

Actuarial Society of South Africa

EXAMINATION

1 November 2013

Subject F205 - Investment Specialist Applications

EXAMINERS' REPORT

The standard of scripts for this subject remains disappointingly poor. It is evident that while most candidates are fairly confident when book learning can be brought to bear, they quickly fall apart when called upon to address real-world application or to discuss broader topics with only limited guidance.

One of the chief obstacles to candidates achieving a passing grade in this session was a lack of familiarity with common business practice and standard investment products. Another failing, often seen in past sessions, is very sketchy knowledge of what managing an investment portfolio actually entails. As a result candidates produce answers that miss the point or are peppered with statements that are startlingly incorrect.

The topics examined were not particularly unusual but they did cover a wide range. It was noticeable that very few candidates can demonstrate proficiency across the whole spectrum. Unfortunately a very good answer for one question is usually not enough to compensate for poor answers for the rest.

Misreading questions contributes to many candidates' foregoing marks. Every detail specified in a question is intended to guide the candidate to the desired response. By ignoring or changing the scenario given, or adding their own unwarranted assumptions, candidates unwittingly conspire to undermine their efforts.

Question 1

This question was generally well answered - as one would expect since it contains a fair amount of bookwork.

Surprisingly, as this was on a topic that has been examined before, part iii) a) was very poorly answered.

Part iii) d) was intended to challenge candidates and those who understood the basics of measuring credit risk were able to make something of their answers even if they lacked the detail.

i)

Need to match the term and nature of liabilities

Different annuities driven by different increase methodologies

This determines the assets used to back the liabilities

Cash flow matching is critical

Liquidity not paramount

The less matching you do the higher the capital requirement

Yield needed in addition to government curve to be competitive

a)

Need to have assets that increase with inflation to match liabilities

Government inflation linked bonds are good match to liability

As are corporate inflation linked bonds

- Over various terms to suit the liability cash flow profile

Cash for payments in the near term or as part of the swap strategies

Credit instruments will add yield

Swaps are useful for matching cash flows

Bond derivatives, inflation swaps also

Property or possibly equity – to hedge long-dated, real liabilities

A diversified equity portfolio could also hedge the longest dated, real liabilities

Also consider structured products - like stepped income bonds

b)

Assets needs to match the nominal nature of the liabilities – increases known, so liabilities are fixed

Potential reinvestment risk if there is a duration mismatch

- Government nominal bonds are a good match to liabilities

And the secondary market is deep allowing active management

- Corporate nominal bonds

Over various terms to suit the liability cash flow profile

Credit instruments will add yield

Cash for payments in the near term or as part of the swap strategies

Swaps for more precise matching of cash flows

Bond derivatives

Property – to match long-dated payments where matching assets are not available

c)

Exact mix depends on LifeCo mandate, risk tolerance and policyholders' reasonable expectations

Increases are usually driven by returns on a normal Balanced Fund

Equity will usually be the main growth asset used

Bonds, in line with ALBI, for diversification as part of balanced fund

Inflation linked annuities

Property for growth and stability

Offshore assets – equity, bonds, cash – for diversification

Cash

Might include some matching assets as per (b)

d)

Assets determined by individual, choosing from a menu of options

Drawdown rate will determine liquidity needs

Applicable risk profile will determine amount of risky assets

Cash

IL Bonds

Nominal Bonds

Property

Offshore assets

Equity

The portfolios do have to comply with regulations on asset spreading

ii)

Interest rates, both nominal and real, are very low around the world since the financial crisis

Looks set to stay that way for foreseeable future as long as growth stays low

Inflation under control until now, future trend uncertain

a)

Consequently Life Annuities are currently expensive because...

- Discounting at low interest rates results in a higher purchase price
- And low growth discourages risk taking to enhance returns with real assets

Life offices might feel pushed to take on risks to sell annuities at levels acceptable to clients and to compete

- Such as adding corporate credit or taking active duration bets

As rates have declined steeply reinvestment risk would have increased and possibly caused losses

Existing annuities are more difficult to hedge at very low interest rates

Ultimately interest rate will have to rise

Unless annuities are well matched this could give rise to very serious losses, especially on long-dated liabilities

With profit annuities are difficult to manage; low rates close to purchase rates

b)

Low income received from life annuities makes living annuities more attractive to clients

Implies taking more risk than what they might want to take or be able to manage

Future expected increases from WP annuities likely to be low

With low interest rates, income levels in living annuities low, so drawdowns can be expected to be higher than originally planned

iii)

a)

Matching of liabilities still important

Need to match incidence, nature and term of liabilities

CPI linked:

Add credit assets of suitable size, nature and term

- Corporate bonds
- Credit Linked Notes

Guaranteed 5% increasing:

Use swaps or bond derivatives to match the term and nature and incidence of the liabilities

Use the cash and invest it in credit instruments

To provide a yield higher than that of cash

As the 'liability' of the swap is cash, if you outperform cash, you add yield to the portfolio

Can use credit assets of any term and nature. E.g.

- Securitised credit tranches
- Preference shares linked to interest rates
- Property credit (MBS and CMBS)

Can afford shorter term

- To provide liquidity
- Less risky
- Can use a diversified portfolio of credit

With profit:

Credit Default Swaps can be used to gain credit exposure

b)

- Risk / reward payoff of the Life Co important
- Shareholder vs policyholder risk return
- Pricing of new products need to be competitive
- How to manage risk exposure
 - What ratings of credit to allow
 - What overall amounts of credit exposure to take as a company?
 - Diversification possibilities
- Liquidity, can afford less liquidity, so the premium worth the risk
- Skills in credit management needed
 - Analysts
 - Systems
 - collateral management
 - assessment, modelling
 - structuring,
 - contracting, ie legal
 - Governance requirements
 - Valuation capability
- Calculation of capital requirements
- Effect of additional capital requirements on solvency
- Derivatives vs corporate bonds
- Reputational risk in event of defaults
- Regulatory constraints

c)

They specialize in evaluating credit worthiness of debt securities and of debt issuers

Ratings are a good indication of interest and capital being repaid on time

They give an assessment of the *relative* likelihood of obligations being met within a specific universe of debtors

They are external credit assessment institutions

And hence have the supposed advantage of independence

Although their reputation has been severely tarnished by their role in the financial crisis

Factors considered

- i) Business risk
- ii) Industry characteristics
- iii) Competitive positioning
- iv) Management quality
- v) Financial risk and characteristics and policies
- vi) Profitability
- vii) Capitalization
- viii) Cash flow projections
- ix) Financial ratios calculated and monitored over time
- x) Public and non-public documents related to the issuer and issue
- xi) Meetings with management re operational and financial plans
- xii) Some subjectivity does apply
- xiii) Liquidity

d)

(1) Probability of default

Various inputs needed to use in risk models to calculate default probabilities. These will include:

- Collateral
- Leverage
- Volatility of earnings/cash flows
- Reputation
- Phase of business cycle
- Industry conditions
- Interest rates
- Exchange rates
- Ranking of the instrument (e.g. subordination)

(2) Exposure at default / credit exposure / maximum extent of loss

If it is a loan – face value

With derivatives it is more complicated, and not face value

Derivative could be an asset or a liability

Current and potential exposure

Extent to which this is mitigated by:

- i) Marking to market plus daily settlement through margin account
- ii) Collateral posting, management
- iii) Downgrade triggers

(3) Recovery rate or loss given default

Part of the amount lost/owed could be recovered in case of default; this will be affected by:

Seniority

Legal system, bankruptcy procedures

Collateralisation

Correlations

Question 2

This question was very poorly answered. It was intended to examine the problems that the person managing a small but dynamic portfolio in its first year would encounter – i.e. it is about portfolio management risks. Many candidates interpreted it to be about the business risks involved despite the question's opening statement: "You are an investment portfolio manager..."

It is very apparent how few candidates have any real understanding of what practical portfolio management entails. Since this was the meat of the question most failed to produce a creditable answer.

Some candidates were at a further disadvantage as they are unfamiliar with the typical South African institutions and products and the terminology associated with them - with predictable consequences for the quality of their answers.

Given the small initial scale of the fund, a number of risks are likely to be more acutely present initially than once the fund has reached scale.

The fund will be highly affected by large cash inflows or outflows in a way that larger, more established funds are not.

Liquidity risk

- Given the size of the initial flows relative to the investment amount, a large investor wishing to withdraw money in the initial stages may represent a high proportion of the fund
- and a net outflow at a time when the fund is in "buying mode"
 - o ... Which would require large forced disinvestment by the fund
- With all the attaching costs
 - o brokerage costs – which would be higher than usual in a net buying fund;
 - o and the fact that forced selling may mean unfavourable prices – i.e. market impact costs
- The risk can be mitigated by suspending withdrawals if they exceed a certain proportion of the fund
 - o But the fund would prefer not to do this or have to draw too much attention to this escape clause when marketing to prospective clients

There are also significant issues with timing differences between the admin company, the custodians of the shares and the fund managers (cash takes time to clear).

- The fund could face a penalty from the FSB if the fund goes into overdraft with the bank
- This is particularly an issue where the fund flows may be erratic (depending on the

distribution model)

- Actions would be to ensure close working relationship with the admin company, and engagement with distribution channels to forecast what funds are arriving

Mandate risk

- The initial scale could mean that cash flows easily dilute the mix of assets and it may be extremely difficult to stick to mandate when big flows are coming in and out
- This is particularly important when large flows are expected
 - o Inflows will push the funds asset allocation into cash
 - o Outflows will be met initially by cash and then from the assets that are easiest to liquidate
- Again, active management of flows is the mitigation here
- And potential actions such as receiving a transfer of existing assets (other than cash) if large flows come in from other funds
 - o Though those assets may also not match the mandate of the fund
- The use of futures/ETFs will help to manage exposure to equities and provide liquidity

Volatility risk

- Published returns are generally time weighted – and volatile markets in the early life of a unit trust when the fund is small and potentially undiversified can have several detrimental effects.
- If large inflows occur while markets move strongly upward the fund will be unable to deploy the cash quickly enough and returns will suffer
- If outflows coincide with falling markets the fund will struggle to liquidate assets fast enough to prevent the fall being exaggerated in its holdings
- In all cases it will be extremely difficult to be equitable to new or leaving investors relative to remaining investors
- It can result in returns being very unrepresentative of what could be expected in a stable state
 - o if they are very high it could create unrealistic expectations from investors
 - o If they are too low it will be a drag on the fund's performance track record for some time (at least 3 years)
 - and this will deter new investors

Concentration risk

- Difficulty in diversification due to lack of availability of appropriately sized and priced securities means that concentration risk may emerge
 - o Particularly complicated if large flows in and out

- Use of futures and/or ETFs initially could mitigate this

Regulatory compliance risk

- Keeping all of this regulation 28 compliant with unstable cash flows could be tricky
- Temporary breaches are allowed in certain cases if market movements or cash flows are the cause e.g. if foreign allowance is exceeded

Performance risk

- Apart from the issue mentioned as part of volatility risk above, the fund will be disproportionately affected by trading costs initially as a larger proportion of the fund will be traded while it is growing from scratch compared to its more established peers.

Question 3

This question was poorly answered. Again the chief obstacle seems to be a lack of familiarity with what it involves to invest funds. Since the question is big and open-ended the candidate needs some frame of reference as an aid to constructing an answer. The 3 sub-headings were intended to assist with that (and from a marking perspective it was immaterial under which heading points were made) but without a handle on portfolio management practices, risks and controls it will always be difficult for a candidate to fashion a thorough response.

Candidates tended to garner most of their marks for the governance issues, fewer for risk matters and least for matters of broad principle and philosophy.

The **FSB requirement** is that the policy should specify

- the extent of activities,
- how the insurer complies,
- and risk management procedures for more complex investments

a. Philosophy and Principles

The policy should incorporate **overarching principles** such as

- The insurer will adhere to the “**Prudent Person Principle**” when making investments on behalf of policyholders. In particular:
 - The insurer will only invest in assets and instruments whose risks it can properly identify, measure, monitor, manage, control and report.
 - Assets will be invested in a manner appropriate to the nature and duration of the insurer’s liabilities.
 - The investment risk accepted on behalf of policyholders must be commensurate with the expected return.
 - The return objectives of a policyholder portfolio must be realistic considering prevailing long-term expected market conditions.

The policy should state the insurer’s commitment to complying with relevant **legislation and regulation**

- Currently this would include Regulation 28 and SARB requirements and FSB Directives
- But would be very different under the envisaged capital-based SAM regulatory regime
- This requirement should be specified in all mandates

The policy should specify the insurer's commitment **responsible investing**

- And its commitment to voluntary codes such as CRISA and the Financial Services Charter

Because different risks and objectives apply, **the policy will have to differentiate between**

- shareholder and policyholder assets
 - and specify how potential conflicts of interest are to be handled
- different types of policies such as fully linked, discretionary participation and guaranteed

For **shareholder portfolios** there must be consideration of

- The requirement to maintain solvency margins
 - This could reference a separate liquidity and funding policy
- The need to meet guaranteed policyholder liabilities
 - This could reference the ALM policy
- The requirement for shareholder return should be taken into account and a hurdle rate specified
 - Returns available on capital spend in the company
 - Vs. returns available on external investment
 - Vs. implicit return available by returning capital to shareholders
 - Tax implications would need to be considered here as well

For **linked policies** the policy should specify the extent of the insurer's responsibility for

- Ensuring that investment portfolios made available to policyholders meet certain minimum quality criteria
- Ensuring that fees paid on these investment portfolios are reasonable.
- Ensuring safe custody of the assets of these portfolios

For **discretionary participation policies** there must be consideration of

- Responsibility for the devising investment portfolios that will to meet the objectives of the policyholder portfolios.
 - This includes asset allocation and security selection.
- Or the insurer may appoint investment managers to make investment decisions on its behalf.

b. Investment Risks

The policy will have to cover **investment risks** and should clearly specify

- the sources of investment risk across all product lines
 - ... in this case with allowance for the principle of proportionality
- the principles applied to managing and/or ameliorating those risks
- the processes that will operationalise those principles
- the governance framework that will ensure the policy is applied as intended

The policy should **define investment risk** e.g. the risk of not meeting the stated risk and return objectives of investment portfolios

Credit risk must be defined and addressed

Principles for managing credit risk must be specified, such as

- Portfolios shall be suitably diversified so as to limit the exposure of a portfolio to any particular counterparty
- Credit risk exposure will generally be limited to investment grade instruments
- Or a risk budget for credit risk will be specified for each portfolio

Concentration risk must be defined and addressed

Principles for managing concentration risk must be specified, such as

- Portfolios shall be suitably diversified so as to limit exposure of the portfolios to any investment driver including
 - counterparty, currency, industry etc.
- Exposure for this purpose will be aggregated across all instruments

Liquidity risk must be defined and addressed

Principles for managing liquidity risk must be specified, such as

- Portfolios shall be invested such as to ensure that sufficient liquid investments are held to meet the liquidity requirements of liability payments under normal conditions
- Policy conditions must allow the insurer to delay cash payments to policyholders in case of disinvestments that are large compared to the size of the portfolio or during periods of adverse market conditions

The **risks of unlisted investments** must be addressed

- Such as lack of liquidity and less objective valuations

Principles for managing risks of unlisted investments must be specified, such as:

- Limiting exposure to unlisted investments
- Independent valuation of unlisted investments

The **risks of derivatives** must be addressed where these differ from those dealt with above

- Such as the potential to leverage investments

Principles for managing the risks of derivative must be specified, such as:

- Prohibition of their use unless specified in mandates
- Prohibition of their use to create economic leverage
- Specific uses of derivatives may be generally allowed, such as
 - For the reduction of investment risk or efficient portfolio management
- The economic exposure of derivatives must be reported on a monthly basis.
- The investment manager must have the necessary skills, experience and systems to manage derivatives.
- Exchange traded derivatives shall be used as far as possible.
 - Over-the-counter derivatives may be used, subject to appropriate counterparty exposure management processes being in place.
- Must allow for margin calls in liquidity controls

Operational risk must be defined and addressed

Principles for managing operational risk must be specified, such as

- Operational risk is an uncompensated risk.
- Operational risk associated with making investments must be reduced to as low a level possible, having due regard for the costs of managing operational risk

c. Investment management and governance frameworks

The policy must address the **product approval process**

Where a product exposes policyholders to investment risk, there must be a process to ensure that:

- The return objective of the product is commensurate with the risks involved.
- The return objective of the product is consistent with prevailing market conditions.
- Policyholders are treated fairly
 - ... and the fee basis, for example, is fair

The policy must address the **mandate setting and review process**

It should stipulate

- That a mandate shall be set for each portfolio
- The elements that must be covered in mandates such as:
 - How each of the risks above will be managed
 - Eligible instruments / assets
 - The performance benchmark
 - Reporting requirements
 - Mandate review process

The policy must address processes for **ongoing monitoring** of

- Performance
- Mandate compliance

The policy must address the processes of **appointment of investment managers**

Initial appointment

- The due diligence process
- The minimum requirements for appointment an asset manager
 - With respect to e.g. competence, capacity
 - ... licences, indemnity insurance, operational adequacy etc.

Ongoing monitoring (apart for performance and compliance)

- Annual confirmation of regulatory standing and insurance
- Regular updating of due diligence

The policy should describe the process **to obtain permission to invest in investments**

outside of mandate or proscribed by the policy itself.

The policy may state whether **pooled investment vehicles** are allowed
... and stipulate what regulatory regimes and domiciles are acceptable

The policy should state whether **scrip lending** is allowed

- On what terms (e.g. who will bear the risks and how fees earned will be allocated)
- What safeguards must be in place to manage credit, operational and other risks

The policy should specify how **safe custody of assets** will be effected

... and standards for appointed custodians as well as the process of appointment

The principles and rules governing **proxy voting** should be specified.

The policy must set out the **governance framework** that will be used to ensure that investment risk is appropriately managed and the expectations of stakeholders are met.

The roles of various parties in the **governance structures** must be clearly articulated including those of:

- The board
- Management
- Executive oversight committees
- Enterprise Risk Management and/or Internal Audit

The nature, frequency and level of detail to be reported to each governance entity should be specified

The frequency of **review or modification of the investment policy**

- as well as the circumstances that could trigger ad hoc review, should be stated.