INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

April 2015 examinations

Subject SA5 – Finance
Specialist Applications

Introduction

The Examiners' Report is written by the Principal 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 at the date the examination was set. Candidates should take into account the possibility that circumstances may have changed if using these reports for revision.

F Layton
Chairman of the Board of Examiners

July 2015

General comments on Subject SA5

The SA5 exam generally requires bullet point form or short form essay style answers that apply general principles to directly address specific circumstances. The answers given below are the most suitable but are just one possible set of acceptable answers. Candidates are awarded marks for all reasonable answers including different but still reasonable numerical solutions. Marks are awarded for working in the case of numerical answers.

Candidates' answers are made up of a series of points. For example, a point can be stating a valid type of risk, describing the type of risk or (part of) a calculation. Some points are more fundamental to the correct answer but, in the main, candidates earn one half-mark per correct point up to the limit of marks available for the (sub-)question.

Comments on the April 2015 paper

Question 1 concerned various aspects of credit ratings, their level and use by financial institutions and the securities markets or within portfolios. The individual sub-questions explored issues in some detail and it was clear that candidates struggled particularly with how the market interprets and responds to changed ratings. As a consequence this question was less well answered by many candidates, more so by those who appeared not to have read the question fully and instead submitted more generic answers.

Questions 2 covered product and operational risk as well as some aspects of taxation and corporate takeovers. It was answered rather better than question 1 though again candidates who appeared not to have read the question or instructions clearly scored less well; for example a question on *corporation* tax is unlikely to be well answered by describing *personal* taxation.

Most candidates attempted answers to every question, with question 2 allowing well-prepared candidates to score high marks.

As usual, candidates will benefit from practice with past papers and reading the financial press. The resulting improved depth of understanding of the application of finance in practical situations will make some questions much easier to answer.

Candidates are also reminded to *read the questions carefully* and frame their answers to the situation described or to the specific instruction given, rather than offer generic answers. Particularly where the context seeks to test a specific piece of understanding, generic answers may score no marks at all.

The SA subjects are the last subjects in the sequence of formal actuarial exams. Candidates taking SA5 are expected to have at least a basic knowledge of how businesses such as banks, pension funds, insurance companies and the securities markets function.

The comments that follow the questions concentrate on areas where candidates could have improved their performance.

1 (i) The parent company could guarantee the performance of the new overseas company. As a result the new overseas company could probably get a AA rating without requiring a lot of additional capital. However the risk of failure and even just poor performance resulting in future capital requirements for the new company are then passed back to the parent company. Also parent company guarantees can take a long time to unwind if the parent's overseas strategy changes and it decides to sell or run-off its overseas company.

There may not be a need for a rating or at least not a rating as high as AA. Or the need for the rating might not be at start up but only after the new company is well established.

The need for the rating and the desired level of the rating if one is required is likely to be driven by:

1. The prospective overseas customer's requirements. Personal lines business is not typically ratings sensitive. Commercial lines business may or may not be. If management believes that credit worthiness may be a significant issue for a subset of prospective customers then management could consider whether it would be more capital efficient to provide security to those customers separately. For example, the new overseas company could provide collateral or parent company guarantees to those customers on a contract by contract basis.

2. The ratings of competitor's will help to determine the appropriate desired rating level. It is not likely to be capital effective to provide a higher rating than is necessary to transact business.

3. The various country's regulators will likely have capital requirements for writing insurance and these requirements may vary depending on rating.

4. Whether the business plan for the new overseas company envisages issuing rated debt. Unless the debt is to be separately secured then the overseas company will need to use its capital to rate the debt and in effect obtain a financial strength rating.

5. How much capital would be needed to get the desired rating and where such capital might come from.

Other issues to consider:

1. The proposed initial size of the company as measured by shareholder equity. If the plan is to write only a relatively small amount of business whilst the company gains experience and track record then the initial regulatory and reputational capital requirement is likely to be relatively small. The rating agency capital requirement may be multiples higher and so a rating would result in a very low return on equity, at least until the overseas company has grown.

2. Moving into overseas business is a risk. Current management is unlikely to have any relevant experience. New management will be hired and new processes put in place. This creates operational risks and would negatively impact a new rating or at least make a higher rating harder to obtain.

3. The business plan developed for the new overseas company will include its size and proposed capital. Management should estimate what if any rating might be achievable based on the business plan.

4. What financial information is actually available for the new entity.

Minor but acceptable points are also the cost of the rating (getting it and maintaining it) and whether more than one rating from more than one rating agency would be needed.

Candidates made reasonable attempts at this question.

(ii)

- Improved return on equity (ROE) as the lower rating should require less equity all other things being equal. Of course, all other things won't be equal and in particular funding costs can be expected to rise but the ROE of the AA– bank is still likely to be higher.
- Peer group pressure – The banks peers may already be on average AA– rated and there may be little benefit in carrying the extra capital to maintain the AAA rating.
- The bank's home government's rating may not be AAA and it may therefore be very difficult and costly in terms of capital for the bank to maintain a AAA rating.
- The bank may have received notice from the credit rating agency that the bank is likely to lose its AAA rating and the bank is unwilling to raise more capital.
- Demonstration to creditors. The bank is committing to continuing to being well rated but is recognising that creditors don't need and don't want to pay for AAA ratings.
- The bank might be taking account of the economic cycle and noting that capital is relatively more expensive than it used to be.
- The market environment (specifically low interest rates for many credit ratings and / or little difference between AAA and AA-) may prompt the bank to reduce its rating and free up capital while anticipating little or no difference in future funding cost
- A change in the methodology applied by the rating agency may imply an imminent fall in rating however the bank may determine it is inefficient or impossible to maintain its earlier rating under the new regime.
- It could be a defensive tactic against a hostile takeover, by deliberately weakening the capital position and reducing the rating so as to make the bank less attractive as a takeover target.
- There may be a change in risk appetite by management or shareholders.

- The bank may be diverting funds from reserves into a profitable commercial opportunity

Candidates were expected to have noted in the question that this was a deliberate decision by the bank and hence give answers which would justify the move.

(iii)

- The bank would likely discuss with the rating agency the changes it proposes to make in advance.
- The most obvious change could be to increase its' leverage. For example, the bank could return equity back to shareholders, raise more debt and/or change the composition of the equity to make it more like debt and less like equity.
- The bank could increase and change the composition of its loan portfolio and other assets.
- The bank would need to ensure that it retained sufficient access to liquidity to meet a range of potential circumstances.
- The bank could remove or reduce its reliance on any external guarantors it may have in place (e.g. the government)
- The bank could change the mix of assets it invests into, with a greater exposure to risky borrowers, thereby resulting in a poorer capital position.
- The bank could deliberately increase operational risk by reducing staff levels or weakening oversight functions.
- The bank would try to focus on profitable business as it will have less need for diversification e.g. number of borrowers, type of borrowers, geographic location of borrowers.
- The bank would likely target less creditworthy counterparties.
- The bank might grow relatively risky but profitable business operations.
- The bank might make less use of hedging techniques e.g. credit default swaps.
- The bank might place less emphasis on its fee-based businesses and increase proprietary trading.
- The bank could relocate to a country with higher sovereign risk
- The bank would likely consider acquiring other lower rated bank(s) to increase size, market dominance etc. Growth would bring diversification benefits and so the banking group might expect to continue to be well rated but the overall rating might fall commensurate with the new purchases and the operational risks associated with new acquisitions.
- Finally the bank will need to submit its new long-term business plans to the rating agency and convince the rating agency of its intention to remain AA– in the future.

Candidates made reasonable attempts at this question.

(iv)

- Immediate impact of announcement will depend on degree to which it was anticipated by the market. If the market was expecting the move, there may be no impact at all. If the move comes as a surprise, there could be a change in equity and debt prices.
- If unanticipated then the immediate impact of the announcement on the cost of the bank's debt is likely to be neutral for all debt maturing in the near term and negative for all longer term unsecured debt. The market will likely treat the bank as being AAA for the next six to twelve months and AA- thereafter.
- The impact of the announcement on the share price will depend on the market's view of the relative advantages and disadvantages of the proposed change. If the bank achieves its goal then debt raised in the future will be a bit more expensive. However it is likely that the bank will maintain a higher leverage ratio and produce a higher ROE on average.
- Share prices are largely driven by market estimates of future profitability. It could be that the market will consider that maintaining a AAA rating might hamper the future growth of the business and the profitability of the new business. The share price would rise to reflect the new and higher future growth expectations.
- The market may consider that by weakening the rating the bank will affect its attractiveness as a counterparty, client or supplier of funds, which could negatively affect its future revenues and profits. That could cause the share price to fall.
- Share buybacks or cash return to shareholders should boost share prices in the short term.
- Share price volatility will increase, which may depress the price.
- The move is very small so any impact either way may be very minor.

It was helpful for this question for candidates to appreciate that market prices typically incorporate expectations or forecasts of future events and financial performance and hence the reaction to information is affected by whether at the time of the announcement there is new information or whether it is already well anticipated.

(v)

- Market value incorporates the most current collective view on the likelihood of payment of coupons and repayment of principal.
- In practice, rating agencies cannot operate in "real time" so the rating may be out-of-date and not reflect all available information.
- The market may disagree with the rating.
- It is very common for fixed income investment managers and investors to target and track a weighted average credit rating for its fixed income portfolio including cash. This statistic is used to compare the credit risk of a fund over time and between funds. It can also be included in investment guidelines.
- If the rating is out-of-date or otherwise inappropriate it can result in fund managers misallocating exposure to the affected security; for example, the

security could be included in investment-grade portfolios when in fact its true rating would make it ineligible.

- An incorrect rating will interfere with the proper risk management of the portfolio, which is frequently based on ratings to classify and compute various risk measures.
- Other points:
    - The discrepancy between market price and "true rated value" could represent a trading opportunity.

This question was difficult and was poorly answered by nearly all candidates. The key insight was that ratings cannot always represent the most recent information and this may result in discrepancies between a bond's rating and its "true" probability of default, which in turn may lead to risk management issues.

(vi)

- The rating only takes into account the probability of repaying the bond's contractual payments (coupon and redemption proceeds); i.e. it measures the number of defaults, rather than the financial impact because it does not incorporate any estimates of recovery in the event of default.
- To estimate the probability of getting back the current market value, the investor needs to estimate the likely recovery (through a liquidation or other process) should the bond default.
- Recovery rates could be based on internal data or market experience.
- Example:
    - Take a bond maturing in three years' time at 100 with a coupon of 3% and a market value of 98. The bond is currently rated at BB reflecting the credit rating agency's view on getting the 100 back in three years' time.
    - The BB rating implies an idealized probability of default and loss given default. Assume that a BB rating implies a likely default rate of 0.5% p.a. or about 1.5% cumulatively over the 3 years (note – this value is an assumption and any reasonable figure comparable to the rating chosen is acceptable)
    - For simplicity we ignore default and recovery on coupons.
    - Assume that in the event of default, redemption proceeds recovery rates are about 50%.
    - Therefore an approximate theoretical value of the redemption proceeds for the bond would be 100 x 0.985 + 100 x 0.015 x 0.5 = 99.25.
- We would now compare the present value of the theoretical redemption proceeds plus coupons with the market price of the bond and also to work out a yield to maturity.
- The yield differential adjusted idealized expected loss can be compared with the idealized expected loss of other ratings and the bond re-rated for the purpose of producing the weighted average credit rating statistic.

- Other points:
    - The investor could use a structural approach using credit default swap prices to gauge the default probability more accurately than by relying on the (possibly out-of-date) rating.

Like part (vi) upon which it followed, this question was poorly answered by most candidates. The example was intended to test candidates' understanding of fairly basic bond computations (including a recovery on default) and any reasonable demonstration would have earned marks; however, few candidates attempted anything.

(vii)

- This issue is not normally a problem for economic capital models...
- ... as they should automatically include the securities at market values, the yield differential and the idealised expected loss in their calculations.
- The economic capital should include the most relevant, up-to-date information about the securities in the portfolio.
- This includes replacing the published rating with a revised figure if current information and analysis suggest that better reflects the true likelihood of default (great care should be taken if securities are uprated through this process – is that truly warranted?)
- The internal re-rating will be expensive to carry out.
- How many affected securities are there – is it worth making the effort?

Candidates who had scored poorly in (vi) and (vii) continued to score poorly here also, even though marks in this part were available for aspects that did not require particular understanding of ratings, like realising any re-rating would cost time and money to carry out.

(viii)

- The cash would most likely be held in money market funds.
- The fund would likely sell credit default swaps, both settled in cash or settled with cash and security.
- The fund could invest into bond futures or bond ETF futures plus cash (note: many other portfolio compositions are possible and marks are available for anything sensible).
- The amount and type sold would have to be carefully modelled so as to not breach the fund's constraints.
- Total return swaps and credit linked notes would not work because, apart from the derivatives, the fund is invested in cash.

Candidates were told in the question that the fund would hold cash plus derivative(s). Consequently candidates were expected to elaborate or give examples of the type of each that could be held to achieve the investment objective.

(ix)

- Liquidity Risk – Most of the physical investments will be exchange traded and marketable under most economic scenarios. The over the counter credit derivatives are likely to be far less liquid. They can be sold or a

counter-balancing swap purchased but this is likely to be much less certain. This will make it more difficult to rebalance the fund as credit ratings change in the future and it is forced to trade securities to avoid breaching its constraints and/or improve its overall returns. There could also be liquidity risk arising from the requirement to post margin and collateral at inopportune times.

- Counterparty Risk – The counterparty risk on the physical securities was that of the issuers. The derivatives' counterparty risk includes both the credit risk of the underlying issuer and the counterparty risk of the swap purchaser as the swap payments will often be made annually and not all up front. There is also a de minimis credit risk associated with the investment in the money market fund.
- Model (pricing) Risk – The two main different pricing model types are structural and reduced form. Different models will of course result in different pricing for the same underlying risk. If the model results in some trades being over-priced and some trades being under-priced then the risk is that only (or mainly) the under-priced trades will clear leaving the fund with insufficient reward for the risk being accepted.
- Return Volatility – The smaller universe of tradable credit derivatives relative to the potential physical securities could result in significantly fewer derivatives being sold versus securities held under the old system reducing the diversification benefits and increasing the volatility in returns.
- Operational Risk – The investment manager is expert in investing in physical securities. He is not necessarily an expert in pricing and selling credit derivatives. There are a number of ways of pricing credit derivatives. The investment manager is unlikely to have the requisite skills to be certain that the trades are appropriately priced. There is also execution risk due to likely frequent rollovers of derivative positions.
- Foreign Exchange Risk – Previously any positions held outside the base currency combined foreign exchange risk with other risks; in a derivative portfolio the foreign exchange risk may be separately managed using currency forwards.
- Reinvestment Risk – Derivatives will likely produce very different cashflows (including margin cashflows as required) than holding outright bonds.
- "Basis" Risk – The investment manager is likely to have a smaller universe of securities to choose from when using derivatives compared with physical securities owing to the much reduced set upon which CDS or other derivatives are likely to be available. The portfolio may therefore be compromised by having to select from a reduced list of bond issuers.

Candidates scored reasonable marks for this section. Several candidates failed to appreciate that a derivative based on a risky asset will likely exhibit price behaviour similar to that risky asset and not behave in some sort of generic "derivative" way.

(x)

- Interest Rate Risk – The risk of reduction in the market value of the investment portfolio arising from changes in interest rates. Can be measured using either the maturity gap approach or duration analysis. For example, estimate the loss to the portfolio if interest rates rise across all durations by say 0.5%, 1%, 2% per annum.
- Market Risk – The risk of reduction in the market value of the investment portfolio by more than a given amount being the value at risk. Can be measured by using value at risk or otherwise assessing the current value of the portfolio according to various market factors and then by changing the market factors to estimate the probability of a fall in the overall value by more than the predetermined amount.
- Foreign Exchange Risk – The risk of reduction in the market value of the investment portfolio arising from changes to foreign exchange rates. Can be measured by stressing the FX rates contained in the portfolio up and down according to observed historic volatility.
- Liquidity Risk – The risk of the investment portfolio needing to sell assets prior to maturity in order to meet cash needs and more particularly the risk of either being unable to do so at any price or only being able to do so at very low prices. The measurement needs to consider the future cash needs of the portfolio. These can be to meet known liabilities or unknown investor withdrawals. The risk is usually measured by considering the portfolio's duration compared with its estimated liability duration and by considering the marketability of the underlying securities.
- Inflation Risk – The risk that future inflation erodes value of nominal cash flows. It can be measured using exposure analysis of nominal vs real coupon and principal repayments
- Operational risk – The risk that pricing or trading / settlement errors adversely affect portfolio results. It can be measured using internal controls, compliance department, insurance quotes
- Reinvestment risk – The risk that cashflows required to maintain derivative positions (including any margin payments) need to be realised or invested on unfavourable terms. It can be measured using a projected cashflow analysis.

Candidates scored reasonable marks for this section. Some candidates suggested that an investment fund has liabilities much like an insurance company does, which is unlikely to be the case. As ever, answers which are tailored to the situation at hand, and candidates who demonstrate an understanding of the uniqueness of a given situation, tend to score higher marks than those who do not.

2 (i)

- Corporation Tax is a tax on the taxable profits of limited companies. Taxable profits for Corporation Tax include:
  - profits from taxable income such as trading profits and investment profits (except dividend income which is taxed differently)
  - capital gains – known as "chargeable gains" for Corporation Tax purposes
- The main rate of CT is 21%. This is charged on the whole of profits where they exceed £1.5m. A small profits rate of 20% is charged on the first £300,000 of profits where profits are below £1.5m. There is marginal relief for profits between £300,000 and £1.5m.

(Note: the 2015 Core Reading gives the rate as 21% and this is what students are expected to know. As of the time of writing the actual rate was 20%, having been reduced on 6 April 2015. In order to earn marks, candidates who give 20% should qualify this with an appropriate reference that this is the present rate.)

- While proceeds from investment in derivatives are normally taxed as capital gains, derivative traders like AM Fund pay Corporation Tax (CT) on the profits from the trade.
- Tax relief in the form of capital allowances allow the cost of some a company's or organisation's assets to be written off against its taxable profits. They replace any depreciation shown in the company's or organisation's accounts, which is not allowable for Corporation Tax purposes.
- A company's trading losses can normally be set against:
  - income and gains of the same accounting period
  - income and gains of a previous year
  - trading profits from the same trade in future years
- Companies are subject to Corporation Tax on chargeable gains at the normal rates. Companies continue to receive indexation relief on gains (and do not receive taper relief).
- Capital gains may be offset by capital losses of the same accounting period or capital losses brought forward from previous periods.
- Qualifying disposals of substantial holdings (at least 10%) are exempt.
- If a company or organisation is based in the UK (as is the case with AM Fund), they have to pay Corporation Tax on all their taxable profits – wherever in the world those profits come from. (AM Fund will have some overseas profits from their global derivatives strategy.)
- Profits tax or corporation tax paid in overseas countries on corporate earnings can be offset against any UK corporation tax on that slice of earnings. If the rate of corporate tax in the overseas country is higher than or equal to the rate of corporation tax in the UK, then no UK corporation tax is payable on that slice of earnings.
- Most countries impose a withholding tax on dividends and sometimes interest payments made overseas. These withholding taxes can usually be set against UK tax liabilities.
- Interest expense can normally be used to reduce profits and hence tax.

A relatively straightforward question on taxation to which candidates presented a surprisingly variable set of answers. Several candidates confused personal taxation with corporation tax.

(ii)

- Product definition
  - conflicts with other potential funds that the firm may want to launch in the future
  - competition from other firms selling similar products – does the fund require more areas of differentiation?
  - intellectual property position – will it be easy for others to replicate what this fund does more cheaply?
  - understanding the market needs – will there be any demand for this new fund?
  - product cost constraints – initial set-up costs, however employee compensation is likely to represent the largest cost over time.
  - fund terms should be clearly defined and reasonable in terms of fees and expenses charged along with fund liquidity terms being consistent with the liquidity terms of the underlying derivates strategy.
- Fund development team
  - project leadership and overall project manager (and back-up person)
  - availability of staff and specific skills needed across main project areas – legal, operational, marketing and investment
- Technical and Systems
  - technology availability / readiness – data, research, trading, and accounting systems
  - suitable and tested product system architecture including back-up systems
  - verification of trades, buying and selling of fund units / fund accounting
- Outside resources
  - selection and appointment of legal advisors, auditors, fund administrators, custodian, (prime) brokers, ISDA counterparties, potential third party marketers, compliance consultants, IT support etc., including having an ongoing review of services.
- Quality control and legal
  - regulatory / environmental requirements (mainly FCA and SEC) including required fund disclosers to investors, and wording in fund offering memorandum and fund subscription documents
  - having suitable disaster recovery procedures and back-up sites
  - limit fund capacity before asset size starts to negatively impact performance due to liquidity or market impact
  - management of any conflicts of interest (e.g. if the internal capital is managed differently from outside capital).
- Marketing, sales and distribution
  - launch timing and target investors (including having a relevant CMS)

  - product distribution, sales support and on-going investor relations
  - documentation, training, and compliance
  - what is competitors' approach?
- Ongoing delivery
  - ongoing staff and systems availability and competence to deliver operational support to fund and clients
  - performance needs to be sufficient to pay (or justify, as the case may be) any fees and expenses charged
  - errors may occur in reporting to customers or regulators
  - documentation, marketing materials and any promises of what customers can expect from the product must remain updated and accurate

A relatively straightforward application of the core reading, and candidates scored reasonable marks for this section. Candidates who tailored their answers appropriately to the specifics of AM Fund were able to attain high marks here.

(iii)

- Operational risk has been defined as "the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems or from external events".
- For AM Fund it may include issues such as:
  - IT, interface, information, trading and other system failures and deficiencies
  - confidentiality or security breaches
  - human error
  - fraud and theft
  - weaknesses in internal controls or supervision
  - physical disasters
  - product misspelling or breaching of product guidelines in the offering docs (once the funds are sold to end-investors)
  - transfer/settlement failures
  - health and safety requirements for employees
  - regulatory and compliance requirements including insider trading
  - staff resource deficiencies (including back-up or succession issues)
  - dependency on third party contractors or outsourcing
  - reputational issues (e.g. fund blow-up)
  - legislative transgression (e.g. insider trading, money laundering)
- In the definition, "loss" covers not just direct expense but also foregone income and indirect expenses (such as a reduction in the value of the firm through loss of reputation).
- Operational risk can considered to include "Business risk" – the risk of incurring a loss through a strategic error in the selection of business or the approach taken to manage a particular business.
- Many commentators estimate that operational risk accounts for at least 20% of total risk capital – up to 50% in highly fee-driven businesses. This is likely to be higher at the start of a company's lifecycle such as the case with AM Fund.

- Analysis of event risk is, at least in theory, amenable to the same techniques used to model market and credit risks. Having identified the sensitivity of the enterprise to certain types of event, we can assign a probability of the event occurring and of the loss likely to be incurred. In practice, however, the sort of events in question occur very infrequently (and may be different each time) and the size of loss we can expect is difficult to quantify. Additionally, very little information is ever published (except for "headline" events) so only internal data is available.
- A further set of difficulties relates to the wide range of factors driving operational risk, and the many ways they can impact. The data available is, therefore, fragmented and sparse particularly for new companies and products such is the case here.
- Other information must therefore be used, such as:
    - subjective judgement (particularly from experts in the field)
    - peer-group analysis
    - modelling (possibly drawing on insurance industry data)
    - insurance costs (if the cover available equates to the losses under consideration)
    - market betas (on the assumption that variations in performance which are not market-driven are instead due to operational risks). The latter approach can also assist in evaluation of business risk.
    - data from service providers like auditors or custodians
- Under the Basel II proposals, three different approaches to calculating the net capital allocated to operational risk are proposed. Under the "basic indicator" approach, the institution is required to hold capital equal to a set percentage (12%) of its gross income.
- The "standardised" approach allows the percentages to be determined separately for each business line.
- The "advanced measurement approach" (AMA) will permit institutions to assess operational risk capital requirements based on their own experience using one of three methods: the internal measurement approach, the loss distribution approach (in which observed losses are modelled) and the "scorecard" approach (based on scoring the different business lines).
- Only institutions that can prove the quality of their operational risk measurement and management systems to the regulator will be allowed to use the AMA approach.
- One condition is to have a loss database extending over at least five years, which is not the case for AM Fund.

Another relatively straightforward application of the core reading, and candidates scored reasonable marks for this section. The specimen solution includes a wide-ranging set of points however candidates tended to cluster their answers around those points most closely related to the core reading, without considering wider issues.

(iv)

- Assuming risks can't be easily transferred or avoided completely, the aim would be to control the remaining risks as far as is practical / needed.
- Some specific techniques used in loss control include:
    - Separation of assets – in order to limit the value of assets exposed to loss in a single occurrence. In this case e.g. diversifying by counterparty, having concentration limits for the fund investments, and ideally having more than one fund.
    - Salvage – immediate action to protect the remaining value that has not been impaired. Trying to recover value from fund assets that have defaulted, or salvaging offices equipment after a loss event etc. If all else fails, it can help to have good lawyers or legal contracts in place!
    - Rehabilitation – the salvage function applied to human beings, in particular those individuals responsible for running the fund on a day-to-day basis (e.g. portfolio manager).
    - Redundancy – duplicate or "standby" facilities included to prevent the adverse effect of accidents. Full disaster recovery to allow, e.g. the portfolio manager to still trade the fund portfolio remotely.
    - "Systems safety" – the detailed analysis of each component, each action and each interrelationship in a system in order to determine what could go wrong. For example, building in pre-and post trade compliance checks into the system to avoid incorrect trades being placed.
    - Insurance – purchase insurance to limit the financial impact of the event (e.g. business interruption insurance against physical disasters or liability insurance against human error)
    - Outsourcing – appoint 3rd parties to carry out certain functions and hence pass (some of) the cost of losses on to these providers
- Techniques used include logic analysis, mathematical modelling, prototypes and simulation.
- Systems safety attempts to identify potential failures before they occur so that measures can be taken to prevent their occurrence. Two of the most popular systems safety techniques are the Hazard Mode and Effect Analysis (HMEA) and Fault Tree Analysis (FTA).
- HMEA attempts to summarise the system components whose failure could trigger a loss, the importance of a failure and the measures that can prevent a failure. FTA focuses on the causes of events and traces the relationships between all minor events that could, ultimately, lead to a major undesired event. By the inclusion of "and" and "or" logic gates, the fault tree facilitates the evaluation of the probability of failure.
- The firm can also compile a risk matrix showing the various risks and how the magnitude of the loss and the probability of the loss can be managed using various risk controls.
- May also give 1 mark for a relevant discussion of William Haddon's energy release theory and how it applies to controlling risk.
- Discussion of Disaster planning can attract a further 1 mark.

The question was about ways to control losses – i.e., to reduce the impact of an error or event assuming that event has now taken place; it is not asking about risk avoidance. Candidates who didn't appreciate this distinction were at a disadvantage.

(v)

- Corporate governance refers to the high level framework within which managerial decisions are made in a company. The aim of good corporate governance is that a company should be managed in order to best meet appropriate requirements of its stakeholders – the owners, employees, customers, service providers and others who may be affected by the company's operations whilst not having any contractual relationship with the company at any time.
- One particular concern of attempts to create good corporate governance is that management might make decisions based more on their own personal interests than on those of relevant stakeholders.
- Corporate governance can be enhanced by ensuring that remuneration incentivises management to act in the interests of stakeholders. Share options may be seen as part of this, though the lack of sufficient downside for management can limit how well share options perform this function. Non-executive directors are also often part of a structure aimed at good corporate governance.
- UK government guidance places considerable emphasis on the role, and independence, of non-executive directors in scrutinising company operations.
- It provides that at least half the board should comprise independent, non-executive directors and that they should normally serve for only 2 three-year terms, to maintain independence. (Nonexecutive directors who serve for more than 3 three-year terms should then be subject to annual re-election.) Other provisions include that the same individual should not exercise the roles of Chairman and Chief Executive, and that a Chief Executive should not go on to be the Chairman of the same company.
- In the case of AM Fund, the firm may be too small initially in terms of number of varied stakeholders and potential for conflicting interest etc, to justify having its own company board in line with best practice. However, for the proposed new pooled fund, at a minimum there should be a fund board with sufficient representation from independent directors to ensure that where there is a conflict between the interest of the company and the interest of investors (e.g. around charging of expenses to the fund or when the fund is being wound down), that the interest of investors in the fund should be the main driver of decisions made.
- Other valid points include:
    - Full record keeping including minutes and documentation of decisions
    - Clear delegation of authorities
    - Board committees with suitable remits including remuneration and audit

Candidates needed to appreciate the difference between corporate governance and compliance; this question is about the high level management framework, not about the

organisation or operation of a compliance department, although the existence and oversight of a compliance department would be necessary for good governance.

(vi)

- Typically, buyers in these transactions are motivated to increase enterprise value by:
    - Growing assets under management (on which they charge fees)
    - Diversify revenue streams, or change the characteristics of their revenue streams rapidly
    - Exploit potential revenue and cost synergies, for example:
        - across distribution,
        - operational infrastructure,
        - regulatory,
        - compliance,
        - investment research,
        - investor relations and servicing,
        - improved financing terms
    - potential unused tax benefits
    - plus many other relevant points
- Potentially gain access to a strong performing existing track record that can be leveraged in raising capital / attract more assets.
- Gain from more experienced resources in areas where the buyer currently has no expertise.
- It may simply be a good commercial opportunity; i.e. the likely purchase price represents an attractive discount to the value of assets, AUM, future fees or staff being purchased
- The buyer may be seeking to eliminate a competitor.
- The owners of the company looking to sell (the sellers) (like AM Fund) on the other hand:
- Can take some "money off-the-table" in the absence of other monetisation options for the (e.g., as part of a succession plan).
- May like the distribution capabilities of the acquirer (who we are told is a global firm)
- May like the acquirer's ability to provide seed capital for the current or new funds.
- See the acquisition as an opportunity to manage a larger asset base, which may for example give it more negotiating strength with counter parties and other service providers.
- Do not like the risks and costs of running a single strategy fund, which may be sub-scale and struggling to grow.
- Improved brand, for improved marketing and counterparty negotiation
- May think the price being offered is compelling

There was a wide range of points available here and the question was handled well by many.

(vii)

- The execution of these transactions can be difficult to pull off, with culture being the issue most commonly cited by investors and managers as posing challenges in integration. A failure to execute correctly can be disastrous, since a great deal of the enterprise value of alternative funds like the fund proposed by AM Fund, is in its investment talent.
- The following are some of the practices for successful acquisitions for alternative asset managers:

Pre-Transaction

  - Understand legal aspects of transaction (e.g. if AM Fund now listed, need to follow listing authority process for takeovers)
  - Is transaction friendly or hostile?
  - Communication to clients and shareholders
  - Regulatory considerations (e.g. potential approval required from competition authorities)
  - Transparency of respective financial positions to enable accurate due diligence to be carried out.
  - The parties need to agree a price, which is complicated in relation to service firms by the disproportionate importance of goodwill / intangible assets (i.e. staff and future fund performance)
  - What form will the transaction take? (e.g. cash or shares)
  - There needs to be a good cultural fit between the two firms, in terms of approach to growth, how people are evaluated and compensated and how authority is delegated.
  - Firms need to ensure that expectations are aligned, and the buyer must be confident in its ability to meet the seller's expectations (e.g. have ability to provide seed capital, marketing team can help drive asset raising, back office can support multiple products).
  - A senior individual needs to devote meaningful time to the acquisition, integration and management of new teams / products (likely a very time-consuming process).
  - The plan needs to be vetted with the largest investors beforehand.
  - There has to be a detailed communications plan for employees to maintain stability, and a granular integration plan for infrastructure.
  - The buyer firm needs to provide a role for the seller firm's senior leaders, and clarity on future expansion plans.
  - Seek legal (including on likely issues in getting approval from the regulator(s)) and tax advice.
  - If required, is financing in place?

    Transaction Structure
  - The right consideration / incentives need to be provided including, buyer's stock with vesting schedule or a continued share of profits in the absence of an ownership interest, a contingent payment plan linked to assets under management / performance / EBITDA, and "true-up" payments linked to performance, and retention / performance bonuses.
  - Three- to five-year employment agreements with key employees are usually standard, as are non-compete / non-solicitation clauses for the life of the contract plus one to two years beyond.

- Governance is a key negotiation focus as sellers prefer to maintain autonomy.
- Depending on degree of integration, operating guidelines / risk limits, and board / operating committee representation may need to be negotiated.
- How will ordinary staff be transferred?

Post-Transaction

- The buyer and seller both need to honour their own commitments and monitor commitments made by the other party.
- Employment agreements will almost always be enforced by the buyer, so the seller's former employees will find themselves quite constrained in terms of what they can and cannot do.
- Buyers need to be careful to not do anything that would cause talent to leave the firm; even investors that have endorsed an acquisition will likely withdraw assets if key investment talent departs the firm – this could be highly value destructive.
- Accounting for acquisition costs and integration costs should be communicated and monitored closely.
- Systems and management platforms need to be properly integrated.
- Potential adverse customer reaction needs to be managed.

The question was handled well by many. Marks were available for high-level aspects to the transaction (like cultural fit and integration of key staff members). Candidates who delved too quickly into the accounting aspects of a transaction tended to miss out on the wider picture and scored fewer marks than they could have.

END OF EXAMINERS' REPORT