

INSTITUTE AND FACULTY OF ACTUARIES



EXAMINATION

01 May 2020 (am)

Subject SP9 – Enterprise Risk Management Specialist Principles

Time allowed: Three hours and fifteen minutes

In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator from the approved list.

- 1 (i) Outline the key themes from the Walker review. [3]

The residents of Country A are excited about a new sport, Sport V. It requires little equipment and is easy to learn how to play. The game is unknown outside Country A. Three years ago the League of Sport V in Country A (LVA) was formed and is the world's only professional Sport V league. Six teams compete in this league, with one team representing each of six different regions of Country A. Each round of matches is held at the home of one of the teams. At the start of each season all registered players are given a rating, which is a numerical representation of the quality of the player. Players can only play for one team each season.

Following an incident with a professional league in a different sport, LVA and Country A are concerned about the reputation of their sport. LVA is now looking to formalise its governance to help manage reputational risk.

- (ii) Outline a simple governance structure for LVA. [3]

- (iii) Suggest possible actions LVA could take to manage its reputational risk. [5]

A family from a neighbouring country, Country B, have recently returned from a holiday in Country A. They wish to set up a team to join LVA, representing Country B. Their plan is to hold a search in Country B for the most talented players and enter the league. They see an opportunity to invest in the sport and are attracted by the high prize money awarded to the first, second and third place finishers in LVA, as well as other commercial opportunities.

- (iv) Outline the key risks of the plan from the perspective of the family. [5]

- (v) Suggest possible actions the family could take to mitigate the risks identified in (iv). [5]

LVA has an application process for admitting new teams to the league. It requires approval from a majority of the existing teams in the league. If successful, the new team would play in the next season and would be able to recruit players.

The LVA league application process requires various items of information including the:

- ownership structure of the team
- financial plan and strategy over the next five years
- sponsorship or sponsorship potential
- projected benefits to Country A
- proposed actions to support the growth of Sport V
- key risks and how these have been mitigated.

LVA is aiming to minimise bias in the application form and when assessing applications.

- (vi) Discuss how bias could be incorporated into the application submitted by the family. [5]

- (vii) Propose possible actions LVA could take to achieve its aims. [3]

The family have employed a firm of actuaries to help it determine whether it should proceed with its plan and have asked them to produce a financial model to assist them in their decision.

- (viii) Set out how the actuary might use a financial model to undertake this work.

[10]

[Total 39]

- 2 An entrepreneur is applying for a banking licence in Country S (currency SVP), called ‘The Bank’, which will operate under the Basel Accords. The Bank will aim to attract customers in a particular region of the country. As part of their application they have developed a business plan. The information below represents the balance sheet and profit and loss statement of The Bank for one of the later years of their business plan.

SVP million	
Balance sheet	
<u>Assets</u>	
Cash	733
Loans	4,506
Total assets	5,239
<u>Liabilities</u>	
Deposits	5,001
Bad debt impairment	22
Total liabilities	5,023
<u>Equity</u>	
Capital	204
Retained earnings	12
Total equity	216
 Profit and loss statement	
Interest	46
Interest expense	(13)
Operating expenses	(10)
Net operating income	23
Change in bad debt impairment	(12)
Profit pre-tax	11
Tax	(2)
Profit post-tax	9

The entrepreneur is using this business plan to help it attract potential investors. You have been asked to assist in preparing a number of papers to inform investors’ decisions over whether to invest.

One of the papers will describe how The Bank will optimise its risks. The assumptions are that:

- hurdle rate is 4%.
- prospective assumed future growth is 3%.
- economic capital is equal to SVP 200 million.

- (i) (a) Propose and calculate appropriate risk-related metrics for The Bank for the year using the information provided above. You may assume that the profit post-tax can be used as the risk-adjusted return.
- (b) Comment on how potential investors may use each metric when deciding whether to invest in The Bank.

[10]

Another paper will discuss how The Bank may be affected in various adverse situations.

- (ii) Define the following terms:
- scenario testing
 - stress testing
 - sensitivity analysis.
- [3]
- (iii) Describe how The Bank may carry out these analyses based on its business plan. [5]
- (iv) (a) Suggest three distinct examples of sensitivities that could be investigated.
- (b) For each example given in part (iv) (a), assess the impact on the pre-tax profit shown in the business plan. You should state any assumptions you make.
- [6]

Following the presentation, you have been asked to assist in describing the risk profile of the business.

- (v) Define risk taxonomy. [1]
- (vi) Give three examples of where a particular risk could be categorised in two different ways. [3]
- (vii) Discuss how each of the following risks could be quantified for The Bank:
- credit risk
 - market risk
 - liquidity risk
 - operational risk.
- [8]

One of the investors suggests that credit rating agencies would also be interested in the economic capital of The Bank.

- (viii) Define economic capital. [1]
- (ix) Describe how The Bank could set its target economic capital requirement. [2]
- (x) Describe how a rating agency could assess The Bank's economic capital approach. [8]
- (xi) Estimate The Bank's Pillar 1 credit risk capital requirement for the year. State any assumptions you make. [6]

The investors review the economic capital and note that credit risk is the most dominant risk. One of the investors makes the following comment:

‘Due to the dominance of credit risk in the capital requirement, investing in The Bank is unwise’.

(xii) Discuss the investor’s comment. [3]

(xiii) Explain how the credit risk could be reduced without transferring it to a third party. [5]

[Total 61]

END OF PAPER