Actuarial Society of South Africa

EXAMINATION

May 2016

Subject F205 — Investment

Specialist Applications

EXAMINER'S REPORT

This paper presented an opportunity for the well prepared candidate to do well. It was not an overly tricky paper, but did require candidates to apply their minds in answering the questions. Candidates who thought of it as an opportunity to display their knowledge of theory did not do well, where as those that applied that knowledge to the situations presented did well.

QUESTION 1

This question tested candidates' knowledge and application skills on the structure of the South African market, and passive approaches to fund management.

The focus of the first part of the question was on the structure of the market – and not the index – as some candidates incorrectly interpreted. Comments on how the actual index was calculated did not gain marks, whereas points on the structure of the actual market (ownership, sectoral coverage, concentration of value etc) did gain marks.

The rest of the question was a relatively straightforward analysis of passive investment approaches – applied to a specific situation. Candidates with good knowledge, and who made sure their answers were relevant to the question / situation at hand did well.

i)

- Covers around 160 shares
- Fledgling companies are listed on ALT-x – less onerous. Can then be promoted into ALSI
- Main super-sectors are – financials, industrial (within these consumer stocks have been influential) and commodities. Numerous subsectors – can list.
- SA is a commodity producing economy and hence the fortunes of markets have been closely linked to commodities. This has been changing as the role of commodities in gdp has reduced.
- Market is narrowly defined – few large companies dominate the market by market cap – although different companies occupy these positions over time. Has been commodities but certain industrials have also dominated at times (eg NPN).
- This makes it difficult to diversify as a benchmark cognizant investor. As these few companies can therefore drive a significant portion of overall market return
- Many shares are multinational companies earning significant portion of returns outside of SA. Eg SAB, NPN, BAT. This is reported to be as high as 70% of the market.
- Market prices therefore highly correlated with global events and currency strength and weakness
- Don't have much representation in certain sectors such as health, tech etc. – again hampering diversification
- Primary investors in our markets are overseas investors – around 45%
- PIC and pension funds/institutional investors make up most of the balance.

- This means, given our emerging market status, that markets can be highly volatile and subject to global risk-on/risk-off sentiment and perceived ZA country risk.

ii)

- SA markets are quite concentrated (see above) and his passive portfolio, if market cap weighted, may be more volatile than he is comfortable with
- He will need to still take some decisions:
- Which passive index to invest in
- There are a range of indices available to track – each will behave quite differently given composition
    - But only those with a deep, liquid market in associated derivatives will be very cheap; the more esoteric the index the costlier it will be to replicate
- Whichever passive portfolio is selected, this will need to comply with the regulatory constraint for medical schemes.
    - Who will monitor this for regulatory limits etc. and what measures can be taken (if any) should a breach occur
- Which passive type of vehicle to appoint: Can use an index tracker managed fund or an ETF type vehicle
    - Choosing the type of passive strategy, full replication vs synthetic replication
    - Could also opt for enhanced passive strategies
    - But would need to be cognizant of regulation – specifically for strategies like synthetic replication

- Note that depending on the skill or strategy associated with the portfolio – there will a degree of tracking error around the passive portfolio and hence potential net underperformance;
    - fund must set its tolerance for tracking error and ensure this is aligned with the strategy and manager it has chosen

iii)

- Smart beta is essentially a deviation from cap weighted index investing approach to construct a different index to be passively followed –

- where the index is created using a different pre-determined set of rules ie smarter than just investing based on market cap
- In its simplest form can be constructed by just equal weighting
- Smart beta can also track certain Style indices – benefiting from a particular style event or belief eg momentum
- Or the two methods described below : fundamental indexation and low volatility indices
- There are a range of such indices available in US but not so many in SA. RAFI is the main, and readily available, smart beta alternative
- Smart beta has grown in popularity over last few years as active managers have underperformed and focus on costs intensifies
- Research shows many smart beta strategies have historically outperformed cap weighted indices – thesis being that cap weighted means you are always "buying high and selling low"
- Rebalancing a smart-beta portfolio may involve transaction costs that are higher than for a cap-weighted index fund.
- This is because a cap-weighted investor does not have to do anything to the portfolio as prices move; a differently constructed fund, by contrast, has to readjust its holdings.

Fundamental Indexation:

- Index is constructed not based on market cap but based on combination or range of company financial characteristics
- This can be anything like turnover, book value, dividends, cashflow, revenue etc
- Thesis is that these factors are more closely linked to quality and fundamentals of a company and that this will result in better returns over the longer term
- Could produce a more diversified portfolio than a market cap weighted in SA

- But portfolio may still end up concentrated in certain sectors
- Need to take care to understand exactly how index is constructed and defined
- Additional costs may arise due to complexity and skills compared to pure passive index trackers
- May need to pay licensing (eg RAFI)
- Becoming easier to access smart beta via RAFI – commonly used.

- The above factors which are considered when constructing a smart beta index are usually amongst those considered by an active manager anyway –
- So these strategies replicate, but automate some of the active management decisions (smart beta has been referred to as "cheap alpha" or the "commoditization" of alpha)
- And hence effectively has a built in "value" bias
- Can end up with "value trap" stocks in your portfolio
- Furthermore, is based on historical value for the criteria with no cognizance of the outlook for a company
- Has outperformed ALSI over most periods but recently performance has been poor (along with value funds)
- May increase allocations to less liquid stocks when compared to market cap weighted indices

Low Volatility Strategies

- Index is created using companies ranked by volatility measures eg historic volatility
- In-built downside risk – this may work for this investor as he is fairly risk averse
- Thesis for this strategy is based on asymmetry of returns
- Marks for explanation of asymmetry of returns – one needs to earn a higher return to reverse the impact of a market fall – eg 20% fall requires 25% recovery to be in same position. So if you can limit the downside this creates an advantage.
- Both strategies follow a "black box" approach that may not be clearly understood
- Will be weighted towards certain industries and sectors which tend to exhibit lower volatility eg utilities, large consumer staple companies
- This can introduce other risks to the portfolio eg regulatory or concentration risk

General comment: in constructing smart beta indices it is possible to compensate for deficiencies like concentration, liquidity, small cap bias, etc. by formulating rules for index construction that eliminate or mitigate those issues.

Smart beat has been very slow to find acceptance in ZA; a fund adopting a smart beta strategy might feel quite exposed to the risks of having a performance profile that is at odds with the vast majority of participants.

QUESTION 2

The focus of this question was Investor Requirements. Candidates fell into the trap of regurgitating book work, as opposed to truly diagnosing the nature of the liabilities and appropriate solutions.

Regarding the first part, few candidates correctly discussed on the nature of the liabilities for the organization – which is a going concern – as opposed to a narrow focus on the liability of one bursary holder.

Part iv was a daunting question and called on candidates to synthesize their understanding of the underlying strategy of absolute return funds with their knowledge of market history to diagnose the factors driving performance of the absolute return funds. Given the open ended nature of the question, well-argued points were generally rewarded. Future candidates should take note that questions like these will mean the difference between a pass and a fail. Keeping a clear head and applying the knowledge that you have to it will elicit a good many marks – even if it appears daunting at first.

i)

- The liabilities are made up of bursaries / grants in payment already granted, and bursaries which will be granted in the future.
    - The liabilities currently in payment will have a relatively short run-off period (probably < 4 years)
    - To the extent that future bursaries have been committed to, this will represent a longer run-off
- Future commitments can be scaled back/increased depending on fund availability at that point.
    - The intent will obviously be to maximize the number of grants and scaling back will be an undesirable outcome and jeopardize the mandate of the fund
    - This will depend on how aggressively trustees will pursue further fundraising efforts
    - And the associated cost of those efforts
    - As well as investment return achieved on funds invested

- School and university fees typically increase faster than inflation so real liabilities
- Management expenses are linked to salary inflation – likely higher than inflation.

- Certain of the liabilities will be denominated in other currencies should students elect to study overseas
- Assume that trust is not just to cover education costs but other living expenses such as transport, food, housing etc. Also go up with inflation.

ii)

Boutique manager

- Small company, how small is small? What will your assets be in relation to overall AUM?
- How long has it been in existence? What is the track record of the key investment decision makers?
- Key man risk – small company may only have one or two investment professionals
- Need to perform an operational due diligence to ensure it is sustainable business
- Single manager risk – given the size of the assets it may be worth splitting over more than one manager
- Will such a small manager be able to provide the liquidity you require (without impacting other clients) – what are withdrawal notification periods and conditions
- Higher yield fund may have onerous liquidity conditions

Strategy of using money market only

- Real returns on money markets are negative at the moment and expected to be for a while - so the trust will not be sustainable in perpetuity
- Over very long periods money markets have delivered real 1-1.5% - we may return to this in the longer term.
- But even this is not enough in order to match the liabilities as described above in perpetuity
- Does not match the offshore/exchange risk for students/liabilities studying overseas

High yield Money market fund

- In order to beat peers by such a margin the fund must be taking on additional risk

- Need to do an investment process due diligence to determine the sources of the outperformance and whether past results are sustainable going forward

- Money market portfolios are not entirely risk free – not guaranteed to preserve capital
  - Particularly this fund if it is taking on additional risk
- These may include:
  - credit risk,
  - longer dated duration risk
- Derivative structures such as CDO's, securitisations
  - These instruments, while enhancing returns can significantly increase the chance of losing assets if and when a credit event or liquidity crisis occurs.
  - Recall late 2008 – examples where some money market funds went below 100 during the liquidity crunch
- Also African bank more recently caused certain money market funds to transfer a loss to investors – this was a credit event as opposed to liquidity event above.
- What are the fees for this fund when compared to peers – may outweigh additional benefits on a risk adjusted basis

iii)

- Fund will need to generate real returns so it is essential to invest in real assets
- These include (inter alia) equities, property, inflation linked bonds
- Inflation linked bonds offer real returns and not as price volatile as equities – should form a component of the strategy
- However, ILB prices can still decrease and exhibit volatility depending on the duration of the bonds and fiscal environment (when real rates expectations go up/down)
- Yields on inflation linked bonds currently will be insufficient to generate even inflation plus 3% and not expected to provide this over longer term given growth prospects in SA
- Can use credit to increase yield but ILB's with credit component are hard to source in SA no-one is issuing. Government is by far the main issuer of ILB's

- Will need to introduce higher yielding real assets such as equities to generate the returns
- Equity prices very volatile which make achieving the secondary objective very difficult
- Equity volatility could be removed or dampened by using derivatives to protect against downside risk
- Examples could be using (selling) futures, covered calls or protective puts or even zero cost collars
- Would need to take care with match between the derivative underlying index components and the actual underlying portfolio (basis risk) – could introduce unintended gearing to certain shares,
- Depending on the way the protection is structured this will either cost a specific upfront premium (covered call) or involve giving up some upside return (zero cost collar) – thereby lowering overall returns
- Generally, the higher the degree of uncertainty, the more expensive these strategies are
- Hence the protection could be implemented on only a portion of the portfolio
- or applied only at specific times/triggers – ie when market valuations run high. Timing would be tricky and potentially dangerous here.
- An alternative strategy to dampen equity volatility is to invest in shares of companies which exhibit lower volatility –
- certain sectors such as utilities, staple food providers, tobacco etc.
- This can be risky since those companies may have very poor growth prospects

- The allocation to equities/ILB's/MM could be tactically managed during different market conditions in order to increase the likelihood of achieving objectives – ie using TAA
- Property could be included in the portfolio as it is considered generally less volatile than equities yet still yields real returns and has a high income component
- Depending on the size of the portfolio, including property may be less practical and could be limited to indirect exposure such as REITS
- Offshore assets could be included to enhance returns, improve diversification and to provide a degree of inflation protection
- But exchange rate volatility could hamper the capital preservation objective

iv)

- During the financial crisis in 2008, equity markets in SA lost around 40% of their value
- Those funds with exposure to equities and a low level of protection (or even none) would have been impacted by the fall to a greater extent
- A fund targeting CPI+5% would need to have employed a far more aggressive strategy in order to generate those returns
- In fact, with expected returns on equities at around CPI+5-6% a high level of unprotected equities would be necessary going forward
- So, meeting the secondary objective of not losing capital over 1 year periods would be very difficult for such a fund in periods of market turmoil
- This would explain this fund's exposure to the market crash in 2008
- In the 6-7 years following the crisis equity markets recovered strongly have outperformed other asset classes
- This explains why the performance from this portfolio has beaten the "CPI+3" portfolio following the crisis (which is probably a more conservatively positioned fund)
- Given the more aggressive nature of this fund, it may also have had exposure to offshore assets
- These have done exceptionally well over the last 5-7 years as the rand has lost significant value to the dollar.
- The CPI+3% portfolio would be able to follow a more conservative strategy and afford a much higher degree of downside protection
- Or alternatively could have had a far a lower allocation to equities in favour of cash
- This fund, if so positioned, would therefore have weathered the storm well and achieved the secondary objective during the crisis
- However, a more conservative stance would have meant that the returns over the last 5-7 years would have been much lower due to low returns on cash and MM assets, and missing out on some of the equity rally.
- Downside protection on equities will also have been quite expensive at times
- Especially more recently as uncertainty and volatility has picked up – reducing returns further

v)

- Trust will need to earn in excess of inflation in order to match liabilities (growing faster than inflation)
- Trust will need to generate strong additional returns to remain sustainable (esp if fundraising is not as successful)
- Ideally would also want some exposure to offshore assets
- Whilst Mr Rich is risk averse, the objective of never losing capital is not realistic if the trust is to remain viable and to achieve its long-term objectives
- Explain to Mr Rich that, given the very long term nature of the trust, some short term volatility is acceptable
- For the reasons above, the CPI+5% portfolio is more appropriate
- However, there will be fairly significant annual drawdowns from the portfolio so large capital losses should be avoided to prevent crystallisation of losses
- This can be managed through careful liquidity/cash management and planning

QUESTION 3

The first part of this question was straight (and relatively straight-forward) bookwork. These were easy marks that many candidates failed to get. Bookwork is absolutely essential in passing these exams.

The second part called on candidates to apply a bit of creative thinking in solving a unique investment problem. Many candidates seemed to shrink back from this due to the unorthodox nature of the question, but there was an opportunity to score many marks here. Candidates who applied simple and practical thinking, along with their knowledge of investor needs theory, did very well.

i) Bookwork

a) Retirement Annuity

- o Tax efficient vehicle for individual retirement savings
- o Function as open pension funds / trusts that own either a life investment policy or unit trust
- o Investments need to be compliant to regulation 28, and each member must be compliant
- o Contributions are deductible – but up to maximum thresholds
- o Predominantly useful for non-pensionable earnings
- o No income or capital gains tax levied on investments

- Compulsory preservation until retirement where a portion can be taken as cash

b) Tax Free Savings Account

- Tax efficient vehicle for individuals for shorter term savings goals
- Earnings and growth do not attract tax
- Allows up to R 30 000 contribution per annum and R 500 000 contribution over life time
- A range of products can be classified as TFSA's, including bank accounts, unit trusts, retail savings bonds, endowment policies and ETF's

c) Life Endowments

- All returns get taxed at a tax rate of 30% inside the policy, and 10% capital gains tax.
- Therefore, tax efficient for individuals in higher tax brackets.
- Minimum legislated term of five years with penalties for early surrender and substantial amendments
- Because of life license backing it, can include certain investment guarantees
- Historically has included with-profit type products which give smoothed exposure to markets
- But are now substantially unit linked, which means the value of the policy is linked to underlying units purchased with contributions

d) Collective Investment Schemes

- Taxed in the hands of the individual investor, with capital gains tax crystalizing on sale of the units
- The only tax efficiency is therefore the delaying of capital gains tax
- Often few restrictions on exiting – as one can simply sell the units
- But there may be exit restrictions for certain funds

ii)

Overall

- The constraints presented by an app will drive the need for simplicity and a reduction in the number and complexity of investment choices available

- Which will need to be traded off against the need to match the investment need most optimally

Simplicity, fitting into the constraints of the app

- The time and space constraints of an investment process run off an app will drive the need for simplicity
  - And the absence of an investment advisor will mean that all necessary explanation would need to happen in the app
  - Unless it is presented as a "no advice" offering for financially sophisticated individuals – though this will limit the market
  - Though more pro-active ongoing management of the investment could be pushed through the app – which may make the initial choice less important
- Simplicity will be in terms of number of funds made available
  - And the internal complexity of those choices
  - And the pricing structure would need to be simple
- The sophistication of the target market will play a role
  - Likely to be a younger market (though still a broad age spectrum)
  - May be a greater sophistication given that it is driven through a smart phone app

Range of wealth will be relatively wide with some affluent individuals wanting to engage with the product (probably younger)

  - Though smartphones are relatively ubiquitous amongst even lower-income to middle markets
  - To what extent will investment brand names play a role – or would in house funds be sufficient
  - The financial sophistication of the market would affect the appetite for volatility – particularly in the absence of an advisor
- To what degree would you have to offer guidance on investment choice
  - The greater the degree of choice, the more overwhelming it may be to a potential client.
  - Will increase the need for guidance within the app – which will mean that the investment choices should

Asset allocation – meeting the need

- Retirement will be a longer duration – even for older users of the app

- will require long term real assets
- with an increased appetite for volatility
- closer to retirement will need to be cognizant of a greater degree of matching to an ultimate annuity income stream
- however, this will differ depending on whether the individual will convert to a living annuity or fixed income annuity

- Discretionary will be a shorter duration
    - more focus on liquidity and stability as opposed to long term growth and inflation matching
    - though perhaps with some foreign options for those saving for overseas holidays?
- Will there be lifestyling? Particularly for retirement need.
    - Will fit in with simplicity requirement of app "leave it to us"
    - Though will perhaps require more explanation upfront
    - will the app automatically channel the user into a specific product post requirement?
    - if not, will it ask the user for input? This will likely be too complex a question for most users

Active vs passive / pricing structure

- Need for low cost of the product will likely make passive trackers good candidates to be included
- However, to the extent that users value individual active investment brands, these could be considered

Regulation

- For the retirement need, how will regulation 28 constraints be applied in the app?
    - Perhaps only allow regulation 28 compliant funds for the retirement need
    - If not, and to the extent that user choice is allowed, will some kind of regulation 28 check be done within the application and disallow member choices that violate it?
    - Though that would seem to be significantly too complicated

Recommendation – Retirement option

- Given the overriding need for simplicity, it would seem appropriate to delegate most of the complex decision making to the product

- For this reason, it is recommended that a life styling approach be followed for retirement option as a default. This would work as follows
- Up to 5 years before retirement
    - 75% Equities
    - 15% Property
    - 15% across both classes invested offshore
    - The balance of 10% in bonds,
        - which may include some yield pickup from credit risk
- 5 years before retirement, a phased shift to the following
    - 25% Equities
    - 75% bond portfolio duration matched to ultimate annuity requirement

- The app could also offer an alternative "advanced" route for those wanting to pick their own funds, which could offer regulation 28 compliant funds from a number of fund managers

Recommendation - Discretionary

- The discretionary need will be highly dependent on how the client thinks about the investment – in terms of the duration of the need identified
- This will also more likely be driven by the individual's sensitivity to short term volatility
- Three profiles could be offered, with increasing volatility
    - A conservative option will be for the most risk averse, or those with the shortest investment horizon
        - Cash, money market, and shorter term bonds would dominate the allocation
        - Perhaps with a small equity allocation and some offshore for yield pickup
    - An aggressive option for those with longest investment horizon and appetite for volatility
        - Equities and listed property would dominate the allocation
    - A moderate option which would be a midpoint between the two