

EXAMINER'S REPORT

June 2019 exam

Subject F105 — Finance and Investment Fellowship Principles

INTRODUCTION

The attached report has been prepared by the subject's principal examiner. General comments are provided on the performance of candidates on each question. The solutions provided are an indication of the points sought by the examiners, and should not be taken as model solutions.

QUESTION 1

i.

- Being a large listed organization implies the owners/shareholders (principals) have delegated decision making to managers and directors (agents)
- Principal-agent problems may arise due to the separation of ownership and management of a company
- Conflicts of interest may then arise and asymmetry of information exists between the two parties
- E.g. in this case managers act in their best interest (making acquisitions, hiding losses) rather than long term interest of shareholders
- Corporate governance is a framework in which the high level managerial decisions are made within a company
- Good corporate governance attempts to align interests of management and shareholders
- It appears proper corporate governance structures were not in place, or this fraud should not have arisen

ii.

- **Board of directors:** Primary responsibility for financial matters rests with the board of directors who direct and supervise company affairs.
 - Responsible for ensuring company meets all its legal obligations.
 - Ultimate responsibility for financial decisions, who delegate operational decision making to executives.

Failings:

- Executives appointed were not appropriate since they were now shown not to be honest individuals.
- As a sub-committee of the board, the audit committee should have picked up the irregularities.
- Application of an insufficient amount of scrutiny / negligence in the assessment of the information provided to them by management.

- **The auditors of the company:** have a duty to scrutinize the financials and ensure they are a fair reflection of reality.

Failings:

- Possibly did not act in a professional manner when performing their duties.

- **Body responsible for setting accounting standards:** accounting standards are set up to prevent scenarios like this occurring.

Failings:

- Existing measures might not been appropriate to prevent such fraudulent activity.

- **Executive management:** is responsible for the managing the company in order to best meet the requirements of its stakeholders. This has not been done since shareholder value has been destroyed.

Failings:

- By committing this fraud, some of the managers failed in their responsibilities.

- Those not involved in the fraud should have been able to see what was going on and have blown the whistle to authorities.
- **Listing authorit(ies):** Should ensure that conduct of the company remains consistent with the listing of the shares after issue.
 - Company must therefore meet certain requirements in order to list and retain their listing.

Failings:

- Was compliance with requirements monitored? Were the requirements not stringent enough to prevent such fraud?
- Was one of the listing authorities more lax assuming the other would do proper monitoring?
- **Fund managers:** Fund managers should incorporate an explicit strategy on activism, elucidating the circumstances in which they will intervene in a company, the approach they will use in doing so and how they measure the effectiveness of this strategy.

Failings:

 - Fund managers might have been negligent in putting a strategy on activism in place, or failed to have implemented it if it was in place.

iii.

- Behavioural finance suggest that investors do not act rationally, and it could therefore be that the share price has dropped to almost zero because of an overreaction.
- However, it is very difficult to determine the intrinsic value of the company because the financial information that would be used for such an analysis cannot be relied on.
- It is not clear how long investigations will take and uncertainty will persist until such time as it has been finalized. Therefore it could take years before any return on an investment is realized.
- Debt holders have first recourse to the company's assets. If the value of the liabilities were understated, there is a risk that the very little if any of the assets are left for shareholders after taking into consideration the true value of the liabilities.
- Since this is a fairly rare and an extreme event, technical analysis is unlikely to render any useful results in terms of determining whether this represents a good investment opportunity.

Examiner's comments:

- i. *This question was adequately answered and candidates demonstrated an understanding of the scenario. Many candidates however lost marks by not clearly identifying the principal and the agent in the scenario. They also, in some cases, neglected to define the Agency problem and corporate governance for extra marks.*
- ii. *This question was very poorly answered. The number of candidates who simply wrote "the regulator" without considering the scenario was quite concerning. Many focused their discussion on the board of directors, missing some of the other bodies. Statements made*

were often too broad or generic in terms of roles and shortcomings and did not apply specifically to the particular body being discussed.

- iii. *Candidates were able to identify that such an investment may generate good returns but that the timing and uncertainty associated with it does pose risks. Candidate however did not elaborate sufficiently to gain three marks.*

QUESTION 2

i.

- The SPV is designed to be its own legal entity.
- ...and therefore structured to be bankruptcy remote
- ...so as to ensure that the investors of the asset-backed securities do not have any recourse to other assets held by the transportation company and similarly, so that the transportation company does not have recourse to the securities held by the investors.
- This legal entity can be created by the transportation company or an investment bank.
- The railway company will sell the future stream of fee income to an SPV.
- The SPV raises the funds to purchase the stream of future fee income by issuing debt securities.
- The SPV will be responsible for ensuring that it receives the fee income from the transportation company on the agreed periodic basis.
- The fee income received will then be distributed by the SPV to the investors in the form of interest and principal payments depending on the exact structure of the securities issued to the investor.
- In the event that the fee income generated by the transportation company is not sufficient to meet the investor's interest and principal payments, the SPV would have to pay out any residual fee income / assets in the SPV to the investors.

ii.

- The borrowings are normally made in a multi-tranche format. This means that several tranches with varying levels of security / ranking in payout are issued.
- The tranches will be repaid in order of riskiness, with the actual timing of repayment dependent on the underlying timing of the receipt of fee income, and any default losses from drops in income.
- This will ensure that the securitisation is made up of sub-tranches that offer differing levels of return commensurate with the risk associated with each tranche.
- The varying levels of risk and interest payable will assist in ensuring that a wider range of investors with varying levels of risk appetite are appealed to thereby increasing the chance of placing the full issuance.
- Furthermore, the varying levels of risk may result in a more cost effective way of borrowing i.e. since not all the capital will be needed to be raised on expensive terms.
- Consideration should be given to the exact structure to make it appealing to a wider range of investors e.g.:
 - linkage to inflation,
 - floating coupons,

- term, and
- payment of a portion of coupons upfront.
- The securitisation could be set up to ensure that the fee income is expected to exceed the borrowing costs on the obligations such that some of this fee income can then be used to purchase highly rated collateral government bonds – thereby lowering borrowing costs.
- Collateralised securities would therefore pose lower default risk (due to the higher recovery in the event of default) thereby lowering the cost of borrowing.
- Instead of setting up a new SPV, the stream of future fee income can be aggregated into another established securitisation either issued by a large bank or other parastatal. This would have the benefit of leveraging off a lot of the costs already incurred in setting up these securitisations (and obtaining credit ratings for example).
- Given that the transportation company is government owned, the government may serve as guarantor for higher tranches (or the whole issuance). This would reduce borrowing costs (due to the removal / significant reduction in default risk).
- The government can allow favourable tax treatment for the proceeds earned by investors from the instruments issued.

iii.

- Advantages:
 - It could increase the credibility of the issuance. A wider range of investors could thereby be attracted since many institutional investors may have risk appetite limits relating to minimum credit ratings requirements.
 - Credit rated tranches could have lower borrowing costs.
 - Feedback from the credit rating agency might be useful to the transport company in structuring the security.
- Disadvantages:
 - Will result in additional costs though this could be offset against the lower interest rates that could be payable relative to having no credit rating attached to the security.
 - If a poor rating is assigned, it might hamper the success of the security issue.

Examiner's comments:

This question contained a fair portion of bookwork and was well answered. Candidates that addressed the particular concerns of the transport company in setting up the SPV scored well in part (ii).

QUESTION 3

i.

- Private debt would require that the company service interest payments at specific time intervals which may cause liquidity problems given their low revenue levels.
- Shareholders of private equity on the other hand may not expect dividend payments in the short term thereby reducing potential short-term liquidity needs. Shares also have no redemption date.
- Issuing new shares would dilute ownership. Depending on the stake of the new owners, these new owners will probably want to exert influence on the management of the company and may result in changes in the company's strategy.
- Debt holders are creditors of the company and have no impact on ownership or strategy of the company.
- On the positive side, private equity investors could serve as an additional source of expertise in running and expanding the business. The business won't have this advantage if it chooses private debt.
- The providers of private debt may impose strict covenants to protect their investment. Such covenants may limit management's freedom in executing their business strategy. Example, a covenant that prevents the company from taking out any further capital may hinder its ability to carry out other strategic initiatives simultaneously.
- Share capital is not secured against the assets of the company although the owners have a right to the residual value upon wind-up.
- Depending on the exact channel used by the company in raising the capital, the upfront administration costs could differ. For example, a private debt issue may require the appointment of an investment bank who will charge a fee in structuring the deal.
- Similarly, a private equity issue could be placed through a private equity firm. Some of these costs however could be passed on to the investor through the fees charged to investors.
- The tax treatment of interest payable on loans will influence the relative attractiveness of debt versus equity financing. E.g. Interest payments may be tax deductible (or any other sensible comment about tax).

ii.

- Advise the company on the prices they can charge.
- Marketing of the security issue to the public.
 - advertising the issue to potential investors
 - book-build or auction: maintaining records of applications and determining allocations;
 - handling investors' money and issuing the securities.
- Certifying the quality of the information offered.
- Innovate security design and packaging to stimulate demand.
 - The company may prefer to issue simple securities that are less expensive to arrange. This may be at odds with the needs of investors, who may prefer a greater variety of securities.

- There is a role for investment banks here as they may use their expertise and knowledge of investors to develop securities with features that will prove attractive.

iii.

- Maximize the after-interest profits for shareholders over a 10-year period subject to a 90% probability that in all 10 years debt interest < 50% of operating profit.
Marks awarded for any reasonable objective

iv.

- Distributional assumptions (expected values, variances, co-variances) for key economic variables e.g. inflation, interest rates and GDP growth.
- Level and type of sales to be generated from the software being developed:
 - This could perhaps be linked to GDP growth
- Operating expenses and growth (linked to inflation)
- Currency (for offshore sales)
- Cost of hardware and depreciation thereof
- Tax
- Structure of the debt which would include term, nature (fixed/variable) and timing of repayments, seniority of debt and collateral needed, currency, amount of debt to issue.
- Use of caps and collars.
- Any likely equity issues.
Any other relevant assumption.

v.

$$D_0 = 95(1 - \Phi(d_1)) + 40e^{-5 \times 0.07} \Phi(d_2)$$

$$d_1 = \frac{\ln\left(\frac{95}{40}\right) + 5\left(0.07 + \frac{0.35^2}{2}\right)}{0.35\sqrt{5}} = 1.9438$$

$$d_2 = 1.9438 - 0.35\sqrt{5} = 1.1612$$

$$\begin{aligned} D_0 &= 95(1 - 0.974038) + 40e^{-5 \times 0.07} \times 0.87722 \\ &= R27.19m \end{aligned}$$

vi.

The value of the bond calculated using the Merton model is higher than the market price. Therefore this bonds appears to be cheap and therefore attractive to buy.

Examiner's comments:

- i. *This was not a difficult question, yet few candidates were able to score good marks. Candidates failed to use the information given. Some evaluated debt and equity financing from the perspective of an investor and not the IT company.*
- ii. *This question was fairly well answered.*
- iii. *Few candidates knew how to properly construct an objective. Simply stating that you want to structure the debt so that some condition is met is not sufficient since it does not make it clear what is needed for the debt structure to be appropriate.*
- iv. *This was a straightforward question and was generally well answered.*
- v. *Most candidates had some idea as to how to approach this question and a number scored full marks. Candidates are encouraged to show their workings and not just give formulas and/or final answers to not lose a considerable number of marks where the final answers are incorrect.*
- vi. *This question followed from part (v). Where candidates are unable to get to a result that is to be commented on in a subsequent question, the best would be to make an assumption as to what the right answer might be, and to state the assumed answer, and then to comment on that answer to not lose all marks. The Merton model produces a theoretical value for a bond which can then be compared to the market value to determine whether the bond is cheap or dear.*

QUESTION 4

- The term of the liabilities, which will probably be quite long, is likely to be different to the term of the assets.
- The corporate nominal bonds also do not match the liabilities by nature or term, although they can be expected to earn a higher yield which can be used to provide the inflation-linked increases.
- They could enter in a swap with a bank whereby the proceeds of the nominal bonds (coupons and maturity) are swapped for inflation-linked payments to more closely match the liability, reducing the asset-liability mismatch risk.
- *Advantages:*
 - By transforming the nature of the assets from a fixed rate bond to a variable rate (i.e. inflation-linked) bond, the asset and liability proceeds are more closely matched.
- *Disadvantages:*
 - The term of the liabilities are likely to be quite long.
 - It is unlikely that the insurer will be able to enter into cash flow swaps of a term long enough to match the full term of liabilities.
 - ...This exposes the insurer to re-investment risk.
 - Any swaps entered into means that the insurer takes on credit risk with the bank who is the counterparty to the swap.
 - Credit risk is only a problem when the swap has a positive value to the insurer.
 - Even then the risk is minimal because, the principle is not at stake in an interest rate swap.

- This can be mitigated by using collateralising the swap agreements.
- Using swaps removes the possibility of the insurer benefiting from favourable movements on the bonds it's invested in.
- Entering into a swap will not remove the possible mismatch risk arising from the uncertainties in the liabilities, arising from uncertain mortality rates.
- The corporate nominal bonds introduce credit risk that the liabilities are not exposed to.
- To reduce this exposure the insurer could enter a credit default swap (CDS).
- The insurer will pay a fee for the assurance that should a credit event occur, a settlement amount to cover their losses will be received.
- *Disadvantages:*
 - This protection comes at a cost to the insurer.
 - Counterparty credit risk on the CDS is introduced.
 - This swap does not remove any of the mismatch risk identified above.

Examiner's comments:

This question was not well answered at all. Most scripts did not deliver enough new ideas or points to score well. The main points were identified but candidates did not consider the valuation basis and assumption for the liabilities that needs to be considered when matching, or that for a large annuity book the incidence of cashflows is quite predictable. Many ignored the information provided on the corporate bonds and missed the points on credit default swaps. Many mentioned the swap versus bond curve differences but did not get extra marks awarded as they did not explain the impact these two curves would have on the solution. A lot of candidates also did not appreciate that, although swaps can extend the term of the asset portfolio, the term of the liability is still expected to be longer as this is very long-tailed.

QUESTION 5

i.

Asset-liability mismatching risk:

- The assets and liabilities are not cash-flow matched. The assets are amortising loans while the liabilities have a bullet structure.
- *Mitigation:* A swap contract exchanging the proceeds received from its loans for cashflows linked to the JIBAR plus 1% p.a. can be used to match assets and liabilities.

Interest rate risk:

- The rate on the assets is linked to prime, while the rate on the liabilities is linked to JIBAR. Changes in the gap between these rates will impact HC's margin. This could be described as a basis risk.
- *Mitigation:* HC could base future borrowings on prime as opposed to the JIBAR, or HC could issue new personal loans based on the JIBAR rather than prime.

Credit risk:

- Happy Credit is exposed to the risk that any of the individual they provided a loan to, defaults.
- *Mitigation:* Load the interest rate appropriate to the risk profile. Have a very thorough credit vetting process and also an early warning system to pick up non-payment.

Liquidity risk:

- Liquidity constraints can be faced when defaults increase and FRN holders need to be repaid.
- *Mitigation:* They need to hold excess liquid funds or ensure access to a short-term liquidity facility with a bank.

ii.

$$f_1 = 0.09$$

$$f_2 = 2 \times 0.1 - 0.09 = 0.11$$

$$\begin{aligned} FRN &= 10 \times \left(\left(e^{(0.09+0.01) \times \frac{1}{4}} - 1 \right) e^{-0.09 \times \frac{1}{4}} + e^{(0.11+0.01) \times \frac{1}{4}} \times e^{-0.1 \times \frac{1}{2}} \right) \\ &= R10.05m \end{aligned}$$

Examiner's comments:

- This question was reasonably well answered. Candidate identified the risks but mitigation steps were not always applicable.*
- This question was poorly answered. Many candidates valued only the interest or only the capital part of the FRN, not demonstrating an understanding of exactly how a FRN works. Candidates lost marks for treating the same rate as both continuous and simple in the same formula/calculation.*

QUESTION 6

- The All Bond Index (ALBI) is a composite index containing the top 20 fixed interest bonds ranked dually by liquidity and market capitalization.
 - The ALBI is split into two sub-indices:
 - the GOVI (Government Bond Index) comprising the top 10 government bonds issued by the Department of Finance, and
 - the OTHI (Other Bond Index).
 - The ALBI is split into four sub-indices based on term to maturity (1-3yr, 3-7yr, 7-12yr, 12+yr).
 - The constituents and weightings of the ALBI are changed in the following circumstances:
 - Bond weightings change monthly based on issuance during the period.

- Constituent changes are effected quarterly and are driven by changes in eligibility criteria i.e. outstanding market value, turnover and outstanding term to maturity.

ii.

- The total return is given by:

$$TR = \frac{(I_2 - I_1) + (1 - T_i)(XD_2 - XD_1) - T_c(ACC_2 - ACC_1) - T_c[(I_2 - ACC_2) - (I_1 - ACC_1)]}{I_1}$$

- Where I_1 , XD_1 and ACC_1 are the index number, the ex-dividend adjustment to date and the accrued interest respectively, at the beginning of the period. Similarly I_2 , XD_2 and ACC_2 are the figures at the end of the period, T_c is the rate of tax on capital and T_i the rate of tax on income.
- As the measurement period straddles a year-end, total return is calculated for:
- TR (Jul-Dec 2017) = $[(465.96 - 459.56) + 0.75(111.17 - 55.12) - 0.25(1.65 - 1.56) - 0.2(464.31 - 458)] / 459.56 = 10.26\%$
- TR (Jan-Jun 2018) = $[(474.78 - 465.96) + 0.75(57.17) - 0.25(1.74 - 1.65) - 0.2(473.04 - 464.31)] / 465.96 = 10.715\%$
- TR (Jul17-Jun18) = $(1.1026) * (1.10715) - 1 = 22.075\%$
- Hence TRI on 30 June 2018 = $1000 * 1.22075 = 1220.75$

iii. Main forms of other policy and impact on bond returns:

- *Fiscal policy*: these are decisions on the level and structure of income (taxation) and government expenditure and hence, by implications, the public sector borrowing requirement (PSBR) or debt repayment;
 - E.g. fiscal policy that becomes more accommodative of high PSBR will lead to higher interest rates if investors require higher premiums (e.g. increase in risk of default premium and inflation risk premium).
 - If interest income is taxed more heavily, bond investors might require a higher gross yield and therefore gross return.
- *National debt management policy*: the manipulation of the outstanding stock of government debt instruments held by the domestic private sector, in order to influence the level and structure of interest rates or the availability of liquid reserve assets to the banking sector;
 - E.g. through this policy government could influence interest rates (and bond returns) by refinancing its short-term debt using longer term debt (increasing supply of longer term debt).
- *Exchange rate policy*: this is directed at achieving some target for the exchange rate of the domestic currency in terms of foreign currencies, perhaps with the objective of influencing the country's international trading and investment patterns;
 - E.g. interest rates (and bond yields) could be used by government as a mechanism for achieving a desired exchange rate e.g. increase interest rates to strengthen currency;
 - E.g. targeting a weak exchange rate could increase risk of inflation and bond returns (through changes in the inflation risk premium).

- *Prices and incomes policy*: this is aimed at influencing the level of wages and prices (and hence inflation) by imposing maximum increases to these variables;
 - E.g. policy that results in lower than expected inflation (and uncertainty over inflation) will lead to lower interest rates for bond holders.
- *Government incentives for investment*: incentives for investment (for creation of new capital goods or infrastructure) can vary and are important to suppliers of investment goods and companies making investment decisions.
 - E.g. an environment that encourages and attracts investment should lead to lower interest rates.

Marks awarded for Competition policy, Labour policy and any other sensible policy if adequate examples are given (e.g. overall business confidence and investment having an impact on interest rates and bond markets).

Examiner's comments:

- i. *This question tested bookwork knowledge, however most candidate did not do well in it.*
- ii. *This question was a straightforward calculation question, however most candidates ignored the capital gains tax incurred. A number of candidates made mistakes in the treatment of the XD and/or ACC components of the calculation. A few candidates performed a single calculation over the whole 12 month period (rather than split it into two calculations over six months), and this was awarded full marks if done correctly.*
- iii. *This was a straightforward application question, however many students did not know their bookwork well enough to apply their knowledge.*

QUESTION 7

- i. The four common classes of hedge fund:
 - Global tactical asset allocation funds: These concentrate on economic change around the world and sometimes make extensive use of leverage and derivatives.
 - Event-driven funds: These trade securities of companies in reorganization and/or bankruptcy (“distressed” securities) or companies involved in a merger or acquisition (“risk arbitrage”).
 - Market-neutral funds: These simultaneously enter into long as well as short positions at a market or sector level, while trying to exploit individual security price movements.
 - Multi-strategy funds: These invest in a range of strategies to provide a level of diversification.
- ii. Financial reporting should include:
 - A listing of all individual assets:
 - a. Showing market value at reporting date;

- b. If market value is not available, then a suitable proxy for market value e.g. model valuation (and associated assumptions); book value is not normally suitable;
 - c. Show exposures by asset class, currency and geography.
- A listing of individual derivative contracts:
 - a. Showing market value at reporting date (“marking-to-market”);
 - b. Expiry dates;
 - c. Average margining costs incurred by the fund (i.e. to support any out of the money derivative positions)
 - d. Include additional explanations to ensure that the fund’s exposure is properly understood:
 - i. Delta exposure (rate of change of derivatives price with changes in the price of the underlying) - e.g. equity call option effective exposure = total option exposure x delta of the options
 - ii. Gamma exposure (the rate of change of delta exposure with changes in the underlying)
 - iii. Kappa exposure (rate of change of derivatives price with changes in the volatility of the price of the underlying)
 - iv. Theta exposure (rate of change of derivatives price with changes in time)
 - v. Rho exposure (rate of change of derivatives price with changes in the risk-free rate)
 - vi. Lambda exposure (rate of change of derivatives price with changes in the force of dividend yield).
- The report should make clear where the exposure of the portfolio to different underlying asset classes and currencies has been changed through the use of futures or swaps, and what the associated exposure is – i.e. show net exposures to asset classes and currencies.
- The report should disclose related risks e.g. basis risk, cross hedging risk.
- The report should specify whether derivatives are exchange-traded or OTC.
- Exposure by counterparty (for credit risk assessment)
- Reporting on options should include an explanation of the strategy employed (e.g. straddle).
- In addition to the exposure measures above, comparisons of these key metrics to previous valuation date (which would be determined by the frequency and extent of changes made by the fund managers) in order to understand how the exposures have been changing over time / how changes in strategy have influenced the riskiness of the portfolio

iii.

$$\text{Sharpe} = \frac{R_p - r}{\sigma_p}$$

$$\text{Sharpe (Fund)} = (0.11 - 0.09) / 0.1 = 0.2$$

$$\text{Sharpe (Index)} = (0.15 - 0.09) / 0.08 = 0.75$$

iv. Limitations:

- The data is based on the last 5 years, and it is very possible that results for the next 5 years might be different – 5 years is a relatively short period for assessing fund performance

- It is not clear if returns are net or gross of fees (in which case fund performance for investors is even worse than appears above)
- The objective of the fund might not have been linked to the index against which performance is now been assessed (e.g. if the fund has a lower risk budget, it cannot reasonably be expected to perform as well as the index).
- The Sharpe ratio is reduced by both upside and downside volatility – investors will be specifically concerned about downside risk.
- It is not clear if standard deviation is calculated from daily, weekly, monthly data or some other frequency – the choice of frequency may affect the respective Sharpe ratios (e.g. annualized standard deviation of daily returns is generally higher than that of weekly returns, which is generally higher than that of monthly returns – fund and index calculation methods may differ).
- As the Sharpe ratio is based on standard deviation (which measures total risk as opposed to systematic risk), this measure is only useful for investors that hold this asset as their only asset.
 - If the hedge fund is only part of a diversified portfolio, then measures that use systematic risk (e.g. Treynor and Jensen ratios) are more useful.
- As the Sharpe ratio is only a summary statistic, a more useful assessment of performance and risk can be obtained by viewing the entire distribution of returns.
- As hedge fund performance is unlikely to be normal, the Sharpe ratio may be distorted:
 - Hedge fund performance tends to be negatively skewed and this will cause the Sharpe ratio to be upwards or downwards biased; the fund and index may be unequally biased.
- For both the fund and the index there may be mark to market bias caused by illiquid holdings whose values are either out of date or estimated, thus understating standard deviation; the extent of bias may differ between the fund and index.
- The index may be subject to survivorship bias if not adjusted appropriately, in which case the index performance (and the Sharpe ratio) is overstated.
- The index performance (and Sharpe ratio) may similarly be upwards biased by selection bias – i.e. funds with a good history are more likely to be included.

Examiner’s comments:

- i. Most candidates performed well in this question.*
- ii. This question was not done well by some candidates who did not answer the question asked by making suggestions that were not related to the fund’s holdings for investors to understand exposures (e.g. returns earned, or expected to be earned, fees and taxes paid, manager qualifications and remuneration will not help investors understand exposures).*
- iii. Most candidate could do this calculation.*
- iv. Candidates did reasonably well in this question, although most could identify a limited number of ideas and then often over-laboured those ideas.*

QUESTION 8

i.

- This factor-based strategy is similar to a passive strategy in that the choice of stocks to include is based on clearly defined rules and not the subjective choice of the investment manager.
- But it is also like an active strategy in that the strategy is attempting to beat the index's return.
- Trading costs are likely to be higher for the factor-based strategy because
 - ...the constituents are revised every quarter, while the index only revises this once a year.
 - ... the factor-based portfolio is therefore rebalanced every quarter, while the passive strategy is only likely to revise constituents and rebalance once a year.
- Management costs for the factor-based strategy will also be higher since the process of implementing the strategy (e.g. expertise required, developing a model, collecting data, etc.) will be greater than simply tracking the index.
- The overall returns could be very different because,
 - ... each constituent is allocated an equal weight in the factor-based strategy, while the passive strategy will allocate funds based on market capitalisations.
 - ...the factor-based strategy includes only 30 stocks, while the passive fund is likely to include many more, since the index includes 80 stocks.
- The returns from the passive strategy is likely to be representative of the exchange's performance, while the factor-based strategy's returns could be very different.
- The factor based strategy could deliver superior if,
 - ...the multifactor model holds true in the real world (i.e. the return on stocks can be explained by the three factors modelled),
 - ... the investment manager has correctly identified the factors most rewarded,
 - ... and these factors continue to be rewarded in future.
- The passive strategy is likely to be more diversified and therefore less risky, because the index it tracks includes 80 of the stocks trading on the exchange, whereas the factor-based strategy only includes 30 stocks.

ii.

- At each annual anniversary date, identify the largest 50 companies by market capitalization.
- Identify which factors will be used to distinguish a stock as a growth versus a value stock.
- Growth stocks are expected to experience rapid growth of earnings, dividends and price.
- Value appear to be good value in terms of accounting ratios.
- Possible factors to consider:
 - ... Growth factors: sales growth, earnings growth, forecast earnings growth, return on equity, earnings revisions
 - ... Value factors: book to price, dividend yield , earnings yield, cashflow yield, sales to price
- Using the financial statements of each of the 50 companies and stock price at a date closest to the index review date, calculate the values of chosen factors and categorise as being either value or growths stocks.

Examiner's comments:

- i. *This question was fairly poorly answered. Where candidates are asked to compare two strategies, it is inappropriate to simply list the characteristics of the two strategies separately, or identify pros and cons of each. Candidates need to link the features of the strategies and compare them. Conclusions should be made from the difference stated in the information given. Mentioning the three ways in which to track an index gained candidates no marks. Many references to tracking error or liability matching were made, but no reference to a benchmark in respect of the factor-based strategy is made, nor to a specific liability related investment objectives.*
- ii. *This question was more straightforward and candidates did better. Many could list the factors one would consider, but did not really demonstrate a sufficient understanding of the different between value and growth stocks.*