

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

April 2020

Subject SP5 - Investment and Finance Specialist Principles

Introduction

The Examiners' Report is written by the Chief Examiner with the aim of helping candidates, both those who are sitting the examination for the first time and using past papers as a revision aid and also those who have previously failed the subject.

The Examiners are charged by Council with examining the published syllabus. The Examiners have access to the Core Reading, which is designed to interpret the syllabus, and will generally base questions around it but are not required to examine the content of Core Reading specifically or exclusively.

For numerical questions the Examiners' preferred approach to the solution is reproduced in this report; other valid approaches are given appropriate credit. For essay-style questions, particularly the open-ended questions in the later subjects, the report may contain more points than the Examiners will expect from a solution that scores full marks.

The report is written based on the legislative and regulatory context pertaining to the date that the examination was set. Candidates should take into account the possibility that circumstances may have changed if using these reports for revision.

Mike Hammer
Chair of the Board of Examiners
July 2020

A. General comments on the aims of this subject and how it is marked

1. The aim of this Investment and Finance Principles subject is to instil in successful candidates the ability to apply, in simple situations, the principles of actuarial planning and control to the appraisal of investments, and to the selection and management of investments appropriate to the needs of investors.
2. A mix of questions styles is used, covering *knowledge* of the material set out in Core Reading, *application* of this in calculations and case studies and *higher order skills* such as synthesis and collation of recommendations. Marks are awarded for the constituent elements of calculations, not just for the final answer generated. Scenario appraisal will similarly provide credit for evidence of the issues considered, not solely for the conclusions reached.
3. Candidates who give well-reasoned points, not in the marking schedule, are awarded marks for doing so.
4. The examiners want to test the understanding of the candidates in relation to the principles of investment. In order to do that the candidates will be asked to demonstrate that they know how investors might behave and what various terms mean. It also requires candidates to calculate and interpret certain investment related figures. It is not expected that the candidates are experts in the investment area, however they should have an overall understanding of investment markets and the function and needs of the various parties involved.

B. Comments on *student performance in this diet of the examination*

This examination was sat under unusual circumstances brought about by the Covid-19 virus. Given the open book nature of the examination it was not surprising that knowledge based questions were answered better than in the past and this was reflected in the marks awarded.

Candidates should look to see how many marks are available for a question or part question, if there is only one mark the examiners are not expecting a long explanation, equally if a question is worth seven or eight marks then a longer answer with more points is expected. While this may seem to be obvious advice it was apparent that a number of candidates failed to appreciate this point, the exam did not have any time consuming calculations so candidates should have been able to allocate their time reasonably easily.

C. Pass Mark

The pass mark for this exam was 64

249 candidates presented themselves and 112 passed.

Solutions

Q1

(i)

The manager will need to be given instructions regarding any restrictions to be applied including:

- Asset classes or the types of lending that are entirely prohibited [1]
- Limits on the tier structure of the lending (e.g. senior secured, mezzanine or equity tranche) [1]
- Limitations on the use of assets and asset classes, such as a prohibition on the speculative use of derivatives [1]
- Stipulation on the level of currency hedging implemented (if any) [½]
- Maximum permissible holdings in individual assets or asset classes [½]
- Maximum permissible holdings in a sector. [½]
- Maximum geographic exposure [½]
- Minimum level of acceptable covenant features within each private loan [½]
- Minimum return 'hurdle' to be achieved within the lending opportunities [½]
- Stipulations on the level of minimum credit rating required (if required) [½]
- Prohibitions on 'self-investment' in the sponsor's own securities [½]
- Ethical or social limitations [½]
- Restriction on the level of risk taken [½]
- Restrictions on term of investments [½]

A less prescriptive approach is where the nature of any restrictions are left to the discretion of those awarding the fund management mandates, but the requirement that such restrictions are set out in the 'Statement of Investment Principles' for the information of the ultimate beneficiaries [1]

[Marks available 9½, maximum 5]

(ii)

- To protect the ultimate beneficiaries from gross incompetence or mis-management by private debt managers [1]
- To encourage confidence in investment schemes and the benefits they secure [1]
- To ensure the appropriate returns are targeted [1]
- While keeping risk within agreed limits [½]
- By investing in a suitably diverse group of assets [½]
- To conform to local regulations. [½]
- To ensure that the Scheme's SIP is adhered to [½]
- To comply with any social or ethical restrictions [½]

[Marks available 5½, maximum 3]

(iii)

The factors to consider in the selection of the preferred manager should take into account:

- Whether the Trustee's goal is to focus on the US market opportunities or has a preference for a more global approach (noting that the market in the US is most developed) [1]
- The return requirement of the Trustees given the perceived riskier strategy from manager Y, the trustees may prefer to accept a lower return and less risky investment strategy [1]
- The risk tolerance of the Trustees given manager X incorporates financial covenants on all lending activities and/or credit ratings [1]
- The trustees investment time horizon given that X investment time horizon is shorter than Y [½]
- The trustees required currency denomination and whether they wish to hedge the currency risk to another denomination or accept the currency risk [1]
- The track record of the two funds [½]
- The fees charges by the two managers [½]

[Marks available 5½, maximum 3]

[Total marks available 20½, maximum 11]

This was a well answered question with students generally scoring well on all parts with the average mark for part (iii) being above 90%.

Q2

(i)

A common method of liability hedging is for an investor to hold a portfolio of government bonds (in appropriate currency) until maturity to meet a pre-specified stream of future fixed payments. [1]

Provided the future decommissioning costs do not change in amount and timing, the coupon and principal proceeds from the bond portfolio can be used to meet the obligation to meet those costs. Difficulties with this approach arise for the following reasons:

- Such an approach requires a bond asset to be held that is equal in present value to the future cash flow stream of expected decommissioning costs discounted at bond yields (using the full yield curve). Therefore only a partial hedge is only possible if asset cover is less than 100% [1]
- If the latter costs are payable after the principal payment of the longest available government bond (i.e. lower than 70 years) then it will not be possible to hedge these payments at present (until longer maturity bonds become available, i.e. creating a reinvestment risk) [1]
- Due to 'gaps' between bond maturities (particularly at longer durations), there may be a need to reinvest or disinvest bonds prior to maturity, and the hedge may therefore be imperfect [1]

- The use of government bonds gives risk to a small degree of credit risk that may not be reflected in the liability [1]
- If the tax status of the government bonds worsens, this will mean the assets are likely to be insufficient to meet the liability payments [1]
- Due to the above factors, there may be some mark to market risks between the asset value of the bond portfolio and the present value of the decommissioning costs discounted using the bond yield curve [1]
- The approach can be extended to bonds which increase with an inflationary index [1]
- The actual costs and inflationary increases attached to these costs may be relatively unknown due to unknown nature of the decommissioning costs [1]
- There may be currency risk if some of the costs are in other currencies. [½]
- The decommissioning costs are not certain, changes in regulation or technology may mean they change. [½]
- The payments may be lumpy and the fund will need cash or liquid assets to pay them when they fall due. [½]
- The decommissioning charges may change due to regulatory/taxation changes [½]

[Marks available 11, maximum 6]

(ii)

- where there is a liquid repo market on the bonds being used to construct the liability cash flow hedge, repo contracts can be used to release funds and in this way provide a leveraged exposure to the bonds can be created without investing the market value [1]
- Rather than using bonds swap markets could be used. [½]
- Swap markets may have greater liquidity and lower transaction costs than bond markets [½]
- swaps permit full hedging without the full asset cover being required, as they are a contract for difference rather than a funded asset [1]
- swaps are, in most cases, bespoke contracts that are agreed with a single counterparty, rather than a standardised listed security and therefore greater flexibility is possible within the schedule of payments [1]
- the use of swaps means that longer maturities are available than bond markets (although this ignores liquidity, availability of and costs of setting these up) [1]
- There are also risks associated with swaps such as counterparty risk. [½]
- the use of gilt strips, repo and swaps can overcome the 'lump' nature of a bond only approach [1]
- The credit risk issue can be mitigated by investing in more developed nations whose governments have never defaulted on their debt payments. [1]
- inflation swaps can be utilised to overcome the issues raised above in the inflation linked bonds approach [1]
- entering into an agreement with an investment bank / 3rd party to issue longer term debt with potentially some linkage to decommission cost inflation [1]
- The lack of long duration investments could be countered by investing in short term investments and rolling them over. [½]
- However this would introduce re-investment risk. [½]
- A sufficient amount of liquid assets will need to be held to meet any immediate payments. [½]

[Marks available 11, maximum 5]

[Total mark available 22, maximum 11]

Most candidates scored well, however the candidates who based their answer on the question scored more highly, particularly in part (i). If a candidate suggested a valid issue in part (i) and a way of mitigating in part (ii) ½ mark was awarded for the issue in part (i) and ½ mark for the mitigation was awarded in part (ii).

Q3

(i)

- Dividends paid in the last year. [½]
- Expected dividend growth [½]
- Discount rate [½]
- Tax payable on income [½]
- The timing of the dividends [½]

[Marks available 2.5 Maximum 2]

(ii)

Price Earnings ratio = Share price/Earnings per share

$$\begin{aligned} \text{Earnings per share} &= \text{After tax profit/Number of Shares} \\ &= 400 \times 0.75 / 500 \\ &= 0.6 \end{aligned}$$

[½]

$$\text{Price earnings ratio} = 6 / 0.6 = 10$$

[½]

$$\begin{aligned} \text{Dividend yield} &= \text{Dividend per share/Share price} \\ &= 0.25 / 6 = 4.17\% \end{aligned}$$

[½]

[½]

Net asset value per share = Net assets/Number of shares

$$\begin{aligned} \text{Net assets} &= \text{Assets} - \text{Liabilities} \\ &= \text{Value of long term assets} + \text{cash} - \text{total liabilities} \\ &= 850 + 10 - 600 \\ &= 260 \end{aligned}$$

[½]

$$\text{Net asset value per share} = 260 / 500 = \text{€}0.52$$

[½]

[Total 3]

(iii)

- The fund manager has estimated ShopCo's net present value per share to be €7, compared to the current price of €6, indicating that the investor believes ShopCo to be undervalued. [1]
 - The price earnings ratio of ShopCo is below the average p/e ratio for the retail sector [1/2]
 - Its dividend yield is above that average dividend yield for the retail sector [1/2]
 - And its price to NAV is below the average for the retail sector [1/2]
 - These three metrics would indicate that the ShopCo would appeal to a value investor. [1]
- [Marks available 3½, maximum 3]

(iv)

- The fund manager's and market's (implicit) expectations are different. [1/2]
- The fund manager expects dividends/earnings to grow more rapidly than the market expects. [1/2]
- The fund manager uses a lower discount rate than the market. [1/2]
- The fund manager pays lower tax on income than the average market participant. [1/2]
- The timescales used for calculation of an NPV may be different to the valuation measures used by the market. [1/2]
- The whole market may be undervalued if NPV is used as a method of valuation. [1/2]
- The fund manager may have used a different method to calculate the NPV compared to that used by the market. [1/2]
- The share price is driven by buyers and sellers and if there is an imbalance it may give rise to an over or under valuation. [1/2]
- The NPV does not fully reflect such features as management ability, brand strength etc. or recent events [1/2]

[Marks available 4½, maximum 3]

(v)

- The absolute value may be of limited use. [1]
- This is because it is highly dependent on the assumptions used. [1/2]
- However, the trend in the relationship between the net present value and market values over time may be more useful. [1]
- Narrowing or expanding differences may indicate cheapness or dearness versus historical patterns. [1/2]
- The supply and demand for the share will have an impact on the share price but not on the NPV. [1/2]
- Therefore it might be preferable to use a range of valuation measures when evaluating a share. [1/2]

Candidates can get ½ mark in either part (iv) or part (v) for mentioning that share price is driven by buyers and sellers, they don't get ½ in both sections.

[Marks available 4, maximum 3]

[Total marks available 17.5, maximum 14]

This question was less well answered than the previous two questions, those candidates who wrote down what they were calculating often avoided scoring nothing when they made a mistake in the calculation. A surprising number of candidates who calculated the ratios correctly weren't able to identify the type of investor to which ShopCo might appeal.

Q4

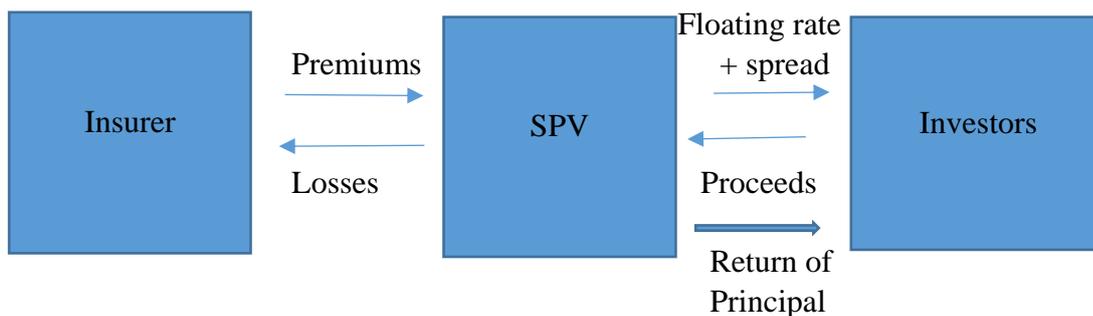
(i)

Insurance-linked securities (ILS) are securities whose return depends on the occurrence of a specific insurance event, [½]

which can be either related to non-life (e.g. catastrophe bonds) or life risks. [½]
[Total 1]

(ii)

(a) The structure of an ILS is:



[3 marks for the diagram]

(b) The process for creating an ILS is as follows:

- Ceding insurance company establishes a SPV in a tax efficient jurisdiction. [½]
- The SPV establishes a reinsurance agreement with the sponsoring insurance company [½]
- The SPV issues a note to investors; this note has default provisions that match the reinsurance agreement. [½]
- The proceeds from the note sale are invested in money market instruments within a segregated collateral account. [½]
- If no trigger events occur during the risk period, the SPV returns the principal to investors with the final coupon payment. [½]
- If trigger event occur, the assets of the SPV are first used to meet the insurer's losses, before any return of principal (if any) [½]

[Total 6]

(iii)

Reason to invest in an ILS:

- Diversification as the insurance markets have weak correlation with the investment market. [1]
- The returns may be attractive when compared to other investments. [½]
- The securities may offer attractive risk based returns [½]
- There may be tax advantages. [½]
- They match the liabilities of the fund [½]

[Marks available 3, maximum 2]

‘(iv)

Factors that need to be taken into account before investing in an ILS:

- Investing in an ILS will require expertise which the fund manager lacks and would need to recruit, this could be expensive. [½]
- So any expected gains in management fees etc. would have to be offset against the cost of any additional staff. [½]
- If the fund manager decides to use a specialist ILS manager it is likely that the fees will be high. [½]
- Whether or not the fund manager's clients will find investment in the ILS market attractive. [½]
- Does the ILS fit in with the fund's objectives [½]
- The marketability of the ILS is also important. [½]
- It is unlikely that the fund's position in an ILS can be liquidated rapidly - it would have to wait until the risk period had expired. This may cause problems if clients want to withdraw part or all of their investments. [½]
- In order to invest in this area the fund manager would need to invest in a number of ILS so as to spread the risk. They also need to ensure that the portfolio has a good spread or risk and that there is no concentration to a particular area or event. [½]
- The fund manager also needs to ensure that their client agreements allow investment in ILSs. If they do what do they count as, arguments can be made for including them within the fixed interest or alternatives part of the portfolio. [½]
- Whether the term of the ILS is a suitable for the fund. [½]
- What the expected return is and how it compares to other instruments [½]
- Are there any tax implications [½]
- Is the size of the investment suitable for the fund [½]
- Are the risks associated with the security appropriate to the fund [½]

[Marks available 7, maximum 3]

[Total marks available 17, maximum 12]

This was the best answered question on this paper, it was appreciated that drawing the diagram in part (ii) was slightly more difficult using Word and credit was given for any reasonable attempt, the average mark for part (ii) was over 5. Despite the number of available marks for part (iv) this was the part of the question that produced the weakest response.

Q5

Whatever benchmark is chosen it should be aligned to the investment objectives of the fund.

[1]

(i) (a)

Advantages:

- Most of the leading companies are likely to be quoted in countries with higher GDPs. Therefore the leading global companies are likely to be included in the index. [½]
- The bulk of index will in larger, better developed countries which may mean there is better information and regulation. [½]
- Focussing on the top 100 companies in each country should give exposure to the main drivers of the economy in question. [½]
- There may be more information available on the top 100 companies. [½]

Disadvantages:

- Weighting country exposure by GDP can cause problems if a country has a large GDP but very few investable stocks or an undeveloped stock market. [½]
- It will result in most of the capital being allocated to a relatively small number of countries and would not achieve the trustee aims with regards to reducing geographical concentration. [½]
- A country's GDP also takes no account of its population, however even if you used GDP per capita this could still result in large allocations being directed towards small countries that are rich in mineral wealth but don't have many investment opportunities. [½]
- By giving equal weight to the top 100 companies within a country it might mean having to buy a relatively large amount of stock in the 100th largest company of a country, which might be quite small. [½]
- The GDP of a country may not always be defined in the same way [½]
- There may be differences in the timing or publication of a country's GDP this may mean it results in over or under investment in that country [½]
- Even if investment opportunities exist there may be substantial political risk. [½]
- Giving equal weight to the top 100 companies in that country does not take account of the available stock. [½]
- There is no definition of 'top' it could be largest by market cap, the most well-known, the ones with the biggest turnover etc. [½]

- This may lead to over concentration on one industry especially if the country itself is very reliant on one industry e.g. oil or mining which is something the trustees wish to avoid. [½]

(b)

Advantages:

- The use of free market cap to weight companies is often used in indices [½]
- By using the free market cap this allows investors to invest in companies that are investable. [½]
- The 10% limit has the advantage of reducing the exposure to any one country so increasing diversification which is something the trustees want. [½]

Disadvantages:

- However it may result in an over exposure to one continent and no exposure to other areas which is something the trustees want to avoid. [½]
- How the cap is calculated is not stated so the degree of diversity is not possible to predict. [½]
- If it results in investing in a greater number of countries this may result in higher costs for custody etc. [½]
- It might also result in some countries being in the index whose political regime may be regarded as unacceptable. [½]
- There may also be greater currency risk. [½]
- It still may result in a concentration of capital in one industry if the large market cap companies in a number of countries are all in the same industry which is another thing the trustees want to avoid. [½]

(c)

Advantages:

- This arrangement prevents overexposure to any one industry [½]
- When compared to the current benchmark this would achieve the trustee's aim of reducing exposure to any one industry. [½]

Disadvantages:

- It could be argued 10% is still a high number [½]
- Especially if the industry is very risky [½]
- It would do nothing to address any over exposure to any geographical area [½]
- There could also be issues surrounding conglomerates or other companies which are difficult to classify [½]

[Marks available 15½, maximum 9]

(ii)

Growth

- Growth investors look to invest in companies that the investor expects to grow faster than average when compared to the market or to the industry in which the company operates.

Value

- Value investing is an investment paradigm that involves buying securities that an investor believes are under-priced using some form of fundamental analysis. Early definitions were concerned with a stock's price relative to its book value (preferring a low price-to-book ratio) however today the definition is less prescriptive.

Momentum

- Momentum investors purchase (sell) those stocks which have recently risen (fallen) significantly in price in the belief that they will continue to rise (fall) owing to an upward (downward) shift in their demand curves.

Contrarian

- Contrarian investors do just the opposite to what most other investors are doing in the market the belief that investors tend to overreact to news.

Rotational

- Rotational investors move between countries, sectors, industries or value and growth depending on which style is believed to be attractive at any particular point in time.

Top down

- Top down investors construct and manage portfolios which involves a structured decision-making process which starts by considering the asset allocation at the highest level i.e. between different asset classes.

Bottom up

- In contrast, a bottom-up approach seeks to identify the best value individual securities, irrespective of their geographic or sectoral spread.

[½ for name, ½ for description]

[Other styles to receive credit]

[Total 4]

(iii)

- Identify the metrics that will determine which stocks that will be part of the index [½]

Candidates should list the metrics that they would look at:

- Value - book value, yield (dividend & earnings), cash flow, sales to market cap etc.

- Growth - earning growth, return on equity, sales growth etc.
- Momentum & Rotational - price change over various time periods, earnings revisions etc.

[1 mark for relevant metrics.]

- Produce a universe of companies that match these characteristics [1/2]
- Decide on type of index e.g. capital, total return [1/2]
- Decide on method of calculation [1/2]
- Decide of weightings [1/2]
- Decide on frequency of calculation [1/2]
- Decide how it should be rebalanced [1/2]
- And when it should be rebalanced [1/2]
- Decide how to deal with income [1/2]
- And capital change/corporate actions [1/2]
- Calculate index using:

$$I(t) = K \frac{\sum_i w_i \frac{P_{i,t}}{P_{i,0}}}{\sum_i w_i}$$

- Where $I(t)$ is the capital index at time t ;
 $P_{i,t}$ is the price of the i th constituent at time t ;
 $P_{i,0}$ is the price of the i th constituent at time 0 - the last time at which there was a capital change;
 w_i is the weight applied to the i th constituent;
 K is a constant related to the starting value of the index at time 0. [1/2]

- A total return index can be calculated using:

$$TRI(t) = TRI(t-1) \frac{I(t)}{I(t-1) - [XD(t) - XD(t-1)]}$$

- Where $TRI(t)$ is the total return index;
 $XD(t)$ is the value of the accumulated XD adjustment at time t . [1/2]

[Marks available 7½, maximum 5]

[Total marks available 27 maximum 18]

Part (i) of this question was not well answered, it was not a question that had been asked before and required candidates to apply their knowledge of benchmarks and indices in a slightly different way. Part (ii) was much more familiar to candidates and was much better answered, it should be noted that index fund management is not a style and neither is

active fund management. In part (iii) many candidates just wrote what they knew regarding the construction of an index and didn't include comments on a particular style.

Q6

(i)

(a)

- The US has a large population who spend considerable amounts on food and in as ChocCo has no presence in this market it could be regarded as an opportunity to grow its sales. [1]
- By acquiring a US based manufacturer ChocCo also acquire whatever the US company produces [½]
- This may compliment what ChocCo produces [½]
- ChocCo also acquires the management of the US company [½]
- And its distribution network [½]
- And manufacturing facilities/property/technology [½]
- And supply chain [½]
- It will also acquire its customer base allowing cross selling opportunities [½]
- It also gains the reputation or good name of the company [½]
- It may also allow it to jump some regulatory hurdles [½]
- Or avoid tariffs being imposed [½]
- It will also reduce the risk when entering a new market [½]
- And enable ChocCo to benefit from economies of scale [½]

(b)

- By using debt ChocCo can gear up the returns that the US company produces [½]
- Assuming the profits from the US company can service the interest payments [½]
- Debt may be the cheapest form of finance [½]
- They may not be able to raise equity or they may not want to use all their cash [½]
- The use of debt means that less equity needs to be raised or cash spent and the company may not have the cash available [½]
- The cost of equity may be higher than the cost of debt. [½]
- It also prevents the dilution of equity stakes/loss of control [½]
- As interest payments are usually tax deductible using debt to finance part of the acquisition should result in a lower tax charge. [½]
- By using debt ChocCo may reduce its WACC [½]
- The debt offering may attract a different set of investors [½]

[Marks available 12, maximum 7]

(ii)

- By borrowing money in US \$ ChocCo the debt will act as a partial currency hedge as the profits from the US company will be in US \$ and these will be partially offset by the interest payments which will also be in US \$. [1]
- By fixing the interest rate ChocCo will know what the interest cost is going to be for the next ten years, this will allow it to plan more accurately. [1/2]
- ChocCo may also feel interest rates are going to rise in the future and the fixed rate offers a cheaper alternative. [1/2]
- US rates of interest may be lower than those on offer elsewhere [1/2]
- Ten years is quite a long period and will allow ChocCo plenty of time to develop its US acquisition. [1/2]

[Marks available 3, maximum 2]

(iii)

The reasons that ChocCo pays a greater interest rate are:

- The main reason is that ChocCo has a greater chance of defaulting on its bond than does the government of its domestic market. [1]
- The longer the period to maturity the greater the spread between the corporate bond and the government bond. [1/2]
- The government bond will have greater liquidity than the ChocCo bond, it is possible that the ChocCo bond will be very illiquid. [1/2]
- It is possible that the government bond offers tax advantages when compared with a corporate bond, thus making it more attractive. [1/2]
- Government bonds may be in greater demand as they offer a regulatory advantage to those that hold them e.g. as admissible assets. [1/2]

[Marks available 3, maximum 2]

(iv)

- ChocCo could approach an investment bank [1/2]
- and arrange a currency swap whereby they swapped the euro interest payments for US \$ payments. [1/2]
- The bank would find another US company that wanted to borrow euros, though it is possible for ChocCo to do this directly, however this is very unusual. [1/2]
- The arrangement would mean that ChocCo would swap the €450m for \$500m [1/2]
- assuming the exchange rate hadn't changed. [1/2]
- In a currency swap the principal is usually exchanged between the two parties [1/2]
- If ChocCo wanted the certainty of a fixed rate of interest they swap the fixed rate that they were paying on the euro loan with a fixed rate on the dollar loan [1/2]
- The rate of interest offered on the dollar loan would have to be below the rate they were offered when they wanted a US Dollar loan [1/2]
- Otherwise there is no economic justification for undertaking the swap [1/2]

- During the lifetime of the swap ChocCo would pay the interest on the loan in dollars. [½]
- The other company would pay the interest on their loan in euros. [½]
- As ChocCo would be paying in dollars and their US acquisition was generating dollars they would not be impacted by movements in the exchange rate [½]
- When the swap reaches the end of the term the principal is again exchanged this time ChocCo will receive euros and the bank dollars [½]
- The exchange rate for the closing exchange is the same as the initial exchange rate so ChocCo gets back €450m [½]
- Which it can repay to the bank [½]
- The bank will charge for the services it provides [½]

[Marks available 8, maximum 6]

(v)

(a)

- The investment bank is exposed to exchange rate risk [1]
- As the exchange rate at the start and end of the swap are identical the investment bank is exposed to any net movement between these dates and as the swap is for 10 years the movements could be substantial [½]
- So the investment bank loses if the euro appreciates against the dollar [½]
- It is also exposed to credit risk [½]
- If ChocCo defaults then it would be left with a \$500m liability [½]
- Operational risk [½]
- Regulatory risk [½]
- Capital adequacy risk [½]

(b)

- The exchange risk can be hedged by finding a company wishing to swap a dollar loan for a euro loan. [1]
- Or just a straightforward currency swap [½]
- The credit risk is more difficult to hedge, however it could be reduced by ensuring sufficient due diligence is performed before the swap is transacted. [½]
- Or that the loan is collateralised [½]
- Operational risk can be minimised by ensuring staff are fully trained and that procedures are complied with. [½]
- Regulatory risk can be minimised by being informed of current regulatory practice and what developments are likely to occur in the future. [½]
- Capital adequacy risk can be reduced by assessing the credit risks accurately and avoiding any concentrations of risk. This can be helped by stress testing the portfolio. [½]

[Marks available 8½, maximum 5]

[Total marks available 34½, maximum 22]

This question had less of a knowledge bias and concentrated on application or higher skills, while parts were well answered the overall marks for the question were disappointing. Those candidates who were prepared did well, this was particularly noticeable in part (i) which was a straightforward question with a considerable number of marks being available.

Q7

(i)

- The principal behavioural bias was hindsight bias. [1]
- This is where people's view of past events has been shaped by the event itself [½]
- In some cases hindsight bias involves misremembering the event, in others it starts with the view that the event 'had to happen' and then imposed on top of that 'I thought it would happen'. [½]
- In this case it is likely to be a combination of 'it had to happen' leading to 'I thought it would happen' [½]
- The economists had overestimated their ability to have predicted an outcome [½]
- They may have thought the crisis was possible but it was not something they were expecting [½]
- This may also be thought of as a form of over confidence. [1]

[Marks available 4 ½, maximum 3]

(ii)

The behaviours the investor may be exhibiting are:

- Mental accounting [½]
- The investor separates this money from his overall wealth and views it as the pot which he invests rather than considering it something to invest in the risk free asset. [½]
- Overconfidence/Optimism [½]
- The investor may have an overconfident view of his abilities and feels he will make more money in the future [½]
- Regret Aversion [½]
- The investor may feel he will regret transferring his money into the risk free investment as he feels that if he did his original investments would rise [½]
- Myopic loss aversion [½]
- The investment decisions could be regarded as a series of choices and in this case investors often are less risk averse and if he checks his portfolio very regularly the gains and losses are likely to be small so there is no big impact event. [½]
- Status quo bias [½]
- The investor may just prefer to keep doing the things he has done in the past. [½]
- Belief preservation [½]

- The investor may believe he is being successful and once the belief has been formed it is often difficult to change [½]
- Confirmation bias [½]
- The investor has only looked at articles that ignore the returns that could be obtained from lower risk investments [½]
- Prospect Theory [½]
- The investor continues to invest in order to recoup their losses [½]

[Marks available 8, maximum 5]

(iii)

- By only selling stocks that show a profit the fund manager may be exhibiting anchoring [½]
- The anchor is the price paid for the stock and they may believe that as they paid that price to buy the stock it must be worth at least that now [½]
- Mood based anomalies [½]
- Such as the calendar effect [½]
- Where there seems to be a link between showing prices are high on the days before a public holiday [½]
- The fund manager may also have a dislike of negative events [½]
- The reporting of a loss when a stocks are sold may be regarded as a negative event [½]
- They may also be demonstrating regret aversion [½]
- If they sell a stock at a loss and the stock then rises they will regret it more than if they sold a stock at a profit and it rises as in the first instance they would avoided a loss [½]
- The fund manager may also be overconfident [½]
- They may feel that they know that the stocks that are below cost are undervalued [½]
- Prospect Theory [½]
- They are risk averse when they have gains to crystalize [½]

[Marks available 6½, maximum 4]

[Total marks available 19, maximum 12]

Parts (i) & (ii) were well answered, however part (iii) proved to be more challenging possibly reflecting the fact that it is the first time that mood based anomalies featured in the exam.

END OF EXAMINERS' REPORT