

**Actuarial Society of South Africa**

**EXAMINATION**

**26 October 2017**

**Subject F205 - Investment**

**Fellowship Applications**

**SOLUTIONS**

*This exam was felt to be slightly more approachable than previous exams, and contained more technical content based on knowledge from earlier subject material than usual, presenting a few opportunities to score marks for fairly straightforward calculations. Yet the pass rate was lower than for previous sessions. The overall results achieved for the exam were therefore disappointing. The Board of Examiners has expressed concern, across all specialist subjects, as candidates' inability to handle technical questions at this stage of their exam progress. Many candidates appear to have exercised poor time management having spent too long on parts of question 1 and running out of time at the end of the exam. Candidates' knowledge of historic returns on asset classes and associated major economic events was very poor, which was surprising as this material is covered in great detail in the core reading.*

## **QUESTION 1**

*This question relied quite heavily on application of knowledge from previous subjects which was recommended for revision in the reading material – particularly around derivatives and CAPM theory. Derivative structures are covered in F105. Even without first -and knowledge of the particular structure, a candidate with a good understanding of derivatives should have been able to sketch the structure from first principles. The discussion of relative advantages was not well covered in the scripts received. Marks could have been obtained for stating general points around derivative structures even if you were unable to sketch the profile – for example margin, counterparty risk etc. These were often missed.*

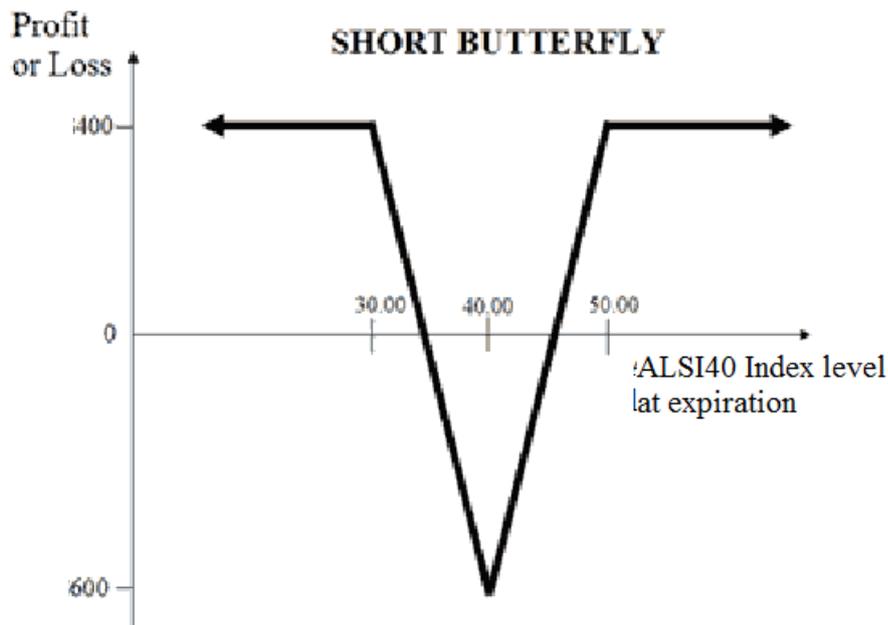
*Part ii was poorly answered given that this was a knowledge type question based on core reading. Candidates very often mixed up the properties associated with different vehicles or else made repetitive points failing to highlight the distinguishing features.*

*The answers provided for part iii were the poorest across the exam as candidates were unable to consider the relative merits of a strategy based on principles different to traditional CAPM theory. This question required higher order thinking as the strategy is not covered in core reading but was clearly described in the question.*

*Part iv required candidates to simply interpret the observed performance given in the question against the background of the strategy described earlier. Knowledge of recent economic events and returns on asset classes would have allowed a candidates to score good marks for this component of the question but critical points around interest rates and bond yields as well as commodity prices were missed.*

i.

The strategy is a short butterfly spread.



[max 3 marks]

- Profit is made if equity markets move significantly either up or down – so this strategy is appropriate for the political scenario.
- Maximum profit for the short butterfly is obtained when the underlying stock prices rally past the higher strike price or drop below the lower strike price at expiration.
- If the stock ends up at or below the lower striking price, all the options expire worthless and the short butterfly client keeps the initial premiums taken when entering the position.
- However, if the stock price at expiry is equal to the higher strike price, all the options would be exercised and offset each other for a zero profit and the client keeps the initial premium received when initiating the position (higher striking call expires worthless while the "profits" of the two long calls owned is cancelled out by the "loss" incurred from shorting the lower striking call).
- Hence, the maximum profit is still only the initial premiums taken.
- Unlike a long straddle (or long strangle), however, the profit potential of a short butterfly spread is limited.
- On the other hand, potential loss is limited
- Maximum loss for the short butterfly is incurred when the stock price of the underlying index remains unchanged at expiration.
- At this price, only the lower striking call which was shorted expires in-the-money. The client will have to buy back the call at its intrinsic value. The loss would be the difference between the lower and middle strikes less the premium received for initiating the position.
- The commissions for a butterfly spread are higher than for a straddle (or strangle) as more contracts are used.
- Should be easy and quick to implement using very liquid exchange traded futures
- Will need cash available to post margin on the trade.

[max 5]

ii.

- physically invest assets overseas in passive portfolios
  - This will involve sending money offshore and will be subject to exchange control regulation
  - Limited to R 10 million per annum
  - Can appoint a local or offshore based passive fund manager
  - Or buy an ETF on a foreign exchange
  - Much wider choice of passive strategies available offshore (including geographical variants, smart beta, etc)
  - Funds can be invested in a range of tax friendly jurisdictions
  - Likely to be a more expensive option as expenses higher for offshore portfolios
  - However, there are some very large passive funds offshore so may be cheaper due to economies of scale
  - Advantage is that money is physically outside the country should political risk increase significantly
  - May attract double tax (e.g. withholding on dividends) if tax agreements do not exist, or it may be difficult to reclaim your withholding tax from overseas as an individual if you go the ETF route
  - The cost of exchanging currency may be more pronounced when taking money overseas to invest

[max 4]

- invest in ETF issued on JSE which tracks the global Index/Invest in passive SA Unit trust tracking offshore indices.
  - Quicker to get exposure as don't need exchange control approval
  - Very limited choice of international ETFs on the JSE currently, UT may offer more choices. This area of investment is growing in SA.
  - Money is not physically outside the country – just exposed to for e.g. MSCI world basket performance
  - Investors could be caught by exchange control restrictions later on (no guarantee that government will not demand repatriation of funds)– not fully protected from political risk
  - Dividends are taxed at highest rate between overseas and SA, SA tax credit reclaimed
  - Could be more cost effective
  - ETF issuers may use synthetic strategy to track the index which introduces potential credit risk
  - May also be a material tracking error risk (1-5%) to NAV if overseas market is thinly traded or has other features that the ETF/UT trade doesn't properly track, such as the market not being broadly diversified, the replication/sampling method limited

[max 4]

iii.

Merits:

- Reduces reliance on equity performance as a key driver of overall performance – removes overall portfolio volatility as equities can underperform for long periods.
- Appears to be more risk-diversified – both by adding alternative assets and through the strategy itself. Adds in leverage/credit/rollover risks though
- Passive structure will be cheaper than active asset management
- Quants based strategies, in general, remove exposure to behavioural biases – no individual judgement needed when making stock picks.
- Process is agnostic to assumptions of asset class returns which are very hard to predict
- Can possibly be applied across asset classes and across sectors with differing risk profiles
- May be attractive to more risk averse investors who still seek adequate real returns
- Strategy will do very well when bond markets run and volatility is low

Pitfalls :

- An essentially passive quant strategy means giving up potential active management alpha, if the belief is that this can add value
- Especially giving up bond credit alpha opportunities as indices are biased toward more liquid government bonds
- If derivatives are used to gear the bond portfolio does not match the underlying bond index there may be basis risk introduced
- Bonds returns are negative skewed (particularly credit) which makes leveraging potentially dangerous
- Strategy will need cash/liquidity available for margin – this may be a drag on performance. May even need to liquidate additional assets during a market crisis
- Risks associated with leveraging using derivatives e.g. credit counterparty risk, liquidity risk particularly if exchange traded derivatives not used
- The model only consider volatility as the measure of risk - what about other risk measures and how does it handle outlying 1:100 events
- What statistical distributions and parameters used in the model? How realistically do they represent the tail events?
- The strategy is complicated which makes it hard to understand by investors – particularly individual investors
- What would be an appropriate benchmark against which to measure performance for the portfolio?
- Strategy is based on a complicated quants model – skills will need to be employed to set up and maintain the model – which may come at additional costs
- The modelling depends on historical risk premia and volatilities which may not be relevant going forward
- Strategy will require constant monitoring and rebalancing
  - Additional (operational) risk
  - Costs (skills, transaction)
  - Both borrowing and trading costs will eat into returns

[max 1]

- To what degree is leverage needed in certain market conditions. Is this appropriate?
- More importantly, is leverage freely and constantly available – what would happen in a high interest rate environment?
- What if bond returns are lower than cash for long periods as has been seen in past years in some economies (e.g. negative risk premium on bonds)
- How quick is model to adjust or rebalance when market conditions change suddenly?
  - If interest rates were to rise rapidly, not only would bond values fall but so too would equities.
  - A rising-interest environment could be accompanied by an increase in inflation, a spike in unemployment and lower economic growth, which would cause share prices to fall.
  - Risk parity assumes these two assets are weakly or negatively correlated but, in this scenario, they are positively correlated.
  - As risk parity overweighs bonds, a positive correlation shock could result in these strategies underperforming.

[max 2]

[max 12]

iv.

- Risk parity portfolio outperformed during the financial crisis period 2007/2008. This is expected as equity exposure was muted and bonds significantly outperformed equity during that year
- The strategy underperformed during 2009 as equity market rallied significantly from record low levels following the crisis, and the higher exposure to equities would have assisted the 60/40 portfolio
- RP performed well relative to 60:40 up to 2013. This is in line with expected performance as per the strategy. The period was characterized by equity market volatility as global economies struggled their way out of recession.
- Bond performance was strong following the crisis in 2008 as interest rates were dropped globally to record low levels. The leverage of bonds under the strategy will have captured these poor returns and magnified them
- RP portfolio underperformed significantly during 2013 and 2015.
- 2013 saw the start of US central banks raising interest rates and policy uncertainty at the time led to volatility in bond markets – the US “taper tantrum”
- If large amounts of capital are invested in these strategies (as suggested) and portfolios start deleveraging as rates rise, then further rapid deleveraging could cause a “flash crash ” (in fact RP portfolios were blamed for the bond “flash crash” in 2013)
- Risk parity will do particularly poorly in a rising interest rate market – where rates rise more quickly than expected
- 2015 also shows significant underperformance of RP relative to 60/40. On top of poor bond market returns, commodities fell significantly during 2015. The RP portfolio exposure to commodities, albeit small, would have suffered further as a result of this exposure.
- The performance of the two portfolios over the period is exactly the same, and quick calculation shows that the standard deviation of the RP portfolio is only slightly below that of the 60/40 portfolio raising questions around the validity of the strategy during extreme bond market conditions as described above.

- However the extremes in absolute performance are not as high as the 60:40 portfolio
- The aggressively contracyclical performance with huge drawdowns would probably have alarmed investors who were promised “equity-like returns with reduced overall volatility”. Did they realise that there could be such massive fluctuations in returns over the short term?
- It also means that timing entry and exit points for this strategy could be critical to an investor’s overall investment experience.
- Are returns gross or net of taxes and expenses?
- More frequent rebalancing with an efficient algorithm might have improved the returns and/or reduced the volatility of the 06/40 portfolio.
- The comparison with a portfolio of just bonds and equities should be treated with caution. Other asset classes could have been included in a MPT-based portfolio for better risk diversification.
- RP performed poorly in '08 in absolute terms as bond and equities both fell significantly due to market contagion and abnormal correlation between the two.

[max 6]

## QUESTION 2

*Question 2 was handled the best by candidates in general, with the average mark in line with the pass mark. Many candidates were, however, unable to perform the required calculation and missed straightforward marks. More alarming was the number of candidates who did not even attempt the calculation. The question required candidates to consider a private equity opportunity from the point of view of a retirement fund. Marks were awarded for answers where candidates interpreted the value in the last row of the table as either market capitalisation of shares or number of shares (as done in the solution below)*

*Part i was well handled by candidates. The understanding of the scenario was good and candidates demonstrated the ability to use the information given to generate relevant points. If anything more could have been written by many candidates but this shortcoming is a general feature of the F205 exam in every session.*

*For part (ii) candidates were generally able to generate broad points around the appropriateness for a fund (e.g. discussion of regulatory restrictions, real returns) but did not extend this discussion to the specifics of the fund (e.g. duration and liquidity requirements).*

*Part (iii) provided a classic example of candidates failing to generate enough points to achieve the number of marks awarded. Most candidates understood the appropriate valuation techniques and scored marks for discussing these but need to write more – particularly using information given around the specifics of Newco.*

i.

- It seems as if Newco only started monetising its offering in 2014
- However, revenue is now growing exponentially
- Newco is loss-making at an EBITDA level
- A tech company is likely to be asset light so depreciation will likely be low.
- Interest earned will not be significant
- Newco is unlikely to pay taxes due to its losses
- So, bottom line net profit is likely to be close to the EBITDA disclosed i.e. making losses
- The losses were getting larger until 2015 despite increased revenue. This is likely due to heavy marketing costs and client acquisition costs.
- The loss reported in 2016 was lower than in 2015 implying the company may be on the way to profitability
- Due to the losses Newco is burning through cash. Another year of losses and the company will need to borrow or raise fresh equity to sustain operations
- Shares in issue are increasing by 20%pa. This may be because the start-up is paying its staff with shares which is not uncommon with cash poor start-ups.
- The increase in shares has not been reflected in an improved cash position, so it seems the new shares were issued at a minimal cost, reinforcing the notion that these have been staff allocations.
- Where the increase of shares is interpreted as an increase in market cap : The same risks could be occurring as those during the tech bubble where share prices grew far quicker than earnings due to high demand for the sector. This created a bubble.

[max 5]

ii.

### Appropriateness for the pension fund

- The liabilities of the pension fund are real in nature, predominantly denominated in Rands and long dated
- Despite the average age of members being 50, the average member's working life expectancy is likely to be in excess of an additional 15 years. However individual members older than 50 may have a different view and have a lower average risk tolerance being closer to retirement
- How does this investment fit in with the fund's strategic asset allocation? Presumably it will be accommodated as a substitute for listed equity – effectively a “stock selection” decision (external to the universe of listed equities) based on expectation of increased return.
- Private equity investments are on average, due to their higher risk, expected to deliver real returns to shareholders in excess of listed equity returns.
- This would be attractive for the pension fund and help it achieve its real return objective
- However, this private equity investment would come with substantial additional risk of permanent capital loss. Does this investment fit the fund's risk/return profile?
- What will the size of the investment be - fund is medium sized so it is important not to have concentration in one risky investment. Trustees would need to consider limiting the size of such an investment.
- Do the trustees or their advisors have the expertise to analyse private equity investments and exercise governance over them throughout their term?
- Does the pension fund have any other private equity investments? The trustees could consider investing in a diversified private equity fund. This would mitigate the risk of a single investment failing.
- The additional governance and administration burden may also be excessive for a single investment.
- If the trustees want to invest in private equity they should be looking at the whole available universe rather than focusing on the opportunity presented to them.
- The extended term of the pension fund liabilities is a good match for the long-term nature of an investment in Newco. The business is very young and will need time to reach critical mass and sustained profitability
- The trustees should consider the lack of income to emerge from Newco. The business is young and not profitable so is unlikely to pay a dividend for some time. More likely is that the business will need to raise additional capital.
- Lack of liquidity needs consideration: exiting the Newco investment will be time-consuming and expensive (and may not even be possible) in contrast to selling a listed equity which is quick and inexpensive
- How will returns be allocated to members given infrequent valuation of assets – this can create mismatches for members entering and leaving the fund.
- Does the fund's IPS allow unlisted investments?
- Reg 28 allows unlisted investments but it is capped. Will the investment in Newco result in breaching this limit?
- Investing in a South African start-up may be viewed favourably from a socially responsible investing viewpoint with the investment having positive knock-on effects for employment and growth in SA

### Newco

- One would need to better understand the business model i.e. what does the app do and how does Newco make money from it
- It is a relatively untested business model i.e. Newco only recently started generating revenue
- What is the current and potential competition?
- Where on J curve is the business? Is it sustainable?

- Require a comprehensive forecast of all financials: revenue, cash flow statement, balance sheet, income statement.
- The robustness of the business must be tested by stress testing the forecasts under various scenarios with conservative estimates of critical parameters like user growth, product price, cost of capital, etc.
- When will the business start generating cash profits?
- Which existing investors are selling down their stake for the pension fund to invest or would this be raising additional capital?
- What stake will the founder/management maintain following the pension fund investment? Essential that management are incentivised to stay and growth the business
- In a private equity investment like this one, a seller is at an informational advantage (as an insider) to the buyer.
- What would investor involvement be? Will they have board representation, voting rights in order to exercise some control over the company decisions

[max 13]

iii.

#### Valuation of Newco

- Newco is difficult to value as it is loss-making, even at an EBITDA level
- Simply applying ratios (like PE multiples or dividend yields) is therefore not possible
- NAV would also not be appropriate since little to no fixed assets.
- Constructing a DCF is likely the most accurate method to value Newco
- However this will involve making many assumptions
  - At what rate will revenue grow
  - In what year will the business generate profits
  - What will EBITDA/EBIT/net profit margins eventually reach and will they be sustainable in the face of competition?
  - When will Newco start paying dividends to shareholders?

[max 2]

- Need to project revenue/expenditure into the future and discount net cash flows to the present
- Newco will likely need to raise additional capital soon. How much capital will need to be raised over the time horizon of the DCF and when?
- What form will that capital be: equity or debt?
- Bank will be reluctant to lend to a business with negative cashflow. Cost of debt? Bank will not lend to start-ups cheaply
- Further equity issues will dilute existing shareholders should they choose not to invest more
- One would need to use higher than usual discount rate in DCF (add additional risk premium to discount rate) to compensate for higher risk – but difficult to set that risk margin
- Need to make valuation allowance for the ever-rising share count. This dilutes existing shareholders

#### Other methods of valuing start-ups include:

- Price to sales (one could use a comparable multiple from the valuation of other similar companies that have either raised capital or been bought/sold recently)
- Value per user
- Comparing them with listed entities in a similar position.

[max 1]

iv. a)

Marks should be awarded for setting out cashflows in writing as below, not just getting the figure correct.

Date	31-Dec-10	31-Dec-11	31-Dec-12	31-Dec-13	31-Dec-14	31-Dec-15	31-Dec-16	31-Dec-17
Venture capital equity invested	-50		-50					300
Credit facility capital flow	25		25					-50
interest payments on credit facility		-3	-3	-6	-6	-6	-6	-6
total net cashflow to(from) venture capital firm	-25	-3	-28	-6	-6	-6	-6	244
							IRR	24%

iv. b)

- ALSI has returned about 8%p.a. over last 10 years
- This coming off a high base just before the crisis hit in 2008
- However the 24% return is far in excess of listed equities over last 10 years
- This is to be expected as private equity returns should deliver is risk margin over listed equities to compensate for addition risks
- The appropriate risk margin can vary significantly depending on the terms and nature of the deal.
- The (higher degree of ) leverage would have increased the return on the venture when compared to ALSI in general

[max 2]

### QUESTION 3

*Parts iii and iv of this question were very poorly answered. Again, for part iii, candidates were unable to demonstrate the ability to perform a fairly straightforward calculation. The brevity of a number of answers provided for part iv together with the fact that only one or two issues were discussed suggest that many candidates ran out of time at this stage. Candidates at this level should have the ability and discipline to allocate their time based on number of marks awarded taking into account their areas of strength, and then stick to this.*

*Part i was, again, a knowledge question based on core reading. On average, candidates scored above the pass mark here but regularly mixed up properties on public vs private debt and listed vs unlisted in the context of government and corporate issuers. A clear knowledge of South African bond markets is essential to almost any actuary practicing in South Africa. Part ii presented the opportunity to score many marks, as is evident from the marking schedule below when compared to the marks awarded. Candidates often did not clearly distinguish between risks for the investor and risks for the firm and discuss each separately, providing a single mixed response rather than setting out the points separately as in the solution below.*

i.

#### **Listed debt**

- Listed debt is sold on an exchange
- Both government bonds as well as corporate bonds and asset backed securities can be listed

#### **Advantages**

- The price is more readily available
- Listed debt has stricter regulatory requirements
- Liquidity is theoretically higher than for private debt – but listed debt is not always liquid and often seldom trades
- Ratings of debt help establish individual bond issuer creditworthiness
- Investors may be limited to investment grade credit or other rating based restrictions
- Future funding requirements can be met from the broader marketplace, not just the existing investors
- Within listed debt diversification can be more easily achieved as there are comparatively more investment opportunities (although have reduced in recent years and issuers may concentrated in certain sectors)
- Derivatives based on listed debt can be purchased. This can potentially help the manager with asset allocation as well as limiting negative returns (at a cost)
- Selling is quick and potentially much cheaper than private debt (compared to the potential cost of forced selling of private debt)
- Higher allocation can be made according to regulation 28
- Typically higher levels of issuance of public debt
- Debt securities may be a match or reference for institutional liabilities, accounting or capital assessments

## Private debt

- Private debt is owned by a private group of investors, usually including the owners and management of the company issuing the debt.
- It is usually only corporate bonds that can be held privately

### Advantages

- Private debt provides diversification benefits to other asset classes
- Less market pricing efficiency thus offering the potential of higher returns
- Liquidity premium will also increase returns compared to listed
- Higher degree of manager influence and governance – can set specific covenants
- A different issuer profile in this space (e.g. development funds) may offer further diversification opportunities

[max 7]

### ii.

- Main risk is the liquidity risk – an investment into private debt cannot easily be liquidated.
  - It is not clear from above how long each opportunity will be invested in and if an opportunity is unwound, monies will be distributed back to investors
  - Also, it is not clear if recurring debt repayments will be reinvested or paid to investors

[max 1]

#### *Considerations/possible enhancements: enhance liquidity*

- Distribute proceeds of debt repayment directly to investors.
- Structure the fund in a way that loans can be given against the investment if liquidity is required
- Set specific exit times (and associated penalties) upfront for investors.
- What skills does the manager have to work out defaulting securities?

[max ½]

- Currency risk – consideration needs to be given whether or not currency risk should be included.
  - If included it is expected to increase the returns (due to inflation differential), however it does increase the risk.
  - If target market's liabilities are R denominated, then currency risk should probably be hedged out. This will increase the cost of the fund

[max 1]

- The overall limit for investors to invest overseas needs to be considered
  - 15% in unlisted debt instruments for retirement funds. How will these limits reduce the potential to raise the capital?

[max 1]

- Default risk – high risk of default beyond the risk appetite of the investor

#### *Considerations/possible enhancements*

- Smaller position as part of the investor's overall fund can be made
- Could potentially target lower risk of default companies (or obtain credit ratings for further comfort), or specify limits on higher risk debt; however, this might be to the detriment of returns.

[max ½]

- Is the return target sufficient compensation for the risk taken?  
*Considerations/possible enhancements*
  - What returns have other funds similar to this one produced over the past
  - How will the market differ in the foreseeable future (for example when QE ends), and what influence will that have on the market the portfolio manager is operating in?

[max ½]
- Fees: Are the fees too high – there has been focus on fees for institutional investors?  
*Considerations/possible enhancements*
  - For the target market a detailed analysis of the fees will need to be provided – show total fees payable under different performance outcomes
  - How does the 1.5% compare to similar products and how was this determined? The 8% hurdle needs to be assessed against other funds

[max ½]
- Audit and compliance functions need to be in place and evidence of robust management of operational risks including disaster recovery.  
*Considerations/possible enhancements*
  - The manager will have to prove it has the necessary processes in place to ensure that the fund is audited and complies with all regulation. Ideally this should be done outsourced and audit/compliance done by one of the large recognizable firms in order to give investors peace of mind
- Tax considerations
  - What will the tax implication be for the target clients? Can the fund be structured in a more tax effective manner?
  - The tax implication of an international fund need to be clearly understood and communicated – i.e. double tax relief, who reclaims withholding tax, how will SA tax exempt investors be handled. The tax implications depend on the type of institutional investor.

[max 1]
- Legal Structure
  - What is the legal structure of the fund and how will the potential investor buy into the fund – e.g. can buy in as a limited partner which means that they can only lose as much as they've put in. If structured as a company, then there will be company tax payable.

(b)

- The capital commitment phase is typical and should not be perceived abnormal by the target market  
*Considerations/possible enhancements: Discount*
  - A discount on fees to investors who commit capital first. This will also help with the marketing angle of 'buy now before it is too late'
- The \$5m might be considered too little compared to the fund  
*Considerations/possible enhancements: Higher capital commitment*

- Either consider reducing the size of the overall fund, or increase the capital commitment. This will show the potential investors that the PM's interest is aligned to that of the investors.
- The reputational risk that the investors don't understand the product which later causes reputational damage

*Considerations/possible enhancements:*

- This fund should only be marketed to sophisticated institutional investors due to the financial knowledge required as well as risk inherent in this fund.
- As such a high minimum investment needs to be introduced to deter smaller investors from accessing this fund
- Marketing material must explicitly explain all investment risks

[max 1]

- Will the fund achieve the critical minimum inflow that has to be achieved in order for the fund to be optimally functioning?

*Considerations/possible enhancements*

- It would be ideal if the capital committed by the PM covers the critical minimum.
- Commitments could be obtained from a few key investors before going to market.
- Widen the net of potential investors e.g. beyond institution or outside of SA (Africa)

[max ½]

- Will the manager be able to sell his product if he is unknown in the South African market?

*Considerations/possible enhancements*

- A list of the fund manager's past experience and track record needs to be included in the marketing material as well as communicated to the potential investments (pipeline).
- The marketing material should include why is this pipeline potentially more attractive than other investments
- Marketing material should also include the maximum investment in an underlying opportunity in order to achieve diversification and reduce concentration risk. This will be a key risk in the beginning of the fund when only a few investments have been made.
- The fund manager's past performance could be used to show diversification benefit if combined with typical traditional strategies
- What differentiates this manager from other similar managers? This manager needs to offer something special for investors to invest in an unknown manager.

[max 2]

- Audit and compliance functions need to be in place with robust management of operational risks including disaster recovery.

*Considerations/possible enhancements*

- The manager will have to prove it has the necessary processes in place to ensure that the fund is audited and complies with all regulation. Ideally this should be done outsourced and audit/compliance done by one of the large recognizable firms

## Other considerations

- Timing of launch will be important – December is a bad month to launch as most investors are on holiday, Feb and June is most people's year end thus too busy to look at exotic investments
- May not get the anticipated level of returns (i.e. above 8%) which could result in low fees collected and costs not being covered

### iii.

- Management + admin + other =  $1.5\% + 0.5\% + 3\% = 5\%$
- Distribution waterfall =  $(25\% - 8\%) * 20\% = 3.4\%$
- Advisor =  $((1 + 1.5\%) * (1 + 1.5\%)^9)^{1/10} - 1 = 0.6\%$
- Thus total fees ex vat = 9% and EAC = 10.26%

### iv.

- Performance fees could be an effective tool to align a manager's interests to clients and to the outcome of the fund.
- However, if structured incorrectly or ambiguously, it could encourage inappropriate behaviour by investment managers. In this case there is no incentive for the manager to manage downside risk and thus his/her incentive will be to seek maximum performance with little consideration for the potential downside risk
- Although the fund does not have an investable benchmark, CPI + 6% is in no way aligned to the underlying nature of the (USD) investment. (At the very least the benchmark should be denominated in USD and if it is inflation linked it should be to US inflation.)
  - a. For example a US denominated index based on debt instruments could be used. Some adjustment might be required (either adding or subtracting a certain %) to adjust for the risk of underlying debt instruments compared to the benchmark.
  - b. Whichever benchmark is chosen, it should be transparent and readily available

[max 1]
- There is no downside participation by the manager if the fund underperforms and no cap if the fund outperforms.
  - a. I would suggest a cap on the outperformance to compensate for this.
  - b. Also a rebate could be introduced as compensation if certain hurdles have not been achieved

[max 1]
- Introduce a high water mark in order to avoid the manager achieving fees twice (if the fund grows from 100 to 110, performance fees will equal 2. If fund falls to 100 again, and again grows to 110, manager could potentially get another 2 performance fee.
- If CPI is 6%, this fee will be  $2\% + (25\% - 12\%) * 20\% = 4.6\%$  before VAT, 5,244% after VAT.

- a. It is slightly lower than the 5.586% expected from management fees above. The risk to the PM is that inflation increase drastically – another reason not to use the CPI benchmark
- Having alternative fee structures available to investors could be used as a marketing tool
- Whether this fee is appropriate could be determined by comparing it to other similar funds in the market
- The one year measurement period might be too short, especially because the underlying investments are expected to be much longer term.
  - a. A three year period might be better. The shorter the period, the more performance could be attributed to luck
- The 20% participation should not be seen as excessive as it is in line with market norms
- Although none of the charging structures include an initial fee, for a new start-up company it might be appropriate to have an initial fee in order to cover set-up costs.
- The base fee will might encourage the manager to try and gather as much assets as possible without consideration for the fund capacity. Returns might be compromised if the fund grows too big, however since it is based in the US, capacity should not be an issue
- The base fee could be justified by the fact that a PE fund is a lot more labour intensive and more due diligence is required to conduct the fund
- Compared to flat fees, performance fees are very complicated. Portfolio managers can have different interpretation of wording
- Performance fees can be difficult to explain to stakeholders including Trustees and members. Flat fees are more transparent although significant Other cost is open to challenge.
- Administration of performance fees is complicated and mistakes are easily made. Checks are required
- Performance fees are unpredictable compared to flat fees
- Flat fees are more in line with TCF

[max 9]