

# **Actuarial Society of South Africa**

## **MARKING SCHEDULE**

May 2020

**Subject F205 - Investment**

**Fellowship Applications**

*This paper was written under unusual circumstances as a result of the COVID-19 lockdown. Candidates completed the exam online via a platform provided by ASSA. The exam setting and marking process was, however, largely able to be undertaken as normal. The exam session presented no significant incidents as a result of the online process, and candidates' submissions, although not written in the usual word format, were found by the examiners to be straightforward to mark.*

*This paper varied from previous papers in that the exam comprised four rather than three questions. Time management was therefore critical as there were more questions scenarios to work through when formulating solutions. This also meant more, shorter sub-questions with smaller mark allocations. There was, however a very high number of marks available making it easier to score marks in the exam.*

*The exam also examined new material on banking which was introduced to the syllabus in 2019. The paper was diverse as it covered a broad range of the syllabus.*

*A couple of very well answered scripts were received, with the balance of the passes clustered very tightly around the pass mark. The majority of candidates who did not pass scored an FB, with a couple of FC's and FD's which is not unusual.*

***Please note that this examiner report presents one possible model solution to the questions. Alternative solutions provided are considered and marks awarded where correct points are well motivated.***

## QUESTION 1

*Part (i) was a short knowledge question taken directly from the new banking material. This was very well answered by candidates. The balance of the question comprised application and higher order thinking (part (ii)) questions. In part (ii) many candidates placed excessive focus on the bank's ability to administer the interest rate swap, instead of the due diligence of the bank. In part (iii) many candidates failed to connect the likely lower short-term interest rates to the pressure it would place on banks' NII; or the specific impact of currency movements on the unhedged exposure. The link between interest rates and bank profitability was missed by most candidates. Parts (iii) and (iv) covered highly topical industry issues which presented a good opportunity to score marks to well-read candidates. It was disappointing that candidates were not able to generate better answers for these questions. The average candidate scored well below pass mark for parts (ii) and (iii), whereas for part (iv) the average mark was in line with a pass mark.*

### (i)

1. Credit risk
2. Liquidity risk
3. Operational risk
4. Interest rate risk
5. Market risk

+1 other (reinvestment, model, prepayment, country, business, reputational, regulatory, competition)

### (ii)

1. They need to assess the ability of the bank to continue to meet their side of the obligation in term of the swap arrangement. This will involve looking at the overall financial position of the bank and its ability to deal with adverse conditions.
2. Customer credit risk is one of the primary risks associated with banking. One would therefore assess:
3. Concentration of credit risk across individuals and sectors
4. Split of secured vs unsecured credit
5. Quality of collateral where it exists
6. Credit provisioning levels and how these have changed over time and how they compare to peers. Recent accounting changes have impacted how banks account for bad debts
7. What are the latest trends in credit delinquencies experienced?
8. General economic conditions and how banks have fared relative to each other in weak economic conditions
9. Other sources of credit risk can arise from the bank's trading book – particularly counterparty credit risk. Again, similar assessment in terms of the above should be considered.  
Financial position and strength of the bank.
10. Details of previous years' performance
11. Level of Capital reserves and ratios and how these have changed over last few years
12. Investment strategy for capital – capital preservation is important but so is a higher return on these assets. How does the bank's investment strategy meet these conflicting objectives?
13. Diversification between sources of income for the bank. What types of business do they undertake, is there sufficient diversification in their funding sources?

14. Assessment of the degree of liquidity available should there be a run on the bank. What is the liquidity of capital on balance sheet and/or does the bank have access to liquid capital (credit facilities)?
15. Operational risk is another key risk for banking. Have these been identified and how are they mitigated?
16. Risks here include internal control collapse, fraud, unforeseen catastrophes
17. Banks have growing dependence on IT infrastructure which exacerbates these risks.
18. Has additional capital been set aside in respect of these risks (over and above what is required by Basel)
19. Interest rate risk – The level of mismatch between assets and liabilities by term leads to interest rate risk. For e.g. funding is predominantly overnight, whereas loans are long term and fixed rate.
20. Degree to which hedging and matching takes place to limit interest rate risk
21. Market risk – how significantly can the value of capital instruments' price movements negatively affect the financial position of the bank.
22. What models are in place (such as VAR models) to assess this and are the parameters/limits sufficient?
23. To what extent are these market risks hedged?
24. Latest Stress tests undertaken and the results
25. Reputational risk is an important consideration for new business and retention of existing business. Has the bank been involved in any negative press (for example mortgage foreclosures)? How do they respond to this?
26. Sustainability of profits and competition – a range of newcomer banks have entered the market lately and the big 4 banks are already losing lines of business to banks such as Capitec. How has this impacted them and the outlook going forward.
27. What are the banks growth prospects – what areas of the business have been targeted for growth (especially in light of above point)?
28. Expenses such as infrastructure spend and IT spend can be significant for a bank. How have expenses been managed – for example some banks have been closing branches and retrenching in an effort to curb expenses. These measures are not popular with the public perception.
29. Consideration of the impact of future regulatory changes e.g. Basel 4. Has the bank considered these and their potential impact on future capital levels and profitability?
30. The bank's relationship with regulators (SARB in particular). Have there been any issues in the last 2-3 years?
31. Disaster recovery procedures – assess the extent to which operation of the bank would be impacted by a major disaster (cyber threats important here).
32. How is the bank dealing with the growing threat of cyber-terrorism and hacking of client accounts?
33. Banks credit rating can be taken into account but own credit assessment should also be undertaken
34. Bank and department Management team – track record, years of experience
35. Bank governance policies and practices

**(iii)**

Economic downturn

1. Risk of default in future will increase particularly for corporate clients. This would mean an increase in provisions as well as early defaults at this stage to cater for this which would impact profitability.
2. Also, higher unemployment will lead to larger defaults on retail loans – same comment as above applies
3. Changes in property prices as the property sector becomes depressed will negatively affect the mortgage and commercial property book
4. There would likely be a downgrade in overall credit rating of credit portfolio
5. This could lead to a downgrade of the bank itself, making it more expensive to raise capital
6. Lower short-term interest rates can be expected as a policy response to the recession, this puts pressure on NII
7. Might see higher long-term rates as index tracking fund might be forced seller of SA govt bonds (to the extent this is not priced in already). This may mean higher funding cost for banks (bank paper priced at a spread over risk free).
8. Corporate services such as structuring and issuance activity will reduce, impacting bank profitability
9. Also share prices may fall (cashflows discounted at higher rates)

Credit rating

1. Banks will be impacted by any downturn as a result of a sovereign downgrade and the resultant impact on the economy and their clients
2. Sovereign downgrade can lead to a further protracted economic downturn which would further pressure banks as explained above
3. The downgraded credit rating would be extended to banks as well, which will increase banks' borrowing costs (or may have already) –again increasing cost of capital
4. The impact of a downgrade on the currency (to the extent it is not priced in) would also impact banks to the extent that they carry (unhedged) exposure in their trading book.
5. Banks also hold sovereign bonds for regulatory purposes, and the value of this capital can also be expected to decline in the event of a downgrade
6. Banks should boost liquidity and capital buffers as the certainty of a downgrade increases. Since this threat has been growing for some time, one would expect prudent banks to have put measures in place already to counter the impact of the downgrade on their business.

**(iv)**

1. The primary risk will be on the mortgage portfolios of banks
2. Although secondary impact may be felt across all SA financial markets as property rights, in general, are under question.
3. Currently it appears that property owners whose properties are affected may receive something or nothing for properties
4. Properties with mortgages tied to them pose a risk to the bank if the mortgage is not settled in full by the government or the current property owner or not transferred to the new landowner.
5. At best, if there is early settlement of the mortgage, this leads to significant risk of loss of revenue for the bank.
6. At worst the current landowner remains responsible for the mortgage (despite his land having been appropriated) and (probably) defaults on his mortgage. (unless government insists loans are written off)
7. Would need to Identify types of land at highest risk and a particular bank's exposure to this type of mortgage.
8. Vacant and under-utilised agricultural land is considered highest risk but retail/business properties may well be at risk as well.
9. Property/mortgage owners will no longer be able to receive an income off the property to service the loan
10. Speculation around the implementation of the legislation will likely lead to increased defaults risk on mortgages in general – those at highest risk of being expropriated (incentive to pay debt diminishes)
11. Property sales and property market activity can be expected to go down and property prices in general may become depressed – lowering the value of bank's collateral
12. Depending on the final implementation. Legal clarity may serve to boost markets and improve market activity to the extent they are adopting a "wait and see" approach or even pricing in a worst case scenario.
13. Those property owners with bonds may draw out full mortgage value in attempt to get something out of the property prior to exposure/implementation.
14. At worst, the viability of banking system and economy can become jeopardized – this is a very serious matter
15. To what degree have banks been able to engage with policymakers (lobbying alongside other banks), and how do they see this going forward once details of implementation become available.
16. Enhanced risk of credit downgrade for the bank making is more expensive to raise capital
17. In order to mitigate these risks, the banks should already have conducted work on determining exposures here and started to put measures in place which could include:
  - a. Removal of access facilities
  - b. Increased provisions for defaults
  - c. Increase in capital held
  - d. New business filters – stop writing new business at risk or increase deposit requirement and interest rates, require other sources of collateral for mortgages
  - e. Price for increased risk by raising mortgage rates
  - f. Diversify property loan book by type of property and country of origin
  - g. Reduce terms of loans

## QUESTION 2

Part (i) was the longest question of the paper, combining application with higher order thinking. The solution to the question presented below reflects the very high number of points which were available to candidates. As a result candidates, on average, were able to score a pass mark for this question. This was, overall, the best scored question of the exam. We did, however, still have submissions where far too little was written for the number of points required. Candidates are reminded to use the mark allocation as a guide to how many valid points are required. Some candidates incorrectly interpreted part (i) as a property question rather than an investment in a farming consortium. Take care to read the question very carefully. For part (ii) it was surprising how poorly candidates responded to this knowledge-based question - mixing up contango and backwardation. In part (ii) while generally candidates set out how a farmer can make use of commodity futures to secure a price for their produce, few candidates set out how a farm can make use of commodity futures to secure a price for the commodities they consume (their input costs) - e.g. soya and maize for a chicken farmer.

(i)

### Information needed:

#### ABC

1. Trust deed to understand objectives in full detail
2. investment policy statement (or any other document setting out their investment objectives, strategy and implementation) to understand investment strategy and
3. any prescribed assets and/or any restrictions on investments (e.g. unlisted) in the IPS
4. Valuation basis adopted by ABC for unlisted investments (if such exists – this may need to be determined)
5. Detailed financial statements for ABC to determine
  - Size of donation income and how its grown/shrunk over the years
  - Size of expenditure on providing social services and how this has changed over the years
  - Administrative expenses
6. Any information suggesting the pattern of donor income may change from past experience going forward
7. Entity/persons responsible for managing the investment portfolio
8. Mandates related to the management of the investment portfolio (incl fees)
9. Type of bonds (fixed rate or inflation-linked)
10. Other sources of income (e.g. government grants) and how reliable these will be going forward
11. Expenditure: ongoing or project based (i.e. fixed term)
  - Commitments made for further support/expenditure
  - Inflation rate of services provided i.e. medical and social services
12. Tax status of ABC
13. Reliance on income or other proceeds from the investment portfolio for day-to-day running or other expenses e.g. projects – reliance on this may dictate the yield/liquidity required, which farms might not offer

#### Farming Consortium

1. Detailed financial statements of the farming consortium for the past few years
2. Details of wages being paid to employees and any fringe benefits (e.g. housing), assessment of whether they're market related (given the nature of the foundation, it would come under more pressure to pay a "living wage").
3. Running costs of farms
4. Reason for farmers wanting to sell
5. Any benefits / economies of scale from combining the farms
6. Any outstanding land claims over the farms?

7. Size of overall farm – is this viable for future?
8. Supply and demand data for the 3 crops
9. Global impacts on supply and demand e.g. dumping by other countries
10. Pricing data for the 3 crops
11. Crop yields historically
12. Rainfall history for the areas and whether the crops are irrigated or not
13. Access to water (via schemes/underground) and how reliable this is.
14. Soil quality
15. The price it is being sold for – and how that compares to the ABC portfolio of R500m
16. History of land invasions/crime. Any vacant land
17. Degree of diversification of crops with climate and split between the three crops
18. Any debt outstanding on the land
19. Any existing ongoing contracts in place with purchasers to buy produce
20. Liabilities of ABC:
21. Liabilities are real in nature and increasing at a faster rate than general inflation. Medical inflation is usually higher than CPI. Also wage inflation has historically been in excess of CPI
22. Administrative costs (mostly wages) will thus also increase ahead of CPI
23. Liabilities are also reasonably predictable and should not fluctuate too drastically
24. Liabilities are rand-based, however some expenditure will have a link to forex e.g. medicine prices, price of specialised medical equipment
25. Term of liabilities is likely to be long term e.g. it might be difficult to offer medical care/social services to a community for a year and then pack up and leave. Not in the nature or spirit of a charitable foundation to act in this manner. However future commitments might be scaled back/increased depending in funding availability. This will depend on fundraising success and returns generated by the investment portfolio
26. Risk tolerance is therefore very low due to the important nature of the services provided

#### Characteristics of the farming consortium

1. Farms are businesses that, if managed well, can generate profit and thus an income stream to its shareholders. This profit stream is real (increases in line with inflation). However...
2. Profits are dependent on commodity (crop) prices which are very volatile and not under the control of farmers (depending on limited control via derivatives) particularly if not diversified.
3. Variability in profits is high with some years of good profits and some years when farms are loss-making. This is not a good match for ABC's near dated liabilities, which requires a dependable income stream. Exposure to such assets should be limited to mitigate this risk
  - a. This can be controlled with derivatives although this introduces further costs
4. Currency: farms will have rand-based expenditure (barring fuel and perhaps equipment)
5. However commodity prices will be closely linked to global commodity prices which are often US\$ denominated. This may provide a currency mismatch between income and expenditure
6. Term: farms are going concerns so term of cashflows is a good match to the long term commitments of ABC
7. Profits can also be affected by issues such as drought and pests
8. This can be mitigated to an extent through crop insurance but this reduces profits
9. Liquidity: farms are very illiquid and change hands infrequently. The size of the farming consortium should be limited to prevent it becoming disproportionately large in ABC's portfolio for diversification and risk management purposes, and also as selling will be costly and take time

#### Other considerations:

1. Does donation income exceed services expenditure and by how much? This will determine the level of risk the investment portfolio is able to take.
  - i. And the amount of liquidity needed by the fund
2. If expenditure exceeds donation income and the balance is funded from the investment portfolio then the risk tolerance is low to the degree of the shortage it needs to finance.

3. Current asset allocation:
  - Current mix of bonds and MM not a good match for real liabilities - aside from possible ILB exposure. So the addition of real assets such as income from farming consortium would help correct this
  - Depending if inflation linked bonds are included in the portfolio
  - Need to find a balance between real growth assets (for growth and to maximise returns) and stable/low risk assets to provide reliable income
  - The risk tolerance will play a large role here
4. Such an investment (farms) could be considered good from an SRI standpoint
5. Particularly that this investment benefits directly into the communities served by ABC, however...
6. The trust should also consider other regions where it is active, and what opportunities there are there for social upliftment via investment
7. ABC delivers/sponsor services to the consortium's surrounding communities. This may present concentration risk: in bad times the farms may be forced to lay off workers placing added pressure on the services provided by ABC. However at this same time ABC's investment income from the farms may be simultaneously adversely affected by the hard times
8. Are any of the farms at risk of land claims?
9. What are the supply/demand dynamics of the 3 crops (wheat, maize and sugar)? How does this affect the outlook for commodity pricing?
10. Current labour relations with farm workers
11. Tax status of ABC
12. Who will manage the farm? ABC lacks expertise and will have to employ professional managers
13. Price to be offered for the farms: how to value the farms?
  - DCF is likely to be method of choice
  - Where in the cycle are current profits and how to adjust for lower/higher than normal profitability?
  - Sale prices of similar farms
  - Will want to involve a farm property valuation expert, and interrogate his/her assumptions. It's unlikely that even an investment actuary will have sufficient expertise to carry out the valuation him/herself
14. Concentration risk: R500m size of portfolio may be small relative to cost of farm consortium?
15. How well capitalised are farms? Will they require capital injection soon?
16. Legal ownership structure: would want to limit liability to ABC?
17. Moral liabilities to farm workers would need to be taken into account as well
18. Farming expertise of ABC, if any.
19. Any potential conflicts of interest
20. Farm will diversify the existing portfolio of cash and bonds

**(ii)**

1. Commodity futures are predominantly used for risk mitigation
2. Farmers might want to reduce uncertainty in the future cash flows that they will receive for their crops
3. as well as uncertainty of cost base (e.g. feed costs)
4. If this is the case, they will enter into short positions in order to secure a price at which to sell their crop in the future
5. Generally commodity consumers (like food producers) are regarded as less willing to commit to a future purchase than sellers resulting in a "hedging risk discount" built into the futures price
6. Contango is the situation where the futures price of a commodity is above the spot price.
  - i.e. an upward sloping futures curve - The price of contracts with nearer maturity dates will be lower than for later maturities
  - Contango refers to a situation where people are willing to pay more for a commodity at some point in the future than the actual price of the commodity
  - This is the most common market situation where the underlying has a well traded investment market

- This may be due to people's desire to pay a premium to have the commodity in the future rather than paying the carry costs of buying the commodity today (storage, financing and insurance costs)
  - Contango may occur due to a glut in the current supply of the underlying commodity
  - Or the expected spot price is greater than the current spot price due to inflation
7. Backwardation is the opposite of contango. It occurs when the futures price is below the spot price
- i.e. a downward sloping futures curve - the price of contracts with nearer maturity dates contracts will be higher than for later maturities
  - Because the futures price must converge with the spot price as expiration draws near, backwardation implies that the futures price must rise over time
  - They could also converge due to the spot price falling
  - Future curve may become backwardated because there may be a benefit to owning the physical material, such as keeping a production process running
  - More naturally short positions in the market than long positions due to commodity consumers, so long positions enjoy a risk premium
  - This is known as a convenience yield to shield (an implied return on warehouse inventory)
  - In order for backwardation to occur, the convenience yield would need to be greater than the sum of cost of carry and financing costs
  - This can be due to the lack of a widely traded investment market for a commodity
  - In particular it may not be easy to borrow the commodity and sell it short; especially when there's an inventory shortage. So arbitrage operations cannot be carried out.
  - The convenience yield is inversely related to inventory levels. When warehouse stocks are high, the convenience yield is low and when stocks are low (shortage), the yield is high
  - Sugar is a well traded commodity so backwardation is likely due to a current shortage

### QUESTION 3

*Around half of this question tested candidates' knowledge of recent historic market performance in the context of an active equity portfolio and South African bond markets. This represented pure application of bookwork. Part (i) and (iv) were poorly answered as is often the case for these types of questions, a reflection that candidates are not familiarising themselves with the investment environment in South Africa – possible because they do not have exposure in their workplace. For part (i) very few candidates answered the part of the question dealing with the possible reasons for poor performance. For parts (ii-iii) a few candidates answered this question as if it referred to hedge funds in general, not focusing on the specifics of 130/30 funds. For part (iv) very few could identify dates of important events and referring to nicknames such as "Nenegate" with no further explanation is not sufficient. On average, for this question candidates scored well below the pass mark. A couple of strong candidates could dimension the difference between the JSE's returns and other global markets in part (i), and in part (iv) could connect the movements in the spread to specific events, dates and themes.*

#### (i)

1. In terms of absolute performance: the returns from the JSE have been weak :
  - ALSI 5-year return to Feb 2020 was 2.2% pa (Top40 2.5% pa; capped SWIX -0.2% pa)
  - This is less than inflation which has averaged 5% over the period
2. Relative return (i.e. compared to other local equity funds) may be poor because
  - the fund manager made poor stock picks – certain stocks have had large losses so high exposure to these might have impacted e.g. Steinhoff, Sasol, EOH, Tongaat, listed property
  - the SA equity market (ALSI) is very concentrated: 3 shares contributed 152% of ALSI return over 5 years. If a fund manager did not own any one of these 3 shares, outperforming the ALSI was extremely difficult
  - Poor sector selection may have contributed to relative under performance: the ALSI's return was driven by resources and certain industrial shares; financials were the laggards
  - Fees may be very high for this portfolio
3. Over the last 5 years (to end Feb 2020) the rand has depreciated against the US\$ by 6.2% pa. This has enhanced the rand return from global equity markets
4. Global markets in general have outperformed the JSE (even before rand depreciation)
  - a. MSCI ACWI return: 5.6% pa (\$) and 12.1% pa in ZAR
    - S&P500: 9.2% pa (\$)
    - FTSE100: -0.8% pa (\$)
    - TOPIX: 4.1% pa (\$)

#### (ii)

Potential for higher returns

1. A long-only equity fund can only generate a return if shares owned go up
2. A long-only equity fund can only underweight a share that the manager does not like. This leaves little room to generate outperformance from these stocks particularly if they are a small weight in the relevant index
3. By allowing shorting, the fund has the ability to express negative views beyond not owning the share and can profit from overvalued shares/indices (that revert to their fair value)

4. This is valuable in an environment where the market is flat over an extended time and returns are muted
5. Increased ability to hold relative value positions (e.g. long MTN and short Vodacom) while keeping sector exposure neutral
6. By shorting 30% of the fund, the manager can gain more than 100% long exposure (130% in this case) which may boost returns
7. Potential for lower risk: short positions used to hedge long positions

Drawbacks:

8. Fees are likely to be higher
9. As are trading costs – some 160% of the trades of an equivalent long fund; + shorting costs.
10. Potential for lower returns (manager can get both long and short positions wrong)
11. Return profile will be very different to the SA equity fund universe
12. Returns seems to be at the extremes of the performance spectrum (good stock pickers generate excellent returns while poor stock pickers' performance is very bad)
13. 130/30 funds are not likely to be offered as unit trusts (regulation restricts short positions)
14. The ratio of long/short i.e. 130/30 is arbitrary and may not be optimal
15. The strategy is complex and not easy for many investors to fully understand
16. Investors are more exposed to a manager's ability to generate alpha

**(iii)**

1. Shorting shares requires a different skill set
2. Comes with increased risk: the risk of loss on a shorted share is infinite vs the sum invested in a long position (if it goes to zero)
3. Requires in depth research
4. And risk management (to prevent losing positions become catastrophic):
5. when a long position goes against a fund manager (i.e. the share underperforms) the position size shrinks; when a short position goes against a fund manager (i.e. the share outperforms) the position size increases
6. Fund can become victim of a short squeeze (lender of shorted stock demands the stock be returned) when it is difficult to repurchase the share causing the share price to rise and hence the fund to incur losses
7. Liquidity needed for margin
8. Shorting comes with costs:
9. cost of borrow might be high for certain shares
10. also have to fund dividends
11. turnover on these funds is usually high which increases trading costs
12. Deciding on what to short:
13. Short index futures or individual shares
14. Index (like Top40) is easy to trade but
15. may offset long exposure in the fund (individual long positions)
16. need to decide which index to short
17. Are shorts used for hedging (long positions) or return generation
18. The increased gearing (from shorting 30% of fund) can work both ways, if longs go up then return is enhanced, but if longs fall, the loss is magnified
19. Broker may stop lending shares making the strategy difficult to implement

**(iv)**

1. Yields have fallen across globe even in emerging markets. A spread is one yield minus another. SA yields have stayed relatively flat while EM yields have fallen
2. SA has very liquid bond market compared to other emerging markets and is often first to experience sell-off in a risk-off environment
3. Spike in spread in Nov 2015: Finance minister Nene removed from his post and inexperienced Mr van Rooyen appointed
4. Spread then narrowed following Pravin Gordhan's appointment as Finance minister
5. Spread then widened leading up to ANC elective conference in Dec 2017
6. Both Fitch and S&P downgraded SA sovereign credit rating to below investment grade
7. The spread narrowed temporarily from Dec 2017 following Mr Ramaphosa winning the ANC leadership race
8. This euphoria short lived as SA growth has since disappointed and fiscal situation has worsened:
  - b. Tax receipts have been lower than forecast (following lower growth)
  - c. Government spending has continued to grow too fast (especially wage bill)
  - d. Debt to GDP has risen steadily (from 46.5% in 2014/15 to ~60% today)
  - e. Spread has subsequently widened reflecting falling these weaker fundamentals

Why might be wrong:

9. If SA is unable to rein in government spending and boost tax receipts, the primary budget deficit will remain/widen and National Treasury will be forced to borrow to pay interest. This may lead to a downward debt spiral. SA bonds prices would fall under such a scenario(1)
10. On current official projections debt to GDP is expected to reach 71.6% by 2022/23
11. EM bonds may be over priced (yields may rise and spread narrows)

## QUESTION 4

*This was a slightly unusual question relating to the matching of assets and liabilities in a more unusual environment. The problem, however, represents a situation which can easily arise and which is faced by investment actuaries. This was, arguably, the hardest question of the paper. It was the first time a LISP-related question has been posed. Whilst the questions requiring applied thought were poorly answered, the bookwork questions were also not well answered. Parts (i-ii) comprised straightforward bookwork and general knowledge for an actuary working or aspiring to work in investments. Many candidates did not show an understanding of how dividend withholding tax works.*

*Many candidates stated that the Dividend Withholding Tax (DWT) is withheld by the underlying companies and paid over to the South African Revenue Service (SARS). Whilst this is generally the case; in certain instances the withholding obligation moves from the company to a regulated intermediary. A portfolio of a collective investment scheme in securities (CIS) constitutes a regulated intermediary; as does a LISP. If a CIS invests in shares and a dividend is declared by the company, then the gross amount of the dividend will be paid over to the CIS because the CIS is a regulated intermediary and the withholding obligation moves to the CIS. To the extent that the CIS on-distributes the dividends to the holder of a participatory interest in the CIS, and distributes the dividend within 12 months of its accrual, then the dividend will be deemed to have accrued directly to the Unit Holder.*

<https://www.thesait.org.za/news/439448/New-tax-change-taxes-dividends-in-a-collective-investment-scheme-.htm>

*A similar question on tax is to be found in a past exam paper which suggests inadequate preparation as marks scored were lower than expected.*

*In parts (iii) and (v) were challenging questions and many candidates failed to identify all the separate groups which would be impacted differently. For the timing of the adjustment in part (iv) many candidates merely said "as soon as possible" without providing insights to the impact of when the calculations are done. Mark, on average, for parts (iii) and (iv) were very poor, and possible also represented those candidates who had not practised strict time management throughout the exam.*

### (i)

1. Investors are taxed differently on income and capital gains
2. Local investment income (in the form of dividends) would be distributed
3. Local interest income will be earned on the small cash component and on bonds
4. And further income will be earned on REITS
5. Dividend tax is withheld for those liable by the UT (not by the company)
6. Interest income is declared and taxed in the hands of the unit holder when returns are submitted
7. In the case of REITS the entire distribution is taxed as income in the hands of the unit holder as well – there is no withholding applied to REIT dividends and the dividends are added to the income of the recipient for tax purposes [1]

8. Capital gains of unit trusts are not taxed inside the unit trust but CGT is imposed on the disposal of units by unitholders
9. The CGT event is therefore deferred to when the units are sold and not when the fund manager transacts on the portfolio

**(ii)**

1. Individuals will have income taxed at their marginal tax rate – as per above (subject to the R23 800 exemption)
2. And Individuals will pay tax on 40% of their capital gain (based on the average purchase price of units and sale price) at their marginal rate.
3. The first R40 000 is exempt and capital losses from previous years are allowed to be offset
4. The policy, on the other hand, will be taxed in the hands of the life company using the four/five funds approach
5. These policies will fall into the Individual policyholder tax fund (one of the four funds)
6. The IPF is taxed on income at a rate of 30%
7. Capital gains have an inclusion rate which translates to an effective tax rate of 12% on capital gains
8. Purchasing units via the life company route is therefore comparatively attractive, from a tax perspective to higher rate taxpayers
9. But this benefit must be weighed against additional costs, if any, associated with a life wrapper route
10. The proceeds of the endowment will be tax free as the insurer will already have paid tax on the policyholder's behalf.

**(iii)**

1. A LISP is defined as a company that enables individuals to invest in a wide range of collective investment schemes, such as unit trust funds, via one source.
2. It is effectively an admin and product packaging business. A LISP may offer access to traditional life insurance products such as endowments, retirement annuities, preservation funds and living annuities to cater for the full range of an individual's investment needs.
3. A LISP is licensed to buy and sell units in collective investment schemes on an investor's instruction, in this case, directly (or via a life product, effectively acting as the investor's agent)
4. Once units have been bought, the LISP holds these units in bulk accounts. These bulk accounts are held either in the name of the insurer, the retirement fund, or the independent custodian on behalf of individual investors.
5. A LISP never owns the units that it buys. The individual owns the units in the case of a direct investment such as this
6. By law all money received by a LISP from clients must be held in a trust account until invested and similarly the proceeds of all sales must be paid into a trust account.
7. Under no circumstances may an individual investor's money be mixed with LISP assets (shareholder funds).
8. All LISPs must be licensed with the Financial Services Conduct Authority (FSCA) as Administrative Financial Services Providers.

9. LISPs are regulated by the Financial Advisory and Intermediary Services (FAIS) Act.,
10. A LISP must always be able to reconcile buy and sell instructions received from clients with the actual units held.

Units impacted can be divided into 3 categories:

11. Units sold before 1 Jan 2016
  - would be unaffected and correctly treated throughout
17. Units purchased before 1 Jan 2016
  - would have been bought at the correct price
  - If they were sold after 1 Jan 2016 clients would only have received 90% of the correct price for these portion of units
  - If the units have not been sold then, provided the price is rectified before they are sold, they will have been priced correctly throughout
  - Platform and advisor fees are expressed as percentages of (units x price) and so would have been smaller than what they should have been since 1 Jan 2016
18. Units purchased after 1 Jan 2016
  - Were purchased at a price which was lower than it should have been
  - Which means their current unit price does not reflect the true underlying investment earnings and they are no worse off at this stage
  - Ignoring tax
  - When the price is subsequently rectified, a unit adjustment will need to be made to ensure that the value of assets and liabilities remains consistent
  - Some investors may have debit order for investing in the fund, or even regular withdrawals which span both periods above
19. Tax payment will need to be recalculated and corrected with SARS

(iv)

1. The outcome of the exercise must be that clients are placed in the same financial position that they would have been had the mistake not taken place
2. Client accounts will need to be rebuilt, one by one, on a day by day basis
3. using correct unit prices for the SA equity bond unit trust,
4. For each client, recalculate the client's daily balance from 1 Jan 2016 to 30 June 2020 as follows
  - Start with the client's unit balance brought forward on 1 Jan 2016 (from 31 Dec 2015)
  - Add units equal to (amount invested on 1 June 2016 divided by CORRECT unit price on 1 June 2016.)
  - Subtract units equal to (amount disinvested on 1 June 2016 divided by CORRECT unit price on 1 June 2016)
  - Switches in and out of the unit trust will also need to be catered for as above
    - With 100% switches out (and maybe even less) clients have a strong argument that the shortfall would have been invested in their target fund; whereas this methodology assumes that it remains invested in the SA Equity Bond Fund

- Subtract units to pay for the platform and advisor fees equal to  $0.5\%/365$  and  $0.3\%/365$  of the unit balance brought forward multiplied by the correct price
- 5. Repeat this process for 2 Jan, 3 Jan etc for each day up to 30 June 2020
- 6. You will now have the correct unit balances for each client to bring forward on 1 July 2020 – to which to apply the correct price
- 7. The calculation should be run as close as possible to 1 July 2020 and units corrected after the price for the 30<sup>th</sup> June 2020 is published, but before the (now correct) price for 1 July 2020 is published, so that the corrected price is not published together with the old incorrect units (which would result in even more confusion for clients)
- 8. It is only possible to do the final run after the close on the 30<sup>th</sup> of June; but the process may be de-risked by running it a few days before, up to the latest date; so that the run on the evening of the 30<sup>th</sup> of June only needs to do the last few days' calculations.
- 9. Results should be stored in a database with the last few days' calculations being run overnight once the underlying prices for 30 June 2020 have been published
- 10. In order to ensure that the balances are correct on 1 July 2020, a unit adjustment should be made on the 30 June 2020 overnight run (after close for the day) equal to the client's recalculated correct unit balance less the actual unit balance.
- 11. There will need to be an injection or a withdrawal of cash (funded by the LISP from profits or from a PI claim) to rebalance to the actual value in the unit trust depending on the new price multiplied by new total unit balance compared to previous

(v)

1. Capital gains tax is paid on realised gains of units – i.e. selling price less base cost
2. Units sold before 1 Jan 2016 used the correct base costs and sales prices
3. Units sold from 1 Jan 2016 would have had the incorrect sales price
4. Units purchased from 1 Jan 2016 would have used an incorrect purchase price
5. Unitholder have the option of using a FIFO, LIFO or weighted average price as well as specific unit identification when setting the base price (note that the weighted average price would need to be corrected if units were purchased subsequent from 1 Jan 2016)
6. So we cannot definitely say that units bought from 1 Jan 2016 and already sold would have had the correct gain as a result of the price being 10% too low at purchase and sale.