fees, if the right manager was chosen

But active management also creates the potential to underperform the index – possibly by a large margin, especially net of fees

If this outcome (perhaps at a time when markets are also falling) is very detrimental to the arrangements, putting a cap of the downside relative to the index could be an attractive feature

### **Availability of passive vehicles**

Vehicles are not available for all asset classes or strategies

It is easiest to track equity indices – via ETFs and passive funds that replicate or sample indices on a stratified or optimised basis

...but quoted equities may only be a small part of the asset allocation

The cheapest indices to track may also have the least appropriate risk profile

In alternative asset classes, there may not be a single index recognised as the most appropriate market benchmark

Vehicles to track the more desirable indices may not be available

... in which case the costs of creating them or operating a segregated account might negate the anticipated savings

... or they might be subject to higher tracking errors because replication is problematic

However, the choice of vehicles is widening as the range of ETFs and passive funds is steadily growing

### **Which index to track**

Passive investment locks the returns onto that of the index being tracked, with minor variations for costs and errors of matching

But choosing the index is likely to have a far more decisive effect on the investment outcome than the difference between the returns of the index and the average active manager

Much recent research has concentrated on the inefficiency of cap-weighted indices

So finding a more efficient index, and especially one with desirable risk characteristics, would be highly beneficial and probably more than compensate for any lost alpha

E.g. an ETF based on high dividend paying shares might have a desirable “value” profile for individuals as compared with a wider market index such as the FTSE100 or All Share.

### **How much is saved?**

For institutions, it is often said that “beta is free” because passive management is so cheaply available

So the saving for a large equity fund is probably in the order of 25 to 45bps

In other asset classes like government bonds the saving is even less

But fees for passive investment are on a declining trend – and as passive funds become more commoditised over time the savings will increase

### **“Smart passive”**

There is a developing range of semi-passive products called “smart passive” funds – quasi-indexed portfolios with actively chosen sector or style tilts or biases in an attempt to add outperformance or improve the risk characteristics of the portfolio

By specifying a lower tracking error and deploying a lower risk budget the risks of underperformance are reduced

They could be useful in providing reasonably low cost portfolios that have appropriate risk/return characteristics to suit the savings products

Such non-standard/broad market funds may carry disproportionately higher overheads reflecting their relative lack of demand

The use of these, and any non-vanilla passive funds, does imply that research on the vehicles and the asset managers will be required – with the associated costs

#### **(iv) Considerations**

- Degrees of outsourcing
- Program size
- Larger plans > greater the resources needed for deal flow and due diligence
- Smaller plans > cost of minimum resources to ensure strong performance
- Staff
- Experienced in private equity
- Level of involvement with investments
- Number
- Data resources
- External databases
- Tools to model cash flow pacing, determine strategy allocation, and conduct due diligence
- Flexible systems to monitor investment opportunities and report on performance
- Legal closing and amendment reviews
- Expenses – consider reviewing on a per fund basis
- Staffing expenses – compensation, general administrative, office space, IT systems
- Travel expenses – due diligence, annual meeting, advisory board meeting
- Selection and hiring of legal counsel and participation in fund closing, amendments, and processes

(v) **Aligning interests on fees**

A common structure of fees is

... for the asset manager to charge a fixed base fee in percentage terms

... with a performance fee paid if a hurdle rate is surpassed

The choice of hurdle rate is critical to ensure that the manager is only rewarded for alpha added

This goes some way to aligning interests because the manager benefits most when it produces superior returns for the client

but the balance still favours the asset manager

... because the base fee is seldom more than 10 basis points less than the fixed-only fee whereas the performance fee is usually capped at much higher levels, like 100bps in total across all components

The asymmetry in benefit can be illustrated by postulating an unethical manager using this structure and managing half its clients with one extreme market view and the other half with a diametrically opposite view

The manager will earn the fixed fee on all clients and quite possibly the full performance fee on the half that benefited by actual market conditions

If the fee basis was 50bps + 20% capped at 100bps the manager will earn 75bps on the total portfolio (50bps on one half and 100 bps on the other) without requiring any skill

A manager may also be tempted to take excessive risks in order to earn the performance-based fee

To more fully align interests, the fee structure might

Include more severe penalties for underperformance such that the asset manager only covers costs or even incurs losses

This would probably only be feasible within a group – where the ultimate good of the shareholders of the group takes precedence over the earnings of the individual entities within the group

Include claw-back clauses that allow for past performance fees to be refunded if later performance flags

To ensure that transitory performance is not rewarded and

... the performance fee does not in effect give a free annual call option to the asset manager

Adopt the strategy of a “high-water mark” commonly used in hedge funds

This ensures that future outperformance is not rewarded until past underperformance is made good

Again this should work well with an in-house manager which will have to answer to the group board and cannot cancel the mandate if it gets too far “under water”

Monitoring and calculating these watermarks and claw-backs can get very complex

Total costs should be taken under consideration when designing the fee structure (Custody costs, investment platform costs). When negotiating fee discounts, it may be possible to lower custody and investment costs as well

The use of different fees for a fund may raise issues relating to “treating customers fairly”. Appropriate documentation and advice should be taken to manage this issue.

The use of cheaper fees would benefit the life company from a cost perspective. It may however restrict the life company from actually using the best funds in the market for its product range.

In addition, the use of complex strategies is a challenge against the requirement of having products that are easy to understand.

- 3** (i) The risk of the impact of high inflation on defined contribution schemes and their sponsors, and on an individual's pension purchasing power, must be weighed against the costs of protecting against such a scenario. Conversely, are there risks in the portfolio if inflation and inflation expectations decrease?

#### **Assets**

Levels of inflation different to the “norm” or different to what is expected can have an impact on the value of assets. For example:

- The effect of deflation in Japan on Japanese equities.
- The effect on equities in emerging markets of high growth and inflation, and how this might change.
- The impact of “cooling” measures which can affect asset prices.
- Increasing inflation makes fixed income assets increasingly unattractive and can reduce prices.
- Certain asset values, such as for commodities, are directly linked to (or indeed a cause of) increases in inflation.
- Different asset classes perform differently in different inflationary environments – being in the right asset class at the right time is key.

#### **Liabilities**

Many of the benefits in final salary pension schemes are linked to inflation:

- The link between salary growth and inflation.
- The increase to deferred members' benefits.
- Increases to pensions already in payment.
- Higher inflation therefore increases the benefits that need to be paid out.

- Higher inflation expectations increases the value placed on the liability cashflows and has funding impacts for the scheme and sponsor.

### **Money Purchase Schemes**

- It is expected that Trustees and employers provide adequate fund options for money purchase scheme members to be able to mitigate the risks of inflation.
- Default options in these schemes should take consideration of the need for members' retirement pots to grow in real terms (i.e. after inflation) over the period of their working lives.

(ii) Issues to consider when hedging inflation

When thinking about hedging, the following factors need to be considered:

- What are your risk/reward tolerances?
- How much inflation sensitivity is currently in the pension scheme assets and liabilities?
- What are the trustees' and markets' expectations regarding future inflation levels?
- What assets are available to hedge inflation and what is their current price?
- Are there any liability management exercises planned for the pension scheme?
- Are there any other issues specific to your scheme, which need to be considered?

(iii)

<i>Asset</i>	<i>Pro</i>	<i>Con</i>
Inflation swap	Targets only inflation Unfunded	Introduces basis risk compared to funding basis Transaction cost could be higher than inflation-linked govt bonds (especially at the longer end of the curve).
Inflation-linked gilt on asset-swap	Targets only inflation Better inflation rate than swap	Funded (although could use repos) New type of derivative (selling duration)
Total Return Swap on index-linked gilts	Unfunded Could also hedge out nominal risk	New type of derivative
Long-dated property leases	Collateralised by property Property value “kicker”	Not a mark-to-market hedge Property risks Lead time Illiquid
Corporate linkers/corporate inflation linked note	Additional credit spread Mark-to-market hedge	Limited market Counterparty risk Lead time
Established infrastructure	Operational infrastructure can be lower risk Can be government backed/funded	Not a mark-to-market Counterparty risk Lead time Illiquid

## END OF EXAMINERS’ REPORT