BUSINESS VALUE, GOVERNANCE AND RISK

PROFESSIONAL PROGRAMME PRACTICE WORKBOOK

2018-19 EDITION
Singapore CA Qualification

Business Value, Governance and Risk

Chartered Accountant
SINGAPORE
# Contents

<table>
<thead>
<tr>
<th>Introduction</th>
<th>v</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examinable documents</td>
<td>vii</td>
</tr>
</tbody>
</table>

## Section 1

1. Sustainability                                         | 4  |
2. Acquisition                                            | 6  |
3. Enterprise Risk Management                              | 8  |
4. Teo Industries                                          | 11 |
5. Construction Products Ltd                               | 14 |
6. Rackets                                                 | 17 |
7. Investment                                             | 19 |
8. Business valuation                                      | 21 |
9. Lease or buy decisions                                  | 25 |
10. Issue price                                            | 29 |
11. Discount rate                                          | 31 |
12. M & M                                                  | 33 |
13. Bloom                                                  | 37 |
14. Exchange rate forecasting                              | 39 |
15. Takeover valuation                                     | 43 |
16. Corporate governance                                   | 47 |
17. Stakeholders                                           | 50 |
18. Combining the role of Board Chairman and CEO           | 53 |
19. Mantra Ltd                                             | 55 |
20. Yeo Properties Ltd                                     | 59 |
21. Audit Committee                                        | 62 |
22. Board of directors                                     | 65 |
23. Board and Board Committees                             | 67 |
24. Control failures                                       | 71 |
25. Risk management and internal controls                  | 73 |
26. Strategic risk                                         | 75 |
27. Social media                                           | 77 |
28. Risk identification                                    | 79 |
29. Lom Infrastructure Ltd                                 | 81 |
30. Yaya                                                   | 84 |
31. Widepool Ltd                                           | 87 |
32. Newmed Ltd                                             | 89 |
33. Internal audit effectiveness                           | 93 |
34. Internal controls and fraud                            | 96 |

## Section 2

1. ABC (Pte) Ltd 1                                         | 101|
2. ABC (Pte) Ltd 2                                         | 111|
3. Samba Holdings                                          | 118|
4. Solar Research Systems                                  | 132|
5. Sentosa Electronics Ltd                                 | 139|
6. Mega Bank                                               | 147|
7. Infopower Ltd                                           | 153|
8 Infopower Ltd 2 165
9 Omar bin Osman 175
10 Teo Trading 181
11 Fortune Fashion 193
12 Woodlands Furniture 202
13 Global Bank and Farma Ltd 209
14 Rochor Automotive 220
15 C2Cycle & BiOs 228
16 Governance case studies 235
17 Somerset Electronics 244
18 Balestier Cosmetics Solutions 248
19 Sentosa Trading 253
20 Igaku Pharmaceutical 258

**Formulae** 267
The Singapore Accountancy Commission

On 1 April 2013, the Singapore Accountancy Commission (SAC) was formally established as a statutory body of the Singapore Government. It was tasked to achieve a number of far-reaching objectives, spelled out by the ten recommendations in the Committee to Develop the Accountancy Sector report. One recommendation was the launch of a globally recognised qualification, Chartered Accountant of Singapore, also known as CA (Singapore).

The Singapore CA Qualification (formerly known as the Singapore QP) is one of the key initiatives in the SAC’s drive to transform Singapore into a leading global accountancy hub for the Asia-Pacific region by 2020.

Designed to maximise the opportunities for those seeking global recognition and international portability, the Singapore CA Qualification is based on programmes offered by leading professional accountancy bodies in established jurisdictions such as Australia, Hong Kong, New Zealand and the United Kingdom.

Lending further distinction to the Singapore CA Qualification is the incorporation of professional accountancy requirements of the Asia Pacific region, taking into account the diverse socio-economic and regulatory profiles of countries in the region. The Singapore CA Qualification also meets international education standards issued by the International Accounting Education Standards Board of the International Federation of Accountants.

About the Institute of Singapore Chartered Accountants

The Institute of Singapore Chartered Accountants (ISCA) is the national accountancy body of Singapore. ISCA’s vision is to be a globally recognised professional accountancy body, bringing value to our members, the profession and wider community. There are over 32,000 ISCA members making their stride in businesses across industries in Singapore and around the world.

Established in 1963, ISCA is an advocate of the interests of the profession. Possessing a Global Mindset, with Asian Insights, ISCA leverages its regional expertise, knowledge, and networks with diverse stakeholders to contribute towards Singapore’s transformation into a global accountancy hub.

ISCA is the Administrator of the Singapore CA Qualification and the Designated Entity to confer the Chartered Accountant of Singapore - CA (Singapore) - designation.

ISCA is a member of Chartered Accountants Worldwide (CAW). CAW brings together 12 chartered accountancy bodies connecting and representing the interests of over 1.7 million members and students globally.

For more information, visit www.isca.org.sg.
Reading the Textbook and using the Practice Workbook

Now that you are familiar with the Module Objective and the Learning Outcomes (syllabus), you have a better understanding of the learning journey ahead of you. Before you begin reading the Textbook, you should look at the Learning Outcomes listed at the beginning of each chapter, as these statements indicate the key takeaways from the chapter and will help you to focus your reading efforts. As you read each section in the Textbook, it is essential that you also read the relevant section(s) from the applicable Codes, Standards, Statutes, Regulations, and Guides. This will help you to reinforce the key concepts.

At the beginning of most chapters you will also find a list of additional essential reading that will further supplement your learning. Remember, the Textbook is a starting point only, not a comprehensive document. You are required to read widely and to keep up-to-date with the latest developments.

Each semester is approximately 13 weeks long. You should establish your own detailed study plan that fits in with your work and other commitments. There are two distinct periods during the semester that you should take note of i) gaining knowledge and developing your application skills and ii) revising for the examination, which includes honing your application skills.

A sample study plan might be to divide the semester into two with:

- The first ten weeks spent gaining knowledge and developing your application skills; and
- The final three weeks spent revising for the examination and doing practice exam questions.

Using this sample study plan, you would then divide the number of Textbook chapters by ten and plan to work through each chapter accordingly. As you complete each chapter, you should also attempt the corresponding question or questions from Section 1 of the Practice Workbook. This approach will help you to establish whether you have comprehended the concepts thoroughly and reinforces the knowledge and skills gained.

Once you have read the entire Textbook, as well as the other suggested reading materials and worked through the topic-specific questions from Section 1 of the Practice Workbook, you should then switch to intense revision mode and start preparing yourself for the examination. Remember, the end-of-module examination is 100% of your assessment and you have to attain a minimum of 50% of the available marks to achieve a pass.

Section 2 of the Practice Workbook provides exam-standard questions with suggested solutions to help you hone your skills. You should attempt each question as if it were part of a real examination, limiting the time allowed to complete, and being brutally honest with yourself when you compare your answer to the answer suggested. As part of your revision, you should refer back to the Textbook and other essential reading material to ensure that you have fully understood the concepts and noted any exceptions.

In terms of time invested, it is recommended that you spend 120 hours on gaining knowledge and developing your application skills (approximately 12 hours a week for the first 10 weeks of the semester). The last three weeks should be devoted to intensive revision and exam practice. At a minimum, you should plan to invest at least 14 hours each week in the three weeks leading up to the examination.

Remember, your investment of time and effort for this module is just a few short weeks for a rewarding professional career that will last a lifetime.

For any technical queries relating to the Textbook please email ISCA at SingaporeCAQualification_exam@isca.org.sg.
Examinable documents

The list below indicates the Standards, Statutes, and other documents, which are regarded as examinable for this module.

The list below indicates documents in issue as at 31 December 2017 which are regarded as examinable:

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cap 2</td>
<td>Accountants Act</td>
</tr>
<tr>
<td>Cap 294B</td>
<td>Singapore Accountancy Commission Act</td>
</tr>
<tr>
<td>Cap 50</td>
<td>Companies Act</td>
</tr>
<tr>
<td></td>
<td>Companies (Amendment) Act 2014</td>
</tr>
<tr>
<td></td>
<td>Code of Corporate Governance</td>
</tr>
<tr>
<td>Cap 37</td>
<td>Charities Act</td>
</tr>
<tr>
<td></td>
<td>Guidebook for Audit Committees in Singapore 2nd ed.</td>
</tr>
<tr>
<td></td>
<td>Singapore Exchange Rulesbook</td>
</tr>
<tr>
<td></td>
<td>Guidance to Audit Committees on Evaluation of Quality of Work Performed by External Auditors</td>
</tr>
<tr>
<td></td>
<td>Singapore Code of Take-overs and Mergers</td>
</tr>
<tr>
<td></td>
<td>COSO Internal Control Framework (2013) and COSO Enterprise Risk Management Framework (2017)</td>
</tr>
<tr>
<td>FRS 113</td>
<td>FRS 113 Fair Value</td>
</tr>
<tr>
<td></td>
<td>The SSAs relating to internal control and using the work of internal auditors</td>
</tr>
<tr>
<td></td>
<td>Relevant OECD Principles</td>
</tr>
<tr>
<td></td>
<td>Risk Governance Guidance for Listed Boards</td>
</tr>
<tr>
<td></td>
<td>Code of Governance for Charities and Institutions of a Public Character</td>
</tr>
<tr>
<td>Cap 65A</td>
<td>Corruption, Drug Trafficking And Other Serious Crimes (Confiscation of Benefits) Act</td>
</tr>
<tr>
<td></td>
<td>Personal Data Protection Act 2012 and relevant sections from the regulations</td>
</tr>
<tr>
<td>EP100</td>
<td>ISCA Code of Professional Conduct and Ethics</td>
</tr>
<tr>
<td>EP200</td>
<td>Anti-Money Laundering and Countering the Financing of Terrorism – Requirements and Guidelines for Professional Accountants in Singapore</td>
</tr>
<tr>
<td></td>
<td>Asian family Firms: Success and Succession</td>
</tr>
<tr>
<td></td>
<td>Risks &amp; Opportunities Management Disclosure Guide</td>
</tr>
<tr>
<td></td>
<td>Securities Industry Council Consults on Amendments to the Singapore Code on Take-overs</td>
</tr>
</tbody>
</table>
### Reference and Title

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examinable documents</td>
<td>BUSINESS VALUE, GOVERNANCE AND RISK</td>
</tr>
</tbody>
</table>
### Section 1: Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Textbook Chapter number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Sustainability</td>
<td>1</td>
</tr>
<tr>
<td>2  Acquisition</td>
<td>1</td>
</tr>
<tr>
<td>3  Enterprise Risk Management</td>
<td>1</td>
</tr>
<tr>
<td>4  Teo Industries</td>
<td>2</td>
</tr>
<tr>
<td>5  Construction Products Ltd</td>
<td>2</td>
</tr>
<tr>
<td>6  Rackets</td>
<td>3</td>
</tr>
<tr>
<td>7  Investment</td>
<td>3</td>
</tr>
<tr>
<td>8  Business valuation</td>
<td>3</td>
</tr>
<tr>
<td>9  Lease or buy decisions</td>
<td>4</td>
</tr>
<tr>
<td>10 Issue price</td>
<td>4</td>
</tr>
<tr>
<td>11 Discount rate</td>
<td>4</td>
</tr>
<tr>
<td>12 M &amp; M</td>
<td>5</td>
</tr>
<tr>
<td>13 Bloom</td>
<td>6</td>
</tr>
<tr>
<td>14 Exchange rate forecasting</td>
<td>6</td>
</tr>
<tr>
<td>15 Takeover valuation</td>
<td>7</td>
</tr>
<tr>
<td>16 Corporate governance</td>
<td>8</td>
</tr>
<tr>
<td>17 Stakeholders</td>
<td>8</td>
</tr>
<tr>
<td>18 Combining the role of Board Chairman and CEO</td>
<td>9</td>
</tr>
<tr>
<td>19 Mantra Ltd</td>
<td>9</td>
</tr>
<tr>
<td>20 Yeo Properties Ltd</td>
<td>10</td>
</tr>
<tr>
<td>21 Audit Committee</td>
<td>10</td>
</tr>
<tr>
<td>22 Board of directors</td>
<td>11</td>
</tr>
<tr>
<td>23 Board and Board Committees</td>
<td>11</td>
</tr>
<tr>
<td>24 Control failures</td>
<td>12</td>
</tr>
<tr>
<td>25 Risk management and internal controls</td>
<td>12</td>
</tr>
<tr>
<td>26 Strategic risk</td>
<td>13</td>
</tr>
<tr>
<td>27 Social media</td>
<td>13</td>
</tr>
<tr>
<td>28 Risk identification</td>
<td>13</td>
</tr>
<tr>
<td>29 Lom Infrastructure Ltd</td>
<td>13</td>
</tr>
<tr>
<td>30 Yaya</td>
<td>14</td>
</tr>
<tr>
<td>31 Widepool Ltd</td>
<td>14</td>
</tr>
<tr>
<td>32 Newmed Ltd</td>
<td>12–15</td>
</tr>
<tr>
<td>33 Internal audit effectiveness</td>
<td>16</td>
</tr>
<tr>
<td>34 Internal controls and fraud</td>
<td>15/16</td>
</tr>
</tbody>
</table>
1. Sustainability

Moot Group is a large group of manufacturing companies, which also has a business subsidiary that operates in forestry and tree felling. It has substantial financial assets and has grown over time by acquiring other companies. The company does not invest in research and development; instead it waits for the products of rival producers to come out of patent protection, then manufactures and sells similar products at competitive prices.

The group has a high rate of labour turnover. Its policy on purchasing raw materials is to buy from suppliers at the cheapest prices possible, and does not have a strong relationship with any of its supplier companies.

Required

On the basis of this limited information, discuss whether Moot Group has a sustainable business.

(5 marks)
**1. Sustainability: Answer**

On the basis of the limited information available, it is not possible to assess fully whether Moot Group has a sustainable business. It appears to be financially strong, suggesting that the group is making satisfactory profits, or is able to obtain capital fairly easily from shareholders or lenders. Financial strength is an important requirement for sustainability (financial capital).

The group also presumably has a substantial investment in non-current assets (manufactured capital), which is important for manufacturing companies.

For sustainability, financial and manufactured capital need to increase, or at least be maintained. From the limited information available Moot Group may be successful in this respect.

In some respects, Moot Group does not appear to be giving sufficient attention to the preservation or increase of capitals. High labour turnover indicates limited human capital, and the company does not invest in research and development (R&D), indicating a limited amount of intellectual capital. The policy of buying materials from the cheapest suppliers is also an indication that at least this aspect of its social capital is weak.

There is no information about the sixth capital, natural capital, and we do not know the extent to which Moot Group will be able to ensure continuing access in the future to raw materials. Forestry operations are an example, where Moot Group should consider planting new trees to replace those that are felled, in order to achieve long-term sustainability. We do not know the group’s strategies on sustaining the natural environment.

In summary, there are some indications that Moot Group does not give sufficient attention to its long-term prospects and sustainability, but there is insufficient information to reach a definite conclusion about this issue.
2. Acquisition

Veo Ltd runs popular gated lifestyle villages in its domestic market of Singapore. These villages are aimed, primarily but not exclusively, at wealthy retired people. The residents buy a property in a gated village that has a range of leisure facilities, typically a swimming pool, tennis, squash and badminton courts, a restaurant or café as well as crèche facilities. Residents are obliged to pay a significant annual service fee for these services to Veo. Historically these have more than covered Veo’s operating expenses. Upon departing from the village, residents or their executors, are required to sell the properties back to Veo. This is for the same price as they acquired it for. Veo then re-sells the properties and has, historically, made very substantial capital gains.

The marketing director has carried out an analysis of their market segment and determined that it is unlikely that there is much room for any further growth within Singapore. The Board have determined that they do not wish to operate outside Singapore.

One of the directors has suggested that, to maintain Veo’s impressive growth of earnings, they should invest in another business. To this end, the board is now negotiating with the board of directors of Eggshell Pte Ltd with a view to acquiring the company.

Eggshell is a start up company that designs and manufactures light-weight protective body armour through revolutionary design and engineering. There has been a dramatic increase in demand for light weight body armour in the last few years for use by the police, military and other security personnel.

Required

Discuss the strategic reasons for this acquisition and why caution should be applied. (10 marks)
2. Acquisition: Answer

Veo is in an industry that, Veo itself believes, is in the mature phase of development. The management team wish to continue to grow earnings and do not think they can do this within their current industry. It is clear that the current strategy will need to be changed for this to happen. One possible solution is to acquire another business.

Answer Points

Reasons in favour of the acquisition:
• To grow over time. Veo's earnings have stabilised and the Board's position may be under threat.
• To achieve cost savings. There may be some operating synergies that lead to lower average costs for administration, management, finance and so on.
• To acquire valuable assets. These may be intellectual property (IP), top management, brand names, and so on.
• To diversify and spread risk by acquiring a business in a different industry. Body armour is clearly a very different market to Veo's current one.

Reasons caution should be applied:
• Lack of knowledge of the new industry
• Lack of knowledge of manufacturing
• Increased risk. Eggshell is in an innovative and hence higher risk industry
• New management needs to be able to add value
• Caution needs to be applied to acquisition cost. The price paid for Eggshell will affect whether there are any benefits for Veo's shareholders
• Post acquisition key staff may decide to leave
• Post acquisition integration difficulties – eg differences in culture between the two businesses
• No obvious business synergy between the two industries
3. Enterprise Risk Management

Frate Ltd is a global logistics service provider, based in Homeden, a developed, European country.

Frate Ltd's mission is: ‘to provide the highest quality transportation services to customers, while maintaining strong financial returns for shareholders, ensuring safety is the foremost consideration in operations.’

The company's vision is to ‘enhance the Frate Ltd brand to become the first choice transportation provider worldwide.’

Frate Ltd has enjoyed a significant increase in global demand for its services in recent years, and in order that it can continue to meet rising demand it needs a new distribution hub.

Frate's senior management team have been evaluating a number of options for the location of the new hub, and three of these options are as follows:

- **Option 1** is to build the hub in Erehwon, a developing country. This is the least expensive option – both in terms of the cost to build the hub, and in terms of operating costs (for example, labour costs). However, it has been estimated that this option would increase delivery times, on average, by 25% compared to Frate's existing hub. Locating in this country also increases Frate's exposure to geopolitical risks.

- **Option 2** is to open the hub in Teeland, another European country, but one which is less developed than Homeden. This location is a bit more expensive than Option 1, but the labour supply is plentiful. However, the area suffers from very cold winters, which increases the risk that bad weather could disrupt transportation – particularly air and road transport – over the winter months.

- **Option 3** is to open the hub in Berovia, a developed, urbanised Asian country. This location is the most expensive of the three to build in, and has the most competitive labour market, which may result in increased operating costs. However, Berovia's climate is temperate all year round.

**Required**

(a) Explain why it is important for organisations to consider risk in their strategy-setting process as well as considering the impact of risk on their existing strategies. **(6 marks)**

COSO's Framework Document (2017) *Enterprise Risk Management – Integrating with Strategy and Performance* recommends that, in the strategy-selection process, an organisation should consider the risk of a strategy not aligning, as well as the implications of choosing that strategy.

(b) With reference to their alignment and their implications for Frate Ltd's risk profile, assess the potential risks arising from each of Options 1–3. **(9 marks)**

*(Total = 15 marks)*
3. Enterprise Risk Management: Answer

(a) Organisations often use enterprise risk management (ERM) to identify, assess and manage risks and threats to their existing strategies.

It is important that organisations continue to do this, because otherwise the risks could affect an organisation’s ability to execute its strategy successfully. However, this approach focuses primarily on managing risk in terms of a strategy which has already been determined.

On the other hand, as COSO’s Framework Document 'Enterprise Risk Management – Integrating with Strategy and Performance' highlights, ERM could potentially prove more valuable to organisations by enhancing their strategy selection.

ERM can play a vital role in helping organisations evaluate alternative strategies properly before choosing which strategy to pursue. Two aspects of ERM could be particularly important in this respect:

- Assessing whether a potential strategy aligns with an organisation’s mission, vision and core values.
- Understanding the implications of choosing a given strategy – in terms of its risk profile and how this profile aligns to an organisation’s risk appetite; and in terms of the resources and capabilities the organisation will require to implement the strategy successfully. An organisation can only make an informed choice of strategy once they have considered the implications of all the alternative strategies – and the process of evaluating the implications might lead them to select a different strategy to the one they might otherwise have chosen.

Choosing a strategy requires structured decision-making that evaluates the strategy’s potential to create value and seize competitive advantage, alongside the risk involved. This then emphasises the potential importance of ERM in identifying and evaluating opportunities to create value and enhance performance, as well as preventing risks from eroding the value of existing strategies.

Answer Points

(b) Possibility of strategy not aligning with mission and vision Implications from the strategy on Frate Ltd’s risk profile

<p>| Option 1 | Longer delivery times may damage Frate’s chance of becoming the first choice provider. (Depends on how important ‘speed of delivery’ is to customers.) | Additional delivery time may affect customer satisfaction, and could erode value (if customers switch to a competitor) |
| | Political instability may present safety issues | Increased geopolitical risk |
| | A ‘low cost’ environment may imply less skilled labour (who are less aware of health and safety practices) or it may also imply that health and safety regulations are less strict. Either scenario may not fit with Frate’s mission to ensure that safety is a primary consideration in its operations. | Increased risk of accidents or other safety lapses |</p>
<table>
<thead>
<tr>
<th>Possibility of strategy not aligning with mission and vision</th>
<th>Implications from the strategy on Frate Ltd’s risk profile</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Option 2</strong></td>
<td></td>
</tr>
<tr>
<td>• Bad weather may present safety issues for planes and lorries (with air and road transport being particularly affected by the weather)</td>
<td>• Delays to delivery times (due to poor weather conditions) could affect customer satisfaction, which could, in turn, erode value</td>
</tr>
<tr>
<td>• Shareholder value may suffer if service is disrupted due to bad weather (eg if disruption to transport means consignments cannot be collected/delivered, this could lead to loss of revenue)</td>
<td>• As with option 1, less stringent controls over health and safety could increase the risk of accidents or other safety lapses</td>
</tr>
<tr>
<td>• If regulations (eg around health and safety) are ‘less developed’ this may not fit with Frate’s mission to ensure safety is a primary consideration in its operations.</td>
<td></td>
</tr>
<tr>
<td><strong>Option 3</strong></td>
<td></td>
</tr>
<tr>
<td>• Higher costs may erode shareholder value</td>
<td>• Labour costs may be higher</td>
</tr>
<tr>
<td>• Higher costs may damage Frate’s chance of becoming the first choice provider</td>
<td>• Increased costs could result in higher prices, driving down customer demand. (Impact will depend on how price sensitive customers are.)</td>
</tr>
</tbody>
</table>
4. Teo Industries

Teo Industries is a toy manufacturing company. It manufactures Polly Playtime, the latest doll craze amongst young girls. The company is now at full production of the doll. The final accounts for 20X9 have just been published and are as follows. 20X8’s accounts are also shown for comparison purposes.

STATEMENT OF PROFIT OR LOSS Y/E 31 DECEMBER

<table>
<thead>
<tr>
<th></th>
<th>20X9</th>
<th>20X8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>30,000</td>
<td>20,000</td>
</tr>
<tr>
<td>Cost of sales</td>
<td>20,000</td>
<td>11,000</td>
</tr>
<tr>
<td>Operating profit</td>
<td>10,000</td>
<td>9,000</td>
</tr>
<tr>
<td>Interest</td>
<td>450</td>
<td>400</td>
</tr>
<tr>
<td>Profit before tax</td>
<td>9,550</td>
<td>8,600</td>
</tr>
<tr>
<td>Tax</td>
<td>2,000</td>
<td>1,200</td>
</tr>
<tr>
<td>Profit after tax</td>
<td>7,550</td>
<td>7,400</td>
</tr>
</tbody>
</table>

Dividends paid were $2.5m in both years.

STATEMENT OF FINANCIAL POSITION AS AT 31 DECEMBER

<table>
<thead>
<tr>
<th></th>
<th>20X9</th>
<th>20X8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-current assets</td>
<td>1,500</td>
<td>1,400</td>
</tr>
<tr>
<td>Current assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inventory</td>
<td>7,350</td>
<td>3,000</td>
</tr>
<tr>
<td>Accounts receivable</td>
<td>10,000</td>
<td>6,000</td>
</tr>
<tr>
<td>Cash</td>
<td>2,500</td>
<td>4,500</td>
</tr>
<tr>
<td></td>
<td>19,850</td>
<td>13,500</td>
</tr>
<tr>
<td></td>
<td>21,350</td>
<td>14,900</td>
</tr>
<tr>
<td>Ordinary shares (25c)</td>
<td>5,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Profit</td>
<td>6,450</td>
<td>1,400</td>
</tr>
<tr>
<td>8% bonds</td>
<td>1,200</td>
<td>3,500</td>
</tr>
<tr>
<td>Current liabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overdraft</td>
<td>2,000</td>
<td>–</td>
</tr>
<tr>
<td>Dividends owing</td>
<td>2,500</td>
<td>2,500</td>
</tr>
<tr>
<td>Trade accounts payable</td>
<td>4,200</td>
<td>2,500</td>
</tr>
<tr>
<td></td>
<td>8,700</td>
<td>5,000</td>
</tr>
<tr>
<td></td>
<td>21,350</td>
<td>14,900</td>
</tr>
</tbody>
</table>

Required

(a) By studying the above accounts and using ratio analysis, identify the main problems facing Teo Industries. (15 marks)

(b) Provide possible solutions to the problems identified in (a). (5 marks)

(Total = 20 marks)
4. Teo Industries: Answer

Answer Points

(a) The company has become significantly more reliant on short term liabilities to finance its operations as shown by the following analysis:

<table>
<thead>
<tr>
<th></th>
<th>20X9</th>
<th>20X8</th>
</tr>
</thead>
<tbody>
<tr>
<td>$'000</td>
<td>$'000</td>
<td></td>
</tr>
<tr>
<td>Total assets</td>
<td>21,350</td>
<td>14,900</td>
</tr>
<tr>
<td>Short-term liabilities</td>
<td>8,700</td>
<td>5,000</td>
</tr>
<tr>
<td>Long-term funds (equity and debt)</td>
<td>12,650</td>
<td>9,900</td>
</tr>
<tr>
<td></td>
<td>21,350</td>
<td>14,900</td>
</tr>
</tbody>
</table>

**Overtrading**

A major reason for this is classic overtrading: sales increased by 50% in one year, but the operating profit margin fell from $9,000/20,000 = 45% in 20X8 to $10,000/30,000 = 33% in 20X9.

**Refinancing**

However, the effect is compounded by the repayment of $2.3 million (66%) of the 8% bonds and replacement with a $2 million bank overdraft and increased trade creditor finance. Although this may be because the interest rate on the overdraft is cheaper than on the bonds, it is generally not advisable in the context of the risk of short term debt.

However, if it is felt that the current sales volume is abnormal and that, when the Polly Playtime doll reaches the end of its product life cycle, sales will stabilise at a lower level, the use of shorter term debt is justified.

**Liquidity ratios**

As a result of overtrading, the company's current ratio has deteriorated from 13,500/5000 = 2.7 in 20X8 to 19,850/8700 = 2.28 in 20X9. The quick assets ratio (or 'acid test') has deteriorated from 10,500/5,000 = 2.1 to 12,500/8,700 = 1.44. However, these figures are acceptable and only if they continue to deteriorate is there likely to be a liquidity problem. In the 20X9 accounts the company continues to have a healthy bank balance, although this has been achieved partly by halting dividend growth.

**Working capital ratios**

An investigation of working capital ratios shows that:

(i) The average accounts receivable payment period has increased from $6,000/20,000 \times 365 = 110$ days to $10,000/30,000 \times 365 = 122$ days, indicating a lack of credit control. This has contributed to a weakening of the cash position. There appears to be no evidence of prompt payment discounts to accounts receivable.

(ii) The payment period to accounts payable (roughly estimated) has decreased from $2,500/11,000 \times 365 = 83$ days to $4,200/20,000 \times 365 = 77$ days. This result is unexpected, indicating that there has been no increase in delaying payment to accounts payable over the year. Suppliers are being paid in a significantly shorter period than the period of credit taken by customers.

**Conclusion**

In summary, the main problem facing Teo Industries is its increasing overdependence on short term finance, caused in the main by:

(i) A major investment in inventory to satisfy a rapid increase in sales volumes
(ii) Deteriorating profit margins
(iii) Poor credit control of accounts receivable
(iv) Repayment of bond capital
(b) Future sales

Possible solutions to the above problems depend on future sales and product projections. If the rapid increase in sales has been a one-product phenomenon, there is little point in over-capitalising by borrowing long term and investing in a major expansion of non-current assets. If, however, sales of this and future products are expected to continue increasing, and further investment is needed, the company’s growth should be underpinned by an injection of equity capital and an issue of longer term debt.

Better working capital management

Regardless of the above, various working capital strategies could be improved. Credit customers should be encouraged to pay more promptly. This is best done by instituting proper credit control procedures. Longer credit periods could probably be negotiated with accounts payable and quantity discounts should be investigated.
5. Construction Products Ltd

Calculate liquidity and working capital ratios from the following accounts of a manufacturer of products for the construction industry, and comment on the ratios.

<table>
<thead>
<tr>
<th></th>
<th>20X3</th>
<th>20X2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$m</td>
<td>$m</td>
</tr>
<tr>
<td>Sales revenue</td>
<td>2,065.0</td>
<td>1,788.7</td>
</tr>
<tr>
<td>Cost of sales</td>
<td>1,478.6</td>
<td>1,304.0</td>
</tr>
<tr>
<td>Gross profit</td>
<td>586.4</td>
<td>484.7</td>
</tr>
<tr>
<td>Current assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inventories</td>
<td>119.0</td>
<td>109.0</td>
</tr>
<tr>
<td>Accounts receivable (Note 1)</td>
<td>400.9</td>
<td>347.4</td>
</tr>
<tr>
<td>Short-term investments</td>
<td>4.2</td>
<td>18.8</td>
</tr>
<tr>
<td>Cash at bank and in hand</td>
<td>48.2</td>
<td>48.0</td>
</tr>
<tr>
<td></td>
<td>572.3</td>
<td>523.2</td>
</tr>
<tr>
<td>Accounts payable: amounts falling due within one year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loans and overdrafts</td>
<td>49.1</td>
<td>35.3</td>
</tr>
<tr>
<td>Corporation taxes</td>
<td>62.0</td>
<td>46.7</td>
</tr>
<tr>
<td>Dividend</td>
<td>19.2</td>
<td>14.3</td>
</tr>
<tr>
<td>Accounts payable (Note 2)</td>
<td>370.7</td>
<td>324.0</td>
</tr>
<tr>
<td></td>
<td>501.0</td>
<td>420.3</td>
</tr>
<tr>
<td>Net current assets</td>
<td>71.3</td>
<td>102.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Notes</th>
<th>20X3</th>
<th>20X2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$m</td>
<td>$m</td>
</tr>
<tr>
<td>1 Trade accounts receivable</td>
<td>329.8</td>
<td>285.4</td>
</tr>
<tr>
<td>2 Trade accounts payable</td>
<td>236.2</td>
<td>210.8</td>
</tr>
</tbody>
</table>
5. Construction Products Ltd: Answer

<table>
<thead>
<tr>
<th></th>
<th>20X3</th>
<th>20X2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current ratio</td>
<td>572.3</td>
<td>523.2</td>
</tr>
<tr>
<td></td>
<td>501.0</td>
<td>420.3</td>
</tr>
<tr>
<td></td>
<td>= 1.14</td>
<td>= 1.24</td>
</tr>
<tr>
<td>Quick ratio</td>
<td>453.3</td>
<td>414.2</td>
</tr>
<tr>
<td></td>
<td>501.0</td>
<td>420.3</td>
</tr>
<tr>
<td></td>
<td>= 0.90</td>
<td>= 0.99</td>
</tr>
<tr>
<td>Accounts receivable period</td>
<td>329.8</td>
<td>285.4</td>
</tr>
<tr>
<td></td>
<td>2,065.0</td>
<td>1,788.7</td>
</tr>
<tr>
<td></td>
<td>× 365 = 58 days</td>
<td>× 365 = 58 days</td>
</tr>
<tr>
<td>Inventory turnover period</td>
<td>119.0</td>
<td>109.0</td>
</tr>
<tr>
<td></td>
<td>1,478.6</td>
<td>1,304.0</td>
</tr>
<tr>
<td></td>
<td>× 365 = 29 days</td>
<td>× 365 = 31 days</td>
</tr>
<tr>
<td>Accounts payable turnover period</td>
<td>236.2</td>
<td>210.8</td>
</tr>
<tr>
<td></td>
<td>1,478.6</td>
<td>1,304.0</td>
</tr>
<tr>
<td></td>
<td>× 365 = 58 days</td>
<td>× 365 = 59 days</td>
</tr>
</tbody>
</table>

Answer Points

(a) The company is a manufacturing group serving the construction industry, and so would be expected to have a comparatively lengthy accounts receivable turnover period, because of the relatively poor cash flow in the construction industry.

(b) The company compensates for this by ensuring that they do not pay for raw materials and other costs before they have sold their inventories of finished goods (hence the similarity of accounts receivable and accounts payable turnover periods).

(c) The company's current and quick ratios have fallen but are still reasonable, and the quick ratio is not much less than the current ratio. This suggests that inventory levels are strictly controlled, which is reinforced by the low inventory turnover period.

It would seem that working capital is tightly managed to avoid the poor liquidity which could be caused by a high accounts receivable turnover period and comparatively high accounts payable. However, revenue has increased but net working capital has declined due in part to the fall in short-term investments and the increase in loans and overdrafts.
6. Rackets

Rackets is a quoted company. Its forecast operating profit for the year is $156 million after deduction of a $4 million depreciation charge. Tax on profits is estimated to be $48 million. Shareholders require a return of 8% per annum.

Non-current assets will be sold during the year and receipts are estimated to be $12 million. There will be investment in non-current assets and working capital during the year of $16 million. Free cash flows for the following three years are estimated to be $120 million.

**Required**

Calculate the value of Rackets using the SVA approach. (8 marks)
6. Rackets: Answer

Free cash flow forecast for Year 1

<table>
<thead>
<tr>
<th></th>
<th>$m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating profit</td>
<td>156</td>
</tr>
<tr>
<td>Add depreciation</td>
<td>4</td>
</tr>
<tr>
<td>Less tax on profits</td>
<td>(48)</td>
</tr>
<tr>
<td>Add sale of assets</td>
<td>12</td>
</tr>
<tr>
<td>Less Investment in assets</td>
<td>(16)</td>
</tr>
<tr>
<td>Free cash flow</td>
<td>108</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free cash flow</td>
<td>$108</td>
<td>$120</td>
<td>$120</td>
<td>$120</td>
</tr>
<tr>
<td>Discount factor @ 8%</td>
<td>0.926</td>
<td>0.857</td>
<td>0.794</td>
<td>0.735</td>
</tr>
<tr>
<td>Present value</td>
<td>100</td>
<td>103</td>
<td>95</td>
<td>88</td>
</tr>
<tr>
<td>Total present value</td>
<td><strong>386</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The present value of the free cash flow in perpetuity = 120/0.08 × 0.735 = $1,103m.

Value of Rackets = $(386 + 1,103)m = $1,489m.
7. Investment

BCD Limited is considering the purchase of a privately-owned business at a purchase cost of $20 million. Estimates of earnings and investment in additional working capital are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$m</td>
<td>$m</td>
<td>$m</td>
<td>$m</td>
<td>$m</td>
<td>$m</td>
</tr>
<tr>
<td>EBIT</td>
<td>(2.8)</td>
<td>0.8</td>
<td>4.2</td>
<td>4.5</td>
<td>4.8</td>
<td>4.9</td>
</tr>
<tr>
<td>Depreciation and amortisation</td>
<td>(0.2)</td>
<td>(0.2)</td>
<td>(0.2)</td>
<td>(0.2)</td>
<td>(0.2)</td>
<td>(0.2)</td>
</tr>
<tr>
<td>Working capital investment</td>
<td>(0.6)</td>
<td>(0.1)</td>
<td>(0.1)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

EBIT = Earnings before interest and tax

The privately-owned business has no debt capital.

Assume that the rate of taxation is 25% of EBIT.

It is expected that free cash flows per year after Year 6 will be maintained at the Year 6 level, but increasing by 2% per year because of inflation.

The cost of capital to apply to the evaluation is 12%.

Required

Calculate, on the basis of the information provided, whether the purchase of the business is financially desirable. (8 marks)
7. Investment: Answer

Mid-year cash flows are assumed, so mid-year discount factors are applied.

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$m</td>
<td>$m</td>
<td>$m</td>
<td>$m</td>
<td>$m</td>
<td>$m</td>
</tr>
<tr>
<td>EBIT</td>
<td>(2.8)</td>
<td>0.8</td>
<td>4.2</td>
<td>4.5</td>
<td>4.8</td>
<td>4.90</td>
</tr>
<tr>
<td>Taxation (25%)</td>
<td>0.7</td>
<td>(0.2)</td>
<td>(1.1)</td>
<td>(1.1)</td>
<td>(1.2)</td>
<td>(1.20)</td>
</tr>
<tr>
<td>NOPAT</td>
<td>(2.1)</td>
<td>0.6</td>
<td>3.1</td>
<td>3.4</td>
<td>3.6</td>
<td>3.70</td>
</tr>
<tr>
<td>Depreciation</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
<td>0.20</td>
</tr>
<tr>
<td>Working capital</td>
<td>(0.6)</td>
<td>(0.1)</td>
<td>(0.1)</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Free cash flow</td>
<td>(2.5)</td>
<td>0.7</td>
<td>3.2</td>
<td>3.6</td>
<td>3.8</td>
<td>3.90</td>
</tr>
<tr>
<td>Terminal value (see below)</td>
<td>39.78</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discount factor at 12%</td>
<td>0.945</td>
<td>0.844</td>
<td>0.753</td>
<td>0.673</td>
<td>0.601</td>
<td>0.536</td>
</tr>
<tr>
<td>Present value</td>
<td>(2.363)</td>
<td>0.591</td>
<td>2.410</td>
<td>2.423</td>
<td>2.284</td>
<td>23.412</td>
</tr>
</tbody>
</table>

Present value of future net cash inflows: $28.757 million

(NOPAT = Net operating profit after tax)

Terminal value in Year 6, using Gordon's Growth model = $3.9m (1.02)/(0.12 – 0.02)

= $39.78 million

The proposed cost of the investment is $20 million, indicating that the investment is worthwhile, adding about $8.757 million to the value of the acquiring company. However, most of the value of the business lies in its terminal value, and there is presumably a possibility that future cash flows in perpetuity are optimistic.
8. Business valuation

The following information is available to you for Choon Ltd.

Choon's capital structure is 50% equity and 50% debt. It had capital employed at the end of 20X2 of $80 million.

<table>
<thead>
<tr>
<th></th>
<th>20X3</th>
<th>20X4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>100</td>
<td>118</td>
</tr>
<tr>
<td>Pre-tax accounting profit (Notes)</td>
<td>21</td>
<td>26</td>
</tr>
<tr>
<td>Taxation</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Profit after tax</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>Dividends</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Retained earnings</td>
<td>10</td>
<td>14</td>
</tr>
</tbody>
</table>

**Note:** Pre-tax accounting profit is after interest and after deducting the economic depreciation of the company's non-current assets (this is also the depreciation used for tax purposes).

Non-current assets

Net current assets

95

125

Financed by:

Shareholders' funds

Medium and long-term bank loans

95.0

125.0

**Additional data**

<table>
<thead>
<tr>
<th></th>
<th>20X3</th>
<th>20X4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic depreciation</td>
<td>$12m</td>
<td>$13m</td>
</tr>
<tr>
<td>Interest expenses</td>
<td>$2m</td>
<td>$3m</td>
</tr>
<tr>
<td>Other non-cash expenses</td>
<td>$4m</td>
<td>$5m</td>
</tr>
<tr>
<td>Pre-tax cost of debt</td>
<td>8%</td>
<td>9%</td>
</tr>
<tr>
<td>Tax rate</td>
<td>22%</td>
<td>26%</td>
</tr>
<tr>
<td>Cost of equity</td>
<td>12%</td>
<td>10%</td>
</tr>
</tbody>
</table>

(Note: For the first time in 20X4, the company invested in research and development. Expenditure during the year was $2.5 million and the full cost has been written off as an expense in the income statement. To measure EVA, it should be assumed that the amortisation charge for R&D for 20X4 should be $0.5 million.)

**Required**

Describe the steps needed to calculate EVA for Choon for 20X3 and 20X4. You should illustrate your answer using the figures above. Also, discuss the limitations of using EVA as a basis of valuing a business.
8. Business valuation: Answer

This is a rather mixed assessment in terms of the level of difficulty. Describing the steps in the first part should cause little trouble, although illustrating the calculations and then describing the limitations in the second part may cause more difficulty. You should go beyond merely stating what EVA is.

Answer Points

Overall Calculation:

Economic value added = Net operating profit after tax (NOPAT) – (Capital employed × Cost of capital)

This needs to be calculated for both 20X3 and 20X4.

Net operating profit after tax (NOPAT)

Net operating profit after tax is arrived at after making a number of adjustments.

<table>
<thead>
<tr>
<th></th>
<th>20X3</th>
<th>20X4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit after tax from the Income Statement</td>
<td>16.0</td>
<td>20.0</td>
</tr>
<tr>
<td>Add: Research and development capitalised</td>
<td>(Note 1)</td>
<td>2.5</td>
</tr>
<tr>
<td>Less: Amortisation of research and development</td>
<td>(Note 2)</td>
<td>(0.5)</td>
</tr>
<tr>
<td>Add: Interest (1 – tax rate)</td>
<td>(Note 3)</td>
<td>1.56</td>
</tr>
<tr>
<td>2(1–0.22)</td>
<td>3(1–0.26)</td>
<td></td>
</tr>
<tr>
<td>NOPAT</td>
<td>17.56</td>
<td>24.22</td>
</tr>
</tbody>
</table>

Notes

1. Research and development expenditure, charged as an expense in the income statement under accounting rules, should be capitalised for the purposes of EVA. It is added back to profit and instead, an amortisation charge is made for the loss of economic value in the intangible asset during the period.

2. Interest needs adding back as this will be allowed for instead in calculating the capital charge.

3. There is no adjustment for other non-cash expenses. EVA is not based on cash flows and should not be confused with free cash flow. NOPAT is an estimate of economic profit, and it includes charges for depreciation and amortisation.

Capital employed

Capital employed is based on start of year figures ie $80 million for 20X3 and $95 million for 20X4.

Note that in calculating capital employed at the start of 20X5, the value of research and development expenditure adjusted for in the NOPAT calculation above (note (1)) would need to be included at $2m ($2.5m less 0.5 amortisation).

Cost of capital

The cost of capital is the weighted average of the cost of equity and the post-tax cost of debt for the relevant year.

The post tax cost of debt = pre-tax cost of debt (1 – tax rate)

20X3 cost of capital = (0.5 × 12%) + (0.5 × (8% × (1 – 0.22))) = 9.1%

20X4 cost of capital = (0.5 × 10%) + (0.5 × (9% × (1 – 0.26))) = 8.3%
Calculation of EVA

Capital Employed for EVA calculation:

<table>
<thead>
<tr>
<th></th>
<th>20X3</th>
<th>20X4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital at start of year</td>
<td>$80</td>
<td>$95</td>
</tr>
<tr>
<td>Add back: Non-cash expenses</td>
<td>$4</td>
<td>$5</td>
</tr>
<tr>
<td></td>
<td>84</td>
<td>100</td>
</tr>
</tbody>
</table>

20X3: 17.56 – 9.1% (84) = $9.92m  
20X4: 24.22 – 8.3% (100) = $15.92m

Conclusion

If the EVA is positive then Choon has created value. If operating profit is not sufficient to cover the capital charge then value has been lost.

Please explain.

Limitations of using EVA

EVA = NOPAT – (capital invested × WACC)

Economic value added (EVA) is based on the idea that the company will increase shareholder value only when it generates a profit after all the opportunity costs of the capital have been taken into account.

However:

- EVA measures the value that has been added to a business in a financial year and as a result it is only a single period measure.
- To address the limitation of single period EVA, Market Value Added (MVA) could be used. MVA is a measurement of the value of the EVA that will be achieved by the company for a number of years in the future, discounted to a present value. It is more consistent with the maximisation of shareholder wealth over the long term.
- Adjustments may be needed to the operating profit figure to calculate NOPAT. For example expenses such as research and development expenditure that have been charged in the income statement but should be capitalised, need to be added back. This type of information would not necessarily be available to shareholders.
- EVA is a commonly used internal measure for performance appraisal.

To use EVA for a company valuation involves estimates of EVA in future years, whereas EVA was originally devised as a historical measure of past performance.

It could be argued that a valuation based on the PV of free cash flows from the acquired company would be more appropriate than a valuation based on a conceptual value such as EVA.
9. Lease or buy decisions

Balestier Ltd is a manufacturing company. Steve Chow is the recently promoted production manager. Steve is faced by a dilemma.

One of the machines on the production line has broken down. After extensive testing the engineers have determined that the machine is beyond repair and will need to be replaced. Balestier operates a JIT purchasing and manufacturing policy. Steve will therefore need to replace the machine as soon as possible. He estimates that the new machine will be kept for three years and is unsure whether it would be beneficial for the company to buy or lease the new machine. He has provided you with the following information:

- The machine can be leased for three annual payments of $300,000, payable at the end of each of years 1 to 3.
- Alternatively the machine can be bought for $625,000 and will have an expected scrap value of $10,000 in three years' time. Annual maintenance costs are expected to be $37,500.

Balestier can claim capital allowances on a 25% reducing balance basis. The company is profitable and pays tax on profits at an annual rate of 19%, one year in arrears.

Balestier has an after-tax borrowing rate of 10% pa.

Required

Prepare notes for a meeting with Steve which shows whether Balestier should purchase or lease the machine. The presentation should include an explanation of your workings.  

(10 marks)
9. Lease or buy decisions: Answer

You should not merely present the figures in the assessment but should explain where the figures come from. The correct approach is to compare the total cost of either buying or leasing the machine.

Answer Points

**Present value of leasing costs**

<table>
<thead>
<tr>
<th>Year 0</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>$'000</td>
<td>$'000</td>
<td>$'000</td>
<td>$'000</td>
<td>$'000</td>
</tr>
</tbody>
</table>

Cash outflows

Annual lease rentals

0 (300) (300) (300)

Cash inflows

Taxation (at 19% in following year) – tax

57 57 57

Net cash flows

0 (300) (243) (243) 57

Discount at 10%

1.000 0.909 0.826 0.751 0.683

PV of cash flow

0 (272.7) (200.7) (182.5) 38.9

NPV of cash flow = ($617,000)

**Present value of purchase costs**

<table>
<thead>
<tr>
<th>Year 0</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>$'000</td>
<td>$'000</td>
<td>$'000</td>
<td>$'000</td>
<td>$'000</td>
</tr>
</tbody>
</table>

Cash outflows

Capital costs

(625)

Annual maintenance costs

(625) (37.5) (37.5) (37.5) 0

Cash inflows

Disposal proceeds

10

Taxation on maint. costs

7.1 7.1 7.1

Writing down allowances (W)

29.7 22.3 64.9

--- 36.8 39.4 72.0

Net cash flows

(625) (37.5) (0.7) 1.9 72.0

Discount at 10%

1.000 0.909 0.826 0.751 0.683

PV of cash flow

(625) (34.1) (0.6) 1.4 49.2

NPV = ($609,100)

**Working**

**Writing down allowances**

Balestier benefits from capital allowances on initial investment

<table>
<thead>
<tr>
<th>Capital allowance $'000</th>
<th>Tax benefit at 19% $'000</th>
<th>Year of cash flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial investment</td>
<td>625</td>
<td></td>
</tr>
<tr>
<td>Allowances at 25% pa on a reducing balance basis over 3 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year 1</td>
<td>(156.25)</td>
<td>(156.25)</td>
</tr>
<tr>
<td></td>
<td>29.7</td>
<td>Y2</td>
</tr>
<tr>
<td>Year</td>
<td>Capital allowance ($'000)</td>
<td>Tax benefit at 19% ($'000)</td>
</tr>
<tr>
<td>----------</td>
<td>---------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Year 2</td>
<td>468.75</td>
<td>(117.19)</td>
</tr>
<tr>
<td></td>
<td>(117.19)</td>
<td></td>
</tr>
<tr>
<td>Year 3</td>
<td>351.56</td>
<td>22.3</td>
</tr>
<tr>
<td>Proceeds on sale</td>
<td>(10)</td>
<td></td>
</tr>
<tr>
<td>Balancing allowance</td>
<td>341.56</td>
<td>64.9</td>
</tr>
</tbody>
</table>

Therefore, the machine should be purchased rather than leased, although it is a marginal decision because the NPVs of both approaches are very similar.
10. Issue price

Company A is planning to obtain a listing by offering 45% of shares to the public (no new shares).

A's most recent summarised profit and loss statement is given below.

Revenue $50,000,000
Earnings $625,000
Number of shares 1,250,000

Company A has low gearing of 5% (debt/(debt + equity)) and regularly pays 50% of earnings as dividends and reinvests the retained amounts expecting to make a 5% dividend growth each year.

Summarised details of a listed company, Company B, in the same industry:

Gearing (debt/(debt + equity)) 10%
Beta for equity shares 1.25

New shares are to be issued at a discount of 15% to the market value calculated. The risk free return is 5% and the market return is 10%. Tax is at 30%.

Required

Calculate the issue price. (8 marks)
10. Issue price: Answer

Step 1: Calculate ungeared beta from Company B

\[ \beta_u = \beta_g \frac{V_E}{V_E + V_D(1-t)} \]

\[ \beta_u = 1.25 \times \frac{90}{90+10(1-0.3)} = 1.16 \]

Step 2: Calculate geared beta for Company A

\[ \beta_g = \beta_u + \beta_u \times \frac{5(0.7)}{95} = 1.203 \]

\[ k_{eq} = 5 + (10 - 5) \times 1.203 = 11.015\% \]

Step 3

Using dividend valuation model:

Dividend this year:

\[ 50\% \times 625,000 = $312,500 \]

\[ \text{Share valuation} = \frac{312,500 \times (1.05)}{0.11015 - 0.05} \]

\[ = $5.46 \text{ million} \]

Therefore market value per share =

\[ \frac{5.46}{1.25} = $4.37 \]

Shares to be offered to the public at a price of: $4.37 \times 85\% = $3.71
11. Discount rate

TV Limited is considering an investment to diversify into a different industry. It has established the following information:

(i) The Asset Beta for companies in the industry is 0.95.
(ii) The mean of the Equity Betas of quoted companies in the industry is 1.25.
(iii) Equity market risk premium = 5%.
(iv) TV Limited has a gearing ratio of 12%, measured as the market value of debt to the market value of debt plus the market value of equity.
(v) The risk-free rate of interest is 2.5% per year on three-year government bonds and 3.8% per year on ten-year government bonds.
(vi) The rate of taxation is 25%.
(vii) The company intends to apply a discount rate to the estimated cash flows of the project that is equal to the cost of equity plus a premium of 3%.

Required

What cost of capital should be applied to this proposed investment? (5 marks)
11. Discount rate: Answer

Tutorial note

In this question, the average equity beta of companies in the industry is not required for a solution, because we already know the asset beta for the industry = 0.95.

Gearing ratio \( \frac{V_D}{V_D + V_E} = 0.12 \)
Therefore gearing as measured by \( \frac{V_D}{V_E} = 0.12 \times (100 - 0.12) = 12/88 \)

A suitable equity beta for TV Limited's investment is:

\[
\beta_e = \beta_a [1 + (1 - t) \frac{V_D}{V_E}]
\]
\[
= 0.95 [1 + (1 - 0.25) 12/88] = 1.047
\]

The CAPM can be used to calculate the cost of equity. It is assumed that the longer-term risk-free rate for ten years is more appropriate than the three-year risk free rate.

Cost of equity = 3.8% + (1.047 \times 5)% = 9.035%

A risk premium of 3% should be added to this, as required; therefore, an appropriate discount rate is 12.035%, which may be rounded down to 12%.
12. M & M

You are a recently qualified accountant. You are a personal friend of the events manager for the Singapore International Chamber of Commerce. She has approached you to give a brief presentation at their regular meeting.

Your audience will be made up of members of the Chamber from an extremely wide range of organisations. It is safe to assume that the members of the Chamber will have extremely high awareness of business issues but little or no financial experience.

Your friend has set up a series of talks based on finance. The talks are aimed at the local business community who want to extend their knowledge and understanding of financial matters. She knows that you have an excellent grasp of finance!

**Required**

Write a briefing paper to the members on the Modigliani and Miller theory of capital structure and cost of capital. You should make sure that you avoid using financial and technical jargon in your presentation that will not be understood by laypersons who are not financially trained. (8 marks)
12. M & M: Answer

Modigliani and Miller (MM) looked at whether it was possible for a company to minimise the cost of its finance (known as its weighted average cost of capital or WACC) by choosing to use a certain combination of equity and/or debt finance (known as its capital structure or level of financial gearing).

Their theory was developed by making certain assumptions about how things might operate in a perfect world. Their initial theory, which assumed a world with no tax, was later developed to take into account the effect of tax.

Answer Points

Modigliani and Miller's initial theory: ignoring tax

The total market value of a company is made up of the market value of its equity and the market value of any debt capital it has. This market value depends upon:

(a) The total earnings (profits) of the company

(b) The level of operating risk (business risk) for those earnings (how much they are subject to variation). If we assume that most investors are risk averse, then they will demand a higher return to compensate for earnings which are deemed to carry more risk eg the earnings of a high-tech start-up business would be deemed more risky than those of a utility company.

MM asserted that the capital structure (debt/equity) does not affect the value of a company or the WACC. The WACC is determined instead by the level of risk that attaches to the company's earnings stream.

The total market value of a company can be calculated by discounting the total earnings at a rate that is appropriate to the level of operating risk. Earnings in the future are worth less than earnings today. This is for a number of reasons including inflation, uncertainty and opportunity cost (things that the cash could be used for if it is available sooner rather than later). The rate at which the future earnings are discounted is the WACC of the company.

Total market value of company (equity plus debt) = Earnings/WACC.

Modigliani and Miller concluded that, ignoring taxation, the capital structure of a company has no effect on its overall value or WACC.

As the use of debt increases, the risk to the shareholders increases and so their required return (ke) increases.

However, debt is cheaper than equity as relatively low risk to investors. If a business uses relatively more debt finance, the benefit of the additional cheap debt is exactly offset by the increase in the cost of equity and so the overall weighted average of the two types of finance remains constant.
Modigliani-Miller theory adjusted for taxation

MM went on to demonstrate that debt capital and higher gearing is beneficial when tax relief on debt interest is taken into consideration. Unlike dividends, which are paid out of profits after tax, the interest on debt is allowable for tax purposes. Tax relief on debt interest reduces the cost of debt (kd) by a factor \((1 - t)\) where \(t\) is the rate of tax.

Tax relief on interest makes debt capital cheaper to a company, and therefore reduces the overall cost of its finance. As the company introduces more debt, the additional return required by the providers of equity is more than outweighed by the benefit of the cheap debt (known as the tax shield) and so the more debt the company uses, the cheaper its overall cost of capital (or WACC) will be.

Thus MM concluded that in a perfect world a company should gear up as highly as possible ie use debt finance.

Weaknesses in MM theory

MM theory has been criticised as follows:

(a) MM theory assumes that capital markets are perfect.

(b) MM theory assumes that transaction costs can be ignored, whereas in practice they can be quite high.

(c) Investors are assumed to act rationally, which may not be the case in practice.

(d) In the real world some of the theoretical assumptions in MM theory are invalid. The most unrealistic assumptions are that capital markets are perfect and that debt is risk-free. Almost every borrower and lender/provider of debt capital would agree that there is greater risk at very high levels of gearing. This risk is that the borrower will not be able to make the interest payments and the company may become insolvent. As a result the cost of debt will start to increase at higher levels of gearing.
13. Bloom

Bloom, a listed company, is considering undertaking a new project in Horavia, another country where the currency is the Horavian mark (HM). This will require initial capital expenditure of HM1,250 million, with no scrap value envisaged at the end of the five year life span of the project. There will also be an initial working capital requirement of HM500 million, which will be recovered at the end of the project. Pre-tax net cash inflows of HM800 million are expected to be generated each year from the project.

Company tax will be charged in Horavia at a rate of 40%, with depreciation on a straight-line basis being an allowable deduction for tax purposes. Horavian tax is paid at the end of the year following that in which the taxable profits arise.

There is a double taxation agreement between Horavia and the country where Bloom is resident, which means that no domestic tax will be payable on the project profits.

The domestic currency of Bloom is the dollar.

The spot rate is $/HM336 (that is, $1 = H$336), and the dollar is expected to depreciate against the Horavian mark by 5% per year.

A project of similar risk recently undertaken by Bloom in its own country had a required post-tax rate of return of 16%.

Required

Should the Horavian project be undertaken? (10 marks)
13. Bloom: Answer

<table>
<thead>
<tr>
<th></th>
<th>Time 0</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
<th>Time 4</th>
<th>Time 5</th>
<th>Time 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital (HM)</td>
<td>(1,750)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>500</td>
</tr>
<tr>
<td>Net cash inflows</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taxation (W1)</td>
<td></td>
<td>(220)</td>
<td>(220)</td>
<td>(220)</td>
<td>(220)</td>
<td>(220)</td>
<td>(220)</td>
</tr>
<tr>
<td></td>
<td>(1,750)</td>
<td>800</td>
<td>580</td>
<td>580</td>
<td>580</td>
<td>1,080</td>
<td>(220)</td>
</tr>
<tr>
<td>Exchange rate (W2)</td>
<td>336</td>
<td>320</td>
<td>305</td>
<td>290</td>
<td>276</td>
<td>263</td>
<td>251</td>
</tr>
<tr>
<td>$ flows ($m)</td>
<td>(5.21)</td>
<td>2.50</td>
<td>1.90</td>
<td>2.00</td>
<td>2.10</td>
<td>4.11</td>
<td>(0.88)</td>
</tr>
<tr>
<td>Discount factor: 16%</td>
<td>1.000</td>
<td>0.862</td>
<td>0.743</td>
<td>0.641</td>
<td>0.552</td>
<td>0.476</td>
<td>0.410</td>
</tr>
<tr>
<td>PV</td>
<td>(5.21)</td>
<td>2.16</td>
<td>1.41</td>
<td>1.28</td>
<td>1.16</td>
<td>1.96</td>
<td>(0.36)</td>
</tr>
</tbody>
</table>

**NPV = $2.40m**

The NPV is positive, and on this basis the **project should be undertaken**.

**Workings**

1. **Taxation**

   - Net cash inflow
   - Less depreciation (1,250/5) = (250)
   - Total = 550 @ 40% = HM220m

2. **Exchange rate**

   Current spot = $/HM336 (that is, $1 = HM336). If the $ is **depreciating** against the HM, this means that the HM is getting more valuable in terms of the $.

   Thus in one year's time the $/HM rate will fall by 5%, to approximately 336/1.05 = 320, etc.
14. Exchange rate forecasting

Somerset Global Trading (SGT) Limited, a company based in Singapore, is about to undertake a major launch of one of its products in the country of Earland. SGT’s market research indicates that Earland is potentially a very lucrative market but SGT faces significant competition there. As a result the directors have decided that SGT should invoice customers in the Earland Rupee (R) rather than the Singapore dollar ($), and that forecasts should assume that the price of the product should be fixed for the next three years.

Projected revenue for the next three years in Rupee is as follows:

Year 1 R5,500 million
Year 2 R7,000 million
Year 3 R8,000 million

The following information is available:

- The current spot rate is $1 = R65.
- The interest rates for one year deposits in Singapore dollars are 1% and in Earland Rupee 4%. These rates can be assumed to be the same for deposits held for more than one year.
- Economic forecasts suggest that the annual rate of inflation in Singapore dollars over the next three years will be 2.5% and in Earland Rupee it will be 6.5%.

Required

Prepare forecasts of revenue in Singapore dollars for evaluation by the Board of Directors, using two methods of forecasting future exchange rates, and assess the reliability of each method. Discuss whether SGT should reconsider its pricing policies. (12 marks)
14. Exchange rate forecasting: Answer

Remember, the company with the higher inflation rate or interest rate will see its exchange rate weaken. Discussion about reliability should focus on the assumption that exchange rates will automatically adjust for inflation or interest rate differentials, but in practice the process may be distorted by factors that cannot be predicted easily (for example market sentiment and government intervention). The last part deals with how a company can cope with economic risk and the factors that may alter a pricing decision.

Answer Points

Payments in $ if spot rate remains at R65 (for comparison)

<table>
<thead>
<tr>
<th>Year</th>
<th>Rm</th>
<th>Exchange rate</th>
<th>$m</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5,500</td>
<td>65</td>
<td>84.62</td>
</tr>
<tr>
<td>2</td>
<td>7,000</td>
<td>65</td>
<td>107.69</td>
</tr>
<tr>
<td>3</td>
<td>8,000</td>
<td>65</td>
<td>123.08</td>
</tr>
</tbody>
</table>

Purchasing power parity (PPP)

Formula

Future exchange rate $/R = Current exchange rate $/R \times \frac{1 + \text{Earland inflation rate}}{1 + \text{Singapore inflation rate}}

($/R ie $1 = RX)

Calculation

<table>
<thead>
<tr>
<th>Year</th>
<th>Rm</th>
<th>Exchange rate</th>
<th>$m</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5,500</td>
<td>65 \times (1.065/1.025) = 67.537</td>
<td>81.44</td>
</tr>
<tr>
<td>2</td>
<td>7,000</td>
<td>65 \times (1.065/1.025)^2 = 70.172</td>
<td>99.75</td>
</tr>
<tr>
<td>3</td>
<td>8,000</td>
<td>65 \times (1.065/1.025)^3 = 72.911</td>
<td>109.72</td>
</tr>
</tbody>
</table>

Reliability

- PPP is based on an economic theory that purchasing power is the same for each country, so that currencies of countries with high inflation rates will weaken against currencies of countries with low inflation rates.
- The reliability of inflation forecasts may depend on the economic environment within the country, for example government efforts to keep inflation under control.
- Price level comparisons may also be distorted by market features, sellers charging what the market will bear and also varying costs of distribution and different taxation rates.
- The currency market is also influenced by capital flows and speculation rather than trade in physical goods.

Interest rate parity (IRP)

Formula

Future spot rate A$/B$ = Spot rate A$/B$ \times \frac{1 + \text{nominal country B interest rate}}{1 + \text{nominal country A interest rate}}
### Calculation

<table>
<thead>
<tr>
<th>Year</th>
<th>Rm</th>
<th>Exchange rate</th>
<th>$m</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5,500</td>
<td>$65 \times (1.04/1.01) = 66.931</td>
<td>82.17</td>
</tr>
<tr>
<td>2</td>
<td>7,000</td>
<td>$65 \times (1.04/1.01)^2 = 68.919</td>
<td>101.57</td>
</tr>
<tr>
<td>3</td>
<td>8,000</td>
<td>$65 \times (1.04/1.01)^3 = 70.966</td>
<td>112.73</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total</strong></td>
<td><strong>296.47</strong></td>
</tr>
</tbody>
</table>

### Reliability

- IRP provides an unbiased predictor of the forward rates. Forward rates are calculated on the basis of interest rate differentials between the two countries.
- Banks will wish to ensure that their forecasts are reliable to protect their own positions.
- Government actions, such as controls imposed on the financial markets or interventions in the financial markets, will limit the reliability of IRP.
- Exchange rates will also be affected by other factors, such as expectations of growth.

### Comparison of results

Were the spot rate to remain at $1 = R65, receipts would total $315.39m.

Inevitably if inflation rates and hence interest rates are expected to be higher in Earland than Singapore, Earland’s currency will depreciate against the dollar, reducing the value of the receipts.

Using both methods of forecasting, the results are broadly comparable, indicating a depreciation of the Earland Rupee. In the long run the nominal interest rate differential between the two countries should reflect the expected inflation rates.

### Pricing

(a) Pricing has presumably been set on basis of market research – how confident is SGT of the quality of this research?

(b) Invoicing currency – invoicing in Singapore dollars will transfer currency risk to buyers, who may be unwilling to accept it. Directors may feel that SGT is not in a strong enough position to do this, particularly in a competitive market.

(c) Raising prices – impact will depend on elasticity of demand, and the response of competitors. It's possible all competitors may be facing the same cost pressures, but SGT may lose out to competitors whose cost base is different (eg don't obtain supplies from same countries as SGT).
15. Takeover valuation 18 minutes

Pathare Education Ltd is a long-established supplier of textbooks and other educational material to schools and colleges in Singapore and a number of other countries in Asia. The company has grown in size, particularly since it achieved a stock market listing 20 years ago. The company is organised by divisions, with a clearly-defined hierarchy and decision-making processes. Pathare Education had been successful for many years, because of the high quality, timeliness and relevance of its material. However, over the last 12 months its share price has fallen and investors have expressed concern that the company is too focused on traditional methods of learning. Pathare Education Ltd's Chief Executive has recently commented that the company must develop its e-learning capabilities and products. Pathare's current price earnings ratio is 12.

Yan Tan Interactive Learning Pte Ltd was founded five years ago by Helen Yan and Chow Tan, who had previously been employed developing products for Omar Learn, one of Pathare Education's principal competitors. For the first year, the two founders worked on their own, but over time they have built up a small team of product developers and support staff. Other than two employees leaving for family reasons, no other employees have left Yan Tan Interactive Learning.

The majority of Yan Tan's profits for the financial year that has just ended have been earned by two innovative interactive learning products that assess candidates' capabilities and provide learning material and practice tailored to those capabilities. The first product was launched three years ago and now has a substantial market in a number of Asian countries. 70% of profits can be assumed to be due to this product. The second product was launched 18 months ago in Singapore and has been launched in China and South Korea over the last 12 months, with plans to launch versions tailored to the requirements of candidates in other Asian countries over the next two years. 20% of profits can be assumed to be due to this product. The remaining 10% of profits were earned by a number of smaller, simpler products, with the company making a total of $8m after-tax profits for the last financial year.

Pathare Education's Chief Executive and Finance Director have entered into discussions with Yan Tan's two founders about acquiring Yan Tan Interactive Learning. Helen Yan and Chow Tan have indicated that they are not interested in simply selling the rights of their two principal products, as they wish to continue working on them. However, they would accept a cash offer of $85m for the entire company, provided Pathare gave guarantees of continued employment for themselves. Some directors of Pathare Education believe that this valuation is too high, partly because Pathare Education would have trouble absorbing Yan Tan Interactive Learning's operations.

Required

(a) Discuss the difficulties that the directors of Pathare Education face in deciding on the price to offer for the acquisition of Yan Tan Interactive Learning. (6 marks)

(b) Discuss the problems of integrating Yan Tan Interactive Learning into the Pathare Education group. (4 marks)

(Total = 10 marks)
15. Takeover valuation: Answer

Number of shares to be issued $ \quad = \quad 6m \times \frac{1}{3} \quad = \quad 2 \text{ million}

Total number of shares in issue after takeover $ \quad = \quad 20m + 2m \quad = \quad 22 \text{ million}

Cash payment $\quad = \quad 2 \text{ million}

Assumed value of combined company after takeover $\quad = \quad (200m + 18m + 12m - 2m) \quad = \quad 228 \text{ million}

Value of 1,000 shares after takeover $\quad = \quad \frac{228m \times 1,000}{22,000,000} \quad = \quad $10,364

<table>
<thead>
<tr>
<th>Share value</th>
<th>10,364</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>1,000</td>
</tr>
</tbody>
</table>

Value of 3,000 shares before takeover (3,000 × $3) $\quad = \quad 9,000

Expected gain in value for Company S shareholder for 3,000 shares held $\quad = \quad 2,364

Yan Tan Interactive Learning is not quite a start-up, but it is a young company with a limited product range, where the bid price would partly reflect its uncertain potential rather than probable future cash flows. When answering a question like (b) focus on the differences that the scenario highlights between the two companies and also give thought to wider strategic issues – Pathare Education seems to be on the verge of an overdue change of direction.

Answer Points

(a) Valuation issues

(i) Pathare is under pressure to demonstrate to investors that it is developing new products – this may be the best opportunity it has. Yan Tan could be bought by a competitor.

(ii) Applying Pathare's P/E ratio suggests a valuation of $96m ($8m × 12), but you would expect to discount this as Yan Tan is a private company and an 11% discount to $85m isn't substantial.

(iii) What lifespan do Yan Tan's products have – is the product which is earning 70% of profits in a mature stage of development? When will substantial updating be required (and is it possible)?

(iv) On the other hand, Pathare may have marketing resources to develop markets for all Yan Tan's products and possibly technological resources to make substantial updates more feasible.

(v) How dependent has Yan Tan been on its founders – have other staff played a significant role and are Yan Tan's most valuable staff likely to stay?

(vi) How receptive would the owners be to an earn-out arrangement – a potentially more generous offer, but with some consideration deferred for a few years, depending on achievement of performance targets?

(b) Integration issues

(i) Yan Tan's founders left a larger company similar to Pathare to set up on their own. Will they and their staff be happy working again for a larger company with a more formal culture?

(ii) How will Yan Tan be absorbed into Pathare's structure? Keeping Yan Tan's products at the leading edge may require quick decision-making, which may be difficult within Pathare.

(iii) If Yan Tan's directors and staff are allowed to operate outside Pathare's normal processes or are perceived as getting special treatment or rewards, Pathare's existing staff may be upset.
(iv) If Yan Tan operates as a separate division, its relations with, and what it can demand from, the other divisions may be unclear. It may not receive the co-operation it needs to operate to full effectiveness.

(v) Possibly Yan Tan's integration will only be effective if it is part of a wider rethink by Pathare's board of the way Pathare is organised and what its strategic objectives are. To develop the e-learning capability needed may require more investment than just the purchase of Yan Tan (including more acquisitions). Pathare therefore needs a clearer idea of what it is trying to achieve and whether some fundamental structural changes will be necessary.
16. Corporate governance

Tom runs a private company that until two years ago was expanding successfully. The company specialises in the installation of clean air systems in properties in Singapore. Tom's daughter is a qualified lawyer, working for a major law firm in Singapore and his son is a qualified accountant with one of the big audit firms. Tom owns 85% of the shares in his company, the daughter owns 10% and the son owns 5%. Tom is negotiating with them to give up their current jobs and join the company as executive directors, with a view to taking the company on to the stock market in two or three years' time. He tells them that they will add dynamism to the Board of Directors and will improve the management of the company.

The company was growing successfully until two years ago, when a recession in the industry led to a fall in sales orders as well as profits, especially as Tom had decided to reduce prices in order to encourage more customers to buy clean air systems for their homes.

Tom currently operates with a small Board, with two other executive directors and an old friend who acts as Non-Executive Director (NED). The appointment of the son and daughter would take the size of the Board to six. Another old friend of Tom is the senior partner in the company's firm of external auditors, who also act as the company's internal auditors.

Tom's son is interested in joining the Board of the company, because he has an ambition to be the director of a listed company. He is aware, however, that changes in governance will be required before the company is in a position to apply for a listing on the Singapore Exchange.

Required

(a) Explain the difference between corporate governance and company management, and suggest why corporate governance may be criticised as a 'box-ticking exercise' and a waste of time and effort.

(b) Suggest areas of corporate governance where changes may be needed in governance arrangements before the company applies for a listing.

(c) If the company obtains a listing, could Tom's daughter act as Chief Finance Officer (CFO) of the company with a seat on the Board of Directors? (16 marks)
16. Corporate governance: Answer

Answer Points

(a) Corporate governance is the framework by which companies are directed and controlled. Whereas management is about running a business, governance is about seeing that it is run well. Corporate governance is, therefore, about how a company is led and controlled in the interests of the shareholders and other stakeholders.

Company management refers to the executive tasks of planning, co-ordinating and controlling the activities of the business so as to implement the policies and strategy guidelines that have been approved by the Board. Managers are given delegated authority to carry out their responsibilities and they are answerable to the Chief Executive Officer (CEO) of the company.

Within a framework of governance, executive management is accountable to the Board of Directors for the way they have used their authority and for the performance they have achieved. In turn the Board of Directors is accountable to the shareholders for their stewardship of the company and their success in achieving the company's objectives.

Improvements in corporate governance may be introduced by means of regulations and guidelines. Some companies may do the minimum required to comply with each of the regulations, and so treat corporate governance as a routine administrative exercise. However, the aim of corporate governance should be to develop entrepreneurial leadership within the company, where governance practices are based on principles rather than detailed rules. Critics of corporate governance codes may argue that it is simply administrative box-ticking, but defenders of governance codes argue that strong corporate governance helps a company to improve its leadership and plan confidently for the longer term.

(b) The changes in corporate governance that Tom and the Board of Directors may need to consider are as follows:

- **Share ownership.** The family cannot own 100% of the shares in a listed company. Tom may choose to remain the controlling shareholder, but some shares must be made available to external investors. External investors will be concerned about the risk that the company will be run in the interests of Tom and Tom's family, and not in the interests of the shareholders as a whole.

- **Size and composition of the Board.** The company will need to change the structure of the board. It should appoint more non-executive directors and establish a board structure that is consistent with the requirements of the corporate governance code. Tom should consider relinquishing the role of either Chairman or CEO, if he holds both positions at the moment. This is not a legal requirement, but the Code of Corporate Governance (guideline 3.1) states: 'The Chairman and the CEO should in principle be separate persons, to ensure an appropriate balance of power, increased accountability and greater capacity of the Board for independent decision making.'

- **Disclosures and transparency.** The company must improve the quality, amount and timeliness of its disclosures to investors.

- **Audit.** The company's external auditors must be independent of the company management. A change of company auditor will be required.

- **Risk management and internal control.** The company may need to improve the effectiveness of its risk management and internal control systems.

(c) There is no law or code provision that would prevent Tom's daughter from acting as CFO of the company, although minority shareholders may have reservations about her appointment because of her close family connection to the Chairman/CEO. As an executive director, she would not be independent. Even if she is appointed as a NED, she would not be considered independent because of her 10% shareholding and also her close family connection to the Chairman/CEO.
As she is a lawyer and not a qualified accountant, she may not have the necessary competence to fill the role of CFO. Although there is no legal requirement for a CFO to be a qualified accountant, CFOs must have a high level of financial literacy to do their job well. She would also need strong technical support from employees with accountancy skills.

In conclusion, although it would be possible in theory to appoint Tom's daughter as CFO of the company when it becomes listed, there are several reasons which, taken together, mean that this would be an unsuitable and inappropriate appointment.
17. Stakeholders 11 minutes

Sandal Ltd has been a listed company for over five years. In this time, it has pursued a policy of growth through a combination of organic development and takeovers. The company has borrowed extensively to finance this growth strategy. It has been helped by favourable conditions for borrowers in the bond markets and the company has made two large bond issues as well as borrowing from its banks. Both bond issues are unsecured and one of the issues does not have a credit rating. As a consequence of the borrowing, the company now has a high gearing ratio.

Since the company became listed, the share price has doubled.

The board of directors has great ambition for the company, and they intend to continue with their growth strategy. Future growth will be financed by a combination of retained profits and more borrowing.

A group of investors in the company’s bonds, and the company’s main lending bank, have expressed their concern about the company’s strategy. They have suggested to both the company’s Chairman and the Chief Executive Officer (CEO) that recent investments by the company appear to be much more risky than investments in the past, and they have asked the board to reconsider future plans for growth.

Required

(a) Explain why the company’s bank and bondholders are stakeholders in the company. (2 marks)

(b) Assess the powers they have and suggest whether the board of directors should recognise their concerns when formulating the company’s business strategy. (4 marks)

(Total = 6 marks)
17. Stakeholders: Answer

Here is a reminder of some key terms.

A **stakeholder** is a person, group of people, business entity, or any other organisation that:
- Can influence corporate decision-making, or
- Is affected by corporate decisions.

**Lending covenants.** Covenants are undertakings given by a borrower as part of a commercial borrowing/lending agreement. A loan covenant is a condition in a commercial loan or bond issue that requires the borrower to fulfil certain conditions or which forbids the borrower from undertaking certain actions, or which possibly restricts certain activities to circumstances when other conditions are met. Typically, violation of a covenant may result in a default on the loan being declared or penalties being applied.

Covenants may impose restrictions on additional borrowings by the borrower, or may require the borrower to maintain certain minimum financial ratios for the duration of the loan or term of the bond.

**Answer Points**

(a) Lenders and bondholders are external stakeholders who invest in the company. They can influence decision making by the borrower because of the cost of borrowing for the company and restrictions imposed by loan covenants. Lenders are also affected by decisions of the borrower, which affect the ability of the borrower to meet interest payment requirements and loan repayment/bond redemption requirements.

(b) The power or influence of a lending bank and bondholders over a borrowing company depends on several factors:

(i) The nature and strength of any restrictive lending covenants.

(ii) Any security/collateral for the loan that is given to the lender.

(iii) Whether the borrower needs to continue borrowing, and so needs to retain the goodwill and support of investors.

Lenders have no voting powers. However, they do have legal rights in the event that the company defaults on a loan payment.

In the case of Sandal Ltd, the board of directors plans to continue a growth strategy financed largely by new borrowings. This will not be possible unless investors remain willing to lend additional amounts to the company.

Even if investors are willing to continue lending to the company, they may demand higher rates of interest to compensate for the higher risk.

Consequently there is a strong financial reason why the board should take investor/lender concerns into consideration.
18. Combining the role of Board Chairman and CEO

(25 minutes)

(This question is based on a question in the June 2015 BVGR examination.)

The Board of Excelsi, a successful private company, comprises the following four directors, who are also currently the only shareholders:

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Board of Directors</th>
<th>Title</th>
<th>Shareholding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr Soo Leong Ann</td>
<td>72</td>
<td>Chairman</td>
<td>Chief Executive Officer</td>
<td>80%</td>
</tr>
<tr>
<td>Mdm Lee Ah Mei</td>
<td>66</td>
<td>Director</td>
<td>Chief Financial Officer</td>
<td>10%</td>
</tr>
<tr>
<td>Mr Simon Soo</td>
<td>45</td>
<td>Director</td>
<td>Chief Marketing Officer</td>
<td>5%</td>
</tr>
<tr>
<td>Ms Mary Soo</td>
<td>42</td>
<td>Director</td>
<td>Chief Operating Officer</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

The Soo family members have always taken a very active role in managing the day-to-day affairs of the company. However, at a recent board meeting, Mdm Lee indicated her intention to retire from active involvement in managing the company within the next two years, including resigning from her directorship role.

Mdm Lee observed that as a family business, the Board and senior management positions have only ever been held by family members. Issues are resolved as and when they arise, quickly, through discussions and verbal consultations with the founder, Chairman Soo. There has been very little need to document the rationale for, or reasons supporting, the decisions taken, so long as Chairman Soo has been informed and given his blessing.

Although Chairman Soo has always been strongly protective of his business, he has never shied away from taking on new challenges and this is why he is constantly exploring new markets while making sure the company runs smoothly. This has meant that over the years he has learnt to delegate mid-level management functions, while making sure that he knows what is happening in the company and guiding its direction.

The company is considering the possibility of obtaining a listing on the Singapore Exchange (SGX), in order to raise new equity capital to fund an expansion of the business. Chairman Soo has indicated that he will remain the company CEO as well as Chairman of the Board if and when the company becomes a publicly traded company.

Required

(a) Explain both the merits and concerns arising from Chairman Soo's decision to stay on as the Chief Executive Officer (CEO) and Board Chairman of the company if the company were to list on the Singapore Exchange (SGX). (6 marks)

(b) Arising from Chairman Soo’s decision noted in (a) above, explain four actions the company could take to allay any concerns that minority shareholders or SGX may have, if indeed the company decides to proceed with the listing. (8 marks)

(Total = 14 marks)
18. Combining the role of Board Chairman and CEO: Answer

Answer Points

(a) Merits of Chairman Soo remaining as Chairman and CEO

(i) He has extensive knowledge and understanding of the company’s business and probably knows it better than anyone else. In the early years of the company’s listing on SGX, this may help to reassure investors.

(ii) Chairman Soo also appears to be good at delegating responsibility, something that will be essential in a growing public company. He could be an excellent CEO.

(iii) There may not be an obvious successor to him in either role, as Chairman or as CEO.

(iv) Costs of boardroom remuneration may be less if one individual holds both positions as Chairman and CEO.

Concerns about Chairman Soo remaining as Chairman and CEO

(i) He is also likely to be a majority shareholder after the IPO. There is a risk that he will dominate decision-making by the Board. This would not be appropriate for a public listed company, where the concerns of investors and minority shareholders must be acknowledged.

(ii) It may be difficult to combine the two roles in a public listed company. The demands of these roles will become greater after an IPO.

(iii) Chairman Soo is quite old, and may be approaching retirement. Losing both Chairman and CEO soon after becoming a public company could be damaging for the company’s leadership and business.

(iv) Investors may be deterred from investing in shares of the company by a majority shareholder who has such a dominant position on the Board, and they may consider that the interests of minority shareholders would not be adequately protected.

(b) Actions to allay concerns of minority shareholders

(i) The composition of the Board must change to meet legal requirements, SGX requirements and comply with the Code of Corporate Governance. There must be a sufficient number of independent non-executive directors. When the same person holds the positions of Chairman and CEO, at least 50% of the Board should consist of independent directors. A role of independent directors is to protect the interests of all shareholders, including minority shareholders. They should also provide strong voice on the Board.

(ii) One of the independent directors should be appointed as Lead Independent Director (LID), who should be available to shareholders when they have concerns and for which they have contact through the normal channel of Chairman Soo. If this has failed to resolve or is inappropriate, led by the LID, the independent directors should meet periodically without the presence of the other directors.

(iii) A succession plan should be prepared as a matter of some urgency for the eventual succession to the positions of Chairman and CEO.

(iv) The Board should prepare a list of matters that must be reserved for decision-making by the Board as a whole, so that Chairman Soo is not able to take such decisions himself as CEO of the company.

(v) The Board should establish an Audit Committee, a Nomination Committee and a Remuneration Committee. These will have delegated responsibilities for aspects of the Board’s business where direct involvement by the CEO (and Board Chairman) could be detrimental to the interests of the company and the minority shareholders.
19. Mantra Ltd

Mantra Ltd is a listed company in Singapore. Its chief executive officer (CEO) Peter Lim has an ambition to be the leader of a major global company. He leads an efficient senior management team, and he is highly regarded as a successful business executive. Together with the Chairman William Tay, he also represents the company in meetings with major shareholders and stock market analysts.

Unfortunately, the relationship between Peter Lim and William Tay is not good. William thinks that Peter tries to be a bully and is always determined to get his own way, regardless of the opinions of colleagues and other people.

Two incidents have now angered William:

(i) He has learned that the company has placed an order for the construction of a new processing centre in Sarawak. This will take two years to build and will cost the company a substantial amount of money. The board of directors was not consulted before the decision was taken to go ahead with the project.

(ii) He has also been informed that at a recent meeting with stock market analysts, Peter had informed the people at the meeting that he expected the company to increase its dividends by at least 10% in the current year.

William has accused Peter of acting without authority from the board. He says that the investment decision should have been referred to the board of directors for approval, and the board as a whole should agree on any announcement to the stock market about dividends and future dividend payment intentions.

Peter has replied by saying that the board was too slow to reach decisions and the decision to undertake the construction project was taken in order to benefit from favourable terms and conditions that were available at the time. He explained that his comments about dividends were expressed as a personal opinion, not as a representative of the company’s board. Peter also commented that the board of directors was ineffective and did not fulfil its responsibilities to shareholders by providing entrepreneurial leadership for the company.

William replied that in his opinion, the independent directors on the board will agree with him that Peter has exceeded the limits of his authority, and the board will have to consider what action to take.

Required

(a) Recommend the actions that William Tay should take to deal with the problems revealed by the disagreement between himself and CEO Peter Lim. (7 marks)

(b) Give your view, with reasons, whether the composition of the board should be changed. If you argue for no change, give your reasons. If you argue for change, explain the changes that you would recommend. (7 marks)

(Total = 14 marks)
19. Mantra Ltd: Answer

Answer Points

(a) The following points could be made:

(i) The Chairman William Tay should begin by recognising that there are governance problems and that these should be resolved.

(ii) He should suggest to the CEO Peter Lim that a board meeting should be held as soon as possible to discuss the items suggested below.

(iii) Before this board meeting, William Tay should have a frank discussion with Peter Lim about what he sees are the governance problems. As Chairman of the Board, William Tay has a duty to make sure he improves his working relationship with the CEO. Obviously, this is lacking at the moment and he needs to make a serious effort to resolve this problem. It is not certain, however, that the differences between them will be resolved before the board meeting.

(iv) At the board meeting, William Tay should state that by not having a formal statement of matters reserved by the board, the company is failing to comply with the Code of Corporate Governance, and that a formal statement should be approved by the board.

(v) Ideally a draft list of matters reserved for the board's decision should be available for discussion at the meeting.

(vi) The board should review the decision to invest in the new processing centre: if the board thinks that it should have taken the decision to invest (rather than management), it may wish to discuss cancellation of the investment.

(vii) Another item for discussion at the board meeting should be the disclosure of information about the company's future dividend intentions to the meeting of analysts. William Tay may suggest that the board approves a formal statement for release to the stock market. It may be necessary to apologise to the stock exchange for the inadvertent disclosure by the CEO.

(viii) William Tay should also recognise the criticisms of the CEO Peter Lim, and consider whether the board is ineffective and if so, the reasons for its ineffectiveness.

(ix) He may propose that the board meets more frequently, so that important decisions are less likely to be delayed.

He may also suggest a review of the board's performance, and suggest that the Nomination Committee should make recommendations for such a review. The intention should be to act on any criticisms or recommendations that emerge from a performance review.

Remember that major changes, eg removing the Chairman, CEO or Chief Financial Officer (CFO), or making extensive changes in the Non-executive Director (NED) membership, may concern shareholders.

(b) The following points could be made:

(i) It is important for the Chairman and CEO to work constructively together, and for non-executive directors to have constructive relations with management. If William Tay and Peter Lim are unable to reconcile their differences, it is appropriate that one of them should resign.

(ii) Since the Chairman is responsible for leadership of the board and is not succeeding, it is perhaps appropriate that he should resign rather than the CEO.
(iii) The two roles should not be combined, and one person should not be both CEO and Chairman. The Code of Corporate Governance states that in principle the Chairman and CEO should be separate persons 'to ensure an appropriate balance of power, increased accountability and greater capacity of the board for independent decision making'. Peter Lim is ambitious and there may be a risk that if he were to become the Chairman as well as CEO; he might try to dominate the board and provide authoritarian leadership.

(iv) As head of the executive management team, the CEO is accountable to the board. If he is Chairman of the board, he would be accountable to a body that is led by himself. This weakens the effectiveness of accountability within the framework of corporate governance.

(v) It might be argued that William Tay should resign if he cannot resolve his differences with Peter Lim, but he should delay his retirement until a new Chairman has been found and appointed. The new Chairman should not be Peter Lim.

(vi) The disagreements between the CEO and Chairman must have been noticed by the other directors. It may be argued that they have failed to carry out their responsibilities by allowing the problem to continue without trying to resolve it.

(vii) The Code of Corporate Governance states that the roles of non-executive directors are to constructively challenge and help develop proposals on strategy, review the performance of management in meeting agreed goals, and monitor the reporting of performance. There is no mention of a responsibility of independent directors (or non-executives as a whole) to ensure that there are good relations between the Chairman and CEO. Even so, the lead independent director has arguably failed by doing nothing, and his position should be reviewed.

(viii) It may also be argued that the board of directors has been generally ineffective. Its performance, and the performance of individual directors, should be reviewed, with the objective of making changes. Major shareholders should be consulted before any major changes are made.
20. Yeo Properties Ltd

Yeo Properties Ltd is a well-established listed company in Singapore. In compliance with the Code of Corporate Governance, the company's Nominating Committee (NC) recently conducted an annual performance review of the Board, its committees and its directors, with the assistance of external consultants. Acting on the findings and recommendations of the review, the Board Chairman has arranged a meeting with the Chairman of the NC. At this meeting they discuss the fact that the external consultants had been very critical of the Board as a whole. They had also been critical of the NC, because of a lack of succession planning and a failure to review the size and composition of the Board.

There are ten directors on the Board: the Chairman (who is non-executive, and holder of 40% of the shares in the company), five other Non-Executive Directors (NEDs) and four executive directors, including the Chief Executive Officer (CEO) and Chief Finance Officer (CFO). Three of the NEDs, not including the Chairman, are considered to be independent. There have been no changes to the Board membership during the past four years. The Board Chairman reveals at the meeting that he is considering retirement in one year's time, and he asks the NC Chairman to call a meeting of his committee to review succession planning and the size and composition of the Board.

Required

(a) Recommend measures that might be taken by the NC to establish succession planning for the senior positions on the Board.

(b) Suggest recommendations that might be made by the NC to the Board for changing or refreshing the composition of the Board of Directors and reviewing the size of the Board. (20 marks)
20. Yeo Properties Ltd: Answer

Answer Points

(a) Succession planning means planning for the eventual replacement of Board members. There should be long-term succession planning for the most important Board positions, particularly the positions of Board Chairman and CEO. Succession planning is necessary to reduce the risk that the Board will lose members and in doing so lose its effectiveness until a new appointment can be made and the appointee becomes familiar with his role.

The Chairman will retire in one year's time. The criticism of the NC by the external consultants indicates a lack of succession planning, and suggests that nothing has yet been done to plan for a new Chairman. The NC should begin this process now.

The current Chairman owns 40% of the shares in the company. We do not know whether there are also other family members who own shares. The NC needs to establish whether the Chairman has any individual in mind for succession to the Chairmanship. The process of making the appointment should be formal and transparent, but there is a strong possibility that the current Chairman will influence the final choice of appointee.

If the new Chairman is closely related to the outgoing Chairman, is connected with the management team of the company, or is in any other way non-independent, this will have implications for the composition of the Board.

If the Chairman will be appointed from outside the company, the NC should initiate a search. It may appoint a firm of head-hunters to assist with the search. A task of the head-hunters would be to identify a small number of potential candidates for consideration. Alternatively, the NC may consider the appointment of an existing independent non-executive director as the next Chairman, if a suitable candidate exists who is able to take on the role.

A new Chairman should be acceptable to the shareholders as well as to the Board. The NC Chairman should seek the opinions of shareholders, in addition to the current Chairman, about the type of person to appoint, without discussing specific individuals.

A suitable candidate for the Chairmanship may be an individual with experience with a large company in the same industry as the company, or a similar industry. It would also be an advantage if the individual has experience of leading the board of a large organisation.

When the NC eventually identifies a preferred candidate, who is willing to become the next Chairman at a time in the future, it should make a recommendation to the Board. If a suitable candidate is identified quickly, the Board may consider appointing the individual as Deputy Chairman until the current Chairman retires. This will give the company time to provide the individual with suitable induction for his new role.

The NC should also consider succession planning for other positions on the Board, particularly the position of CEO. There may be a risk that if the CEO is not appointed as the new Chairman, he/she might resign from the company. The CEO's successor may be appointed from inside or outside the company, and the NC may use a firm of head-hunters to carry out a search, and also consider the merits of existing executive directors. There is a risk that if internal candidates want the position of CEO and are not successful when the current CEO leaves or retires, they may leave the company. The company may therefore lose one or more executive directors, as well as the CEO, as a consequence of the Chairman's retirement and the appointment of a successor from outside the company. The NC should plan for this eventuality.
(b) The company is not compliant with the requirement in the Code of Corporate Governance with regard to the composition of the Board. The Chairman, as a 40% shareholder, is not independent. When the Chairman is not independent, at least one half of the Board should be independent directors. The Board has ten directors and only three are independent. To comply with the Code, there should be four additional independent NEDs (to make a total of seven independent directors out of 14 members of the Board). It may be very difficult to appoint such a large number of new directors quickly, and time would be needed to make the transition.

The Code states that the Board should be of sufficient size that the needs of the business can be met and that changes to the membership of the Board and its committees can be managed without undue disruption. However, the Board should not be so large as to be unwieldy. The NC should review the size of the Board, and consider whether 14 would be too unwieldy.

The Code requires that even if the NC, RC and AC have the minimum number of members, which is three for each committee, independent directors should comprise at least six of the places on these committees (two on the NC, two on the RC and two on the AC) should be held by independent directors. This suggests that the current number of independent directors may be too small. As there are only three independent directors, each director on average should serve on two committees. If any independent director leaves the Board, there could be considerable disruption to the work of the Board committees until new independent directors have been appointed and have received sufficient induction.

The composition of the Board should be consistent with the future strategy of the company. Changes may be appropriate so that the Board members, particularly the NEDs, have the range of knowledge and experience to oversee and challenge the strategy that has been set by the executive directors. Lack of suitable experience and knowledge on the Board may be a reason why the size and composition of the Board has been criticised by the consultants.

There should be ‘progressive refreshing’ of the Board, but there have been no changes to the Board membership in the past four years. The NC should consider the nature of future changes that should be made, and succession planning for all positions on the Board, but especially the positions of NED.
21. Audit Committee 11 minutes

Tango Ltd is a listed company. In the past two years, its profits have fallen slightly and the management team are looking for ways to reduce costs. Nancy Chong, the Chief Financial Officer (CFO), thinks that savings can be made in the area of accounting. As one measure, she has informed the company's external auditors that she is looking for a cut of about 5–10% in the cost of the external audit next year. An audit partner of the public accounting entity that performs the company's audit has responded by suggesting that a reduction in the annual audit fee may be possible, but the scope of the audit would have to be reduced. The audit partner would also hope that in return for any reduction in the audit fee, Tango may be willing to consider using his entity for more non-audit work in the future.

Nancy tells Edward Goh, Chairman of the Audit Committee (AC), about her discussions with the auditor. She also tells him that the company has always been given an unqualified audit report, and in her opinion the annual audit fee is largely an unnecessary waste of money. She suggests that some changes to the annual audit in order to reduce costs would benefit the company and its shareholders. She also questions whether the AC is in a position to judge the scope of the audit, in view of the fact that only two of its members have much experience with audits and financial reporting.

Required

Recommend how Edward Goh, as Chairman of the AC, should respond to the proposal to reduce the annual audit fee provided that the public accounting entity performing the audit is given more non-audit work by the company. (6 marks)
21. Audit Committee: Answer

This case study is about the AC and how it contributes to better corporate governance. In this situation, the AC is involved in the debate about the cost of the annual audit, and balancing the need to keep costs under control but at the same time have a rigorous audit.

Answer Points

(a) The AC has a duty to review the scope of the external audit (Code guideline 12.4(d)).

(b) The AC should be satisfied that the audit plan is consistent with the scope of the audit. As part of this assessment the AC should consider the seniority, expertise and experience of the members of the audit team.

(c) Edward Goh should lead the AC in assessing whether the audit plan is sufficient. The AC should ask the lead audit partner how a reduction in fee would affect the scope of the audit or the personnel assigned to the audit team.

(d) The AC must be satisfied that the scope of the audit remains satisfactory. It should report any concerns to the Chairman and the Board.

(e) The AC should emphasise to the external auditors that it expects the audit to be conducted professionally and objectively, and the AC will study closely the final report to management on the audit, for evidence that the audit has been rigorous and satisfactory.

(f) Edward should tell the external auditors that a reduction in the audit fee should not be conditional on the granting of additional non-audit work. The AC has a responsibility to monitor the amount of non-audit work given to the auditors, and has a responsibility to raise concerns and objections if it considers that the amount of non-audit work threatens the independence of the auditors.

(g) Edward may say that the AC has reviewed the amount of non-audit work that is done by the auditors, and may express an opinion about whether the AC would object in principle to the award of more non-audit work to the auditors.

(h) Edward should also state that any understanding between the CFO and the external auditors about non-audit work must be unofficial and does not represent the AC and Board position.
22. Board of Directors  

Kunming Ltd is a Main Board Company based in Singapore. It has a Board of Directors consisting of nine members, as follows:

<table>
<thead>
<tr>
<th>Director</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>The Chairman and Chief Executive Officer (CEO) of the company, who also owns 25% of the company's equity shares.</td>
</tr>
<tr>
<td>B</td>
<td>The company's Chief Financial Officer (CFO).</td>
</tr>
<tr>
<td>C</td>
<td>A Non-Executive Director (NED), who is also partner is a firm that provides legal advice to Kunming Ltd, with a 15% interest in the partnership capital.</td>
</tr>
<tr>
<td>D</td>
<td>A NED, who was the CEO of the company until 18 months ago.</td>
</tr>
<tr>
<td>E</td>
<td>A NED, who is also the director of a company that supplies raw materials to Kunming. Last year this director's company supplied goods to the value of S$1.5 million to Kunming.</td>
</tr>
<tr>
<td>F</td>
<td>A NED, who is also a senior executive with a bank and who has extensive knowledge of the capital markets.</td>
</tr>
<tr>
<td>G</td>
<td>A NED, who is a former politician, with extensive political contacts.</td>
</tr>
<tr>
<td>H</td>
<td>A NED, who also happens to be the daughter of the CFO.</td>
</tr>
<tr>
<td>I</td>
<td>A NED, who is also the CEO of a successful IT company.</td>
</tr>
</tbody>
</table>

**Required**

Comment on the composition of the Board of Directors, with reference to the Code of Corporate Governance.  

(8 marks)
22. Board of Directors: Answer

The Code of Corporate Governance does not specify an optimum size for a Board of Directors, but it states that the Board should be sufficiently large to fulfil its duties, but not so large as to be unwieldy. The Board of Kunming consists of nine directors, but there is no information to assess whether this is a suitable size. The members of the Board collectively should provide a suitable range of skills, experience and gender. There is no information about the gender of most Board members, and it is not possible to assess properly the range of their skills and experience.

The Code also states that independent directors should make up at least one-half of the Board where the Board Chairman and CEO are the same person. Therefore, for Kunming Ltd to meet the requirement of the Code, at least half the Board members should be independent non-executive directors, since the Board Chairman and CEO are the same person. This means that given a Board of nine members, at least five should be independent.

Answer Points

- Directors A and B are executive directors, so cannot be independent. (Director A is also a significant shareholder, so cannot be independent anyway.)
- There are seven NEDs, but some of these, according to the Code, would not usually be considered independent:
  - Director C, whose firm provides legal advice to Kunming and who owns more than 10% of the partnership capital, would not normally be considered independent.
  - Director D, as former CEO, was an employee of the company within the current or three preceding financial years, so would not be considered independent.
  - Director E is a director of a supplier company to which the company made significant payments during the current or previous financial year, so would not be considered independent. (As a guide, ‘significant’ means in excess of $200,000 for the financial year.)
  - Director H is an immediate family member (the daughter) of an employee of the company whose remuneration is decided by the Remuneration Committee (the CFO), so would not be considered independent.
  - Directors F, G and I may be considered independent, provided that they have not been members of the Board for more than nine years.

At most, Kunming would appear to have three independent directors, and Kunming (possibly through its Nominating Committee) needs to consider changes to the composition of the Board so as to meet the guidelines of the Code of Corporate Governance.
23. Board and Board Committees

Shop Window Ltd (SWL) is a retailing company, with a listing for its shares on the Singapore Exchange. Its founder, Mr Wu Hon Wah, is also the Executive Chairman of the Board of Directors.

The following information relates to the composition of the Board and Board Committees of SWL, as they appear in the company’s recently published annual report and accounts:

<table>
<thead>
<tr>
<th>The Board of Directors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr Wu Hon Wah</td>
</tr>
<tr>
<td>Mrs Brenda Tay</td>
</tr>
<tr>
<td>Ms Wong Kok Liang</td>
</tr>
<tr>
<td>Mr Mujeeb Ansari</td>
</tr>
<tr>
<td>Ms Lin Xi Kheng</td>
</tr>
<tr>
<td>Mr Leo Chew</td>
</tr>
<tr>
<td>Mrs Teng Chiew Yee</td>
</tr>
<tr>
<td>Mr Ng Kum Tao</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The Board Committees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominating Committee (NC)</td>
</tr>
<tr>
<td>Mr Wu Hon Wah</td>
</tr>
<tr>
<td>Mrs Brenda Tay</td>
</tr>
<tr>
<td>Mr Leo Chew</td>
</tr>
<tr>
<td>Mrs Teng Chiew Yee</td>
</tr>
<tr>
<td>Mr Ng Kum Tao</td>
</tr>
</tbody>
</table>

**Required**

(a) Comment on the composition of the Board of Directors and the Board Committees, with regard to compliance or non-compliance with the guidelines of the Code of Corporate Governance. Where there is non-compliance, recommend a change to achieve compliance that does not increase the total size of the Board of Directors. (12 marks)

(Assume that compliance with the 2012 version of the Code of Corporate Governance is required, and ignore any transition arrangements.)

(b) Suggest, with reasons, the minimum number of times that the Board and each Board Committee should meet in each year. (4 marks)

(Total = 16 marks)
23. Board and Board Committees: Answer

Answer Points

(a) Composition of the Board

(i) The basic rule is that at least one-third of the Board should consist of independent directors. However, in some circumstances, at least half of the Board should be independent directors: these include situations where the Chairman is part of the management team or is not an independent director. Here, Mr Wu Hon Wah is an executive and so cannot be independent, which means that to comply with the Code guidelines, at least half the Board should be independent.

At the moment only three out of eight directors are independent, which is less than half. Without increasing the size of the Board, there are two possible solutions to achieve compliance with the Code:

(1) Mr Wu might agree to become a co-vice Chairman, alongside Mrs Tay, and one of the independent directors could be appointed as Chairman. More than one-third of the Board would be independent, and this would comply with the Code.

(2) Two non-independent non-executive directors could be asked to resign from the Board. However, this would leave a Board that is perhaps too small, with only three non-executive directors available to act as members of the Board committees.

Composition of the Nominating Committee (NC)

(i) The NC should consist of at least three directors, and the majority of its members including the Chairman of the NC should be independent. The NC currently consists of five members and the majority are independent; however, the Chairman is Mr Wu Hon Wah, who is not independent.

(ii) To comply with the Code, Mr Wu Hon Wah should give up the Chairmanship of the NC, but can remain on the committee. One of the independent directors should be appointed as NC Chairman.

Composition of the Audit Committee (AC)

(i) The AC should consist of at least three non-executive directors, and the majority of its members including the Chairman of the AC should be independent. The AC currently consists of five directors, one of whom is Mr Wu Hon Wah (executive) and two are non-executives but not independent. The current Chairman of the AC is independent.

(ii) To comply with the Code requirement that all AC members should be non-executive directors, the AC could be reduced to three members, with Mr Wu Hon Wah and one of the non-executive directors who are not independent leaving the committee. (An alternative would be to replace Mr Wu with independent director, Mrs Teng, if the Board wishes to keep the two non-independent non-executive directors on the committee.)

Composition of the Remuneration Committee (RC)

(i) All members of RC should be non-executive directors. The RC should consist of at least three non-executive directors, and the majority of its members including the Chairman of the RC should be independent. The RC currently consists of three directors, and the majority are independent. However, the RC Chairman is not independent.

(ii) To comply with the Code, the membership of the committee can remain unchanged, but one of the independent directors should become the RC Chairman.

You may wish to comment on the fact that Mr Ng is a member of all three Board committees, which may not be satisfactory – both in terms of whether he is able to give sufficient commitment
to all three committees as well as the main Board, and also in terms of whether the Board may become over-reliant on its contribution to its work.

(b) Views about the frequency of meetings may vary, but you should be able to argue their views clearly and intelligently. The minimum frequency of committee meetings will depend on the role and responsibilities of the committee.

<table>
<thead>
<tr>
<th>Committee</th>
<th>Minimum meetings (suggested)</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC</td>
<td>1</td>
<td>To review the composition of the Board, to make recommendations to the Board. However, the NC will need to hold additional meetings if a search for a new Board member is required.</td>
</tr>
<tr>
<td>AC</td>
<td>3 or 4</td>
<td>If the company publishes its results every six months, the AC should meet before the Board approves them: at the meeting to discuss the full year accounts, the external Audit Partner should be invited to attend. It may also need to meet at least once and possibly twice to review the effectiveness of the risk management and internal control systems and to meet with the Head of Internal Audit.</td>
</tr>
<tr>
<td>RC</td>
<td>1</td>
<td>The RC should meet at least once a year to review remuneration policy (and its application to individual directors and senior executives). If a new director is appointed, it will need to meet additionally to negotiate a remuneration package.</td>
</tr>
</tbody>
</table>

In practice, the committees may meet more frequently. However, it is unlikely that committees will want to meet more than is necessary.

The frequency of Board meetings will depend partly on the size of the Board and the size of the company and its business. It would be unusual for the Board of a listed company to meet less than four times a year (with meetings scheduled once in each quarter). Additional meetings can be called to deal with urgent business.
24. Control failures

The Chairman of a quoted manufacturing group of companies is concerned about the adequacy of internal controls and risk management within the group. The Chairman's concern has been prompted by a fall of about 40% in the company's share price, following poor interim financial results and adverse media reports about the company's leadership.

In particular, the Chairman has been angered by a number of incidents reported by the group chief executive officer (CEO):

(i) There has been a serious breach of health and safety regulations at a foreign subsidiary, resulting in a number of deaths and serious injuries to employees.

(ii) An important new IT system was introduced by the company a few months ago, apparently without adequate testing of the back-up system in the event of system failure.

(iii) Some large expenditures on capital assets were made without proper authorisation and invoices are not available for some of the money spent. Two managers have been dismissed as a result.

Required

(a) Explain the difference between strategic risk and operational risk.

(b) Explain the nature of the internal control failures in incidents (i) to (iii) and explain who should have responsibility for the implementation and the effectiveness of a system of internal control.

(12 marks)
24. Control failures: Answer

Answer Points

(a) Strategic risks are risks that exist in the business environment in which a company operates and the risk that selected business strategies will fail to achieve their desired objective. Many of the risks are two-way speculative risks, in the sense that actual developments in the business environment may turn out to be either better than expected or worse than expected. Companies must accept strategic risk in order to make a financial return, and a problem for the Board of Directors, advised by senior executives, is to decide what level of strategic risk is acceptable, and select a suitable balance between risk and return. The risk appetite of the Board relates mainly to strategic risk, rather than to operational risk, including internal control risk.

Operational risks are risks that arise mostly from factors within the company itself. They are mostly negative risks, meaning that events may turn out worse than expected, but not better. Management are responsible for designing and implementing the system of internal control, in which risks are identified, analysed and evaluated, and appropriate controls are designed to mitigate risks that seem too large. Operational risks can be mitigated through internal controls, but internal controls may be badly designed or badly implemented, or there may be errors or fraud leading to a breach of controls. Internal control risks are risks of a failure of internal controls to achieve their objective or purpose.

(b) For each category of risk there should be a robust system of internal controls.

The failure in health and safety procedures may be the result of a failure in compliance controls to ensure that significant items of health and safety regulations and legislation are complied with. There may also be other control failures: weak management or poor supervision, and inadequate training of employees in compliance with health and safety regulations.

A failure to test the back-up system for the new IT system is probably a failure in operational controls. The risk of IT failure is an operational risk, and an important control for such risks should be the existence of a reliable back-up system. A new system should not be introduced without sufficient and satisfactory testing. This does not appear to have happened in this case. It is not clear what the potential consequences of a system failure might be, so the significance of the failure is difficult to assess without further information. Potentially, the failure to test the back-up system could have a devastating effect in the event of a failure in the main system.

Capital expenditure without proper authorisation is a failure in financial controls. A system of authorisation helps to prevent unnecessary and wasteful spending, undesirable spending and (in some cases) fraud. The absence of purchase invoices for expenditure is another example of a failure of financial control, which could possibly be the result of fraud.

Executive management has responsibility for designing and implementing the system of internal control, and the managers responsible may be required to account to the group risk management committee. The CEO should also be accountable to the Board for the failures.

The Board of Directors has responsibility for ensuring that the system of internal control is effective but it may delegate the monitoring tasks to the audit committee or a Risk Committee of the Board. The incidents of control failure may raise questions about the adequacy and effectiveness of existing controls.
25. Risk management and internal controls

Raffles Bank Ltd has a large proprietary trading operation. This involves dealing in securities and taking positions using the bank’s own capital. The objective is to generate trading profits for the bank.

Raffles’ proprietary dealing room consists of over 20 traders employed to trade in a wide variety of securities. There are also a number of analysts who attempt to identify profitable trading strategies.

The back office function is responsible for administration, recording and settlement of transactions.

Raffles also has a risk management team dedicated to the proprietary trading function, this is often referred to as the middle office. Its role is to monitor the risks taken and develop strategies to control risk.

After a successful career as Head of commercial lending within Raffles, Omar-bin-Batari has recently been appointed Chief Executive Officer (CEO). He has conducted an overall review of bank operations. He is very concerned by the nature of proprietary trading.

He has stated that in his opinion it is gambling with the Bank’s capital. He also believes that the middle office should completely eliminate risk in this area in order to protect Raffles against trading losses. In any case, he wants an explanation of what procedures exist to control risk getting out of hand and to guard against unauthorised or rogue trading.

As Head of internal audit you have been asked to present to the CEO to address his concerns.

Required

(a) Prepare some notes evaluating the CEO’s view of proprietary trading and whether his objective for risk management is realistic. (5 marks)

(b) Additionally, outline what the most important controls are in managing excessive risk and unauthorised trading. (5 marks)

(Total = 10 marks)
25. Risk management and internal controls: Answer

Answer Points

(a) Is proprietary trading too risky?

All operations by a bank, or any company for that matter, involve risk. Proprietary trading is not necessarily inherently riskier than the bank's traditional lending activity – there is always a risk that loans may not be repaid (credit risk) and any maturity mis-match between a bank's loans and deposits presents a risk to its solvency. A company taking no risk with capital will only earn the risk free rate of return, this will not satisfy investors' required return. The basis of all corporate activity is taking an acceptable level of risk to earn a return on capital. Proprietary trading is often deemed risky because it is essentially speculative in nature, but this could also be said of commercial loans for real-estate development. The risk of proprietary trading depends on the nature of the assets being traded.

To decide what is acceptable the board should determine the bank's risk appetite.

Should all risk be eliminated by the middle office?

Whilst all market risk relating to trading could, in theory, be eliminated by hedging, it is not desirable as it will reduce return below that required by shareholders.

Risk appetite should be applied in the context of proprietary trading. There should be targets for return and risk and the middle office should ensure that the scale and scope of proprietary trading activities lies within these.

The role of the middle office should be to monitor risk and take action to keep it within acceptable levels.

If a decision is taken that the risks of proprietary trading are incompatible with Raffle Bank's objectives it would be better to close the operation and free up the capital used.

(b) What controls can limit risk and control rogue trading?

To control excessive risk there should be a system of limits in place, linked to risk appetite.

Limits can be complex: applying to individual traders and/or to the front office as a whole, and can be imposed at close of trading day and intra-day.

Limits can also be used to avoid concentration risk of too much exposure to a sector, type of security or currency.

Limits can be based on total exposure or risk, using measures such as Value at Risk (VaR).

If a trader exceeds limits there should be a control to identify why and if necessary reduce the exposure/risk or get authorisation for exceeding the limit.

These controls will only function to prevent unauthorised trading if exposures/risks are correctly reported and monitored.

Segregation of duties between front, middle and back office is an important internal control that aims to ensure limits are effective.

Compulsory annual leave requirements for traders may assist in uncovering unauthorised trading as they will not be in a position to mask any unauthorised activities.

Effective whistle blowing procedures may also assist in the early detection of unauthorised trading. It is very unlikely that only the trader is aware of such situations.

The possibility of rogue trading is also reduced by appropriate training and recruitment procedures.
26. Strategic risk

Major pharmaceutical companies develop drugs for the treatment of diseases and medical conditions. The development of new drugs is subject to very strict testing procedures by government bodies, and it can take a long time – and enormous investment – to bring a new drug successfully to the market.

New drugs are patented in each country where they are sold. Patents allow the pharmaceutical company the exclusive right to produce and sell their drug until the patent expires. When a patent expires, other ‘generic manufacturers’ are free to manufacture and sell similar drugs in competition.

A successful drug achieves high sales in the early part of a patent period, and then decline over the term of the patent. In the final year of a patent, sales of a drug may be only 10% to 20% of sales in the peak year. After a patent expires, sales fall substantially due to competition from generic manufacturers.

The major companies employ full-time specialist lawyers, to deal with constant litigation. Litigation consists mainly of action against other companies for alleged breaches of patent and action by users of drugs alleging harmful side effects from the drugs they have used.

Companies hold the details of all their drugs electronically, on mainframe computers at corporate headquarters.

Required

List what you consider to be the main strategic risks for a major pharmaceutical company.  (8 marks)
26. Strategic risk: Answer

The main risks for a pharmaceuticals company are suggested in the list below:

<table>
<thead>
<tr>
<th>External environment</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Political</strong></td>
<td>Potential changes in intellectual property laws and regulations</td>
</tr>
<tr>
<td></td>
<td>Weakness of intellectual property legislation in some countries</td>
</tr>
<tr>
<td></td>
<td>Risk of an adverse outcome from litigation or government investigations</td>
</tr>
<tr>
<td></td>
<td>Product liability (payment of claims for harmful side effects of using drugs)</td>
</tr>
<tr>
<td></td>
<td>Regulation of sales and marketing of drugs</td>
</tr>
<tr>
<td></td>
<td>Government intervention to control prices</td>
</tr>
<tr>
<td></td>
<td>Regulatory controls, which can affect the length of time required to bring a new drug to the market</td>
</tr>
<tr>
<td></td>
<td>Legal sanctions following claims of bribery and corruption</td>
</tr>
<tr>
<td><strong>Economic</strong></td>
<td>Global economic conditions, affecting consumer markets and financial institutions</td>
</tr>
<tr>
<td></td>
<td>Changes in tax laws</td>
</tr>
<tr>
<td><strong>Social/Environmental</strong></td>
<td>Environmental liabilities</td>
</tr>
<tr>
<td><strong>Technological</strong></td>
<td>Development of new (patented) drugs by competitors</td>
</tr>
<tr>
<td></td>
<td>Failure to protect electronic information from hackers</td>
</tr>
<tr>
<td><strong>Industry-specific</strong></td>
<td>Risk of interruption to product supply, including product recalls</td>
</tr>
<tr>
<td></td>
<td>Risk from concentration of sales to a small number of drugs wholesalers (also a credit risk and so a financial risk)</td>
</tr>
<tr>
<td><strong>Company-specific</strong></td>
<td>Risk that research and development (R&amp;D) will not deliver commercially-successful new products</td>
</tr>
<tr>
<td></td>
<td>Human resources: failure to continue to recruit and train the right people to work for the Group</td>
</tr>
</tbody>
</table>
27. Social media

(This question is based on a question in the June 2014 BVGR examination.)

ABC Ltd is a listed company in Singapore that specialises in the design and manufacture of household furniture. Its vision is to be a renowned international company that designs, manufactures, and sells high-quality furniture.

To stand out from other local furniture firms, which focus solely on manufacturing, ABC has long prided itself on designing its own furniture. Prior to listing, in 20X3, Albert and Ben designed all the furniture. After listing, they became too busy with management matters so a design team, headed and managed by Albert, was set up. The design team is based in ABC's Singapore office and currently comprises eight in-house designers from the Asian region. The design team also works with Italian and Spanish designers to create new collections, and has a target of generating at least five new designs per quarter.

In order to meet this new design target, ABC invests a significant amount of money into research and development (R&D) every year. Most recently, ABC launched a 'green' line of furniture incorporating a mixture of hardwoods from sustainable forests and recycled materials, produced in resource-efficient ways.

Always looking for ways to increase sales, the Head of Sales approached the Chief Executive Officer (CEO) about setting up a Facebook page and noted that ABC's competitors are already very active on social media and have lots of 'followers' and 'likes'. Over the years, ABC has accumulated a large database of its customers' personal particulars, including email addresses, but ABC has only communicated with its customers through traditional means (telephone and paper-based communication).

Required

In relation to ABC's proposal to establish a Facebook page, the Board of Directors is concerned about the potential risks of content sharing. Explain to the Board of Directors four key risks specific to content sharing via Facebook (or via other similar social media platforms). (12 marks)
27. Social media: Answer

Key risks may be:

(1) ABC can have an account and design a site on Facebook, but the company has no control over the comments that are made by customers. Some of these may be negative. Using social media in general creates a problem of loss of control over the information and communications. This risk is a threat to the company's objective of controlling communications and publicity about its products.

(2) There are cyber-security threats. One of these is that hackers will gain access to the company's Facebook page and maliciously destroy or alter the information that it contains. Alternatively, the Facebook page may be disrupted by a Denial of Service (DOS) attack, so that users cannot access it.

(3) Unless the company maintains an up-to-date Facebook page, there is a risk that the information it contains will become out-of-date, and so could be misleading for customers and potential customers. Failure to refresh and update content is a major risk with creating any site on social media, or a web site on the internet. Alternatively there is a risk that information on the social media site could be inaccurate. If it is inaccurate and misleading, customers who rely on the information to make a purchase may take legal action against the company for misrepresentation.

(4) There may be a risk that company employees will make unauthorised disclosures on the social media site, such as information about unreleased financial information about the company. Some of this unauthorised information may be confidential personal information about customers, in which case the company will be in breach of the Personal Data Protection Act and the legal requirement to protect personal data about individuals.
28. Risk identification

You are employed by a company that wishes to acquire consumer goods businesses. You are part of the team tasked with identifying potential acquisitions and have been provided with summary information in relation to a number of possible targets including Yang Vision Pte Ltd. You have been assigned responsibility for analysing risk.

Yang Vision Pte Ltd is an established importer and wholesaler of televisions based in Singapore. It is a family owned private company and members of the Yang family occupy a number of senior management roles including that of Chief Executive Officer.

Sales growth has been very strong over the last ten years, as consumers upgraded from older cathode ray technology to flat screen and high definition technologies. Yang Vision believes that new developments in TV technology, such as 3D TV and Ultra HDTV, will continue to drive future sales growth in a similar manner.

Yang Vision purchases the TVs from a Chinese manufacturer, Shenzhen Electronics Corporation, under an exclusive supply agreement. Shenzhen Electronics is one of the three largest manufacturers of consumer electronics in China.

The goods are shipped by sea to Yang Vision’s warehouse in Singapore and Shenzhen Electronics requires payment against delivery in its domestic currency. The TVs are then supplied to smaller consumer electronics retailers throughout Singapore, who are given up to 90 days credit.

Required

Prepare a briefing paper to the Board identifying and explaining the main business risks of Yang Vision Pte Ltd highlighted by the information provided. (9 marks)
28. Risk identification: Answer

You should aim to categorise the risks using an appropriate framework.

Answer Points

Many risks could be identified; however, those most closely indicated by the question include:

- **Strategic risk – risk that arises from the business environment**
  - Technology risk – future consumer demand for new TV technology not yet proven.
  - Dependence on smaller retailers – if a larger vertically integrated supplier obtains a greater market share this will reduce Yang Vision's sales.
  - Internet retailers – only supplying physical shops limits sales as customers move online.
  - Reliance on a single supplier – exposed to operational risks of Shenzhen Corporation, strikes, product failures etc. Adverse impact on Shenzhen will impact adversely on Yang Vision. Also it is a large company with significant supplier power.
  - Economic environment – Singapore consumer confidence and disposable income will have impact on demand for TVs.

- **Operational risk – risks arising from internal business processes and controls.**
  - Physical security at warehouse – stock easily damaged, easily transported, high value so risk of theft/pilferage.
  - Loss of key individuals – will family members be retained when the company is acquired.

- **Financial risk – risks that could affect the firm's financial performance**
  - Exchange risk – exposure to Singapore dollar (SGD): Chinese Yuan (CNY) exchange rate as all purchases invoiced in CNY. Adverse movement will erode profitability.
  - Credit risk – 90 days credit to small customers. Individual company risk is quite small though as there are lots of small retailers.
  - Cost of funding – significant working capital as Shenzhen require payment before customers pay.
29. Lom Infrastructure Ltd

Lom Infrastructure Ltd is a construction company that specialised in carrying out large, long term infrastructure projects both in Zedland and throughout neighbouring regions. This has included roads, bridges, dams etc. Recently, in the face of the global economic slowdown, growth has slowed. Consequently a new worldwide division has been established to develop similar opportunities in new markets where growth is stronger and there is high demand for infrastructure projects. Exland was identified as a region meeting these criteria, and an Exland division was formed.

The Exland division has several projects under consideration as its government is particularly keen to upgrade the country's failing infrastructure.

Lom Infrastructure’s risk management committee is concerned about the additional risk of operating in new markets and has asked for country risk summaries to be prepared. In relation to Exland the following has been produced:

'Since 20X2 violent clashes have occurred between the government and opposition forces. Opponents have stated that they will contest the October 20X5 general elections, which give some confidence of a return to democratic process and suggest that progress in resolving these violent clashes is possible.

The official interest rate is 8.25%. This fact together with the prudence of the central bank and strong economic growth suggest a benign inflation outlook at least in the medium term. Foreign direct investment covers the massive current account deficit. This leaves the balance of payments in a sustainable position that would only be threatened if an escalation in violence were to discourage foreign investors. The Exland Government successfully launched an $850m bond issue in late 20X4 which has led to an expected fiscal deficit of around 10% of GDP.

Exland is vulnerable to adverse, extreme and highly variable weather conditions. The levels of rain in the wet season are highly variable, tropical cyclones are common and monsoon-like conditions may occur. This poses a threat to the predominantly agriculture based economy. Infrastructure, particularly transport, in Exland is a significant restriction on economic growth and will need further investment for the country to be able to efficiently get its natural resources to international markets.'

One of the largest projects in Exland currently under consideration by the Exland division is the upgrading of the Caverna dam, the largest dam on the Hiaka river. The initial costs of this project are estimated at $50m in materials and logistics, and there will be operational costs of $10m per month which are largely related to labour and the creation of an operational base in the country. Of the $10m per month, 90% of this would still be incurred during any periods of delay.

The project is scheduled to commence in November 20X5 and it has been estimated with reasonable confidence that the dam upgrade will take a total of 11 months. However, the rainy season in Exland is from April to October. By analysing the meteorological records for the Caverna area it has been ascertained that, in 6 of the last 20 years, the level of rains were sufficiently great to lead to heavy flooding and inundation. If this were to occur during the project it would lead to an anticipated delay of five months, during which time no work could be undertaken.

The total price offered for the project is $190m. This will be 50% funded by an international development fund, with the remainder to be met by the Exland Government.

The Business Development manager of the Exland division asserts that he has performed expected value calculations for the project which he claims demonstrate the commercial viability of the Caverna upgrade. He believes that, as these show a clear expected profit, the project should be undertaken despite the climate related risk.

The manager of the Zedland Construction division is very vocal in her opposition to new projects in Exland. She argues that they are far too risky, could damage the company and that Zedland projects are profitable and much less risky. She states that risky projects are not suitable for Lom Infrastructure and
that it should stick to what it knows and wait for the Zedland market to pick up. The head of the Exland division disagrees strongly and argues that if the company is to continue to grow then it is essential to develop new profitable markets. He believes the real risk lies in not doing so.

Due to the different views within Lom Infrastructure Ltd you have been brought in to consult on the viability of Exland projects and the risks related to them.

**Required**

Identify and explain the additional strategic risks which Lom Infrastructure will be exposed to if projects are undertaken in Exland and how these risks should be managed.  

(8 marks)
29. Lom Infrastructure Ltd: Answer

Strategic risks are outside the direct control of management.

Given the information provided the risks that can be identified are those in the general business environment that may prevent the company achieving its objective – making a profit.

Answer Points

Political and legal risks

- The political environment is uncertain with violent clashes.
- An election is happening in October 20X5, this could lead to more violence or a change in government and infrastructure policies. A new government might introduce legislation that could adversely affect Lom Infrastructure eg limits on foreign ownership or the need for licences/permits to operate.

Economic risks

- The economy appears stable and the inflation outlook is favourable but this may be affected by violence/election. Also growth is limited by the lack of infrastructure.
- Significant deterioration in public finances may limit future infrastructure spending.

Social and environmental/ecological risks

- The weather is extreme in Exland and this may affect the cost of projects and cause physical damage to assets.

Technological risks

- The economy is historically based on agriculture. A lack of technological infrastructure may make it a challenging place to do business.

With regard to managing these risks the important aspects are:

- Assessing the level of risk – ensure sufficient risk management resources deployed.
- Monitoring the risk – identify key indicators/measures in relation to these risks.
- Reacting to an increased risk in an appropriate way – have a response plan in relation to possible escalation of risk and risk related loss events.
30. Yaya

In Yaya Company, Operations Director Ben Janoon recently realised there had been an increase in products failing the final quality checks. These checks were carried out in the quality control (QC) laboratory, which tested finished goods products before being released for sale. The product failure rate had risen from 1% of items two years ago to 4% now, and this meant an increase of hundreds of items of output a month which were not sold on to Yaya's customers. The failed products had no value to the company once they had failed QC as the rework costs were not economical. Because the increase was gradual, it took a while for Mr Janoon to realise that the failure rate had risen.

A thorough review of the main production operation revealed nothing that might explain the increased failure and so attention was focused instead on the QC laboratory. For some years, the QC laboratory at Yaya, managed by Jane Goo, had been marginalised in the company, with its two staff working in a remote laboratory well away from other employees. Operations Director Ben Janoon, who designed the internal control systems in Yaya, rarely visited the QC lab because of its remote location. He never asked for information on product failure rates to be reported to him and did not understand the science involved in the QC process. He relied on the two QC staff, Jane Goo and her assistant John Zong, both of whom did have relevant scientific qualifications.

The two QC staff considered themselves low paid. Whilst in theory they reported to Mr Janoon, in practice, they conducted their work with little contact with colleagues. The work was routine and involved testing products against a set of compliance standards. A single signature on a product compliance report was required to pass or fail in QC and these reports were then filed away with no-one else seeing them.

It was eventually established that Jane Goo had found a local buyer to pay her directly for any of Yaya's products which had failed the QC tests. The increased failure rate had resulted from her signing products as having 'failed QC' when, in fact, they had passed. She kept the proceeds from the sales for herself, and also paid her assistant, John Zong, a proportion of the proceeds from the sale of the failed products.

Required

(a) Explain typical reasons why an internal control system might be ineffective. (5 marks)

(b) Explain the internal control deficiencies that led to the increased product failures at Yaya. (10 marks)

(Total = 15 marks)
30. Yaya: Answer

Answer Points

(a) Reasons why an internal control system can be ineffective

   Mistakes or poor judgement
   The successful operation of many controls depends on the people operating them. Staff may fail to operate controls because, for example, they are tired or do not understand what they have to do. They may make errors operating controls, for example incorrectly failing an item they have tested.

   Collusion between staff
   Segregation of different tasks is a key aspect of control systems, as is the involvement of more than one staff member in activities so that staff know that someone else will see what they are doing. Fraudulent collusion between staff, as here, undermines segregation and oversight. John Zong did not report Jane Goo’s fraud because she involved him in it.

   Management over-ride
   Senior management may be able to insist that certain activities or transactions are not subject to controls that would normally operate. Staff operating the controls may lack the authority or be unwilling to challenge senior managers.

   Coping with unusual situations
   Control systems may be designed to cope with an organisation’s routine transactions. If transactions occur that are out of the ordinary, it may be difficult to apply controls. Similarly if unforeseen circumstances arise, normal controls may become irrelevant.

   Deterioration over time
   Controls may be designed to cope with a set of circumstances and business environment that changes over time, making the controls less relevant. Staff also may become less conscientious about applying controls over time.

(b) Internal control weaknesses

   No check on Jane’s activities
   No-one reviewed the compliance work that Jane had done to see if it was correct. There was no need for a second signature. No-one saw the quality control reports after they had been filed. Jane was thus able to file fraudulent reports.

   Failure to deal with products that had failed
   Yaya relied on Jane Goo to dispose of the products that had failed. It did not insist that the goods were returned and disposed of independently. It thus gave Jane the opportunity to sell the products that she incorrectly claimed had failed.

   Opportunity for collusion between Jane and John
   There was collusion between Jane and John. Both considered themselves to be poorly paid and both derived financial benefit from the fraud. The isolation of the QC facility meant that for the fraud to be successful, only two people needed to be involved.

   Identification of increased failure rate
   There was no automatic reporting of the increase in the failure rate. An acceptable failure rate had not been established. Hence there was no trigger that the rate was excessive. Since the failure rate increased gradually, it did not become noticeable for quite some time.

   Failure of supervision
   Ben Janoon failed to carry out a number of supervisory checks. He did not visit the site very often, did not insist on automatic reporting and failed for a long time to spot an increase in failure rates. Possibly as he designed the systems, he had misplaced confidence that they would work properly.
31. Widepool Ltd

Widepool Ltd has expanded significantly over the last few years, and is likely to seek a listing in a couple of years' time. You have been contacted by its Chief Executive, Mr Kenneth, for advice on areas relating to the control and risk management systems.

Until recently the main board has dealt with all significant issues relating to the company, but Mr Kenneth is also wondering whether to set up a separate risk committee. There have recently been incidents that appear to indicate problems with the ways Widepool's employees deal with risk.

In one incident a worker was trapped in a machine. A fellow worker tried to help and both were seriously injured. A subsequent investigation found that safety instructions appeared to be adequate, and there was sufficient safety equipment available. However, staff had not been using the right equipment, appeared ignorant of safety issues and seemed unwilling or unable to comply with instructions.

In another instance one of Widepool's most significant suppliers, Stretch Ltd, supplied Widepool with confidential operational information. Two of Widepool's managers discussed these details in a local restaurant, but left the documentation relating to Stretch behind when they went home. Another customer found this information and offered to sell it to one of Stretch's main competitors. The competitor declined the offer, and reported the situation to the police and Stretch. As a result Stretch has terminated its relationship with Widepool. Widepool's organisational handbook stresses the need to keep sensitive business information confidential, but does not provide detailed guidance.

Widepool recently carried out a staff satisfaction survey. One of the comments made was that as the company has grown bigger, the board has become more distant from operations and seems primarily concerned with profit growth. As a result, staff have become laxer in following internal procedures, as they believe that they are being judged solely on whether they meet financial targets.

Required

(a) Explain why Widepool's internal guidance and control procedures have failed to ensure that Widepool's employees deal carefully with business risks. (8 marks)

(b) Explain the ways in which the board of directors can, by their own example, promote a better risk culture than has recently been apparent at Widepool. (7 marks)

(Total = 15 marks)
31. Widepool Ltd: Answer

Answer Points

(a) Lack of detail in guidance

The problems over the suppliers' data may indicate that some of the organisational guidance is written too much in terms of general principles, without enough examples of detailed application. It would appear that the guidance needs to spell out that confidential information should not be removed from the office, and staff should not talk about business matters outside work.

Lack of awareness of risks

The accident with the machine indicates that staff did not understand the risks involved, despite the health and safety documentation. This could be because they failed to read the documentation or they read it but failed to understand it. This also suggests that training, on the job or in formal courses, needs to be improved.

Poor culture

The problems over Stretch's information and the difficulties over the machine indicate that a culture of carelessness is prevalent at Widepool. Managers, in positions of responsibility, should naturally be careful with confidential information. The comments in the staff survey also seem to suggest the culture is poor, that the board is seen as remote from internal controls and procedures.

Lack of enforcement

The staff comments underline what happened over the machine, that the company's internal procedures are not being enforced by managers. The survey comments suggest that, while the board is receiving sufficient financial information about the profitability of operations, it is not getting the non-financial data it needs to obtain assurance that control systems are operating effectively.

(b) Personal example

The day-to-day behaviour of senior management can help set the right tone in Widepool. This includes being seen to comply fully with health and safety requirements, for example wearing the right clothing in the factory. More importantly perhaps, it means avoiding the sort of careless behaviour of which the managers were guilty, taking confidential information outside the workplace.

Adherence to code

The board needs to order all staff to demonstrate full commitment to Widepool's control procedures. Directors and staff should acknowledge in writing their responsibilities, including adherence to internal codes. Directors should reinforce this by communicating what is expected of staff.

Participation in training

Directors should fully and enthusiastically participate in training in areas such as health and safety, to set the correct 'tone from the top'.

Internal meetings

Directors should set up a system of meetings to discuss risk and compliance issues. They should meet with senior managers, and senior managers should meet with the staff who work for them.

Taking disciplinary action

If necessary, the directors should show that poor behaviour will not be tolerated by being personally involved in disciplinary action against staff.
32. Newmed Ltd

Newmed Pharmaceuticals Ltd (Newmed) is a pharmaceutical company listed on the Singapore Exchange. It is currently undertaking a major project to develop a new drug with the potential to cure some forms of cancer. If it is successful, this drug could become Newmed's most profitable product to date and could strengthen its market position.

Newmed has established an excellent reputation for developing medical solutions, by employing high quality research scientists and investing in cutting edge technology in its research and development facility. This is consistent with the company's mission to 'develop innovative treatments that improve the lives of patients around the world and deliver value to its shareholders.'

Large amounts of cash are required to operate the research and development facility, but Newmed has never had a problem raising finance because of the high levels of return it can generate from developing commercially successful drugs.

The board has developed a good relationship with Newmed's major investors, and has explained that, although medical research inherently involves quite a high level of risk, the potential returns it can bring justify that risk. Newmed's investors have been happy with the company's performance in recent years, and it has consistently delivered high returns on capital employed and earnings per share. The board also regularly provides voluntary reports on its internal controls to shareholders, which reinforces investors' confidence in the company, and the way risk is managed within it.

The board regularly reviews Newmed's internal controls, and the company has established an extensive range of controls covering all of its core business areas. These include:

- **Marketing:** Regular analysis of the global pharmaceutical market is undertaken to identify propositions which could result in commercially viable new products. Research propositions are then submitted to a board level steering committee of industry experts who evaluate their feasibility and make appropriate recommendations.

- **Research:** Before the start of any new research, a project proposal – including detailed project costs – must be submitted to the steering committee for approval. Resources are only assigned to a research project once the steering committee has approved it.

- **Financial management:** Annual capital budgets are agreed by the board at the start of each financial year. These budgets are absolute limits, and cannot be exceeded without the written permission of the Board.

- **Internal control reports:** All research projects are required to produce and submit regular reports to the board, detailing progress achieved and expenditure against budget.

- **Internal audit reviews:** The internal auditors carry out a rolling, annual programme of reviews on the controls in place across all of Newmed's core business areas, and make recommendations to the Audit Committee for any areas of improvement.

**Required**

With reference to the five components of the COSO Internal Control Framework (2013), evaluate the main components of the internal control system at Newmed. (15 marks)
32. Newmed Ltd: Answer

Answer Points

Control environment

The control environment sets the tone for how risk is viewed and addressed throughout the company. It includes the company's risk management philosophy and risk appetite, and its culture and commitment to integrity and ethical values. The board's attitude in overseeing internal controls can also be an important factor in determining the strength of the control environment.

Newmed's board has recognised that medical research inevitably involves quite a high level of risk. This suggests the company's risk appetite is likely to be quite risk seeking, but this is justified by the rewards which can be gained from finding a commercially viable new drug.

Newmed's board also appears committed to maintaining a strong system of internal controls, for example, by establishing a range of controls covering all of the core business areas, and by reviewing them regularly.

Another element of the control environment is a company’s commitment to attracting and retaining appropriate staff. Newmed's reputation for developing medical solutions is due, at least in part, to the quality of the research scientists it employs – which suggests this element of the component is also being controlled effectively.

Risk assessment

This component of the Framework identifies that risks need to be analysed in terms of their likelihood and potential impact, as a basis for determining how they should be managed.

Newmed invests significant funds in researching new drugs in the hope that they can be developed into commercially viable products. However, this is a high-risk strategy, because there is no guarantee that research projects will be successful. One of the major risks Newmed faces is that it invests time and effort in a research project which proves unsuccessful.

In this respect, the expert steering committee plays a very important role here. In effect, its decision about whether or not to approve a project is a decision about whether to accept or avoid the risks associated with the project. As such, it is fundamental that the steering committee has the right skills and expertise to evaluate a project appropriately (for example, by rejecting overly risky projects), and Newmed has addressed this issue by ensuring the committee is made up of industry experts.

As part of their risk assessment, the board should also consider the external environment – and changes in the external environment and the effects they could have on Newmed. Risks can be viewed in terms of opportunities as well as threats, and the regular analysis of the global pharmaceutical market is important in this respect – in terms of identifying possible product opportunities for Newmed, and also monitoring threats from the R&D activities of rival drug companies.

Control activities

The Control activities component of the Framework identifies that the need to establish and implement appropriate policies and procedures to ensure that risk responses are effectively carried out. These control activities should be performed across all levels of the organization, and at different stages within business processes.

Although we don't know anything about controls at different levels, we do know the board has established controls over all Newmed's core business areas. Moreover, the controls in relation to research projects operate at different stages in the process. For example, initial approval and authorisation is required from the steering committee before research can begin, while regular progress and expenditure reports are submitted throughout the course of a research project, meaning that the board can maintain tight controls over budget, and ensure that projects are progressing in line with pre-approved guidelines. Having a range of controls like this should help mitigate the risks relating to Newmed's research activities to acceptable levels.
Information and communication
Relevant information needs to be captured and communicated in a form and timeframe that allows people to carry out their responsibilities. As a pre-requisite for this, a company also needs to have information systems of sufficient quality to enable the necessary information to be produced.

The reports detailing project progress and expenditure against budget are an important part of this aspect of internal control. For example, if it looks that a project is costing more than originally expected, or may not deliver the benefits originally expected, it is very important that Newmed's management (and/or the Board) is aware of this so that they can assess the impact of the changes circumstances on the project's risk profile and make a decision about whether to continue with it or not.

Communication is not only an internal activity, however, and a company needs to have effective communication with third parties such as shareholders and regulators. Newmed's decision to provide investors with information on its internal controls appears to be effective in this respect, because it has reinforced their confidence in the company, and the way internal controls within it are functioning.

Monitoring activities
This component of the framework identifies that an organisation needs to monitor whether the components of internal control are functioning properly, and – if they are not – any deficiencies need to be communicated in a timely manner so that corrective action can be taken.

COSO's Internal Control Framework draws a distinction between regular review (on-going evaluation) and periodic review (separate evaluation). The internal audit team's annual reviews of the control procedures are a key part of separate evaluation, and will enable management to assess whether internal controls are present and functioning in the way they are expected to be. Similarly, the internal audit team's work will also be crucial in identifying any deficiencies, and informing management of the corrective action which needs to be taken to address those deficiencies.
33. Internal audit effectiveness

As the newly-appointed Finance Director of a listed company, you have just been asked by the Chairman to advise him on the effectiveness of the existing internal audit department.

The Chairman explained that internal audit has been established in the company for many years. The Head of Internal Audit, who has held this post for many years, has reported direct to the Chairman. He has always had a right of access to the Board, and, since the establishment of an Audit Committee (AC), has worked closely with that committee. However, there had been increasing friction in recent years between the Head of Internal Audit and your predecessor as Finance Director. Internal audit had been regarded by your predecessor as expensive, slow and ineffective.

Required

Write a report to the Chairman explaining how the effectiveness of the internal audit department should be assessed. Your report should deal specifically with the following issues:

(a) What should be the objectives of internal audit?
(b) Who should carry out the assessment of the effectiveness of the internal audit department?
(c) How should the detailed work of gathering appropriate information for the assessment be conducted and what information will be required for the assessment? (15 marks)
33. Internal audit effectiveness: Answer

Answer Points

(a) Objectives of internal audit

Role of internal audit

Internal auditing is an independent, objective assurance activity designed to add value and improve an organisation's operations. It helps an organisation (including its board and senior management), to accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes. Hence the effectiveness of internal audit should be assessed regularly.

Review of controls

One aspect of internal audit's work is to review and report on the adequacy and effectiveness of an organisation's internal controls. The review of controls should cover accounting controls and non-financial controls (operational controls and IT controls), and controls that ensure compliance with external laws and regulations and internal policies.

Contribution to organisational effectiveness

Internal audit's role should also contribute to overall organisational effectiveness, by assisting the audit committee and management in the effective discharge of their responsibilities by providing them with analyses, appraisals, recommendations, advice and information. This aspect of internal audit's work will cover recommendations for improvements in the organisation's information systems or its utilisation of resources.

(b) Who should carry out the assessment?

Audit committee

The Internal Audit Department (IAD) must maintain its independence from those parts of the organisation which it audits and from management. This independence must be maintained when the effectiveness of the internal auditors is reviewed. The Code of Corporate Governance 2012 states that the audit committee should have responsibility for making the assessment.

The Professional Practice Framework of The Institute of Internal Auditors Inc recommends that a quality assessment review of the internal audit function should be carried out by independent qualified assessors at least once in every five years.

(c) Detailed work

Audit objectives

Like any other audit, a management audit involves deciding the audit objectives (which managers to audit, what aspects of their work and so on), carrying out an investigation, gathering evidence and reporting the results. The objectives will determine exactly what information is required: this should include a requirement that the IAD files and reports will be accessed. This will require explanation and comment from members of the IAD. Samples will be taken of the IAD's work as it will not be possible to examine all of it.

Consideration should also be given to using an external accounting firm who have staff suitably qualified to carry out this assessment in accordance with the principles laid down by The Institute of Internal Auditors, Inc. Such a review may be more objective and independent.

Collection of information

Information, both written and oral, should also be collected from those outside the IAD, including the external auditors, the board members of the AC and the operational staff audited by the IAD. Consideration should be given to the need to interview selected board members, especially the AC, and senior managers on the performance of the internal audit function, quality of staff, and
whether their audits focused on the appropriate risk areas. In the case of the information from operational staff, given the nature of the work, their opinions will have to be judged according to the level of criticism raised against them by the IAD in the past. In all cases the information collected should be properly recorded, and the documents collected and created should be controlled. This is a sensitive audit, so working papers should remain confidential and kept secure at all times.

**Information required**

**Value for money**

The audit will seek to determine whether the IAD operates:

(i) **Economically**, producing the appropriate quantity and quality of work at lowest cost

(ii) **Efficiently**, using minimum resources for the quality and quantity of service provided

(iii) **Effectively**, achieving its set objectives

**Detailed information**

(i) **General set up of the IAD**

This will involve investigating the **structure** of the IAD; what **work** the IAD has been asked to carry out (routine investigations and special investigations); **who requests** work to be done; **who receives IA reports**.

(ii) **Resources used by IAD**

The resources used by the IAD should be quantified: **staff, equipment** (computers etc) and **training**.

(iii) **Utilisation**

How well is the IAD **utilising** these **resources**? How full is the annual internal audit work load? Is IA staff training undertaken in slack periods?

(iv) **IA procedures**

The methods and procedures used by IAD to carry out investigations should be examined. Does the IAD use appropriate procedures and documentation? Are files up to date and well maintained? Is staff time recorded accurately and compared to budgets? Are audits completed on time and to budget? Are review procedures appropriate and effective?

(v) **Report effectiveness**

Assessment is also needed about the effectiveness of IA reports to the AC and to management. For example, as a result of IAD investigations, have controls been improved or have **costs** been **reduced**?
34. Internal controls and fraud

The Public Accounting Entity for which you work has been engaged by Clicksell Pte Ltd, a young, fast-growing internet retailer.

During the year a serious, long-term fraud was discovered by Clicksell. It involved Steve Tan, a member of the accounts team responsible for taking credit card sales. Steve was found to have been making regular electronic credit card refunds to his own credit card. The Chief Accountant, Ahmad bin Osman, expressed his surprise as Steve was a generous, popular individual and a valued member of staff who never took holidays. Melanie Chee, a junior member of the accounts staff, stated that she was convinced that something odd was going on, but was too concerned for her job to draw management's attention to her concerns and didn't want to cause trouble. The fraud only came to light when the company's bank queried the unusual level of refunds with the chief accountant.

As a result of this occurrence the board of Clicksell has taken an increased interest in the effectiveness of internal controls and the internal audit function as part of corporate governance. It has asked you to analyse the fraud and the adequacy of the internal audit function.

Your preliminary investigations have revealed that Internal Audit consists of two members of staff, one of whom is a chartered accountant. The internal audit department reports directly to the finance director. In the past, the vast majority of the internal audit department's work has been to investigate unexplained losses and control failures that have occurred.

Required

(a) Explain what preventative internal controls at the operational level could have prevented or detected the fraud and what deficiencies exist in the internal audit function. (5 marks)

(b) Explain any other procedures, other than operational controls, that can assist in fraud detection. (5 marks)

(Total = 10 marks)
34. Internal controls and fraud: Answer

Answer Points

(a) Operational internal controls that may detect/prevent fraud include:

   (i) Segregation of duties – different staff perform reconciliations/checks/approval

   (ii) Authorisation and approval – approval for unusual transactions eg refunds

   (iii) Arithmetic – reconciliations of credit card transactions to sales, analysis of weekly refund totals

   (iv) Management/Supervision – identify staff that don't take holidays – may have something to hide

Internal Audit:

   (i) Report at appropriate level – not to the Finance Director. The report should be addressed to the Audit Committee.

   (ii) Work should involve pro-active evaluation and monitoring of risk management and internal controls and regular reports to Audit Committee, not simply reacting to problems/losses that have occurred.

   (iii) Must be adequately resourced – two individuals is likely to be inadequate. This assessment is confirmed by the reactive 'fire fighting' nature of their work.

(b) Additional procedures to detect fraud:

   (i) Melanie Chee did not feel able to report her concerns regarding Steve Tan.

   (ii) Whistle blowing procedures would have ensured that she was aware of how her concerns should have been brought to management’s attention and to whom.

Whistle blowing procedures should include the following:

   (i) Copy of whistle blowing procedures provided to all employees

   (ii) Clear identification of to whom reports made – head of internal audit

   (iii) No victimisation or discipline against whistle blower acting in good faith

   (iv) Procedures established to follow up reports of whistle blowers
Section Two
1. ABC (Pte) Ltd 1

Assume the date is now March 20X7.

Part 1

ABC (Pte) Ltd is a medium-sized supermarket chain in Singapore, specialising in smaller, specialist grocers and traditional supermarkets. The supermarket chain was founded 40 years ago by Tan Ah Lek who is currently the company's Chairman and Chief Executive Officer (CEO). He owns 75% of the company's shares. The other shares are held by members of Tan Ah Lek's family. Mr Tan and these three family members make up the company's Board of four Executive Directors.

ABC's profitability has been sound, but relatively stable, for ten years. Traditionally, the expectation of annual distributions to the family shareholders every year has made it difficult to build cash reserves or invest in large-scale expansion or acquisition. Therefore, the growth of the business has stagnated and opportunities for significant business growth have not been created up to now.

The Board of Directors has consulted with the family shareholders who are aware that the structure of the company will have to change in order for ABC to expand. They have stated they are happy to support the proposed expansion plans by taking less dividends over the immediate future. They are also happy for the Board to consider listing on the Singapore Exchange (SGX), as discussed below.

ABC looking to raise finance through listing on the SGX

The Board of Directors is considering whether the company should obtain a listing on the SGX, and the advice of an investment bank is being sought. The aim of becoming a public company and obtaining a listing would be to raise new capital to finance the company's planned expansion into the growing markets of China and India via the Lasting Life project and a possible expansion of its flagship Orchard Road store.

The company's directors have asked the investment bank advising ABC to calculate the value of the company's equity for the purpose of an Initial Public Offering (IPO). It has been decided that the most appropriate method of estimating a value for the company would be to calculate a discounted value of estimated future cash flows from the company's operations.

The company's bank has indicated that in its view ABC will be able to operate with a maximum financial gearing ratio (amount of debt as a proportion of total debt plus equity) of 65% in the future. ABC's Board has decided to use a combination of debt financing and equity financing to fund the development of the company's business and is therefore not expecting gearing to rise beyond its current level.

Information relating to the company's financial performance and position is provided as well comparable data that may be relevant to a valuation of ABC.

The Board of Directors has indicated it would use an IPO as an opportunity to raise additional long-term funds for expanding the business. This strategy is key to its expansion plans to be funded via a combination of debt and equity. New equity share capital would be raised in the IPO, and the current intention of the Board is to increase the total number of shares on issue by 25%.

ABC summary statement of comprehensive income

ABC (Pte) Ltd: Year ended 31 December:

<table>
<thead>
<tr>
<th>Actual data</th>
<th>Forecast results</th>
</tr>
</thead>
<tbody>
<tr>
<td>20X5 S$m</td>
<td>20X6 S$m</td>
</tr>
<tr>
<td>Revenue</td>
<td>39.6</td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td>(27.6)</td>
</tr>
<tr>
<td>Gross profit</td>
<td>12.0</td>
</tr>
<tr>
<td>Depreciation and amortisation</td>
<td>(3.0)</td>
</tr>
<tr>
<td>Staff costs</td>
<td>(1.4)</td>
</tr>
</tbody>
</table>
Sales and general admin expenses | (1.0) | (1.1) | (1.1) | (1.1) | (1.1)
Other operating expenses | (0.6) | (2.8) | (0.6) | (0.6) | (0.6)
Earnings before interest and tax (EBIT) | 6.0 | 3.8 | 6.4 | 7.0 | 7.1
Finance costs | (2.7) | (2.5) | (2.3) | (2.1) | (1.9)
Profit before tax | 3.3 | 1.3 | 4.1 | 4.9 | 5.2
Taxation | (0.6) | (0.2) | (0.7) | (0.8) | (0.9)
Profit after taxation | 2.7 | 1.1 | 3.4 | 4.1 | 4.3

**Note:** There were exceptional maintenance and repair costs in 20X6, costing S$2.2 million. These were charged in full as an 'other operating expense' for the year.

### Extracts from the cash flow statement

<table>
<thead>
<tr>
<th>Actual data</th>
<th>Forecast results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20X5</td>
</tr>
<tr>
<td>Capital expenditure</td>
<td>4.7</td>
</tr>
<tr>
<td>Reduction in borrowings</td>
<td>(2.3)</td>
</tr>
</tbody>
</table>

### SUMMARY STATEMENT OF FINANCIAL POSITION

<table>
<thead>
<tr>
<th>Actual data</th>
<th>Forecast results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20X5</td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>18.5</td>
</tr>
<tr>
<td>Other working capital (net amount)</td>
<td>3.9</td>
</tr>
<tr>
<td>Non-current assets</td>
<td>29.0</td>
</tr>
<tr>
<td>Total assets minus current liabilities</td>
<td>51.4</td>
</tr>
<tr>
<td>Non-current liabilities</td>
<td></td>
</tr>
<tr>
<td>Borrowings</td>
<td>33.2</td>
</tr>
<tr>
<td>Share capital and reserves</td>
<td>18.2</td>
</tr>
</tbody>
</table>

**Note:** 60% of cash should be considered as surplus to the company's operational requirements with the remainder used to fund current operations and the Lasting Life Project.

### Comparable data

Comparable data for listed companies in the same business sector:

<table>
<thead>
<tr>
<th>Company 1</th>
<th>Company 2</th>
<th>Company 3</th>
<th>Company 4</th>
<th>Average (mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprise value (EV) (S$m)</td>
<td>5,322</td>
<td>3,152</td>
<td>485</td>
<td>283</td>
</tr>
<tr>
<td>EV/EBITDA ratio</td>
<td>8.0 times</td>
<td>6.4 times</td>
<td>10.2 times</td>
<td>15.0 times</td>
</tr>
<tr>
<td>EBITDA growth: 2-year CAGR</td>
<td>13.4%</td>
<td>17.5%</td>
<td>11.0%</td>
<td>16.3%</td>
</tr>
<tr>
<td>EBITDA/Sales Gross</td>
<td>13.0%</td>
<td>11.4%</td>
<td>17.2%</td>
<td>28.2%</td>
</tr>
<tr>
<td>profit/Sales</td>
<td>37.2%</td>
<td>41.4%</td>
<td>36.9%</td>
<td>38.1%</td>
</tr>
<tr>
<td>Beta analysis: 5-year average gearing ratio (debt/debt plus equity)</td>
<td>47.0%</td>
<td>53.0%</td>
<td>50.0%</td>
<td>48.0%</td>
</tr>
<tr>
<td>Equity beta</td>
<td>2.04</td>
<td>1.91</td>
<td>1.88</td>
<td>1.95</td>
</tr>
</tbody>
</table>
Notes
1. EBITDA = Earnings before interest, taxation, depreciation and amortisation
2. 2-year CAGR = Compound annual growth rate over two years
3. EV/EBITDA ratios are current
4. EBITDA/Sales ratios and Gross profit/Sales ratios are for the previous financial year.

As at 31 December 20X6

<table>
<thead>
<tr>
<th></th>
<th>Asia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk-free rate on 20-year bonds</td>
<td>3.0%</td>
</tr>
<tr>
<td>Equity market risk premium (EMRP)</td>
<td>7.2%</td>
</tr>
<tr>
<td>Size premium applicable</td>
<td>1.5%</td>
</tr>
<tr>
<td>Pre-tax cost of debt</td>
<td>6.5%</td>
</tr>
<tr>
<td>Rate of taxation</td>
<td>17.0%</td>
</tr>
<tr>
<td>Long-term expected annual rate of general inflation</td>
<td>3.0%</td>
</tr>
</tbody>
</table>

‘Lasting Life’ project

One project under active consideration by the company is to start producing and selling a range of gourmet high quality grocery items under an ABC specialist line under the brand of ‘Lasting Life’. These would be distributed in all current and new ABC supermarkets.

This range of products will be made under an eight-year licence agreement with a US-based food manufacturer, which owns the rights to the Lasting Life products. The goods will be made in the US under license by the manufacturer. It is not certain whether this licence will be renewed at the end of the eight-year period.

Lasting Life project: estimated cash flows

<table>
<thead>
<tr>
<th></th>
<th>20X7</th>
<th>20X8</th>
<th>20X9</th>
<th>20Y0</th>
<th>20Y1</th>
<th>20Y2</th>
<th>20Y3</th>
<th>20Y4</th>
<th>20Y5</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBITDA</td>
<td>–</td>
<td>1.71</td>
<td>1.89</td>
<td>2.11</td>
<td>2.43</td>
<td>2.86</td>
<td>3.43</td>
<td>4.05</td>
<td>4.78</td>
</tr>
<tr>
<td>EBIT</td>
<td>–</td>
<td>1.55</td>
<td>1.71</td>
<td>1.93</td>
<td>2.22</td>
<td>2.63</td>
<td>3.13</td>
<td>3.70</td>
<td>4.38</td>
</tr>
<tr>
<td>Less: Tax</td>
<td>–</td>
<td>(0.26)</td>
<td>(0.29)</td>
<td>(0.16)</td>
<td>(0.38)</td>
<td>(0.45)</td>
<td>(0.53)</td>
<td>(0.63)</td>
<td>(0.74)</td>
</tr>
<tr>
<td>NOPAT</td>
<td>–</td>
<td>1.29</td>
<td>1.42</td>
<td>1.77</td>
<td>1.84</td>
<td>2.18</td>
<td>2.60</td>
<td>3.07</td>
<td>3.64</td>
</tr>
<tr>
<td>D&amp;A</td>
<td>–</td>
<td>0.16</td>
<td>0.18</td>
<td>0.18</td>
<td>0.21</td>
<td>0.23</td>
<td>0.30</td>
<td>0.35</td>
<td>0.40</td>
</tr>
<tr>
<td>Capex</td>
<td>(1.50)</td>
<td>(0.24)</td>
<td>(0.26)</td>
<td>(0.29)</td>
<td>(0.33)</td>
<td>(0.37)</td>
<td>(0.36)</td>
<td>(0.30)</td>
<td>(0.24)</td>
</tr>
<tr>
<td>Change in NWC</td>
<td>–</td>
<td>(0.30)</td>
<td>(0.04)</td>
<td>(0.05)</td>
<td>(0.06)</td>
<td>(0.08)</td>
<td>(0.10)</td>
<td>(0.06)</td>
<td>(0.04)</td>
</tr>
</tbody>
</table>

Notes
1. EBITDA = Earnings before interest, taxation, depreciation and amortisation
2. EBIT = Earnings before interest and taxation
3. NOPAT = Net operating profit after tax
4. D&A = Depreciation and amortisation charge
5. Capex = Capital expenditure
6. Change in NWC = Change in net working capital. A negative figure indicates an increase in NWC.
7. The goods are manufactured in the US, which has a similar risk profile to Singapore.
8. The investment in the Lasting Life Project is expected to be financed from existing funds.
Required

(a) Estimate the discount rate that should be used for the valuation of ABC. Explain your assumptions.  
(6 marks)

(b) Calculate the forecast future cash flows for ABC. Calculate the current value for the company's equity shares, using your answer in (a). Show your workings.  
(6 marks)

(c) Calculate a net present value for the Lasting Life proposed investment project. Use a discount rate of 12%. Explain how the expiry of the license should be treated in your computation and state all assumptions made.  
(8 marks)

(d) Recommend whether the net present value (NPV) of the Lasting Life investment project should be added to the value of the company's equity, for the purpose of the IPO. Justify your recommendations.  
(4 marks)

Part 2

Fifteen years ago, ABC opened its largest flagship supermarket on Orchard Road and introduced the concept of 'global pavilions' in-store. This means that the store has a French delicatessen pavilion, a sushi and sashimi pavilion, and a Korean street food pavilion. These have been very successful and contributed to the sound operations of ABC over the last ten years. However, no new pavilions have opened in the last ten years. Customer tastes have become more diverse over the last decade or so and research indicates they would like a wider range of pavilions in store. Since 20X4 there has been a steady decline in sales revenue in each of the existing pavilions.

A local subsidiary of a major United Kingdom food hall, Food is Magic, opened next door to the ABC flagship store in 20X4 and this offers an extensive array of gourmet and global food items, as well as benefitting from a well-known global brand. Food is Magic Singapore is very popular with the local population, and it is one of the main impacts on the falling revenues for ABC. The rise of Food is Magic Singapore and the stagnation of the ABC pavilion offering is starting to impact the market perception of ABC as the quality supermarket provider in Singapore.

ABC (Pte) Ltd has approached the international management of Food is Magic with a proposal to acquire the Singapore subsidiary of the Food is Magic Food Hall. This is a separately owned company, and is listed on the SGX as Food is Magic Singapore Limited.

Note: The license project with Lasting Life has not yet been finalised, and should not be considered with this proposal.

Required

(e) Conduct a SWOT analysis on ABC and discuss how a future acquisition of Food is Magic Singapore will address the issues highlighted in the SWOT analysis.  
(6 marks)

(Total = 30 marks)
1. ABC (Pte) Ltd 1: Answer

Mapping of contents

<table>
<thead>
<tr>
<th>Item number</th>
<th>Title</th>
<th>Learning outcome</th>
<th>Textbook chapter</th>
<th>Cognitive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Initial Public Offering; Business valuation; Capital investment; SWOT analysis</td>
<td>Describe the environment in which an organisation operates, including the main economic, legal, political, social, technical, international and cultural forces. Explain, apply, and justify the use of income, asset-based, and market valuation approaches used for investment decisions, business planning, and long-term financial management. Evaluate capital investment appraisal systems. Analyse an organisation's cash flow and working capital requirements. Analyse the current and future financial position of an organisation, using techniques including ratio analysis, trend analysis and cash flow analysis. Apply capital budgeting techniques in the evaluation of capital investment decisions.</td>
<td>3,7</td>
<td>3</td>
</tr>
</tbody>
</table>

Marking Guide

(a) Estimate discount rate for valuation:
- Explain reasoning behind risk adjusted WACC as a suitable discount rate for company valuation
- Calculate the ungeared beta value
- Calculate the regearred beta value
- Estimate cost of equity using CAPM
- State assumption for cost of equity
- Calculate WACC as risk adjusted discount factor

(b) Calculate forecast future cash flows:
- Show actual forecast cash flows from 20X7–X9
- Show forecast cash flows after 20X9
- State all assumptions

Calculate current value for company's equity shares:
- Assume mid-year cash flows and apply discount factor of 12% to calculate present value
- Include estimated borrowings and estimated cash at hand
- Present estimated value of equity

(c) Calculate NPV for proposed Lasting Life investment project:
- Assume mid-year cash flows
- Assume a terminal value of nil
- Explain reason why terminal value is nil
- Show NPV calculation table for years 20X7–20Y5
- Include all workings
Answer points

(a)  DCF-based valuation of the company should be based on a PV of its estimated future cash flows, discounted at the company's estimated weighted average cost of capital (WACC).

To calculate a WACC, an estimate the cost of equity for ABC (Pte) Ltd is needed, even though it is a private company at the moment.

An after-tax cost of debt is also required and an assumption about the proportions of debt and equity in the company's capital structure needs to be made.

Cost of equity

Assumption. The cost of equity can be estimated from the CAPM model after adjusting to the expected gearing level:

It is assumed that the equity beta for ABC can be derived from an average equity beta of other listed companies in the industry. It is also assumed that the most suitable average equity beta is the 5 year industry average of 1.95 where the average company in this industry is funded 50% by debt and 50% by equity.
ABC has a slightly higher gearing level as measured by book value, as follows:

\[ \text{ABC gearing} = \frac{\text{debt}}{\text{debt} + \text{equity}} = \frac{\text{S$30.9m}}{\text{S$19.3m} + \text{S$30.9m}} = 61.55\% \]

Therefore, financial risk must be adjusted from the average industry gearing of 50% to ABC's expected gearing of 61.55%.

This following formula is used to degear the average equity beta and calculate the asset (or ungeared) beta.

\[ \beta_u = \beta_g \left( \frac{V_E}{V_E + V_D(1 - t)} \right) = 1.95 \times \frac{0.5}{0.5 + 0.5 \times (1 - 0.17)} = 1.066 \]

The following formula is then applied once more to regear the asset beta to ABC's expected gearing level:

\[ \beta_g = \beta_u \left[ 1 + \frac{(1 - t) \cdot V_D}{V_E} \right] = 1.066 \times \left[ 1 + (1 - 0.17) \times \frac{30.9}{19.3} \right] = 2.483 \]

**Cost of equity**

**Assumption.** The cost of equity can be estimated from the CAPM model:

\[ K_e = \text{Risk-free rate} + (\text{Ungaeared beta} \times \text{Market risk premium}) + \text{Size premium}. \]

\[ K_e = 3.0 + 2.483 \times 7.2 + 1.5 = 22.37\% \]

Note that a size premium is an addition to the cost of equity using the CAPM, to allow for the relatively small size/private status of the company.

**Weighted average cost of capital**

**Assumption.** The post project gearing level does not significantly differ from the current level as investment is financed from existing funds.

Use this cost of equity and the company's cost of debt to calculate the WACC using the formula below:

\[ \text{WACC} = k_e \left( \frac{V_E}{V_E + V_D} \right) + k_d (1 - t) \left( \frac{V_D}{V_E + V_D} \right) \]

\[ \text{WACC} = 22.37\% \times 38.45\% + 6.5 \times (1 - 0.17) \times 61.55\% = 11.92\% \]

Therefore, the estimated risk adjusted discount factor (WACC) for the purpose of investment appraisal and company valuation is 11.92% (say 12%).

(b) A valuation for ABC (Pte) Ltd, ignoring the IPO, will be based on a discounted value of future cash flows of the company, as estimated in the summary statement of comprehensive income.

Note that only future cash flows are used, so 20X5 and 20X6 cash flows are ignored. An assumption will be needed for future cash flows after 20X9.

**Forecast cash flows, 20X7–20X9**

<table>
<thead>
<tr>
<th></th>
<th>20X7</th>
<th>20X8</th>
<th>20X9</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBIT</td>
<td>6.4</td>
<td>7.0</td>
<td>7.1</td>
</tr>
<tr>
<td>Taxation</td>
<td>(1.1)</td>
<td>(1.2)</td>
<td>(1.2)</td>
</tr>
<tr>
<td>NOPAT</td>
<td>5.3</td>
<td>5.8</td>
<td>5.9</td>
</tr>
<tr>
<td>Add back: Depreciation and amortisation</td>
<td>3.8</td>
<td>4.2</td>
<td>4.5</td>
</tr>
<tr>
<td>Deduct: Capital expenditure</td>
<td>(4.7)</td>
<td>(4.7)</td>
<td>(4.7)</td>
</tr>
<tr>
<td>Increase in working cap</td>
<td>(0.2)</td>
<td>(0.2)</td>
<td>(0.2)</td>
</tr>
<tr>
<td>Free cash flow</td>
<td>4.2</td>
<td>5.1</td>
<td>5.5</td>
</tr>
</tbody>
</table>

*Cost of debt is included in the discount rate hence interest is not deducted as a cash flow.*
Forecast cash flows after 20X9

It is assumed, conservatively, that cash flows after 20X9 will remain unchanged in real terms, but will increase in money terms at the expected annual rate of inflation, which is 3%. It is also assumed that growth in free cash flows in perpetuity will be the same as the average actual and/or expected growth rate over the period 20X6–20X9.

The formula for calculating the PV of cash flows after 20X9 and in perpetuity, using the Gordon growth model will be:

\[
\text{Cash flow in } 20X9 \times \frac{(1.03)}{(0.12 - 0.03)} = 5.5 \times \frac{(1.03)}{(0.12 - 0.03)} = \text{S\$62.9 million}
\]

This gives a 20X9 value, shown in the table below, which must be further discounted to a present value.

Discounting

The risk adjusted WACC of 12% is appropriate as the company is highly geared. Free cash flows will therefore be before interest costs, as using the WACC as the discount factor includes the costs of debt. It is assumed that cash flows in every year will be mid-year cash flows. The effect of using mid-year cash flows instead of end-of-year cash flows is to increase the valuation by a factor of \(1/(1 + r)^{0.5}\).

<table>
<thead>
<tr>
<th></th>
<th>20X7</th>
<th>20X8</th>
<th>20X9</th>
<th>20Y0 onwards</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Free cash flow before interest</strong></td>
<td>4.2</td>
<td>5.1</td>
<td>5.5</td>
<td>62.9</td>
</tr>
<tr>
<td><strong>Discount factor at WACC (12%)</strong></td>
<td>0.945</td>
<td>0.844</td>
<td>0.753</td>
<td>0.753</td>
</tr>
<tr>
<td><strong>Present value (PV)</strong></td>
<td>3.969</td>
<td>4.304</td>
<td>4.142</td>
<td>47.364</td>
</tr>
<tr>
<td><strong>Total PV</strong></td>
<td>59.779</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Discounting free cash flows before interest at the WACC generates a valuation representing total market capitalisation ie the combined value of equity and the value of debt. ABC's outstanding debt at the end of 2016 is S$30.9 million and therefore the estimated value of ABC's equity is S$59.779m – S$30.9m = S$28.879 million.

The estimated cash in hand at the end of 2016 is S$15.6 million. It is stated that 60% of cash should be considered surplus to requirements, which means that S$9.36m could be paid out as dividends to shareholders without affecting the PV valuation.

This increases the valuation of the company's equity substantially, from S$28.879 million to S$38.239 million.

(c) It is assumed that cash flows, with the exception of the capital expenditure at the beginning of the project, are mid-year cash flows.

A much more important assumption is whether to include a terminal value for the project at the end of the eight-year licence period. This is discussed later.
### Total project PV, assuming a terminal value of S$0, is S$8.43 million.

**Assumption: project terminal value**

The licence period expires after eight years. It may be renewed, but may not be. So should an estimate for the expected or possible value of the business at the end of 20Y5 be included in the valuation? If there is a terminal value, then the assumptions to be used in the valuation need to be discussed. The assumptions are listed below:

(i) How much further might the licence be extended?

(ii) What is the probability that the licence will be extended? For example, if it is estimated that there is a 50% probability that the licence will be extended in 20Y5 for eight more years, how would a terminal value be calculated? For example: (50% × S$0) + (50% of NPV of cash flows for the eight years 20Y6–20Z3).

(d) The directors have a duty to provide information in the IPO prospectus which is not misleading and sufficient for investors to make a rational investment decision.

If the Lasting Life Project has not been announced at the time the IPO Prospectus is issued then it should not be included.

If ABC has no intention of proceeding with the project, or is unable to do so for any reason, then it would not be ethical to include details of the project in the IPO prospectus as this would mislead investors and raise expectations.

If the company announces in its prospectus that it intends to undertake a project in the future that will add approximately S$8.4 million to the company's value, this is likely to raise the issue price of new shares. It is important therefore that the directors are reasonably certain that this value will be realised and the decision to proceed with the project has been taken by the directors.

Therefore, in order to include this information in the prospectus the directors are advised to undertake a further detailed project appraisal including cash flows and key assumptions, a feasibility study and a full risk analysis including sensitivity and consideration of all non-financial factors.

Directors must also minute their decision to proceed in the Board minutes and put in motion any financial commitments to undertake the project. A lack of credible data in the prospectus may result in investors having doubts about the reliability of this information, which may result in an unsuccessful IPO.

ABC are advised to maximise IPO value by announcing the Lasting Life Project to investors in a press conference and in the prospectus as soon as there is sufficient certainty the project can successfully proceed and there is sufficient project finance is available. It is also correct governance to include information about the project where an irrevocable decision to proceed has been taken by the directors. This information must include the project cash flows, key assumptions and the specific risks of the Lasting Life Project which investors can then evaluate for themselves and knowingly accept if they choose to invest. This information will increase the attractiveness of the company and the IPO is more likely to succeed.
**Strengths** of ABC pre-acquisition are a stable market base in its specialist area of smaller grocers and medium-sized supermarkets. ABC has sound and stable profitability, sound resources and capabilities, and stable ownership through the family company. The resources and capabilities of ABC would be strengthened though the acquisition of Food is Magic as ABC would have options to combine the two stores into one super pavilion, or close one and strengthen the other, or refurbish both completely in a larger space. By buying a competitor, ABC would be able to create efficiencies across the board operationally, including food production (centralised kitchen), staffing across pavilions, technology and business support, marketing and sales, and there would be a reduction in human resources. There are opportunities for significant efficiency savings in several stages of the supply chain.

The current structure of ABC as a family company is a weakness as it is limiting ABC's desire to expand, either organically or through acquisition. ABC cannot break through into a larger supermarket and specialist store presence, and it needs to expand in order to increase market share and to realise any future savings in resources and capabilities. The resources and capabilities of ABC could potentially be weakened through an ill-thought out and badly managed acquisition and integration process. Integrating two workplace cultures is always difficult, and Food is Magic leadership may be UK-based and/or UK-trained. There will be staffing reductions across the board, so government regulatory authorities and relevant employee trade unions (such as the unions for chefs, retail workers, logistics staff) will need to be involved. Efficiencies will only be gained through the acquisition if the subsequent integration of resources and capabilities is well-managed and successful, otherwise the costs of purchase will not outweigh the long-term cost savings.

Another consideration is lost opportunities in other areas. If ABC chooses to acquire Food is Magic then it needs to weigh up the cost of gaining larger market share, and the subsequent efficiencies gained in the global pavilion/gourmet supermarket area, as opposed to focusing on other areas of growth, such as its other focus on India and China.

**Opportunities** facing ABC are through its potential listing on the SGX in order to facilitate growth. It can use its stable profitability, combined with a listing on a stock exchange, to raise finance to fund acquisitions such as Food is Magic, and to enter new markets such as India and China. There are external opportunities that will be realised from the acquisition. This will include the effective removal of ABC's biggest competitor to the Orchard Road global pavilion store. This should also limit or stop any continued market perception that ABC is no longer a gourmet food market leader, as they will be seen to be purchasing Food is Magic from a position of market strength and leadership. ABC will also have the opportunity to become market leader and a strong base from which to build on market share. They will be purchasing the expertise of the Food is Magic staff and the power of its brand (which is proving successful, as they are making inroads on ABC's long-term domination). ABC could even choose to keep the Food is Magic brand as either a separate concern (this could impact on resource efficiencies) or at the expenses of its own branded pavilion (which would means resources would still be fully integrated).

**Threats** facing ABC are from larger supermarket competitors, such as Food is Magic and their parent company. Family shareholders are also a threat if they do not allow the company to list publically. Failure to successfully enter the markets of India and China is also a threat. The threats associated with any acquisition relate to the size of the market, and the number of either direct competitors or alternatives in the external competitive environment.

Firstly, the market for large-scale global pavilions may not be large enough to sustain the two offerings. If that is the case, then purchasing Food is Magic and creating a super pavilion from the two sites may result in a long-term loss of investment. The number of other global large-scale food pavilions in Singapore is not known. It is possible that alternatives are a bigger risk here than first thought. For example, customers may be choosing to visit a series of independent food and retail outlets (such as a specialist patisserie, a gourmet deli, a coffee roaster, a sushi bar) instead of wanting the experience of all the offerings being in the one place.

---

(e)
2. ABC (Pte) Ltd 2

ABC (Pte) Ltd is a medium-sized supermarket chain in Singapore, specialising in smaller, specialist grocers and traditional supermarkets. The supermarket chain was founded 40 years ago by Tan Ah Lek who is currently the company's Chairman and Chief Executive Officer (CEO). He owns 75% of the company's shares. The other shares are held by members of Tan Ah Lek's family. Mr Tan and these three family members make up the company's Board of four Executive Directors.

ABC's profitability has been sound, but relatively stable, for ten years. Traditionally, the expectation of annual distributions to the family shareholders every year has made it difficult to build cash reserves or invest in large-scale expansion or acquisition. Therefore, the growth of the business has stagnated and opportunities for significant business growth have not been created up to now.

The Board of Directors has consulted with the family shareholders who are aware that the structure of the company will have to change in order for ABC to expand. They have stated they are happy to support the proposed expansion plans by taking less dividends over the immediate future.

After enlisting an investment bank to provide strategic advice on expansion options and consulting with the family shareholders, the Board of Directors has decided to move forward with listing ABC on the Singapore Exchange (SGX).

Corporate governance arrangements

In order to prepare for the Initial Public Offering (IPO) of its shares and a listing on SGX, the Board of Directors has some awareness that substantial changes will have to be made to the corporate governance arrangements in the company. Tan Ah Lek has stated that he intends to remain as Chairman of the Board and CEO of the company, and he wants to make as few changes as possible as the company has operated so successfully in the past.

The investment bank acting for ABC in the matter of the proposed IPO also wants to assess the appetite of institutional investors to purchase shares in ABC. The bank has estimated that the value of all the equity shares in the company after the IPO will be in the region of S$60 million. An official of the bank has met with a major institutional investor who has noted the following specific risks.

Risks

The institutional investor has indicated that ABC would be expected to improve its corporate governance arrangements, but there are also specific issues around risks that could be matters of concern. These are:

(i) The ownership structure of ABC Ltd after the IPO
(ii) The future financing of the company and its capital structure
(iii) The quality of risk management and internal control within the company

The company's Board has indicated that its current intention is to increase the total number of shares in issue by 25%. It is not yet clear whether existing shareholders will sell any of their shares in the IPO.

Required

(a) Recommend six changes to governance arrangements that should be made by ABC before it obtains a listing on SGX. Justify your recommendations. (12 marks)

(b) Explain why each of the three specific investment risks listed is a matter of concern to equity investors in ABC, and what measures might be taken to deal with them. (9 marks)

(c) The Board of ABC has decided to introduce the Six Capitals Model to report on business sustainability prior to its IPO. Consider each of the six types of capital separately and recommend two policies for each type. Ensure your answer is related specifically to ABC's current operations as a specialist grocer and traditional supermarket. (6 marks)

(Total = 27 marks)
## 2. ABC (Pte) Ltd 2: Answer

### Mapping of contents

<table>
<thead>
<tr>
<th>Item number</th>
<th>Title</th>
<th>Learning outcome</th>
<th>Textbook chapter</th>
<th>Cognitive level</th>
</tr>
</thead>
</table>
| 2           | IPO and corporate governance; Related investment risks; Six Capitals Model | Explain the strategic role of a sound corporate governance structure, in balancing short-term financial objectives against medium to long-term business aims, in pursuit of an overall corporate mission. Describe and analyse the general principles of legal and regulatory frameworks within which directors operate on corporate boards in Asia. Explain, apply and analyse the purpose of corporate governance in the Asian context, especially in relation to: Different stakeholder attitudes to the value-added of corporate governance procedures. Analyse business risks, including strategic, operational and financial risks. Define and explain risk in the context of corporate governance. Define and describe management responsibilities in risk management. Explain how business organisations use policies and techniques to mitigate various types of strategic, operational and financial risks. Justify the use of corporate governance mechanisms in ensuring the maintenance of the following forms of capital, from a business continuity and sustainability perspective:  
- Financial capital;  
- Manufactured capital;  
- Human capital;  
- Intellectual capital;  
- Natural capital; and  
- Social capital. | 1, 9, 8, 13, 14 | 3, 2, 3, 3, 2, 2, 3 |
### Marking Guide

<table>
<thead>
<tr>
<th>(a)</th>
<th>Recommend six changes to governance arrangements to be made by ABC (Pte) Ltd before it obtains a listing on the SGX</th>
<th>12 marks</th>
<th>22 mins</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Changes to composition of the Board – discussion and recommendation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Board procedures – discussion and recommendation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Remuneration – discussion and recommendation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Auditors – discussion and recommendation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Risk management and internal control – discussion and recommendation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Disclosures to shareholders and other stakeholders – discussion and recommendation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(b)</th>
<th>Consider the three specific investment risks listed in the question</th>
<th>9 marks</th>
<th>16 mins</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ownership structure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>– Why this is a matter of concern to investors</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>– Measures to be taken to manage this risk</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Future financing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>– Why this is a matter of concern to investors</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>– Measures to be taken to manage this risk</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Risk management and internal control systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>– Why this is a matter of concern to investors</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>– Measures to be taken to manage this risk</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(c)</th>
<th>Evaluate the Six Capitals Model</th>
<th>6 marks</th>
<th>11 mins</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Consider each of the six types of capital separately</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ensure the answer specifically relates to ABC's business operations</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>– Recommend two policies for natural capital</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>– Recommend two policies for human capital</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>– Recommend two policies for intellectual capital</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>– Recommend two policies for social capital</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>– Recommend two policies for manufactured capital</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>– Recommend two policies for financial capital</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL** | | 27 marks | 49 mins |

### Answer points

(a) **Composition of the board**

The Board of Directors currently consists of four executive directors. One of them alone is the founder of the company, the major shareholder, Board Chairman and the CEO. The other three are family members.

Although it is recommended in the Singapore Code of Corporate Governance that the Chairman and CEO should be different individuals, combining the roles is tolerated and will probably be acceptable for ABC. However, investors may wish to see that the company has longer-term plans (e.g., a succession plan) to separate the two roles. Separating the two roles is recommended to promote investor and market confidence in the newly listed enterprise. This in turn will promote share growth.
If, against recommendations, the Chairman/CEO will be the same person, at least 50% of the Board must then be independent Non-executive Directors (NEDs). It's important for ABC to determine how the company will search for NEDs to appoint and how many NEDs will be needed. An external search agency needs to be used so independence is assured. To establish and enhance objectivity as well as mitigate the power held by the family and the Chairman/CEO of the Board, the Board should appoint a Lead Independent Director.

**Board procedures**

Board meetings must be formalised if the company is listed. The Board will have to establish committees: Nominating, Remuneration, and Audit. The Remuneration Committee should comprise all independent directors.

A formal list of matters reserved for the Board will be required to prevent the company's executives, and here the Chairman/CEO, from making important decisions without consulting the rest of the Board.

The Chairman must consider how to assimilate NEDs into the discussions and decision-making processes of the Board. In the past he has been used to dealing with family members on the Board. This will change under a public structure.

Under the new requirements, Board members will expect full, accurate and timely information to enable them to fulfil their responsibilities and the company's corporate governance will be enhanced immediately.

**Remuneration**

Remuneration arrangements will need to change substantially from what they have been in the past in order for the company to obtain a listing. The move from a family-owned company paying distributions into a publicly listed company is very large, and will require large-scale changes.

Individuals can no longer be allowed to decide their own remuneration. The family will not be able to simply allocate annual distributions as they have done so in the past.

There will need to be an independent Remuneration Committee and it should consist entirely of independent directors. It is the Remuneration Committee which should be given the sole task of deciding and approving the remuneration policies of the company.

There will need to be disclosure requirements on remuneration policy and the remuneration for (named) individual directors.

The company will have to establish formal incentive schemes for executive directors and senior executives below Board level.

**Auditors**

In order to show compliance with the listing requirements, the Board must recommend a change in external Auditors to its shareholders. This is because they need to consider whether the current Auditors of ABC (which has not had an Audit as a public company before) are in fact suitable to act as Auditors of a listed public company.

**Risk management and internal control**

The Board needs to be able to confirm that effective risk management and internal control systems are in place. It will have to show that it is considering risk and risk management much more carefully (and formally) than in the past because of the additional requirements of becoming a listed company.
Disclosures to shareholders and other stakeholders

ABC will need to now make extensive disclosures, as required by the Listing Rules and Code of Corporate Governance.

Someone on the new Board of the publically listed ABC – possibly the company secretary – should be given the task of establishing what all the new disclosure requirements will be, and making arrangements to ensure that the company will have systems and procedures in place so that all these requirements can be met.

As just one example, ABC will need to establish whistle-blowing procedures. This will be important as the company is moving from family-owned to publically-owned, so it is unlikely that whistleblowing procedures are in place. Family companies generally grow from the family outwards, so employ related people. As companies grow, and become public, then more third-party entities become involved and the need for formal procedures about reporting, such as whistle-blowing, becomes greater.

ABC will now need an Internal Audit function. The need for an Internal Audit function need not be considered immediately by the Board as a listing requirement, but this will be a future task of the Audit Committee.

(b) Ownership structure

After the IPO, if the number of equity shares is increased by 25% and existing shareholders do not sell any of their shares, the ownership structure will be:

(i) Chairman/CEO: 75/125 = 60%
(ii) Existing family shareholders: 25/125 = 20%
(iii) New equity investors: 25/125 = 20%

Firstly, the share split needs to be reviewed urgently as the company will have a dominant shareholder in the founder/Chairman/CEO. This is too risky as there is too much control placed in the hands of one person.

Secondly, the share split after IPO does not meet Rule 210 as companies with less than S$300 million market capitalisation need to have 25% of post-invitation share capital in public hands. The existing shareholders are family shareholders, so that leaves only 20% available to public investors. This is against the rules, and needs to be urgently reviewed.

Measures to manage risk

Minority shareholders will have to trust the dominant shareholder and hope that he acts in the best interests of all investors, not just himself.

There is a risk that there will not be a sufficient secondary market in the company’s shares. When most shares are held by a long-term investor, the number of shares available for trading on the stock market may be restricted. Investors in equity shares prefer shares that have a liquid secondary market, because they can add to or sell off their investment easily, and the market price should always be a reasonable guide to investor expectations about the future.

Future financing

If the company’s equity is valued at S$60 million and if the debt: equity ratio can be increased to 1.5 times, this means that the company will be able to raise up to S$90 million in debt finance.

This is much more than the current debt level of S$30.9 million (end of 2015), and the company’s current plans to reduce the amount of its debts over the next few years.

Measures to manage risk

Potential investors will be concerned about a large increase in debt which is a risk. Higher debt levels will increase the cost of equity – ie the returns that equity shareholders will want on their investment.
The company may have plans to raise debt finance and use the money to buy back and cancel shares. It is unknown whether this would be an attractive idea to minority shareholders in the company.

**Risk management and internal control systems**

Shareholders may be concerned about the lack of experience of the company's new Board, including the members of its newly-appointed Audit Committee in making assessments of the adequacy of risk management and IC systems. This risk is heightened by the move from a family-owned company to a public company.

**Measures to manage risk**

Investing in a newly-listed company like ABC is potentially a high-risk investment, particularly if the company's Board and management do not have effective risk management systems.

The question is also whether the required disclosures on risk and risk management will be sufficient to reassure shareholders.

Will risk affect the valuation of the company's shares? The major shareholder may suggest that the Board of ABC should make an announcement of its policy on risk appetite in the prospectus documents for its IPO.

(c) **Natural capital.** It's recommended that ABC reduce its waste from groceries across all stores. Waste reduction strategies include bring your own bag reward plans, reducing waste in the presentation of groceries on the shelf, or requiring suppliers to reduce waste in order to keep on supplying ABC. A second recommendation is to take measures across all stores to reduce electricity and water consumption. Now that ABC will be listed it is very important that it is playing its role in environmental protection and sustainability. Supermarkets globally have a bad reputation in this area, and ABC has a chance to emerge as a market leader in waste reduction strategies.

**Human capital.** The chief area for review in the fast moving consumer goods (FMCG) sector relates to management of the supply chain, and ABC is no different. It is recommended that ABC investigates the supply chain of suppliers, to ensure that all human rights are respected by all suppliers (in that no child labour/slave labour is used in production, and that correct award wages paid). If suppliers are found to be in contravention of these rights, then ABC must take action, such as refusing to use the supplier if changes are not made. ABC also needs to review its own payment and treatment of all employees in its supermarkets, to ensure that fair pay and employment conditions are met. It is essential that the relevant government schemes pertaining to conditions, fair pay, health, safety and employment practices are met so that ABC is a good corporate citizen and meeting the requirements of a listed company. ABC should review its health and safety program through its Internal Audit function to ensure it is current and being followed.

**Intellectual capital.** ABC needs to ensure it has a strong and stable system to collect its specialist customer knowledge which is gained through records and logs of all customer purchases made in-store and through any online facility. Extensive use of store cards to collect this information should be promoted by ABC to increase the collection of this information. It is also recommended that ABC ensure its collection of customer information meets all Singaporean privacy legislation and that it is stored securely and in adherence with the law. The second area of intellectual capital is ABC's ownership of specific product brands and consumable sub-brands. ABC should review its treatment of its sub-brands in the areas of shelf placement, price, branding, marketing and supply chain management. This is to ensure it is following best practice and that it is deriving ultimate value from its sub-brands.

**Social capital.** It is recommended that ABC begin a partnership with communities program to increase its social capital impact. Large supermarket brands often have extensive community partnership programs. The introduction of such a program would include giving points for products to schools, sponsorship of local events, and running promotions involving charities. Internally, it is recommended that ABC introduce human resources programs to promote a diverse and resilient
employee culture across all levels of the supermarket. A strong culture will lead to happy employees, leading to better staff retention and increased productivity.

**Manufactured capital.** ABC needs to conduct a large-scale review of its supermarket layout to see if efficiencies can be gained. Layout of aisles and shelves is very important in the supermarket industry. It impacts customer purchasing, suppliers will pay more for certain placement on the shelves, and products needing to be moved can be placed with more prominence. Supermarket layout is integral to the most effective use of resources.

It is also recommended that ABC look at its uptake of technology and its use of technology compared to its competitors. Effective and innovative use of technology – online ordering and delivery, self-check registers etc – is essential for supermarkets to remain competitive.

**Financial capital.** It is recommended that ABC introduce triple bottom line reporting after IPO. This is essential for ABC as a newly listed corporate citizen. It is also recommended that ABC quantify and incorporate the improvements made in corporate governance for its listing. ABC also needs to conduct a supplier contract audit to ensure all relationships are not just financially beneficial, but that contract terms are also legal and ethical.
3. Samba Holdings

Mr Michael Yeung is a director of Samba Holdings (Pte) Ltd, a diverse group of companies in Singapore which has grown primarily through acquisition. Samba Holdings’ strategy is to purchase start-up companies and actively manage them so they reach their growth potential before eventual divestment. Divestment of companies provides the capital to acquire further companies and the Board of Directors of Samba Holdings is continually assessing the strategy, risk and performance of each company in the group and consider the optimal time to divest or change strategic direction.

Michael is currently concerned about the performance and risks attached to two of its subsidiaries, Samba Days (Pte) Ltd and Sunset Oil (Pte) Ltd and is considering whether these companies remain a good strategic fit with the group of companies, or whether a divestment of one or both companies is required. In order to help Michael and the Board of Directors, you have been asked to advise on the main risks for Samba Days (Pte) Ltd and Sunset Oil (Pte) Ltd and advise on suitable risk evaluation models.

Samba Days (Pte) Ltd

Samba Days (Pte) Ltd is a newly-established travel company that plans to sell holidays to customers in Singapore and Malaysia. It was established by a married couple, Mr John Peters and Ms Julie Chen. Both John and Julie have over 20 years’ experience each as travel agents. Julie's career has been based in Singapore and Malaysia. John has travelled the world, including six years based in Brazil, and settled in Singapore with Julie seven years ago. John and Julie have started their new company with the backing of a private investment partner and venture capitalist, Mr Michael Yeung. Mr Yeung is a wealthy private investor with a wide range of business interests. This is his second investment in the travel/tourism industry.

The holidays that Samba Days will sell are to a number of countries in South America, such as Brazil, Peru and Argentina; they include air flights, guided sightseeing tours and accommodation at luxury hotels, with all meals included. John claims that there is no competition within Singapore in the market for selling luxury South American holidays.

Customers buying a holiday will be required to pay 50% of the cost when they make the booking, with the balance payable four weeks before departure. Anyone cancelling two weeks or more before the holiday start date will forfeit half their deposit, and anyone cancelling after that date will forfeit their entire deposit.

Samba Days must pay the airlines and hotels in full two months before the flight date or accommodation date. It will operate using an agent in South America: the agent will arrange local travel, sightseeing tours and guides. The South American agency will be paid a fee by Samba Days at the end of the customer's holiday.

Part 1

Required

(a) Critically evaluate six main risks faced by Samba Days. \( \text{(6 marks)} \)

(b) Taking the six risks identified in (a), rate each risk facing Samba Days using \( 5 \times 5 \) risk rating matrix system. \( \text{(6 marks)} \)

(c) Using the Committee of Sponsoring Organizations of the Treadway Commission's transfer, accept, reduce or avoid (TARA) framework, select and explain the appropriate strategy for dealing with each of the six risks examined in the table in (b). Justify your recommendations. \( \text{(6 marks)} \)
Part 2 – Further information

Sunset Oil (Pte) Ltd

Sunset Oil (Pte) Ltd is Singapore based company which imports and refines oil and distributes oil products. It pays for oil in US dollars, but its operating costs and revenues are in Singapore dollars. The company is financed largely by debt capital and its financial gearing is high. Sunset Oil has a large number of customers, but some of these are major buyers of its products. Investment analysts' reports have suggested that one or two of these major customers may be in financial difficulty.

Digital Lights Ltd

Sunset Oil has recently purchased a major shareholding in Digital Lights (Pte) Ltd. This is a high-technology company that specialises in cutting-edge mining and extraction technologies. Digital Lights has grown successfully in recent years and has now obtained a listing on the main board of the Singapore Exchange.

Required

(d) Critically evaluate four main risks faced by Sunset Oil. (4 marks)

(e) Taking the four risks identified in (a), rate each risk facing Sunset Oil using 5 x 5 risk rating matrix system. (4 marks)

(f) Using the Committee of Sponsoring Organizations of the Treadway Commission's transfer, accept, reduce or avoid (TARA) framework, select and explain the appropriate strategy for dealing with each of the four risks for Sunset Oil from part (e). Justify your recommendations. From your risk analysis of both companies, recommend if the new Samba Holdings group should divest in either Samba Days or Sunset Oil. (5 marks)

(g) Identify how the Board of Directors of Sunset Oil can establish the risk appetite for Digital Lights Ltd and its strategies. (5 marks)

(h) The management of Sunset Oil has decided to use either stress testing or Monte Carlo simulation analysis to assess the risks identified in part (d). Explain, with reference to Sunset Oil, the nature of each of these models for the risk assessment and recommend which model is more appropriate to Sunset Oil and its investment in Digital Lights. (4 marks)

(Total = 40 marks)
3. Samba Holdings: Answer

Mapping of contents

<table>
<thead>
<tr>
<th>Item number</th>
<th>Title</th>
<th>Learning outcome</th>
<th>Textbook chapter</th>
<th>Cognitive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Evaluate risks; Risk ratings system; Managing risks using the transfer, accept, reduce or avoid (TARA) Framework</td>
<td>Analyse business risks, including strategic, operational and financial risks. Explain the concepts of assessing the severity and probability of risk events. Describe and evaluate a risk assessment framework. Apply appropriate risk measurement techniques and explain the application of risk management. Assess the importance and limitations of information for risk management. Explain and assess the importance of risk transfer, avoidance, reduction and acceptance.</td>
<td>11, 14, 13, 14, 15</td>
<td>3, 2, 3, 2, 3</td>
</tr>
</tbody>
</table>

Marking Guide

(a) Critically evaluate main risks faced by Samba Days

Six of the following:
- Lack of diversity
- Economic risk with travel
- Political risk in South America
- Competition risk – bigger players entering same market
- Capital adequacy – covering early losses
- Losing backer before losses can be covered
- Liquidity – cash flow as paying suppliers before receiving payment
- FX risk – operating across currencies
- Problems with travel arrangements
- Disappointing hotels and sight-seeing visits
- Poor customer service
- Financial backer interference

6 marks 11 mins
### (b) For Samba Days, use the six of the risks identified in (a) above

- Use a table format
- Use the risk rating system (Impact × Likelihood/Probability) on a 5 × 5 matrix
- Rate each of the six risks using the risk rating system
- Score for impact × Score for Likelihood = Total score
- Allocate overall risk rating band
- Allocate total control action classification as indicated under risk rating system

6 marks | 11 mins

### (c) For Samba days, use the six risks examined in (a) and (b) Applying the transfer, accept, reduce or avoid (TARA) Framework

- Use a table format
- Include the overall risk rating band
- Include control action classification under risk rating bank
- Select the appropriate strategy under transfer, accept, reduce or avoid (TARA) Framework for each risk
- Explain how the appropriate strategy will operate

6 marks | 11 mins

### (d) Critically evaluate the four main risks faced by Sunset Oil from the following:

- Currency volatility
- Oil price volatility
- Cash flow and liquidity issues resulting from high debt levels
- Cash flow and liquidity issues resulting from customer credit issues

4 marks | 7 mins

### (e) For Sunset Oil, use the four of the risks identified in (d) above

- Use a table format
- Use the risk rating system (Impact × Likelihood/Probability) on a 5 × 5 matrix
- Rate each of the six risks using the risk rating system
- Score for impact × Score for Likelihood = Total score
- Allocate overall risk rating band
- Allocate total control action classification as indicated under risk rating system

4 marks | 7 mins

### (f) For Sunset Oil, use the four risks examined in (a) and (b) Applying the transfer, accept, reduce or avoid (TARA) Framework

- Use a table format
- Include the overall risk rating band
- Include control action classification under risk rating bank
- Select the appropriate strategy under transfer, accept, reduce or avoid (TARA) Framework for each risk
- Explain how the appropriate strategy will operate

5 marks | 9 mins

Recommend if the new Samba Holdings group should divest in either Samba Days or Sunset Oil
Answer points

(a) **Strategic risks**

**The lack of diversity in the business.** There is no information to indicate whether there has been any research into demand for South American holidays among people in Singapore and Malaysia. If demand is less than expected, the company may quickly fail because it earns insufficient revenue. The company is relying on just one line of business – holidays in South America – and this lack of diversity in the business is a serious risk.

**Time needed to become an established business.** A related point is that it may take the business much longer than expected to become established, which means that it may make losses for a longer time than the company can afford.

**Economic risk.** The profitability of the travel business varies with conditions in the domestic and global economies. A downturn in the economy in Singapore and/or Malaysia will affect demand for holidays adversely.

Economic risk may also include the risk of suppliers such as hotels and local tour guides not honouring their obligations should hyper-inflation set in the destination countries.

**Political risk.** There is an ongoing and high risk of political instability on one or more of the South American countries that the company plans to use as a holiday destination. Political instability will deter customers/tourists. Serious political unrest could even make a destination dangerous for visitors.

**Competition risk.** If holidays in South America are successful, there will be a risk that other competitors – perhaps bigger and better-financed tour companies – will enter the market and compete successfully. It is not clear that Samba Days would be successful in responding to competition in its niche market.

**Financial risks**

**Capital adequacy risk.** Samba Days may have insufficient long-term capital (and equity in particular) to cover losses that will be incurred in the early period of the company’s operations. This is mitigated by having a major investor in the background.
**Losing investor.** Having an external backer investor does mitigate the capital adequacy risk, but comes with its own risks. The chief financial risk is that Mr Yeung withdraws his investment prior to the company being able to self-fund.

**Liquidity risk.** Similarly, the company may have difficulties with its cash flow, making payments to airlines and hotels, as well as covering its own fixed costs, before receiving full payment from its customers.

If the company has insufficient capital or insufficient liquidity, it will face a serious risk of insolvency. Again, this risk is currently mitigated by the funds made available by Mr Yeung.

**Credit risk.** Customers may fail to pay for the holidays they have bought. Although there is a non-returnable deposit, this may be insufficient to cover the company's costs.

**Foreign exchange risk.** The company's revenues will presumably be mainly in Singapore dollars or Malaysian ringgit. Its expenses will be largely in South American currencies. There is a risk, albeit remote, that the Singapore dollar or Malaysian ringgit will fall in value against South American currencies. If this happens, profit margins will be squeezed.

**Operational risks**

The success of the business may depend on the company's ability to deliver high-quality holidays that successfully meet customers' expectations. There is a risk that the company's operations will fail to deliver the necessary standard of quality. Operational risks include problems with travel arrangements, such as delayed flights or poor road transport. Other operational risks are disappointing hotels, poor quality sightseeing visits (due perhaps to poor quality guides, poor standard of dealing with customer requests and complaints at the holiday destinations. Basically, the company will be relying on the competence of its agents. There is also risk of daily management issues in that Mr Yeung may want to exert daily management control over Samba Days which could lead to difficulties with John and Julie as the co-owners and daily management team.

(b) Using a $5 \times 5$ risk rating band of appropriate risk rating system (impact $\times$ likelihood) the rating of the identified risks as follows:

<table>
<thead>
<tr>
<th>Risk rating = Impact $\times$ Likelihood</th>
<th>Likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact rating</td>
<td>$\times$</td>
</tr>
<tr>
<td>Minor = 1</td>
<td>Minimal = 1</td>
</tr>
<tr>
<td>Fairly serious = 2</td>
<td>Low = 2</td>
</tr>
<tr>
<td>Serious = 3</td>
<td>Medium = 3</td>
</tr>
<tr>
<td>Very serious = 4</td>
<td>High = 4</td>
</tr>
<tr>
<td>Extremely serious/cessation = 5</td>
<td>Certain = 5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overall risk rating: risk rating bands</th>
<th>Possible control action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal risk, Rating 1–2</td>
<td>Maintain existing controls</td>
</tr>
<tr>
<td>Low risk, rating 3–4</td>
<td>Review existing controls</td>
</tr>
<tr>
<td>Medium risk, rating 6 or 8</td>
<td>Improve existing controls</td>
</tr>
<tr>
<td>High risk, rating 9, 12 or 16</td>
<td>Urgent measures needed to improve existing controls</td>
</tr>
<tr>
<td>Extreme risk, rating 20 or 25</td>
<td>Immediate and urgent action to address issue</td>
</tr>
<tr>
<td>Risk event</td>
<td>Impact</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td><strong>Strategic risks</strong></td>
<td></td>
</tr>
<tr>
<td>Lack of diversity</td>
<td>Serious – 3</td>
</tr>
<tr>
<td>Economic risk with travel</td>
<td>Very serious – 4</td>
</tr>
<tr>
<td>Political risk in South America</td>
<td>Extremely serious – 5</td>
</tr>
<tr>
<td>Competition risk – bigger players entering same market</td>
<td>Fairly serious – 2</td>
</tr>
<tr>
<td><strong>Financial risks</strong></td>
<td></td>
</tr>
<tr>
<td>Capital adequacy – covering early losses</td>
<td>Fairly serious – 2</td>
</tr>
<tr>
<td>Losing backer before losses can be covered</td>
<td>Serious – 3</td>
</tr>
<tr>
<td>Liquidity – cash flow as paying suppliers before receiving payment</td>
<td>Very serious – 4</td>
</tr>
<tr>
<td>FX risk – operating across currencies</td>
<td>Fairly serious – 2</td>
</tr>
<tr>
<td><strong>Operational risks</strong></td>
<td></td>
</tr>
<tr>
<td>Problems with travel arrangements</td>
<td>Fairly serious – 2</td>
</tr>
<tr>
<td>Disappointing hotels and sightseeing visits</td>
<td>Minor – 1</td>
</tr>
<tr>
<td>Poor customer service on tour – reliance on South American agents</td>
<td>Minor – 1</td>
</tr>
</tbody>
</table>
The control actions under the transfer, accept, reduce or avoid (TARA) framework for each of the selected risks are as follows:

<table>
<thead>
<tr>
<th>Risk event</th>
<th>Overall risk rating band</th>
<th>Control action under risk rating band</th>
<th>Transfer, accept, reduce or avoid (TARA) Framework</th>
<th>Explanation/example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of diversity in business operations</td>
<td>High risk</td>
<td>Urgent to improve</td>
<td>Avoid</td>
<td>Take immediate action. Introduce at least one more tour in either South America or preferable across another geographic market. Alternatively, offer another product in the same South American market – for example, day tours for locals.</td>
</tr>
<tr>
<td>Economic risk with travel</td>
<td>Medium risk</td>
<td>Improve</td>
<td>Transfer</td>
<td>Insure the risk. Insurance comes into play here to cover the risk of suppliers not honouring obligations in South America. When transferring a risk, one is always assuming other risks. When assessing the use of insurance, it is important to also consider the credit risk of the counterparty; that is, the insurer. Business diversity will assist to control this risk.</td>
</tr>
<tr>
<td>Political risk in South America</td>
<td>Extreme risk</td>
<td>Immediate and urgent urgent</td>
<td>Transfer and Avoid</td>
<td>Insure against the risk of political unrest and subsequent losses. This is urgent in this area. Insurance premiums are starting to rise for Samba Days. Avoid when it appears unrest is coming – cancel tours or change locations when it looks like political unrest may occur.</td>
</tr>
<tr>
<td>Competition risk – bigger players</td>
<td>Medium risk</td>
<td>Improve</td>
<td>Reduce</td>
<td>Take some action Work on own tours to ensure they are top of the market/best price. Have effective sales and marketing strategy in place.</td>
</tr>
<tr>
<td>entering same market</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk event</td>
<td>Overall risk rating band</td>
<td>Control action under risk rating band</td>
<td>Transfer, accept, reduce or avoid (TARA) Framework</td>
<td>Explanation/example</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>--------------------------</td>
<td>--------------------------------------</td>
<td>---------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Capital adequacy – covering early losses</td>
<td>Low risk</td>
<td>Review</td>
<td>Accept Reduce</td>
<td>Having a financial backer in Michael Yeung drops this risk from high to low. Limit the scale of the business operations, so that the company sells fewer holidays, but at the same time incurs fewer costs in its early days.</td>
</tr>
<tr>
<td>Losing backer before losses can be covered</td>
<td>Medium risk</td>
<td>Improve</td>
<td>Reduce</td>
<td>Ensure reporting and relationship with Michael Yeung is open, transparent and healthy at this early stage.</td>
</tr>
<tr>
<td>Liquidity – cash flow as paying suppliers before receiving payment</td>
<td>Medium risk</td>
<td>Improve</td>
<td>Reduce</td>
<td>Put in place systems for accounts receivable and payable. Carry out credit checks on all suppliers to reduce credit risk for suppliers. Put in place strict payment terms with South American agent.</td>
</tr>
<tr>
<td>FX risk – operating across currencies</td>
<td>Minimal</td>
<td>Maintain</td>
<td>Accept</td>
<td>The cost of insuring against this risk, for example on the futures market, may be too large for a company in its early days. Could investigate hedging if concerned however.</td>
</tr>
<tr>
<td>Problems with travel arrangements</td>
<td>Medium risk</td>
<td>Improve</td>
<td>Reduce</td>
<td>Large scale problems – flight delays or cancellations – can be hard to avoid entirely. Review supplier relationships and use reputable and trusted suppliers in the travel industry.</td>
</tr>
<tr>
<td>Disappointing hotels and sight-seeing visits</td>
<td>Low risk</td>
<td>Review</td>
<td>Accept/reduce</td>
<td>Review supplier relationships and use reputable and trusted suppliers in the travel industry.</td>
</tr>
<tr>
<td>Risk event</td>
<td>Overall risk rating band</td>
<td>Control action under risk rating band</td>
<td>Transfer, accept, reduce or avoid (TARA) Framework</td>
<td>Explanation/example</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------</td>
<td>--------------------------------------</td>
<td>-------------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Poor customer service on tour – reliance on South American agents</td>
<td>Low risk</td>
<td>Review</td>
<td>Accept/reduce</td>
<td>Review supplier relationships and use reputable and trusted suppliers in the travel industry.</td>
</tr>
<tr>
<td>Management interference – Backer exerting unwelcome control</td>
<td>Minimal</td>
<td>Maintain</td>
<td>Accept</td>
<td>Maintain healthy relationship with Michael Yeung and accept risk of this occurring at this stage.</td>
</tr>
</tbody>
</table>

(d) **Currency volatility.** Sunset Oil's expenses are in US dollars, but its operating costs and revenues are in Singapore dollars. The Singapore dollar to US dollar is only marginally stable, ranging between a low of 0.69 and a high of 0.82 over the 5-year period February 14 2013 - February 14 2018, with a range of over 52 weeks of only 0.70–0.77. Whilst this doesn't represent an unstable rate of exchange, it does highlight a risk that the Singapore dollar could fall in value against the US currency. If the Singapore dollar falls against the US dollar, Sunset Oil's profit margins could also fall as a result.

**Oil price volatility.** In times of high oil volatility, oil companies will take measures to stockpile oil, and this is at the cost of investment in other areas such as production improvements, physical capital and new investment. As a result, production, investment and global oil consumption all go down, while oil inventories/stockpiles go up. High oil volatility generally has a significant negative impact on the macroeconomic environment. The decrease in production and general consumption of oil all have an adverse effect on the financials and future growth of Samba Oil.

**Cash flow and liquidity impact resulting from high debt levels.** Sunset Oil is highly geared. A large and unexpected rise in interest rates on borrowing will have a major effect on the bottom line, and may even result in Sunset Oil being unable to meet its liabilities. There is a change that this may result in serious risk of insolvency.

**Cash flow and liquidity impact resulting from customer credit issues.** Sunset Oil has a large number of customers and some of these are major buyers of its products. Major customers not being able to pay their liabilities at all will have a detrimental impact on the cash flow and liquidity of Sunset Oil, and no payment will mean large debts and may result in Sunset Oil being unable to pay its outgoings. If the company has insufficient capital or insufficient liquidity, it will face a serious risk of insolvency. Alternatively payment may be paid, but delayed significantly or made in stages. This will have an impact on cash flow management and Sunset Oil will need to examine how to vary its payment cycles. Finally, financial problems facing its major customers may result in the loss of that customer (with or without funds outstanding).
Using a $5 \times 5$ risk rating band of appropriate risk rating system (impact $\times$ likelihood) the rating of the identified risks as follows:

<table>
<thead>
<tr>
<th>Impact rating</th>
<th>Likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor = 1</td>
<td>Minimal = 1</td>
</tr>
<tr>
<td>Fairly serious = 2</td>
<td>Low = 2</td>
</tr>
<tr>
<td>Serious = 3</td>
<td>Medium = 3</td>
</tr>
<tr>
<td>Very serious = 4</td>
<td>High = 4</td>
</tr>
<tr>
<td>Extremely serious/cessation = 5</td>
<td>Certain = 5</td>
</tr>
</tbody>
</table>

Overall risk rating: risk rating bands

<table>
<thead>
<tr>
<th>Risk event</th>
<th>Impact</th>
<th>Likelihood</th>
<th>Total</th>
<th>Overall rating band</th>
<th>Control action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currency volatility</td>
<td>Fairly serious – 2</td>
<td>Minimal – 1</td>
<td>2</td>
<td>Minimal</td>
<td>Maintain</td>
</tr>
<tr>
<td>Oil price volatility</td>
<td>Serious – 3</td>
<td>High – 4</td>
<td>12</td>
<td>High</td>
<td>Urgent to improve</td>
</tr>
<tr>
<td>Cash flow and liquidity – High debt levels, increase in interest rates</td>
<td>Very serious – 3</td>
<td>Medium – 3</td>
<td>9</td>
<td>High</td>
<td>Urgent to improve</td>
</tr>
<tr>
<td>Cash flow and liquidity impact resulting from customer credit issues</td>
<td>Extremely serious – 5</td>
<td>High – 4</td>
<td>20</td>
<td>Extreme</td>
<td>Immediate and urgent action to address issue</td>
</tr>
</tbody>
</table>
(f) The control actions under the transfer, accept, reduce or avoid (TARA) framework for each of the selected risks are as follows:

<table>
<thead>
<tr>
<th>Risk event</th>
<th>Overall risk rating band</th>
<th>Control action under risk rating band</th>
<th>Transfer, accept, reduce or avoid (TARA) Framework</th>
<th>Explanation/example</th>
</tr>
</thead>
<tbody>
<tr>
<td>FX – currency risk</td>
<td>Minimal</td>
<td>Maintain</td>
<td>Transfer</td>
<td>Sunset Oil would have hedging and insurance strategies to protect against this risk on a daily basis, as it is a known operating risk</td>
</tr>
<tr>
<td>Oil price volatility</td>
<td>High</td>
<td>Urgent to improve</td>
<td>Transfer/Reduce</td>
<td>Sunset Oil would have hedging and insurance strategies to protect against this risk on a daily basis, as it’s a known operating risk Examine current strategies with urgency Examine stockpiles and stockpile strategy for next round of oil price volatility Work with oil industry and oil-supplying companies to look at strategies to reduce volatility moving forward</td>
</tr>
<tr>
<td>Cash flow and liquidity – High debt levels, increase in interest rates</td>
<td>High</td>
<td>Urgent to improve</td>
<td>Reduce</td>
<td>Examine methods of paying down debt as a priority Refinancing to reduce gearing levels Examine backing structure of Michael Yeung to look at paying down debt</td>
</tr>
<tr>
<td>Cash flow and liquidity impact resulting from customer credit issues</td>
<td>Extreme</td>
<td>Immediate and urgent</td>
<td>Reduce/avoid</td>
<td>Put all major customers on payment plans Examine cashflow management in advance of any future issues Inform debtors in advance of any future payment issues Urgently examine diversifying customers and the spreading the risk of a customer failure having a major impact on Sunset Oil operations</td>
</tr>
</tbody>
</table>
Samba Days has a large amount of risks facing the organisation, but they can all be quantified and either reduced, avoided or transferred. The risks facing Samba Days are also indicative of a company in its start-up stage, and supporting emerging companies is a core aim of the Samba Holdings group.

Sunset Oil faces major risks, including currency and oil volatility, but these are standard for the industry. The risk that its major customers are in severe trouble, and the high level of gearing faced by the company, are serious. The high debt levels indicates that Sunset Oil may be a good opportunity to divest, especially if the major customers are about to exit. Divestment of Sunset Oil will, after paying down debt, free up some capital to invest in the expansion of Samba Days, Digital Lights, or other start-up ventures. The divestment of Sunset Oil, and continued investment in Samba Days, is in line with the Samba Holdings strategy to purchase start-up companies and actively manage them so they reach their growth potential.

(g) The Board of Directors of Digital Lights has a responsibility to provide leadership for the company and govern the company in the best interests of its shareholders, and also in the interests of other stakeholders. One aspect of this responsibility is to pursue a strategy of growing profits and returns, but without exposing the company to unacceptable levels of risk. This is a sensitive consideration in the risky world of digital technologies, especially in the ever-changing and high cost mining and extraction industries. The Board has a governance responsibility for risk management on behalf of the shareholders, so it needs to understand the shareholders appetite for risk.

The Board of Directors is responsible for clarifying the risk appetite of Digital Lights Ltd. Management should then be expected to develop company strategy and technology research parameters within the overall objectives set by the Board, including the limits to risk-taking as established by the risk appetite. The Board needs to carefully monitor not only management, but the technology research programs, to ensure that its policy on risk appetite is implemented – and that management and/or current project and research leaders do not expose the company to unacceptable risks. However, the nature of research and implementing new technology is high risk, so management also needs to be empowered to take acceptable risks in pursuit of the company's objectives to achieve its strategic objectives.

Risk appetite needs to be stated in a way that management and project leaders understand it and can apply the Board's risk policy in practice.

There are several ways in which risk appetite may be stated for the purpose of strategic management and technology project management.

The Board may set a limit on the amount of investment Digital Lights will make in one project (at either research and/or building stage). Risk appetite is then expressed as the amount of investment that the company is willing to put at risk for each project.

The Board may set a limit to the maximum amount of losses it will accept in a particular area of its operations and/or project. For example, Digital Lights may specify maximum acceptable losses on a current development project on trialling new extraction methods before deciding to continue or stop the trial, or set maximum acceptable losses in a project run by a foreign subsidiary.

The Board may specify risk appetite in terms of what Digital Lights will not do. For example, a Board may specify Digital Lights not commence any more development projects in Africa for a stated period of time, or that it will not conduct any research in certain areas of extraction technology.

The Board may specify a limit on the amount of debt financing that Digital Lights will raise in order to fund new projects. Risk appetite may therefore be expressed in terms of a maximum financial gearing level, or a maximum ratio of interest costs to operating profit.
Both stress-testing and Monte Carlo simulations are models that can be used to assess business risk. Stress testing can be used to assess how a business or system will perform during a period of crisis. The business is put under severe stress in the model by assuming that an extreme risk event occurs. In the case of Sunset Oil, events that might put the business under stress are a major change in the price of oil and oil products, a big change in the Singapore dollar/US dollar exchange rate, a large and unexpected rise in interest rates on borrowing, or the financial collapse of one or two major customers.

Depending on the results of the stress test, management can consider measures that may be necessary to mitigate the impact on Sunset Oil of a major risk event, namely a range of controls available to manage the loss of one or two major customers.

A mathematical model to assess risk is a Monte Carlo simulation. The purpose of this model is to provide information about all the possible future outcomes of the company's business and the probability that each outcome may occur. Such business planning models are based on assumptions and estimates, which may turn out to be incorrect; actual results may therefore differ from the 'expected value'. In a Monte Carlo simulation model, probabilities are estimated for a number of input variables, and random numbers are assigned to each of these values (based on their estimated probability). The model is used to calculate different possible future outcomes, by generating random numbers for each input variable and measuring the output result. The model calculates hundreds of different possible outcomes.

Simulation modelling such as a Monte Carlo simulation is appropriate for quantitative risks such as changes in oil prices, movements in interest rates, movements in exchange rates, or to model changes such as changes in operational numbers or opening/closing new oil refineries. The range of different possible outcomes can then be analysed statistically, for example as a normal distribution of possible outcomes with a mean and a standard deviation.

Management of Sunset Oil can then consider risk mitigation measures, depending on the risk (volatility of expected profits) shown by the modelling undertaken.

A stress test is more appropriate when management want to assess the impact of the business of an extreme but identifiable event or development. It shows what will happen to the business if an extreme adverse event occurs. In the case of Sunset Oil for example a stress test would be more appropriate if the company wanted to assess the impact of an increase in the oil price from US$50 per barrel to $90 per barrel. In the case of the actual risk scenario facing Sunset Oil in the question, the loss of one or two major customers is a major and extreme event. It has both quantitative and qualitative elements. Therefore, the best model to recommend here is stress testing.
4. Solar Research Systems

Solar Research Solutions (SRS) Ltd is one of Singapore's only local solar energy research, design and installation companies. Most other companies in this industry operating in Singapore are subsidiaries of foreign-owned entities.

The Board of SRS is looking to grow quickly. They are entering a negotiation for a four-year manufacturing and supply contract of their solar panels to Terrific Solar Designs Australia (TSD Australia) Pty Ltd. TSD is an Australian company that designs and manufactures technologically advanced solar panels for the Australian and international market. TSD Australia is a small and innovative company which is privately owned and operated.

The Board of SRS needs to research foreign exchange risks and the process of exchange rate forecasting which will be needed to help them assess the contract with TSD Australia. The proposed contract is for a term of four years.

Exchange rates

Assume the S$/A$ exchange rate in January of Year 1 of the proposed investment is S$0.9700/A$1.

Inflation rates

The rate of inflation in the following 3 years is expected to be 1.4% in Singapore and 1.9% in Australia.

Additional information

Company tax rate is 30% in Australia, payable in the year in which it is incurred.

Tax depreciation allowances are available in Australia on either the straight line or diminishing value method. This is in addition to the TSD Australia contract.

Proposed new project

The proposed new project for SRS is to open a number of solar panel installation branches in Country T, a neighbouring country, which uses currency T$. Market research has already been undertaken at a cost of T$0.3 million. If the proposed project is approved additional logistics planning will be commissioned at a cost of T$0.38 million payable at the start of Year 0.

Other forecast project cash flows

<table>
<thead>
<tr>
<th>T$m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial investment on 1 January Year 1</td>
</tr>
<tr>
<td>Residual value at the end of Year 5</td>
</tr>
<tr>
<td>Net operating cash inflows</td>
</tr>
<tr>
<td>Year 1</td>
</tr>
<tr>
<td>Year 2 and Year 3</td>
</tr>
<tr>
<td>Year 4 and Year 5</td>
</tr>
</tbody>
</table>

Additional information

- The exchange rate for the S$/T$ during the life of the project is forecast to be S$1 = T$2.1145
- Business tax is 20% in Country T, payable in the year in which it is incurred.
- Tax depreciation allowances are available in Country T at 20% a year on a reducing balance basis
- All net cash flows in Country T are to be remitted to Singapore at the end of each year.
- An additional 5% tax is payable in Singapore based on remitted net cash flows net of S$ costs but no tax is payable or refundable on the initial investment and residual value capital flows.
- The project is to be evaluated in S$ at a discount rate of 12% over a 5-year period.
Exchange controls introduced

The government in Country T has recently introduced exchange controls which restrict payments out of Country T. Make no allowance for the investment of funds in Country T. The controls relevant to payments made by local companies to foreign parent companies are as follows:

- In Years 1 and 2, there will be a total ban on dividend payments.
- In Years 3 and 4, companies will be able to pay up to 80% of their after-tax profits in dividends to foreign companies.
- In Year 5 the exchange controls will be completely lifted.

Required

(a) Identify and critically evaluate the types of foreign exchange (FX) risks that will arise from the contract with TSD Australia. Describe how economic risk can be estimated using exchange rate forecasting in this case. (6 marks)

(b) Present a forecast of the exchange rate in the January for Years 2, 3 and 4 (to 4 decimal places). (2 marks)

(c) Show computation of cashflow of SRS project in Country T. (8 marks)

(d) Explain exchange controls. With exchange controls in place, compute the NPV of the project and recommend whether the investment in Country T should be approved. (6 marks)

(e) Recommend two strategies SRS could utilise to manage these exchange controls. (4 marks)

(f) Assuming that SRS managed to successfully apply for a waiver of exchange control under a foreign investment scheme, re-compute the NPV of the project and give your revised recommendations (if appropriate). (4 marks)

(Total = 30 marks)

Mapping of contents

<table>
<thead>
<tr>
<th>Item number</th>
<th>Title</th>
<th>Learning outcome</th>
<th>Textbook chapter</th>
<th>Cognitive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Exchange rate forecasting; Exchange controls; Evaluating overseas investments</td>
<td>Assess the impact of a project upon a company's exposure to foreign exchange, cross-border transactions and economic risk.</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evaluate the significance of exchange controls for a given investment decision and strategies for dealing with restricted remittance.</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Explain, apply, and justify the use of income, asset-based, and market valuation approaches used for investment decisions, business planning, and long-term financial management.</td>
<td>3, 7</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Analyse the current and future financial position of an organisation, using techniques including ratio analysis, trend analysis and cash flow analysis.</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Apply capital budgeting techniques in the evaluation of capital investment decisions.</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Marking Guide

(a) Identify and critically evaluate the types of FX risks that will arise from the contract with TSD Australia:
- Translation risk
- Transaction risk
- Economic risk
- Explain how economic risk can be estimated using exchange rate forecasting in relation to this case

(b) Present a forecast of the exchange rate in January for Years 2, 3 and 4 (to 4 decimal places) using the PPP method

(c) Compute cashflows of SRS's proposed new project in Country T
- Show calculations over the life of the project:
  - Year 0 – Year 5
  - Calculate DCF (PV) in T$
  - Apply exchange rate
  - Calculate NPV in S$
  - Additional logistics planning
  - Show net result NPV in S$
  - Show written down value balance and tax relief
  - State assumptions

6 marks | 11 mins
2 marks | 4 mins
8 marks | 14 mins
### (d)
- Explain an exchange control
- Explain how the controls will impact the project in general terms
- Show how controls will impact the project in specific numerical terms
- Show project NPVs with the exchange controls applied
- Determine whether project should proceed with exchange controls

6 marks 11 mins

### (e)
Recommend two strategies to manage the exchange controls identified in (d):
- Strategies must be lawful to try to counter negative impact of controls
- Determine if non-dividend payments can be made
- Business structuring as controls not applied to payment for goods imported into the country
- TSD Australia could buy quantities of materials and resell elsewhere

4 marks 7 mins

### (f)
- Compute project NPVs without exchange controls
- Compare to project NPV with the exchange controls (from (d))
- Recommend whether the investment should be approved without exchange controls applied

4 marks 7 mins

### TOTAL
30 marks 54 mins

---

**Answer points**

**a) Types of FX risks**

There are three types of foreign exchange (FX) risks generally and two of them will apply to this transaction – transaction risk and economic risk.

**Translation risk** – relates to the financial reporting and consolidated accounts of foreign subsidiaries. If the proposed investment is approved and goes ahead, then the project may present subsidiary and consolidated issues in terms of financial reporting.

**Transaction risk** – this is a short term risk and is the FX risk in the individual business transaction. For example, SRS may incur transaction risk between the sale agreement on the solar panels and the payment date. The individual transaction risk is any exchange rate loss between these two time periods and will also impact on cash flow management within both companies.

**Economic risk** – this is the risk of changes in the exchange rate over the long term due to different economic circumstances in both Singapore and Australia. Both the Singaporean and Australian economies are relatively strong and stable, as is the domestic political landscape in both countries. The dollars are almost on parity. Economic risk is classified as a long-term risk and so is always important in the appraisal in foreign investments.

**Estimating economic risk**

The economic risk posed by this investment seems low based on the stable economies of both countries over the long term of the S$ and the A$.

However, all FX investments carry some economic risk and it needs to be considered when evaluating any proposed investment. To do this it is essential to estimate the exchange rate of the two currencies for each year of the investment.

There is no absolutely reliable method of exchange rate forecasting. Two methods to generate an unbiased estimate include: the purchasing power parity method and the interest rate parity method.
(b) The purchasing power parity method must be used because only the inflation rates have been provided.

The forecast of exchange rates using the purchasing power parity method is as follows:

January Year 2: \(0.9700 \times \frac{1.014}{1.019} = 0.9652\)
January Year 3: \(0.9700 \times \left(\frac{1.014}{1.019}\right)^2 = 0.9605\)
January Year 4: \(0.9700 \times \left(\frac{1.014}{1.019}\right)^3 = 0.9558\)

(c) Cashflow and NPV using the project 2.1145 exchange rate supplied in the Appendix.

<table>
<thead>
<tr>
<th>Year</th>
<th>Initial Investment</th>
<th>Residual value</th>
<th>Cash inflows</th>
<th>Tax at 20%</th>
<th>Tax dep allowance</th>
<th>Net cash remitted</th>
<th>Singapore tax 5%</th>
<th>DCF (PV)</th>
<th>NPV</th>
<th>Exchange rate</th>
<th>NPV in S$</th>
<th>Additional logistics planning (in S$)</th>
<th>Net result NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>(150)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(150)</td>
<td>(W2)</td>
<td>(150)</td>
<td>51</td>
<td>2.1145</td>
<td>24.12</td>
<td>(0.18)</td>
<td>23.94</td>
</tr>
</tbody>
</table>

**Workings**

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost/written down value</th>
<th>Tax relief at 20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – Cost</td>
<td>150.0</td>
<td>6.0</td>
</tr>
<tr>
<td>1 – 20% reducing balance</td>
<td>(30.0)</td>
<td>120.0</td>
</tr>
<tr>
<td>2 – 20% reducing balance</td>
<td>(24.0)</td>
<td>96.0</td>
</tr>
<tr>
<td>3 – 20% reducing balance</td>
<td>(19.2)</td>
<td>76.8</td>
</tr>
<tr>
<td>4 – 20% reducing balance</td>
<td>(15.4)</td>
<td>61.4</td>
</tr>
<tr>
<td>5 – 20% reducing balance</td>
<td>(12.3)</td>
<td>49.1</td>
</tr>
<tr>
<td>Residual value</td>
<td>(40.0)</td>
<td>9.1</td>
</tr>
</tbody>
</table>

**Note:** Residual value in Year 5 is not subject to tax therefore additional tax paid in Year 5 is calculated on the cash flows net of residual value – that is T$102.5m – T$40m = T$62.5m (tax = 5% of T$62.5m = T$3.1m).
(d) An exchange control is a restriction on payments being remitted from a country. They can apply to payments sent overseas denominated in either their domestic currency, or a foreign currency. They are put in place to generally target companies owned by foreign investors.

In this instance, the government of Country T has introduced restrictions on payments being made to a foreign company.

The impact on SRS is that, as the parent company, it is restricted in the amount of cash it can remit from Country T as dividends every year over four years. This restriction will remain until the exchange control regulations are lifted in Year 5.

Therefore, the NPV for Years 1, 2, 3 and 4 of the subsidiary production facility need to be adjusted accordingly. Profits retained in the production facility because of these controls can then be paid out in full as dividends to SRS in Year 5.

<table>
<thead>
<tr>
<th>Year</th>
<th>Net cash flows</th>
<th>Remitted to the parent</th>
<th>Exchange rate</th>
<th>Net cash flows</th>
<th>Discount rate 12%</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T$</td>
<td>T$</td>
<td>S$</td>
<td>S$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>(150.0)</td>
<td>2.1145</td>
<td>(70.9)</td>
<td>1.000</td>
<td>(70.9)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>39.9</td>
<td>0.0</td>
<td>2.1145</td>
<td>0.0</td>
<td>0.893</td>
<td>0.0</td>
</tr>
<tr>
<td>2</td>
<td>45.6</td>
<td>0.0</td>
<td>2.1145</td>
<td>0.0</td>
<td>0.797</td>
<td>0.0</td>
</tr>
<tr>
<td>3</td>
<td>52.8</td>
<td>42.2</td>
<td>2.1145</td>
<td>20.0</td>
<td>0.712</td>
<td>14.2</td>
</tr>
<tr>
<td>4</td>
<td>55.2</td>
<td>44.2</td>
<td>2.1145</td>
<td>20.9</td>
<td>0.636</td>
<td>13.3</td>
</tr>
<tr>
<td>5</td>
<td>99.4</td>
<td>206.5*</td>
<td>2.1145</td>
<td>97.7</td>
<td>0.567</td>
<td>55.4</td>
</tr>
</tbody>
</table>

* = 39.9 + 45.6 (52.8 – 42.2) + (55.2 – 44.2) + 99.4

NPV in S$ (12.00)
Additional logistics planning (0.18)
Net result NPV (S$) (12.18)

The calculations show that, because of the application of exchange controls by Country T, the project should not be undertaken (NPV showing a loss of S$12.18 million).

(e) SRS needs to consider if there are lawful ways to reduce the scale of the problem as revealed by the updated cash flows.

It’s important to highlight that all strategies must be within the law. Strategies that may be utilised are discussed below.

SRS should determine exactly what payments are restricted under the exchange controls. The scenario suggests that only dividend payments are restricted. This means that other payments, such as royalties and management charges, may not be restricted. SRS should examine if payments can be made from the subsidiary by other (lawful) means.

It is not stated whether the project in Country T buys goods from SRS. However, if the venture is structured so that the target company buys the goods then the restrictions do not appear to apply to payment for goods imported into the country. SRS could look at its structuring here. If available, they could possibly increase their transfer prices and therefore increase payments from Country T.

If the proposed new project in Country T supplies raw material and assets that SRS uses elsewhere in the group, then it may be possible for TSD Australia to buy quantities of the materials and resell them to the parent company on credit. SRS would incur a liability but not be required to make payment. The legality of this strategy would be dependent on the laws in Country T and on the company structuring.
### (f) NPV with no exchange controls

<table>
<thead>
<tr>
<th>Year</th>
<th>Net cash flows T$</th>
<th>Exchange rate S$</th>
<th>Net cash flows S$</th>
<th>Discount rate 12%</th>
<th>Present value T$</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>(150.0)</td>
<td>2.1145</td>
<td>(70.9)</td>
<td>1</td>
<td>(150.0)</td>
</tr>
<tr>
<td>1</td>
<td>39.9</td>
<td>2.1145</td>
<td>18.9</td>
<td>0.893</td>
<td>35.6</td>
</tr>
<tr>
<td>2</td>
<td>45.6</td>
<td>2.1145</td>
<td>21.6</td>
<td>0.797</td>
<td>36.3</td>
</tr>
<tr>
<td>3</td>
<td>52.8</td>
<td>2.1145</td>
<td>25.0</td>
<td>0.712</td>
<td>37.6</td>
</tr>
<tr>
<td>4</td>
<td>55.2</td>
<td>2.1145</td>
<td>26.1</td>
<td>0.636</td>
<td>35.1</td>
</tr>
<tr>
<td>5</td>
<td>99.4</td>
<td>2.1145</td>
<td>47.0</td>
<td>0.567</td>
<td>56.4</td>
</tr>
</tbody>
</table>

| NPV   | 51.0             |
| Exchange rate | 2.1145       |
| NPV in S$   | 24.1            |
| Additional logistics planning | (0.38)       |
| **Net result NPV (S$)** | **23.72**     |

The calculations show that, if SRS were able to apply for waiver of exchange control under a foreign investment scheme, then a project which was previously showing a loss (NPV showing a loss of S$12.02 million) with exchange controls applied, could now be undertaken if the waiver was approved.

With the exchange controls removed, the project shows a **positive NPV** and if based on this stable exchange rate shareholders would enjoy a good increase in wealth (S$23.72m).

Based on this appraisal, SRS should **accept the project** and go ahead with the proposal of opening a number of solar panel installation branches in Country T. Given the likelihood that the branches will remain open beyond five years, the NPV may be considerably higher and the residual value may be greater than the figure estimated. Note that it is very likely that the exchange rate will fluctuate, so an NPV should also be calculated based on a changing exchange rate.
5. Sentosa Electronics Ltd

Sentosa Electronics Ltd is a listed company in Singapore. It develops electronics intellectual property and manufactures high quality components which it exports around the world.

The Research and Development department has recently filed patents for a new type of wallpaper (e-wall). The wallpaper is unrolled and applied in a conventional manner and can be patterned and textured in the usual way. However, the wallpaper is coated in microscopic light emitting diodes (LEDs). Once pasted to the wall and connected at one point to a mains power supply, the wallpaper can display images – static pictures, moving pictures (for example to mimic a window with a view) and even Super High Definition television images. It can effectively turn the living room wall into a huge TV screen.

The initial market is expected to be large and consist of wealthy individuals and corporate customers in Eurozone countries in Western Europe.

Although Sentosa manufactures as well as develops intellectual property, its capacity to take on the new, specialised manufacturing processes required in the production of e-wall is limited. It is therefore considering two options:

(i) The acquisition of Fernsehen GmbH ('Fernsehen'), a family-owned German precision electronics manufacturer. E-wall will then be manufactured in Germany and can be sold within Western Europe from the German operation into Germany and other Eurozone countries.

(ii) The acquisition of Crystal Clear Displays Ltd ('Crystal Clear'), a listed company in Singapore that manufactures high-quality audio-visual products. The wallpaper would be manufactured in Singapore and then exported to Western Europe.

The Finance Director of Sentosa has retained you to provide advice on the expansion.

Fernsehen's latest earnings after tax were €21.25 million. This was after corporation tax levied at 15% by the German authorities. Sentosa would pay 17% on profits before tax in Singapore. There is a double tax treaty in place between Singapore and Germany.

Upon acquisition Sentosa expects Fernsehen's returns to grow nominally at a rate of 10% per annum for five years. The Finance Director feels that after five years Fernsehen could be disposed of for an equivalent of approximately S$100 million after tax.

The Finance Director tells you an appropriate Singapore cost of capital to appraise the Fernsehen acquisition is 15% pa.

Inflation is 1% pa in Singapore and 5% pa in Germany. The current exchange rate is S$1: €0.50.

Sentosa’s gearing level of 35% debt to 65% equity is a little higher than the industry average of 25% debt to 75% equity.

**Required**

(a) Estimate the value of the Fernsehen acquisition in Singapore dollars. Explain your calculations and state your assumptions.  
(5 marks)

(b) Advise the finance options Sentosa could consider for acquiring Fernsehen and give your recommendation on the preferred option.  
(5 marks)

(c) Identify three advantages of acquiring Fernsehen.  
(3 marks)

(d) Sentosa is planning ahead for the integration process following the acquisition of Fernsehen. Identify five key risks in the post-acquisition integration work, and determine how each of those risks can be mitigated.  
(5 marks)

(e) Advise the finance options Sentosa could consider for acquiring Crystal Clear and give your recommendation on the preferred option.  
(3 marks)
(f) Identify three advantages of acquiring Crystal Clear. (3 marks)

(g) Explain the principles of the Singapore Code on Take-overs and Mergers that apply in the acquisition of Crystal Clear. State the reasoning behind the code provisions and recommend a bidding strategy that accords with the Singapore Code. (4 marks)

(Total = 28 marks)
## 5. Sentosa Electronics Ltd: Answer

### Mapping of contents

<table>
<thead>
<tr>
<th>Item number</th>
<th>Title</th>
<th>Learning outcome</th>
<th>Textbook chapter</th>
<th>Cognitive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Foreign NPV; Acquisition and financing; Takeover, and Post-acquisition integration</td>
<td><strong>Analyse the aspects of the global environment that affect international trade and finance.</strong> Evaluate the significance of exchange controls for a given investment decision and strategies for dealing with restricted remittance. Assess the impact on a project of a company's exposure to foreign exchange, cross-border transactions and economic risk. Analyse the current and future financial position of an organisation, using techniques including ratio analysis, trend analysis and cash flow analysis. Apply capital budgeting techniques in the evaluation of capital investment decisions. Assess the costs and benefits of alternative sources of financing available within the international equity and bond markets. Demonstrate an understanding of the principal factors influencing the development of the regulatory framework for mergers and acquisitions globally. Evaluate, from a given context, the potential for synergy separately classified as: revenue synergy; cost synergy; and financial synergy. Evaluate strategic considerations in mergers and acquisitions. Assess the impact of an acquisition or merger on the risk profile of the acquirer.</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td>3</td>
</tr>
</tbody>
</table>
## Marking Guide

### (a) Estimate the NPV of the Fernsehen acquisition:
- Explain method behind the calculations
- Convert Euro cash flows into Singapore dollars
- Calculate cash flows
- Apply 15% discount factor
- Present final NPV

5 marks | 9 mins

### (b) Evaluate the finance options for acquiring Fernsehen:
- Debt vs equity evaluation
- Debt – M-M (with tax) to calculate gearing level
- Equity – Use traditional view of capital structure
- Nature of cash flows
- Term of the project
- Foreign target adds extra dimension
- Translation risk and hedging translation risk
- Present final finance option for Fernsehen

5 marks | 9 mins

### (c) Identify three advantages of acquiring Fernsehen.
Three of the following:
- Near to target market
- Natural hedge
- International diversification
- Cross-selling
- Close control to date

3 marks | 5 mins

### (d) Identify the five key risks in the post-acquisition integration work for Fernsehen.
Determine how each of those risks can be mitigated.
Five of the following:
- Key people may leave
- Culture clash
- Systems integration failure/difficulties
- Organisational structure issues
- Lose lessons of history
- Product risk
- Synergies not realised

5 marks | 9 mins

### (e) Evaluate the finance options for acquiring Crystal Clear.
- Same considerations for debt vs equity from (b)
- Term of the project
- Present final finance option for Crystal Clear

3 marks | 5 mins

### (f) Identify three advantages of acquiring Crystal Clear.
Three of the following:
- Local, easy to control
- Post-merge integration easier
- No culture clash
- Low political/country risk

3 marks | 5 mins
(g)  
- Explain the applicable principles of the Singapore Code on Takeovers and Mergers that apply in the acquisition of Crystal Clear.
- State how Sentosa would be in breach of the Code.
- Recommend a bidding strategy for Crystal Clear that accords with the Singapore Code.
- Outline how that bidding strategy would work.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4 marks</td>
<td>7 mins</td>
</tr>
</tbody>
</table>

**Answer points**

(a)  
**Estimation of exchange rates for NPV calculation**

Using purchasing power parity:

<table>
<thead>
<tr>
<th>$1:\€</th>
<th>Predicted rate</th>
<th>$1:\€</th>
</tr>
</thead>
<tbody>
<tr>
<td>At</td>
<td>(1+\€ inflation)</td>
<td>(1+$$ inflation)</td>
</tr>
<tr>
<td>$T_0$ Spot (given)</td>
<td>0.5</td>
<td>$0.5198$</td>
</tr>
<tr>
<td>0.5198</td>
<td>$0.5404$</td>
<td>$T_2$</td>
</tr>
<tr>
<td>0.5404</td>
<td>$0.5618$</td>
<td>$T_3$</td>
</tr>
<tr>
<td>0.5618</td>
<td>$0.5840$</td>
<td>$T_4$</td>
</tr>
<tr>
<td>0.5840</td>
<td>$0.6071$</td>
<td>$T_5$</td>
</tr>
</tbody>
</table>

**NPV calculation**

<table>
<thead>
<tr>
<th></th>
<th>$T_1$</th>
<th>$T_2$</th>
<th>$T_3$</th>
<th>$T_4$</th>
<th>$T_5$</th>
</tr>
</thead>
<tbody>
<tr>
<td>After tax inflow* (\€m)</td>
<td>22</td>
<td>24.2</td>
<td>26.62</td>
<td>29.282</td>
<td>32.2102</td>
</tr>
<tr>
<td>After tax inflow* ($m)</td>
<td>0.5198</td>
<td>0.5404</td>
<td>0.5618</td>
<td>0.5840</td>
<td>0.6071</td>
</tr>
<tr>
<td>Terminal value</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total cash flow ($m)</td>
<td>42.32</td>
<td>44.78</td>
<td>47.38</td>
<td>50.14</td>
<td>53.06</td>
</tr>
<tr>
<td>15% DF</td>
<td>0.870</td>
<td>0.756</td>
<td>0.658</td>
<td>0.572</td>
<td>0.497</td>
</tr>
<tr>
<td>Present value ($m)</td>
<td>36.82</td>
<td>33.85</td>
<td>31.18</td>
<td>28.68</td>
<td>26.07</td>
</tr>
</tbody>
</table>

Net present value = **$206.6m**

**Workings**

1. After the extra tax payment has been made in Singapore, 20% tax will have been paid in total due to the double tax treaty. The pre-tax flow would be $21.25m/(1 – 0.15) = $25m as the $21.25m is after German tax at 15%. Therefore after Singapore tax: $25m × (1 – 0.17) = $20.75m at $T_0$ prices. This grows at 10% per annum over the five years.

2. The approach as required was to calculate the nominal cash flows in Euros, convert to dollars using the forecast exchange rate from (a), then discount at the required rate of return of 15%. The resulting NPV is heavily dependent on the accuracy of the estimate for the terminal value’ at $T_5$, which is a concern given the hi-tech nature of the business.

(b) **Fernsehen – financing decision**

The basic financing options are **debt or equity**.

**M-M (with tax)** would suggest increased gearing will add value by way of tax savings. These tax savings can be passed on to shareholders by way of a higher dividend. The value of these tax savings could be assessed using an **Adjusted Present Value** approach.

However, **Sentosa's gearing level is above the industry average**. If one assumes the industry average gearing level is approximately 'optimal' (ie balancing cheaper debt with increased financial risk), then this might suggest Sentosa is in fact **already too highly geared**.
This in turn suggests, according to the Traditional View of capital structure, that equity should be used to finance the acquisition. This will reduce gearing levels towards the optimum if a share issue is required.

Another practical consideration includes the nature of the cash flows. With a hi-tech product cash flows are likely to be unpredictable, suggesting equity (with no requirement to pay a certain level of return in any one year) might be more appropriate.

The term of the project is another consideration. Sentosa is planning to sell the investment within five years, then matching this investment with a five-year loan may make sense as equity is a permanent expansion in finance.

However, the fact Fernsehen is a foreign target adds an extra dimension. Firstly, financing with Euro denominated debt will reduce translation risk – matching a euro asset with a euro liability.

Euro denominated bank loans, corporate bonds or equity could be raised on the international markets with the assistance of the banking system. However, it may be expensive to do this given the additional advisory fees that would probably need to be paid.

Given the additional advantage of hedging translation risk, a long-term euro denominated loan would be advised in this case, assuming the lender will extend credit given Sentosa is already highly geared.

On balance, financing with equity is recommended: gearing levels are already reasonably high and the unpredictable nature of hi-tech investments makes it unwise to finance with debt which requires predictable, regular cash flows to service it.

(c) The advantages to Fernsehen are as follows:

(i) Near to target market so lower distribution costs, quicker response, flexible response to, and knowledge of changing local conditions.

(ii) Natural hedge: costs in a location where sales are made, hence reduced net foreign exchange exposure

(iii) International diversification reduces exposure to the Singapore economy.

(iv) Cross-selling opportunities – take advantage of Fernsehen's contacts, help Fernsehen break into Asia.

(v) Family owned, so closely controlled to date.

(d) Key risk: Key people may leave

This is particularly an issue if a significant amount of the value of the acquisition relates to the skills, knowledge and networks of those individuals. The consideration could be at least in part contingent upon post-acquisition performance depending on individual employment arrangements eg profit share over the following five years.

The acquisition process could include bonding new staff with new contracts or employment offers. A loyalty bonus of, say, a year's salary could be payable to key people in three years' time and contingent upon performance.

Key risk: Culture clash

This is a particular concern for many reasons. For example Fernsehen is German, so there is a risk that national cultural differences will be evident in management styles, priorities, attitudes and responses. Fernsehen is currently family owned, and upon acquisition would be part of a listed business. This may change priorities – eg more emphasis on consistent growth and reported results. Extensive work will be required, with the Fernsehen senior management team at least, to blend the cultures together. Potentially secondments to Singapore and from Singapore to Germany may help, as well as allowing time and budget for joint management meetings, teambuilding and communication.
Key risk: Systems integration may cost money and/or be problematic

This will reduce business performance. This issue should be thoroughly investigated pre-acquisition and integration costs factored in to negotiations. A tentative project plan should be outlined to ensure the post-acquisition process is as clear and timely as possible.

Key risk: Organisational structure issues

Although the acquisition is an opportunity to refresh the human resources structure of the new business (for example some shared services with Sentosa) there is the risk that personnel are not clear who their line manager is and what their role is. This may increase staff turnover, and reduce motivation and organisational effectiveness. This should be planned pre-acquisition as much as possible in consultation with Fernsehen directors, and communicated swiftly.

Key risk: Losing the lessons of history

There is a risk that the status quo at Fernsehen (arrived at through local experience) may be changed unnecessarily through the integration process – ie ‘throwing out the good with the bad’. Sentosa needs to genuinely listen to and understand the reasoning behind past decisions and practices before changing them.

Key risk: Product risk

The acquisition is predicated on the success of e-wall – this may not become a medium-term cash-generative product. It is high risk. Care needs to be taken to preserve Fernsehen's current customers and product line, as well as continuing to invest in the new products of the future.

Key risk: Synergies factored into the acquisition price may not be realised

Eg cost savings through reduced head-count. The targets for synergies need to be clear and communicated to specific individuals as targets. They should be prominent in the early performance assessment of the acquisition.

(e) Crystal Clear – financing decision

As with Fernsehen, the basic financing options are debt or equity, and the same considerations apply as discussed in (b) above.

There is no foreign exchange element in the case of Crystal Clear, so that can be disregarded.

The term of the project is another consideration. If Sentosa plans to sell Crystal Clear in five years like they are planning to sell Fernsehen, then matching this investment with a five-year loan may make sense as equity is a permanent expansion in finance.

As with Fernsehen, financing with equity is recommended: gearing levels are already reasonably high and the unpredictable nature of hi-tech investments makes it unwise to finance with debt which requires predictable, regular cash flows to service it.

(f) Crystal Clear

The advantages to Crystal Clear are as follows:

(i) Local, easy to control, can easily send own senior managers in.
(ii) Post-merger integration may be easier, cross-transfer of managers and staff.
(iii) Managers and staff in Crystal Clear used to working for Singapore listed company.
(iv) Low political and country risk – familiar language/culture/labour laws.

(g) The Singapore Code on Take-overs and Mergers ('Singapore Code') is issued by the Monetary Authority of Singapore, and administered and enforced by the Securities Industry Council and its secretariat.

The objective of the Singapore Code is to ensure fair and equal treatment of all shareholders in a takeover or merger. The Code does not have the force of law, but major companies are expected to comply with its rules, and may be subject to disciplinary action for any breach of the rules. As
Sentosa and Crystal Clear are both listed, it effectively becomes compulsory to follow the Code in this acquisition.

Two of the general principles in the Singapore Code which are relevant in this case are as follows:

(i) It is the duty of company directors and their advisers to act in the best interests of their company. The directors of the companies involved must have regard to the interests of the shareholders as a whole, and not to their personal or family interests. Therefore the directors of Crystal Clear cannot present the offer in an unduly bad light when relaying the offer to their shareholders.

(ii) When the Board of an offeree company receives a genuine offer, it must not take action to frustrate the offer and must not deny their shareholders the opportunity to decide whether to accept the offer.

A specific rule in the Singapore Code applies in the Crystal Clear acquisition: an offer to acquire a target company must be made initially to the Board of Crystal Clear or its advisers. The offeree company Board is entitled to check and satisfy itself that the offeror will be able to implement the offer in full.

Thus Sentosa would be in breach of the Singapore Code if it were to approach the Crystal Clear shareholders directly. However, Crystal Clear's directors in turn must obtain independent advice about the offer, relay this independent advice to their shareholders, and present the offer objectively so as to be acting in the best interests of all their shareholders.

**Appropriate bidding strategy**

Sentosa should calculate the maximum it is prepared to pay for Crystal Clear, having regard to the post-acquisition cash flows (with synergies) and the impact the acquisition will have on the business and financial risk of the group.

Make a **formal offer for 100% of the share capital**. This offer cannot subsequently be withdrawn without permission from the Securities Industry Council. The Crystal Clear directors are entitled to satisfy themselves that the consideration can be paid in full. The purchase consideration could be in the form of a share-for-share exchange to preserve liquidity and maintain the Crystal Clear shareholders’ involvement in the new combined business. This formal offer should be higher than the current listed share price, but comfortably below the maximum Sentosa is prepared to offer.

The Crystal Clear directors will then either recommend to their shareholders that the offer be accepted (unlikely given that Sentosa’s Marketing Director feels the Crystal Clear Directors are not keen) or mount a defence. In this case, the bid is 'hostile' – the Crystal Clear directors should appoint an independent advisor to review the offer and present their advice to the shareholders along with the directors’ fairly presented view of the offer. They may also seek a ‘white knight’ bidder to put upwards pressure on the offer price.

Depending on the substance of the defence, the **Sentosa directors** should then **increase their offer**, potentially making it more generous but conditional upon the performance of e-wall. This could be facilitated by issuing call options on the Sentosa shares alongside the existing offer. As a specialist type of bid, expert advice should be sought before any such revised offer is made.
6. Mega Bank

Mega Bank Limited, a retail and investment bank, is a listed company. The Chairman and Chief Executive Officer (CEO) is Mr Kevin Cham. The company has a large number of foreign institutional shareholders, who are not happy with the present corporate governance arrangements. In particular they consider that the roles of Chairman and CEO should be separated, and that Kevin wields too much influence over the rest of the Board.

The shareholders are also angry about poor risk management within the bank. Several months ago, the bank suffered extremely large losses on trading due to poor internal controls. Two members of the three-man Risk Committee resigned from the Board soon afterwards. The third member remained on the Board and become the only remaining member of the Risk Committee. She is considered independent by the Mega Bank Board.

At a subsequent annual general meeting, the remaining member of the Risk Committee stood for reappointment as a director, and there was a 42% vote against her. In spite of this, she has announced her intention to remain on the Board, and she has the support of Kevin Cham.

In response to shareholder concerns, the Board has appointed two new Non-executive Directors (NEDs), one of whom is classified as an independent member. The other is the former Chief Risk Officer (CRO) of the bank, who will be appointed to the Risk Committee. The two new additions bring the size of the Board to 18 and the number of independent NEDs to 10, or 11 if the former CRO is considered to be independent. There are currently two members on the Risk Committee, the former CRO of the bank and the original member who was reappointed despite a strong vote against her.

Accusation of major fraud against Mega Bank

The changes to the Board do not appear to have improved risk management at Mega Bank. The Board has now been accused of a major fraud.

The fraud involved the acquisition of shares in a foreign subsidiary, in a fraudulent transaction which had the purpose of hiding major losses and improving the look of the group's statement of financial position. The Chairman said that the transaction had been intended to protect the company's shareholders from loss of value and had been made with the best of intentions. The independent NEDs, including those who were members of both the Audit Committee and the Risk Committee, were unaware of the fraud until it became public knowledge.

Even so, the Chairman and Chief Finance Officer (CFO) have resigned. Two individuals were appointed to the Board to take their places, and the appointments were approved by the shareholders. The Board now again consists of 18 directors in total, ten of whom are independent NEDs. The new Chairman and the existing CEO are now two separate people and both sit on the Board. The old CFO was replaced on the Board by an ordinary director. The new company CFO does not sit on the Board.

On the recommendation of the company's management, the Board has recently decided to make a major investment in a country in the Middle East. Seven of the independent NEDs were critical of the decision, but accepted the majority view of the rest of the Board. Their concern was the political instability in the Middle East country. Management's view was that the potential for high returns justified the political risk.

As part of a wide-ranging review of the corporate governance rules and culture, it has been found that Mega Bank is not always following the spirit of the Code of Corporate Governance, as evidenced by the procedures around the fraud and the cover-up outlined above. As part of this process, the Nominating Committee (NC) has been asked to make recommendations to the Board about the procedure for carrying out performance reviews of the Board, its committees and its individual directors.

Prior to becoming a listed company, the Board did not have any performance reviews.
Required

(a) Comment on the size and composition of the Board in this scenario.  

(b) Recommend one action the Board should take to make improvements. Justify your recommendations.  

(c) Determine the influence independent NEDs have on decision-making by the Board if they make up just over half of the total number of Board members. Ensure your determination refers specifically to the incident of fraud and the decision by the Board to invest in the Middle East.  

(d) The NC has been asked to make recommendations to the Board about the procedure for carrying out performance reviews of the Board, its committees and its individual directors. Identify five actions the NC should take to carry out the request from the Board. Justify your recommendations.  

(e) Identify the criteria to be used in order to evaluate the performance of the board of directors.  

(Total = 22 marks)
6. Mega Bank: Answer

Mapping of contents

<table>
<thead>
<tr>
<th>Item number</th>
<th>Title</th>
<th>Learning outcome</th>
<th>Textbook chapter</th>
<th>Cognitive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Board of Directors; Board responsibilities</td>
<td>Define, explore and compare the roles of the Chief Executive Officer and Board Chairman.</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Describe and assess the purposes, roles and responsibilities of directors and NEDs, including independent directors.</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Explain and evaluate the roles and responsibilities of Boards of Directors and the composition and structure of the Board.</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Explain and analyse the general principles for assessing the performance and remuneration of directors.</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Explain and evaluate the role and purpose of the Nomination Committee in effective corporate governance.</td>
<td>10</td>
<td>3</td>
</tr>
</tbody>
</table>

Marking Guide

(a)  
- Discussion on size of Board
- Commentary on actual size of Board at Mega Bank
- Balance between independent and other directors
- Size and composition of Risk Committee
- Position of CEO/Chairman
- Need to appoint independent director
- Refreshing Board membership
- Comment on balance of Board

6 marks | 11 mins

(b)  
Recommend one of the following actions the Board should take to make improvements:
- Reduce size of Board (keeping 50% independent directors)
- Appoint lead independent director

2 marks | 4 mins

(c)  
- Consider the case of fraud
- Consider the decision by the Board to invest in the Middle East
- Using those two decisions, determine the influence independent NEDs have on decision-making by the Board, if they make up only one-third of the total number of Board members

6 marks | 11 mins

(d)  
Identify five measures the NC should take to carry out the performance reviews of the Board, its Committees and members.
- Carried out by independent consultants
- If no external consultant, then look at NC carrying out reviews
- NC prepare aspects of performance to be reviewed
- Directors invited to give views about their performance
- Measures to ensure NC members not reviewing their own performance

5 marks | 9 mins
Identify the criteria to be used to evaluate the performance of the board of directors. Review size and structure:
- Membership of board committees
- Membership of RC
- Succession planning
- New Board candidate recruitment
- Determine director independence
- Time needed for effective Board membership
- Induction and training needs of directors

Answer points

(a) **Size of the Board**

The Code of Corporate Governance does not specify an optimum size for the Board, but it recognises that the size of the Board may have an impact on its effectiveness. The Board should not be so large that it becomes unwieldy.

Conversely, the Board should not be too small. Collectively the Board members should have sufficient knowledge of the business, skills and experience to lead the business effectively. There should also be a sufficient number of directors so that any changes to the membership of the Board can be made without causing undue disruption.

A Board of 18 members seems large, and so may be unwieldy. Eight directors are either executive directors or non-executives who are not considered to be independent. This too may seem an excessive number for such a large board, it may be important to further increase the number of independent non-executive directors.

**Balance between independent directors and other directors**

The Code of Corporate Governance states that there should be a strong and independent element on the Board, and independent directors should make up at least one half of the Board when the same person is both the Chairman and CEO. The company complies with this provision, since at least ten and possibly 11 out of 18 directors are considered independent.

**The Risk Committee**

Committees of the Board should consist of members who have a diversity of skills, experience and knowledge of the company (and risk). There is currently only one member on the Risk Committee, and she has been criticised by shareholders.

**Positions of Chairman and CEO are held by the same individual**

The Code states that: 'The Chairman and the CEO should in principle be separate persons, to ensure an appropriate balance of power, increased accountability and greater capacity of the Board for independent decision making.'

In practice the same individual may hold both positions, but this creates some risk for the quality of corporate governance due to the existence of a powerful individual.

Where the same person is Chairman and CEO, the Code provides that the Board should appoint a lead independent director. It is not clear from the information provided whether Mega Bank has made this appointment.

**Refreshing and renewing Board membership**

The Chairman should continually think about refreshing the membership of the Board of Directors, bringing in new NEDs with skill sets that will help to provide the Board with the balance of skills, knowledge and experience that it needs. As time progresses and the company's situation changes,
the balance of skills required from Board members will change, and Board membership should be adjusted accordingly (see Guideline 4.2. of the Code of Corporate Governance).

(b) One suggestion is to **reduce the size of the Board** by asking some directors to resign, but of course still maintaining at least 50% of the Board as independent directors. The Chairman and/or the Nominating Committee should possibly identify individuals who should be asked to resign.

A **lead independent director should be appointed**, unless an appointment has already been made.

(c) If they are of sufficiently strong character, NEDs should be able to express their independent arguments in Board meetings, and so might hope to influence decision-making by the Board.

Non-executive directors (both independent and non-independent) should protect the interests of minority shareholders and other stakeholders against the **self-interest of majority shareholders** or management. The Code states that:

'Non-executive directors should:

(a) Constructively challenge and help develop proposals on strategy; and

(b) Review the performance of Management in meeting agreed goals and objectives and monitor the reporting of performance.'

These functions can be performed by NEDs even when independent NEDs are in a minority on the Board.

**Incidence of fraud**

The fraud seems to have been a deliberate act by the company's management, perhaps the Chief Finance Officer and the Board Chairman, to report the company's financial performance incorrectly. The independent NEDs on the Audit Committee did not identify the fraud, and any influence they might have on decisions by the Board would be in response to the fraud after it became known.

The Risk Committee did not identify the fraud, and this is because of its historical problems, and the current two-person structure. The one member of the Risk Committee who was previously on the Committee had a strong vote against her (42%) at the AGM, but was reappointed to the Board and the Committee despite this. The other member is new to the Board, and is the former Chief Risk Officer of the Bank. This should provide some certainty and structure to the Risk Committee moving forward.

**Investment in the Middle East**

The independent NEDs argued against the investment because of the risk involved, but were persuaded by the rest of the Board. They accepted the majority view. Consensus among the Board members is preferable to continual disagreement. Although they 'lost the argument', the independent NEDs will be able to monitor the progress of the investments, and may wish to discuss the matter again at Board level if the investments are affected by political events.

In conclusion, although the independent NEDs cannot 'win the argument' in Board meetings by having a majority of votes, they should still be capable of contributing to discussions and decision-making; and should also be able to monitor management to prevent excesses in their behaviour.

(d) The performance review may be assisted or carried out by **independent consultants**. This will reduce the problem of directors being involved in a review of their own performance. This is particularly important with the history of the Board at Mega Bank up to now.

If an external consultant is not used, the performance evaluation **should be conducted by the nominating committee (NC)**, or should be conducted according to procedures determined by the NC. In the case of Mega Bank, an external consultant is the preferable option.

The NC may prepare a list of aspects of performance that should be reviewed, for the Board as a whole, for each Board committee and for each individual director. Directors may be invited to give
their views about the suggested performance measurement, using questionnaires or interviews where the items discussed should be recorded.

Members of the NC should not be allowed to evaluate their own performance, external independent consultants should be used. The committee may also decide that the performance of the Board Chairman should be evaluated in consultation with all other non-executive directors, and possibly also take in the views of the executive directors. This is particularly important because of the recent case of fraud within Mega Bank and the resulting issues and changes with the Board.

After the evaluation has been made, the NC should consult with the Chairman about the results. Where appropriate they should discuss the need for changes in the composition of the Board.

Note that the Monetary Authority of Singapore strictly controls risk and corporate governance issues for banks in Singapore. Directors of financial institutions are required to meet the fit and proper tests in the governance process.

(e) The NC should consider the following criteria with regards to evaluating the Board of Directors:

(i) Review the size, structure and composition of the board – it is currently at 18, with 10 (a majority) independent NED. A Board of 18 members seems large, and the number of independent directors too minimal.

(ii) Recommend membership of board committees for the individual directors.

(iii) Examine the membership (1) of the Risk Committee, and the independence of the one member (ex-CRO)

(iv) Undertake succession planning for the Chairman, CEO, CFO and other directors.

(v) Search for candidates for the board, and recommend directors for appointment.

(vi) Determine the independence of all directors – this may be improved now the role of Chairman and CEO are now separated.

(vii) Assess whether directors are able to commit enough time for discharging their responsibilities.

(viii) Review induction and training needs of directors.
7. Infopower Ltd 1

Infopower Ltd, a company listed on the Singapore Exchange, operates a number of data centres in a number of Asian cities. See Appendix 1 for an explanation of data centres and the nature of Infopower's business.

Its Board of Directors is led by an individual who is both Chairman and Chief Executive Officer (CEO), who has ambitious plans for growing the company. The company, assisted by investment bank advisers, has been in discussions with a company called Hi-Sun who is located in a neighbouring country, Country Y, Hi-Sun, with a view to agreeing a friendly takeover. Hi-Sun operates data centres similar to those of Infopower, but mainly in Country Y where Infopower does not yet have a business presence. Its shares are quoted on Country Y’s stock exchange (the YSX). Country Y’s Takeover Code is based on Singapore’s Code of Take-overs and Mergers. Hi-Sun has provided Infopower with a summary statement of its current financial position. Infopower’s accountants have also been able to produce an estimate of the incremental free cash flows that would accrue to the company in the event of a takeover, before allowing for any interest costs relating to additional borrowing to finance an acquisition.

Details of Hi-Sun’s most recent statement of financial position (for the year ended 30 June 20X7) and estimates of the free cash flows expected by Infopower from an acquisition of Hi-Sun are provided in Appendix 2. The Chairman/CEO of Infopower believes that these cash flow estimates are conservative, because they do not take into consideration the synergies that should be achievable through an acquisition or merger.

Summary financial statements for Infopower are provided in Appendix 2.

The Chairman/CEO of Infopower is considering an offer price for the shares of Hi-Sun. The company evaluates new capital investments and acquisitions using a weighted average cost of capital of 12%.

He would like to make an all-cash offer for the shares, but is aware that the Board of Directors of Hi-Sun may be prepared to consider an all-share merger arrangement. Guideline company data for comparable listed data centre companies in South East Asia, including Company Y, are provided in Appendix 4. Infopower shares are currently quoted on the Singapore Exchange at S$10 per share, giving a price-earnings ratio of approximately 34.

The Lead Independent Director of Infopower is not convinced by the assurances of the Chairman/CEO that an acquisition of Hi-Sun will be beneficial for the company. She is concerned about his aggressive and bullying manner in dealing with Board colleagues. She is not at all convinced by his assurances that a takeover or merger would help to create a more sustainable business, and wants to know more about what he means by this. As Chairman of the Nominating Committee she is also aware that in the event of a takeover or merger, creating an enlarged company with business interests in Country Y, the Committee may need to review the size and composition of the Infopower Board.

She has also informed the Chairman/CEO that the Board should expect an explanation of how the company may expect to gain synergies from a takeover or merger of Hi-Sun.

Required

(a) Recommend an offer price for the acquisition for cash of shares of Hi-Sun, indicating how you might allow for risk in the price that you recommend. Justify your recommendations. (6 marks)

(b) Explain how the terms of the offer would change if the companies were to agree an all-share merger, at the offer price you have suggested. (4 marks)

(c) Assess the impact of the acquisition on the capital structure and cost of equity of Infopower. (4 marks)

(d) On the assumption that the shares of Hi-Sun are acquired for cash, identify alternative ways in which the acquisition might be financed. Indicate with reasons which of these methods of financing you would recommend. (6 marks)
(e) Evaluate whether an acquisition of Hi-Sun would help to create a more sustainable business for Infopower using the Six Capitals Model. (Do not discuss potential synergy following a takeover of Hi-Sun at this point.)  
(2 marks)

(f) If synergies are to be achieved from an acquisition of Hi-Sun, these will have to be achieved as soon as possible.

Explain why synergies must be achieved within a fairly short time after a merger or acquisition, and identify how synergies may be achieved from an acquisition of Hi-Sun in the following areas:

(i) Procurement
(ii) Operations
(iii) Sales and marketing
(iv) General administration
(v) Research and development

(6 marks)

(Total = 28 marks)
Appendix 1: Data centres explained

What is a data centre?

A data centre is a location that houses computer systems and associated components, such as telecommunications and storage systems. It provides secure and highly-connected environments for IT and telecommunications equipment. It is an enabling environment, in which separate internet data networks meet and are connected, and it can also host bandwidth-intensive applications and internet content on behalf of client organisations.

An essential requirement for a data centre is that the systems of client organisations must never experience an operating failure. A centre will therefore include redundant or backup power supplies, redundant data communications connections, as well as environmental controls (such as air conditioning and fire suppression systems) and security devices.

Note: Redundant items are items of equipment that are not usually required for normal operations, but which are available for use in the event that the operational equipment suffers a malfunction or breakdown.

Infopower data centres

Some companies, such as major telecommunications companies, operate their own data centres. Infopower, however, operates data centres for client organisations that do not have their own centres, such as internet content providers. Its data centres connect content to the internet.

They provide a hardware platform for content providers and an environment for organisations looking to house their bandwidth-intensive hardware and 'mission critical' equipment. Many customers are content providers (games, music, videos etc); but Infopower's customers also include financial services organisations, as well as telecommunications operators that use data centres to connect to internet exchanges, each other and internet content companies. Its data centres connect content to the internet.

Infopower's data centres also offer providers of cloud computing services a means of connecting to customers through private networks, rather than over the public internet.

Infopower's customers agree service contracts for at least one year, but usually longer. This means that the company has regular recurring income, including rental charges for housing customers' equipment, providing connectivity, equipment maintenance and charging for use of power.

Infopower data centre fundamentals

Data centres must have access to high-capacity power supplies. They have Uninterruptible Power Supply (UPS) systems and standby diesel generators capable of supporting the site indefinitely in the event of a failure of power from the electricity grid. It also provides an appropriate environment for IT hardware to operate effectively (including for example cooling and humidity control systems), as well as high levels of security and fire protection.

Centres are supported by engineering teams, on site twenty four hours a day and seven days a week, to manage the facility and provide customer support. Customer equipment is connected to data centre networks by means of physical cable connections, which are installed and managed by Infopower engineers.
Appendix 2: Hi-Sun statement of financial position and estimates of free cash flows from an acquisition by Infopower

Hi-Sun current statement of financial position (summarised) as at 30 June 20X7

All amounts are shown here in Singapore dollars, having been translated from Country Y$ at the rate of Y$90 = S$1.

<table>
<thead>
<tr>
<th></th>
<th>S$m</th>
<th>S$m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-current assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intangible assets</td>
<td>50.4</td>
<td></td>
</tr>
<tr>
<td>Tangible assets</td>
<td>190.3</td>
<td>240.7</td>
</tr>
<tr>
<td>Current assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade receivables and prepayments</td>
<td>10.7</td>
<td></td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>25.5</td>
<td>36.2</td>
</tr>
<tr>
<td>Total assets</td>
<td>276.9</td>
<td></td>
</tr>
<tr>
<td>Equity (50 million shares)</td>
<td>134.3</td>
<td></td>
</tr>
<tr>
<td>Borrowings</td>
<td>107.0</td>
<td></td>
</tr>
<tr>
<td>Current liabilities</td>
<td>35.6</td>
<td></td>
</tr>
<tr>
<td>Total equity and liabilities</td>
<td>276.9</td>
<td></td>
</tr>
</tbody>
</table>

Hi-Sun’s shares currently have a market value of Y$800 per share.

Hi-Sun’s net profit after tax for the year to 30 June 20X7 was S$15.4m.

Use mid-year cash flows

**Estimates of free cash flows from an acquisition by Infopower**

All amounts are shown here in Singapore dollars, having been translated from Country Y$ at the rate of Y$90 = S$1.

<table>
<thead>
<tr>
<th>Year following acquisition</th>
<th>Free cash flow S$m</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>19.1</td>
</tr>
<tr>
<td>2</td>
<td>23.3</td>
</tr>
<tr>
<td>3</td>
<td>27.0</td>
</tr>
<tr>
<td>4</td>
<td>31.0</td>
</tr>
<tr>
<td>5 onwards</td>
<td>Increasing by 7% each year indefinitely</td>
</tr>
</tbody>
</table>
Appendix 3: Summary financial statements for Infopower Ltd

SUMMARY STATEMENT OF PROFIT OR LOSS FOR THE YEAR TO 30 JUNE 20X7

<table>
<thead>
<tr>
<th></th>
<th>S$m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>190.5</td>
</tr>
<tr>
<td>Cost of sales</td>
<td>(83.1)</td>
</tr>
<tr>
<td>Gross profit</td>
<td>107.4</td>
</tr>
<tr>
<td>Sales and marketing costs</td>
<td>(7.4)</td>
</tr>
<tr>
<td>Administrative expenses</td>
<td>(46.0)</td>
</tr>
<tr>
<td>Operating profit</td>
<td>54.0</td>
</tr>
<tr>
<td>Finance costs</td>
<td>(11.8)</td>
</tr>
<tr>
<td>Profit before taxation</td>
<td>42.2</td>
</tr>
<tr>
<td>Taxation</td>
<td>(7.2)</td>
</tr>
<tr>
<td>Profit after taxation</td>
<td>35.0</td>
</tr>
</tbody>
</table>

SUMMARY STATEMENT OF FINANCIAL POSITION AS AT 30 JUNE 20X7

<table>
<thead>
<tr>
<th></th>
<th>S$m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intangible assets</td>
<td>108.6</td>
</tr>
<tr>
<td>Tangible non-current assets</td>
<td>436.4</td>
</tr>
<tr>
<td>Trade receivables and prepayments</td>
<td>34.9</td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>8.1</td>
</tr>
<tr>
<td>Total assets</td>
<td>588.0</td>
</tr>
<tr>
<td>Equity shares and reserves (120 million shares)</td>
<td>224.7</td>
</tr>
<tr>
<td>Borrowings</td>
<td>293.8</td>
</tr>
<tr>
<td>Current liabilities</td>
<td>69.5</td>
</tr>
<tr>
<td>Total equity and liabilities</td>
<td>588.0</td>
</tr>
</tbody>
</table>

Market information

Share price: S$10 per share
P/E ratio: 34
Beta value (equity beta) of Infopower shares: 1.25
Risk-free interest rate: 7%
Market risk premium: 6%
Rate of taxation on company profits: 17%
Use mid-year cash flows

Appendix 4: Comparable company information

The guideline companies are listed data centres in the South East Asian region, including Country Y.

<table>
<thead>
<tr>
<th>Comparable company</th>
<th>Effective tax rate</th>
<th>Market value D/E</th>
<th>Asset beta</th>
<th>Latest trailing P/E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Datastore</td>
<td>17%</td>
<td>27.3%</td>
<td>1.17</td>
<td>32.0</td>
</tr>
<tr>
<td>Perm-a-data</td>
<td>19%</td>
<td>33.6%</td>
<td>1.25</td>
<td>28.6</td>
</tr>
<tr>
<td>E-Store</td>
<td>17%</td>
<td>20.1%</td>
<td>1.26</td>
<td>38.3</td>
</tr>
<tr>
<td>FilingData</td>
<td>15%</td>
<td>45.6%</td>
<td>1.33</td>
<td>37.4</td>
</tr>
</tbody>
</table>
7. Infopower Ltd 1: Answer

Mapping of contents

<table>
<thead>
<tr>
<th>Item number</th>
<th>Title</th>
<th>Learning outcome</th>
<th>Textbook chapter</th>
<th>Cognitive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Share valuation; offer price allowing for risk; Purchase consideration; Financing an acquisition: sources of finance; Effect on gearing and cost of capital; Governance – dominant Chairman/CEO; Composition of board and sustainable business creation; Synergies from an acquisition</td>
<td>Explain, apply, and justify the use of income, asset-based, and market valuation approaches used for investment decisions, business planning, and long-term financial management. Outline the problems of overvaluation of target companies. Compare the various sources of financing available to an organisation, including bank financing, financial instruments and bond, equity and treasury markets. Assess the appropriateness and cost of the various sources of financing available to a company. Assess the impact of an acquisition or merger on the risk profile of the acquirer Define and justify sustainable business value creation. Evaluate, from a given context, the potential for synergy separately classified as: • Revenue synergy; • Cost synergy; and • Financial synergy.</td>
<td>3, 7</td>
<td>3</td>
</tr>
</tbody>
</table>

Marking Guide

(a) Recommend an offer price for the acquisition for cash of shares of Hi-Sun.  
  - Determine method of valuation  
  - NPV calculation  
  - Comparison with market price of shares  
  - Explain how to allow for risk in the price recommended  
  - Price shareholders might accept in takeover bid  
  - Hi-Sun cash and cash equivalents  

  6 marks 11 mins

(b)  
  - Demonstrate how an all share merger will work in this instance  
  - Decide on the suitable arrangement based on market value of Infopower and valuation of Hi-Sun  
  - Explain the procedure for issuing the shares  
  - Determine how the terms of the offer will change  

  4 marks 7 mins
### Answer points

(a) **Determine method of valuation**

A valuation should be produced based on the present value of the cash flows given in the case study. The valuation should be based on the current price of Hi-Sun shares plus a percentage amount to persuade the Hi-Sun shareholders to accept the takeover offer. The valuation produced as a present value (PV) should certainly be compared with the current market value of Hi-Sun shares, but given the cash flow estimates, a PV-based valuation is preferable.

#### Free cash flow valuation: Calculation

<table>
<thead>
<tr>
<th>Year</th>
<th>Cash flow (S$m)</th>
<th>Year 4 PV</th>
<th>DCF factor at 12% (mid-year)</th>
<th>PV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>19.1</td>
<td>0.9449</td>
<td>0.9449</td>
<td>18.0</td>
</tr>
<tr>
<td>Year 2</td>
<td>23.3</td>
<td>0.8437</td>
<td>0.8437</td>
<td>19.7</td>
</tr>
<tr>
<td>Year 3</td>
<td>27.0</td>
<td>0.7533</td>
<td>0.7533</td>
<td>20.3</td>
</tr>
<tr>
<td>Year 4</td>
<td>31.0</td>
<td>0.6726</td>
<td>0.6726</td>
<td>20.9</td>
</tr>
<tr>
<td>Year 5 onwards</td>
<td>+ 7% p.a. 663.4</td>
<td>0.6726</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### (c) Assess the impact of the acquisition on the capital structure and cost of equity of Infopower

- Modigliani and Miller's argument
- CAPM
- Hamada equation
- Calculation using Hamada equation

### (d) Assume the shares of Hi-Sun are acquired for cash.

Identify alternative ways in which the acquisition could be financed
- Indicate which of these methods of financing you would recommend
- State need for additional financing
- Assess debt versus equity with calculations
- Explore issue of shares
- Explore alternatives for borrowing
- Determine currency of borrowing

### (e) Evaluate if the acquisition of Hi-Sun would help to create a more sustainable business of Infopower.

- Define sustainable business
- Determine how to make a sustainable business
- Analyse the Six Capitals Model

### (f) Explain why synergies must be achieved within a fairly short time after a merger or acquisition

Identify how synergies may be achieved from an acquisition of Hi-Sun in the following five areas
- Procurement
- Operations
- Sales and marketing
- General administration
- Research and development
Valuation of Hi-Sun shares = $525.1 million

Or $525.1 million / 50 million shares = $10.50 per share, which equates to ($ × 90) Y $945 per share.

Year 4 PV of cash flows from Year 5 onwards = \( \frac{31.0 \times (1.07)}{(0.12 - 0.07)} = 663.4 \)

Note: This excludes synergies, which when estimated would need to also be included.

Comparison with an earnings based valuation

If the average price to earnings ratio for the industry is 34.1 \( \frac{32.0 + 28.6 + 38.3 + 37.4}{4} \) and is applied to Hi-Sun’s net profit after tax of $15.4m then this suggests a valuation of $483.6m. This represents a 7.2% variation on comparison with the DCF valuation, suggesting the DCF valuation is within a reasonable range.

Comparison with the market price of shares

The valuation produced should be compared with the current market price of Hi-Sun shares ($Y800). One can also consider comparable take-over premiums for recently transacted take-overs for companies listed on the stock exchange for Country Y (YSX) and in Singapore as a check to address the risk of paying too high a price.

The valuation here is above the current market value of Hi-Sun shares by 18% \( \frac{945}{800} = 1.18 \). This may be a sufficient amount to persuade Hi-Sun shareholders to accept a takeover bid.

Allowing for risk

There is some question about the reliability of the cash flow estimates and risk. Adjustments to the cash flows should be made to allow for risk, and to establish a lower starting offer for the shares. Synergies arising from the acquisition will assist in mitigating risk. Foreign exchange risk should be allowed for, and there is a possibility of a fall over time in the value of the Y dollar against the Singapore dollar.

Another suggestion would be to reduce the expected rate of growth in cash flows after Year 4. There is also an opportunity to re-estimate a share price assuming an annual growth rate in cash flows after Year 1 of, say, 5% rather than 7%.

What price might Hi-Sun shareholders accept in a takeover bid?

However, by lowering the price, the likelihood is reduced that Hi-Sun shareholders will accept an offer for their shares.

This means that Infopower would need to consider whether the risk in offering a price of, say, $10.50 or 945 Country Y dollar per share would represent too much of a risk, or whether the fact it is 18% premium over current prices means that this prices is not a risk.

Hi-Sun’s cash and cash equivalents

Hi-Sun’s statement of financial position shows that its cash and cash equivalents are $25.5 million (= $0.51 per share).

If this is surplus cash that Infopower would obtain by acquiring Hi-Sun, this amount should be added to the offer price for the shares.

However, it may be agreed that Hi-Sun can use the cash to pay a special dividend before the takeover, or it may be agreed that the cash should be used to pay back some of Hi-Sun’s debts.

(b) How will the all-share merger work?

One possibility is that Infopower would issue new shares and give them to Hi-Sun shareholders in exchange for their Hi-Sun shares.
A second possibility is that a new parent company for the Infopower/Hi Sun Group will be created, and shareholders in both companies would exchange their shares for shares in the new holding company.

The basis for deciding on the arrangement should be the current market value of Infopower shares and the valuation of Hi-Sun shares for the purpose of a takeover. Logistics of how power will shift also needs to be considered. The case will result in approximately 30% new shares being issued. This may require shareholder approval and consideration of whether the major shareholder’s interest in Infopower will be diluted.

Suppose that Infopower issues new shares in exchange for the shares in Hi-Sun. If the valuation is S$10.50 per share, and the current market price of Infopower shares is S$10 per share, a suggested arrangement would be as follows:

(i) Issue 1 new share in Infopower for every 1 share in Hi-Sun (value S$10 or Y$900 per share)

(ii) In addition, make a cash payment of S$0.50 (Y$45) for every share in Hi-Sun. This would mean including a cash sum of S$25 million in the price. Since Infopower does not have this amount of cash, it would need to arrange a loan.

(c) Impact on financial gearing and cost of capital

If we accept Modigliani and Miller’s (with tax) argument, the cost of capital will be reduced by higher gearing (financing the acquisition by borrowing) and increased by issuing new equity.

Current cost of equity of Infopower

Using the capital asset pricing model, the current cost of equity of Infopower = 7% + 1.25(6%) = 14.5%.

If the company decides to finance the acquisition by borrowing, the cost of equity will rise, even though the weighted average cost of capital may fall.

Alternative view

Lacking further information about the acquisition price for Hi-Sun, it is not possible to calculate an estimated change in the cost of equity or the weighted average cost of capital. That is assuming Hi-Sun’s equity beta is the same as Infopower.

On the other hand, it’s also possible to speculate about what the cost of equity and cost of capital may become, for example by using the Hamada equation: 

\[ \beta_g = \beta_u [1 + (1 - t) V_d / V_e] \]

For example:

Given that the current equity beta of Infopower is 1.25, we can estimate the asset beta (ungeared beta):

Using the Hamada equation:

\[ \beta_u = 1.25 [1 + (1 - 0.17) 293.8/1,200] \]

\[ \beta_u = 1.04 \]

Presuming Infopower would borrow a further S$525.1 million, representing the valuation of Hi-Sun from part (a), then gearing and financial risk will rise, increasing the cost of equity as shareholders would require a higher return for the additional financial risk.

Suppose that the gearing of the company after a takeover, when the finance is obtained by borrowing, rises to (293.8 + 525.1)/1,200 = 0.682. Then, the equity beta of Infopower will rise from its asset beta of 1.04 to 1.63 as shown by the Hamada equation in the following working.

\[ \beta_g = \beta_u [1 + (1 - t) V_d / V_e] \]

\[ \beta_g = 1.04 [1 + (1 - 0.17) 0.682] \]
\[ \beta_s = 1.63 \]

This would mean a cost of equity of 
\[ 7\% + 1.63(6\%) = 16.78\% . \]

(d) **How much financing is needed and from what source?**

The purchase price of Hi-Sun is S$525.1 million is assumed from part (a).

**Need for additional financing**

Since Infopower's statement of financial position shows cash and cash equivalents of only S$8.1 million, it is clear that to make the acquisition, the company will have to raise a substantial amount of new capital.

**Debt versus equity**

The market value of Infopower shares is 120 million \( \times \) S$10 = S$1,200 million.

The balance sheet value of its debt is S$293.8 million. Let's assume that this is the market value of the debt.

Infopower could probably raise the finance by borrowing if it wanted to do so. If it borrowed S$525.1 million, the gearing ratio would rise (assuming no change in the share price) to \( (293.8 + 525.1)/1,200 = 68.2\% . \) Although high, it may be acceptable to Infopower's shareholders relative to competitors in the same industry. An analysis of Appendix 4 provides a D/E range of between 20.1\% and 45.6\% which suggests a debt: equity gearing ratio of 68.2\% is high for this industry and it is unlikely this will be acceptable to stock market investors.

If it issued new shares, the gearing ratio would fall to \( (293.8/(1,200 + 521.1) = 17.7\% . \)

On the basis of the gearing ratio, the Candidate may indicate a preference for equity, for debt or for a combination of the two (perhaps one that keeps the gearing ratio at about the same level). This would have the benefit of using a proportion of cheaper debt finance with its tax advantages whilst keeping gearing at a manageable level, acceptable to the Infopower's investors.

**If recommendation is to issue shares**

If the recommendation is to issue shares, the size of the issue would be quite large relative to the current value of Infopower's equity, based on value of shares of S$1,200 million. The shares could be issued on the SGX, possibly as a rights issue.

**Alternatives for borrowing**

If the recommendation is to borrow the money, there are several borrowing options:

(i) From one or more banks in Singapore
(ii) From one or more banks in Country Y
(iii) By issuing bonds

The company will need to consider the term of the borrowing. In view of the estimated cash flows arising as a result of a takeover (for example, in the form of dividend remittances or payments of internal management charges), a long term of borrowing would be a good option.

The company could borrow for as long a term as possible and then at maturity of this loan seek to refinance by obtaining a new loan.

**Currency of borrowing**

Loans could be denominated in either Singapore dollars or the currency of Country Y (Y$).

The advantage of borrowing in Singapore dollars is that the lending banks would be Singapore banks, with which Infopower may have a good commercial relationship.
The advantage of borrowing in Y$ is that this will reduce the foreign currency risk (= the risk of a fall in the value of the Y$ against the Singapore dollar over time), by matching revenues in Y$ (from Hi-Sun's operations, presumably largely in Y$) and expenditures (loan costs in Y$).

(e) The steps to answering whether the takeover will create a more sustainable company

A sustainable business is one that is capable of continuing successfully into the long-term foreseeable future.

Analyzing the Six Capitals Model

A takeover of Hi-Sun might add to its financial capital, provided the company's value is increased by the takeover.

It could also be argued that the manufactured capital of Infopower would increase, since the company would operate more data centres.

Arguably, human capital might increase because by acquiring Hi-Sun, Infopower would also acquire the skilled staff of Hi-Sun – provided that these do not leave the company after the takeover.

(f) Achieving synergy – Timeframe

If synergies are going to be achieved, this will happen quickly after the acquisition of Hi-Sun. This is because after this time, important stakeholders will no longer be looking for the first round of changes or new initiatives.

Employees are anticipating that the merger will bring change, and are more open to change. Employees of Hi-Sun may initially be positive about integration and new opportunities for career advancement in the enlarged company. This attitude erodes over time as the new ways of working become established.

Suppliers will hope to increase sales by selling more to the enlarged customer base; and they are prepared to expect the customer to 'leverage' its bigger buying power. After two years at most, suppliers will have settled into working with the new Infopower/Hi-Sun company.

Shareholders are more accepting within the first year post-acquisition of investments relating to the acquisition. Subsequently they make their decision about whether they consider the acquisition to have been a success or failure at this time. This time is crucial for shareholders of Infopower.

Customers expect immediate cohesion between the sales forces of the two merged companies, and seek better deals. 'What can you offer me as an enlarged company?' Within two years, customers will have made their decisions about the company's combined data centre products and packages.

Possible synergies

(i) Synergies in procurement

A larger company will buy in larger quantities from its suppliers, provided that procurement operations are centralised.

A larger customer (buyer) should be able to negotiate better purchasing deals, such as lower prices for data centre equipment.

It seems quite possible that Infopower should be able to negotiate new purchasing arrangements with its selected suppliers. However, this will not happen if Hi-Sun retains its own purchasing department for its data centres in Country Y, because Infopower and Hi-Sun would not be using the same suppliers and the same purchasing agreements.

(ii) Synergies in operations

Some takeovers provide opportunities for synergy by combining the operations of the two companies into a single set of operations – for example operating from a single site.
It is not clear that a takeover of Hi-Sun, whose operations are in a different country, will create opportunities for operating synergies.

(iii) **Sales and marketing synergies**

Sales and marketing synergies are likely to be revenue synergies, by providing the sales and marketing teams of the two companies with access to different markets.

For example, the sales team of Infopower may have an opportunity to sell data centre services in Singapore and other countries to Hi-Sun's corporate customers in Country Y. Similarly, the sales team of Hi-Sun may get an opportunity to sell data centre services in Country Y to Infopower's customers.

With the enlarged company it may also be possible to devise new services or new pricing packages for 'bundled' services, which it can offer to all customers.

(iv) **General administration synergies**

General administration synergies are likely to be cost synergies. These are achieved by removing duplicated administrative services and operations ('cutting head office staff').

A takeover of Hi-Sun may not achieve any administration synergies because the two companies are geographically distant, and especially so if their customers speak different languages (the language of Country Y is not known). It is not clear where administrative savings could be made.

If anything, administration costs may rise, due to costs of travelling/communication between Singapore and Country Y.

(v) **Research and development (R&D) synergies**

In companies that spend large amounts of money on R&D, a takeover could achieve cost synergies by combining the R&D units of the two companies.

It is doubtful that Infopower and Hi-Sun have research and development units; therefore, R&D synergies will not be possible.
8. Infopower Ltd 2

Infopower Ltd, a company listed on the Singapore Exchange (SGX), operates a number of data centres in several Asian cities.

Its Board of Directors is led by an individual who is both Chairman and Chief Executive Officer (CEO), who has ambitious plans for growing the company. The company, assisted by investment bank advisers, has been in discussions with a company in Country Y, Hi-Sun, with a view to agreeing a friendly takeover.

Hi-Sun operates data centres similar to those of Infopower, but mainly in Country Y where Infopower does not yet have a business presence. Its shares are quoted on the Country Y Stock Exchange.

At the next Board meeting when a decision about making an offer to acquire Hi-Sun will be discussed, the Chairman of the Audit Committee will make a presentation about risks that would arise with an acquisition of Hi-Sun’s business, and the control activities that the company would need to apply to manage these risks. A list of the key risks that have been identified are shown below.

<table>
<thead>
<tr>
<th>Identified risks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Risk</strong></td>
</tr>
</tbody>
</table>
| 1 | An over-supply of data centre capacity in Country Y could lead to downward pressure on prices. | Lower returns on investment  
Reduction in profitability and cash flow |
| 2 | Electricity providers may not be able to provide sufficient extra capacity in Country Y, where the company expects to expand. | Restricted electricity supply will limit expansion and therefore growth |
| 3 | The complex nature of data centres mean that maintaining an efficient centre requires an understanding of the nature of future changes in customer requirements. | If customer requirements change unexpectedly over time, the company's data centres may have a shortage of the required equipment, which may be in the wrong place, of the wrong size or of the wrong type |
| 4 | Competitors in Country Y may be more successful at providing service to customers. | Slower-than-expected growth in the Hi-Sun business |
| 5 | The company's data centres contain complex electrical and mechanical equipment which must be operated and maintained. | Employees could injure themselves whilst working on site |
| 6 | There may be a ‘clash of cultures’ when Infopower acquires an overseas company. | Loss of operating efficiency  
High labour turnover in Hi-Sun  
Adverse impact on customer service, sales and profitability |
| 7 | New data centres planned for Country Y, or upgrades to existing data centres in Country Y, could suffer from completion delays or cost overruns. | Capacity may not be available when customers demand it  
Returns on investment may not be achieved  
Reduction in future profitability and cash flow |
### Identified risks

<table>
<thead>
<tr>
<th>Risk</th>
<th>Potential impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>The physical infrastructure of a data centre could fail.</td>
</tr>
<tr>
<td></td>
<td>Damage to customers' businesses leading to a reduction in future profitability and cash flow.</td>
</tr>
<tr>
<td></td>
<td>Damage to the company's reputation.</td>
</tr>
<tr>
<td>9</td>
<td>The industry within which the company operates is subject to continual environmental and regulatory challenges.</td>
</tr>
<tr>
<td></td>
<td>Existing systems and infrastructure may not be compatible with future environmental regulatory requirements.</td>
</tr>
<tr>
<td></td>
<td>Regulatory changes could increase the cost of operations.</td>
</tr>
<tr>
<td>10</td>
<td>The market in which the company operates could be subject to material technological or operational change.</td>
</tr>
<tr>
<td></td>
<td>Systems and infrastructure may not be compatible with new technologies or operational techniques, which could limit the company's ability to serve customers.</td>
</tr>
<tr>
<td></td>
<td>Reduction in future profitability and cash flow.</td>
</tr>
<tr>
<td>11</td>
<td>Acquisition may not deliver the expected synergies.</td>
</tr>
<tr>
<td></td>
<td>Loss of business value.</td>
</tr>
<tr>
<td>12</td>
<td>Electricity pricing could be subject to severe volatility, particularly in Country Y.</td>
</tr>
<tr>
<td></td>
<td>Recovery of increased power costs may not be possible or may be delayed. This would reduce profitability and cash flows.</td>
</tr>
<tr>
<td>13</td>
<td>Acquisition may not deliver the expected financial results.</td>
</tr>
<tr>
<td></td>
<td>Financial and strategic goals may not be realised.</td>
</tr>
<tr>
<td>14</td>
<td>Credit risk: Customers may not pay when required to or not at all.</td>
</tr>
<tr>
<td></td>
<td>Reduction in future profitability and cash flows.</td>
</tr>
<tr>
<td>15</td>
<td>Capital risk: The enlarged company may not have an appropriate capital structure.</td>
</tr>
<tr>
<td></td>
<td>May impact shareholder value through effect on the market price of the company's shares.</td>
</tr>
<tr>
<td>16</td>
<td>Foreign currency risk: There may be significant changes in the exchange rate between the Country Y dollar and the Singapore dollar.</td>
</tr>
<tr>
<td></td>
<td>Adverse effect on future cash flows.</td>
</tr>
<tr>
<td></td>
<td>Adverse effect on reported results.</td>
</tr>
</tbody>
</table>

### Required

(a) Review the 16 risks listed in the table above.

Consider 16 of the risks listed across the following categories: strategic, people, operational and financial. For each of the 16 risks, recommend one risk control measure to mitigate the risk. Add to the table format as presented in the case study. (12 marks)

(b) Evaluate all 16 of the listed risks. Determine the potential impact of each risk, and list them in order of severity (from the most severe to the least severe) in a tabular format. Justify your assessment of the risk level. (8 marks)

(Total = 20 marks)
8. Infopower Ltd 2: Answer

Mapping of contents

<table>
<thead>
<tr>
<th>Item number</th>
<th>Title</th>
<th>Learning outcome</th>
<th>Textbook chapter</th>
<th>Cognitive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Risks and risk mitigation measures</td>
<td>Analyse business risks, including strategic, operational and financial risks. Apply appropriate risk measurement techniques and explain the application of risk management. Explain how business organisations use policies and techniques to mitigate various types of strategic, operational and financial risks.</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>14</td>
<td>2</td>
</tr>
</tbody>
</table>

Marking Guide

(a) Review the 16 risks listed in the table above. Consider 16 of these risks across the following four categories:

- Strategic
- People
- Operational
- Financial

For each of the 16 risks selected, use the number of the risk listed in the table in the scenario and then next to the relevant number:

- Recommend one risk control measure
- Justify your recommendation of the risk control measure

12 marks 22 mins

(b) Evaluate all of the 16 risks listed in the table above. In a table format, rank each risk by:

- Determining the seriousness of each risk
- Listing the risks in order of severity (from the most severe to the least severe). (You can use the number of the risk presented in the table to save on writing time.)
- Providing your reasons for the order selected

8 marks 14 mins

TOTAL 20 marks 36 mins
Answer points

(a)

<table>
<thead>
<tr>
<th>Strategic risks</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk</td>
<td>Potential impact</td>
<td>Risk control activities</td>
</tr>
<tr>
<td>1</td>
<td>An over-supply of data centre capacity in Country Y could lead to downward pressure on prices.</td>
<td>Lower returns on investment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reduction in profitability and cash flow</td>
</tr>
<tr>
<td>2</td>
<td>Electricity providers may not be able to provide sufficient extra capacity in Country Y, where the company expects to expand.</td>
<td>Restricted electricity supply will limit expansion and therefore growth</td>
</tr>
<tr>
<td>3</td>
<td>The complex nature of data centres mean that maintaining an efficient centre requires an understanding of the nature of future changes in customer requirements.</td>
<td>If customer requirements change unexpectedly over time, the company's data centres may have a shortage of the required equipment, which may be in the wrong place, of the wrong size, or of the wrong type</td>
</tr>
<tr>
<td>4</td>
<td>Competitors in Country Y may be more successful at providing service to customers.</td>
<td>Slower-than-expected growth in the Hi-Sun business</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>People risks</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk</td>
<td>Potential impact</td>
<td>Risk control activities</td>
</tr>
<tr>
<td>5</td>
<td>The company's data centres contain complex electrical and mechanical equipment which must be operated and maintained.</td>
<td>Employees could injure themselves whilst working on site</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>There may be a ‘clash of cultures’ when Infopower acquires an overseas company.</td>
<td>Loss of operating efficiency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High labour turnover in Hi-Sun</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adverse impact on customer service, sales and profitability</td>
</tr>
</tbody>
</table>
## Operational risks

<table>
<thead>
<tr>
<th>Risk</th>
<th>Potential impact</th>
<th>Risk control activities</th>
</tr>
</thead>
</table>
| 7 New data centres planned for Country Y, or upgrades to existing data centres in Country Y, could suffer from completion delays or cost overruns. | Capacity may not be available when customers demand it  
Returns on investment may not be achieved  
Reduction in future profitability and cash flow | Employ skilled and experienced staff  
Each major project should be planned in detail and managed by a project committee and project manager  
Apply project management procedures and controls over completion times and costs |
| 8 The physical infrastructure of a data centre could fail.         | Damage to customers’ businesses leading to a reduction in future profitability and cash flow  
Damage to the company’s reputation | Design data centres to a high standard to limit the risk of failure  
Establish high operational standards for maintenance, testing and staff training  
Establish a disaster recovery plan to implement in the event of a failure |
| 9 The industry within which the company operates is subject to continual environmental and regulatory challenges. | Existing systems and infrastructure may not be compatible with future environmental regulatory requirements.  
Regulatory changes could increase the cost of operations | Establish a senior management committee with responsibility for monitoring regulatory change and compliance with environmental regulations; work closely with regulators  
Obtain formal accreditation from an established environmental standards body (such as the International Standards Organisation) |
| 10 The market in which the company operates could be subject to material technological or operational change. | Systems and infrastructure may not be compatible with new technologies or operational techniques, which could limit the company’s ability to serve customers  
Reduction in future profitability and cash flow | Close monitoring of developments in the industry  
Work closely with customers to understand their strategies and changing needs  
Ensure attendance at relevant industry events to monitor developments and opinion |
| 11 Acquisition may not deliver the expected synergies.             | Loss of business value                                                                                   | Prepare detailed plans for the achievement of synergies  
Allocate individual management responsibilities for the implementation of those plans  
Ensure regular reporting/feedback of performance |
### Financial risks

<table>
<thead>
<tr>
<th>Risk</th>
<th>Potential impact</th>
<th>Risk control activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Electricity pricing could be subject to severe volatility, particularly in Country Y.</td>
<td>Recovery of increased power costs may not be possible or may be delayed. This would reduce profitability and cash flows</td>
</tr>
<tr>
<td>13</td>
<td>Acquisition may not deliver the expected financial results.</td>
<td>Financial and strategic goals may not be realised</td>
</tr>
<tr>
<td>14</td>
<td>Credit risk: Customers may not pay when required to or not at all.</td>
<td>Reduction in future profitability and cash flows</td>
</tr>
<tr>
<td>15</td>
<td>Capital risk: The enlarged company may not have an appropriate capital structure.</td>
<td>May impact shareholder value through effect on the market price of the company's shares</td>
</tr>
<tr>
<td>16</td>
<td>Foreign currency risk: There may be significant changes in the exchange rate between the Country Y currency and the Singapore dollar.</td>
<td>Adverse effect on future cash flows, Adverse effect on reported results</td>
</tr>
</tbody>
</table>

(b) **Most severe to least severe (1 being the most severe; 16 being the least severe)**

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Risk</th>
<th>Potential impact</th>
<th>Rationale for severity ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – most severe</td>
<td>Acquisition may not deliver the expected synergies.</td>
<td>Loss of business value.</td>
<td>The most severe risk is the failure of a successful integration of Hi-Sun into the Infopower group due to planned synergies and financial returns not being achieved. This will have implications for the share price and business value. This is shared with number 2 below, which could also be ranked as 1. The acquisition failing has the potential for the biggest loss in relation to the acquisition project itself.</td>
</tr>
<tr>
<td>Risk Number</td>
<td>Description</td>
<td>Financial Impact</td>
<td>Strategic Impact</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
<td>------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>2</td>
<td>Acquisition may not deliver the expected financial results.</td>
<td>Financial and strategic goals may not be realised.</td>
<td>The most severe risks are the failure of a successful integration of Hi-Sun into the Infopower group due to planned synergies and financial returns not being achieved. This will have implications for the share price and business value. This is shared with number 1 below, which could also be ranked as 2. The acquisition failing has the potential for the biggest loss in relation to the acquisition project itself.</td>
</tr>
<tr>
<td>3</td>
<td>There may be a 'clash of cultures' when Infopower acquires an overseas company.</td>
<td>Loss of operating efficiency. High labour turnover in Hi-Sun. Adverse impact on customer service, sales and profitability.</td>
<td>A large-scale culture clash has a high probability of impacting on the success of failure of the acquisition, which is why it has been ranked as 3. It is possible to plan for differences in cultural practices when planning an acquisition, so this risk can be mitigated to a certain extent.</td>
</tr>
<tr>
<td>4</td>
<td>Capital risk: The enlarged company may not have an appropriate capital structure.</td>
<td>May impact shareholder value through effect on the market price of the company's shares.</td>
<td>Capital risk has the probability of impacting on the success of failure of the acquisition, which is why it has been ranked as 4. However, risk mitigation techniques are available to control this risk to a certain extent which reduces it down to 3.</td>
</tr>
<tr>
<td>5</td>
<td>Electricity pricing could be subject to severe volatility, particularly in Country Y.</td>
<td>Recovery of increased power costs may not be possible or may be delayed. This would reduce profitability and cash flows.</td>
<td>This is still a fairly major risk to the operation's profitability and cash flows within the market of Country Y. It has a small potential to add to the ultimate failure of the acquisition if prices rise dramatically and risk controls have not been adequately put in place (such as derivatives).</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>The physical infrastructure of a data centre could fail.</td>
<td>Damage to customers’ businesses leading to a reduction in future profitability and cash flow. Damage to the company’s reputation.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Electricity providers may not be able to provide sufficient extra capacity in Country Y, where the company expects to expand.</td>
<td>Restricted electricity supply will limit expansion and therefore growth.</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Competitors in Country Y may be more successful at providing service to customers.</td>
<td>Slower-than-expected growth in the Hi-Sun business.</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>New data centres planned for Country Y, or upgrades to existing data centres in Country Y, could suffer from completion delays or cost overruns.</td>
<td>Capacity may not be available when customers demand it. Returns on investment may not be achieved. Reduction in future profitability and cash flow.</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>An over-supply of data centre capacity in Country Y could lead to downward pressure on prices.</td>
<td>Lower returns on investment. Reduction in profitability and cash flow.</td>
</tr>
<tr>
<td>11</td>
<td>The company’s data centres contain complex electrical and mechanical equipment which must be operated and maintained.</td>
<td>Employees could injure themselves whilst working on site.</td>
<td>Employee injury is a medium risk but with a high probability, especially if risk control measures (health and safety measures, audits) fail. The impact of this an employee injury is low but the probability is medium-high.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>12</td>
<td>Credit risk: Customers may not pay when required to or not at all.</td>
<td>Reduction in future profitability and cash flows.</td>
<td>This is a financial risk which can be mitigated to a large extent by best accounts payable operations. The impact of customers not paying is high, but the probability is low. It has been placed in the lower section of the list (12) for this reason.</td>
</tr>
<tr>
<td>13</td>
<td>Foreign currency risk: There may be significant changes in the exchange rate between the currency of Country Y and the Singapore dollar.</td>
<td>Adverse effect on future cash flows. Adverse effect on reported results.</td>
<td>Over time, it is impossible to avoid currency risk. However, it can usually be adequately and successful control through FX risk measures being implemented. Impact is medium, and probability is low.</td>
</tr>
<tr>
<td>14</td>
<td>The market in which the company operates could be subject to material technological or operational change.</td>
<td>Systems and infrastructure may not be compatible with new technologies or operational techniques, which could limit the company’s ability to serve customers. Reduction in future profitability and cash flow.</td>
<td>Changes in the market have the potential to make infrastructure and technology obsolete, which would have a very severe impact. However, innovations can generally be monitored and planned for, so they can usually be successfully mitigated. The probability of Hi-Sun not adapting to overall changes in the industry is low.</td>
</tr>
<tr>
<td>15</td>
<td>The complex nature of data centres mean that maintaining an efficient centre requires an understanding of the nature of future changes in customer requirements.</td>
<td>If customer requirements change unexpectedly over time, the company’s data centres may have a shortage of the required equipment, which may be in the wrong place, of the wrong size, or of the wrong type.</td>
<td>Changes in customer requirements (if sudden) have the potential to make infrastructure and technology obsolete – and suddenly not meet customer needs – which would have a very severe impact. However, trends in customer requirements can generally be monitored and planned for, so they can usually be successfully mitigated.</td>
</tr>
<tr>
<td>16 (least severe)</td>
<td>The industry within which the company operates is subject to continual environmental and regulatory challenges.</td>
<td>Existing systems and infrastructure may not be compatible with future environmental regulatory requirements. Regulatory changes could increase the cost of operations.</td>
<td>Environmental and regulatory changes generally have a low impact on core business operations. More importantly, they can be monitored and planned for, which limits the consequences. This is ranked as the least severe risk to the acquisition project.</td>
</tr>
</tbody>
</table>
9. Omar bin Osman

Omar bin Osman is an accountancy intern who has joined ABC Trust PAC, a medium-sized accounting firm, over his university vacation. Omar has approached you and asked for your advice on the project described below.

Omar is a keen traveller and has recently spent time with his extended family overseas. His uncle works in the clothes manufacturing industry. His uncle is able to source a fixed number of garments that are seconds. Seconds are garments that are not perfect because of mistakes in manufacturing or storage. Omar has developed a technique that, with the use of an expensive machine, can rectify the defects in these garments. The garments can then be sold at a much higher price. Omar has only studied finance at a very low level and has put together a net present value (NPV) calculation showing that he could make a large profit and that the project is worthwhile.

If Omar decides to proceed with the project, he will set himself up in business as a sole-trader for the duration of the project.

Omar has made the following assumptions:

(i) Omar has already spent many hours researching this project. He estimates that if he had been paid, his time would be valued at S$20,000.

(ii) The project will require an initial expense of a machine which will cost S$220,000. This cost will be offset at the end of the three years by selling the machinery for S$100,000 (at end of Year 3 prices).

(iii) Omar will need the services of a consultant to guide him on import regulations. This will cost S$20,000 per year (in current prices) over the duration of the reported project, payable annually in arrears.

(iv) The garments will retail for S$30 each in the first year, the estimated variable costs per garment are S$15 in the first year. Both will increase in line with inflation rates below. They will be sold to a wholesaler with generous credit terms, payable at the end of the year of purchase, and Omar's uncle has agreed the items do not need to be paid for until he has received cash from his customers.

(v) His uncle has offered him the entire stock of 100,000 second garments. Omar expects that no additional garments will be available once these have been purchased. Omar expects to sell all these items in three years with a split of 20:30:50 over the three years.

(vi) Various fixed costs will be S$100,000 per year (current price terms). These costs are all cash expenses and mainly relate to rent, payable annually in arrears.

(vii) He anticipates that on conclusion of the project he will pay himself a bonus of S$300,000.

(viii) The real weighted average cost of capital of his uncle's company is 8% per year which, as it is in the same industry, is considered to be a good approximation to the returns Omar should expect from this project.

(ix) The project requires investment financing of S$500,000 loan at a fixed interest rate of 8% per year.

(x) Tax is paid one year in arrears at a rate of 25% per year.

(xi) The machine qualifies for capital allowances at a rate of 25% per year on a reducing balance basis. In the year of sale, the owner of the machine can claim a balancing change or allowance which is determined as the different between the tax written down value and the sale proceeds of the qualifying asset.

(xii) Anticipated annual inflation rates:

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>The general rate</td>
<td>6.5%</td>
</tr>
<tr>
<td>Selling price</td>
<td>4%</td>
</tr>
<tr>
<td>Variable costs</td>
<td>8%</td>
</tr>
<tr>
<td>Fixed costs</td>
<td>10%</td>
</tr>
<tr>
<td>Year</td>
<td>Year 1</td>
</tr>
<tr>
<td>------</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td>S$'000</td>
</tr>
<tr>
<td>Turnover</td>
<td>600</td>
</tr>
<tr>
<td>Variable costs</td>
<td>(300)</td>
</tr>
<tr>
<td>Consultants costs</td>
<td>(20)</td>
</tr>
<tr>
<td>Fixed costs</td>
<td>(100)</td>
</tr>
<tr>
<td>Omar's bonus</td>
<td>(300)</td>
</tr>
<tr>
<td>Omar's time spent on research</td>
<td>(20)</td>
</tr>
<tr>
<td>Depreciation</td>
<td>(40)</td>
</tr>
<tr>
<td>Interest payments</td>
<td>(40)</td>
</tr>
<tr>
<td>Taxable profit</td>
<td>(220)</td>
</tr>
<tr>
<td>Taxation</td>
<td>0</td>
</tr>
<tr>
<td>Profit after tax</td>
<td>(220)</td>
</tr>
<tr>
<td>Year-end nominal discount factor (year-end)</td>
<td>0.909</td>
</tr>
<tr>
<td>Present values</td>
<td>(200)</td>
</tr>
</tbody>
</table>

Net present value = 417,000 – 220,000 = S$197,000

Required

(a) Identify ten errors in the investment appraisal prepared by Omar. (10 marks)

(b) Prepare a revised net present value calculation to correct all errors identified in part (a). Show all computations. (8 marks)

(Total = 18 marks)
9. Omar bin Osman: Answer

Mapping of contents

<table>
<thead>
<tr>
<th>Item number</th>
<th>Title</th>
<th>Learning outcome</th>
<th>Textbook chapter</th>
<th>Cognitive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Evaluate capital investment calculations</td>
<td>Evaluate capital investment appraisal systems.</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Analyse an organisation's cash flow and working capital requirements.</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Analyse the current and future financial position of an organisation, using</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>techniques including ratio analysis, trend analysis and cash flow analysis.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Apply capital budgeting techniques in the evaluation of capital investment</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>decisions.</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Marking Guide

(a) Examine the investment appraisal prepared by Omar and presented in the case study material. Identify ten of the following eleven errors, clearly explaining each error:

1. Turnover excludes inflation so does not represent the correct nominal cash flow.
2. Variable costs have not been inflated correctly and variable costs are not split in the actual sales ratio of 20:30:50.
3. Consultant costs and fixed costs, although correctly included as relevant incremental cash flows, have not been inflated to nominal cash flows.
4. The initial cost of the machine and accounting depreciation has been included which double counts this cost. Scrap proceeds of the machine have been excluded.
5. The timing of the tax cash flow is incorrect included in year profit/loss was made.
6. Omar has deducted accounting depreciation to calculate the tax due instead of claiming capital allowances. Also, it does not appear that the rate of 25% has been applied in Year 1.
7. Casting is incorrect on two occasions.
8. Discount rate should be the nominal, mid-year, weighted average cost of capital (WACC) of 11%, not 10%.
9. Omar's bonus is included which represent a project return not a relevant cash flow.
10. Omar's research on project is not future incremental cash flow, as it is an estimate of what he believes his own time is worth so not a cash flow.
11. Interest cash flows are included as a relevant cash flow as well included in the discount rate.

10 marks 18 mins
Prepare revised (and correct) extracts of the cash flows for the NPV calculation:

- Apply inflation to determine correct turnover figures
- Include correct treatment of variable and consultants costs,
- Include correct treatment of fixed costs and Omar bonus
- Calculate tax based on operating profit
- Calculate tax benefit of capital allowances
- Calculate net cash flow
- Calculate and apply 11% mid-year discount factors
- Calculate annual present values and determine correct NPV

TOTAL

Answer points

(a) There are 11 identified errors which are explained in the numbered list:

1. Turnover excludes inflation so does not represent the correct nominal cash flow. Prices rise annually so inflation should be compounded annually.

2. Variable costs are not split in the actual sales ratio of 20:30:50 and are not correctly inflated to nominal cash flows. Excluding inflation will understate overstate the actual cost, which will distort the overall NPV.

3. Consultant costs and fixed costs, although correctly included as relevant incremental cash flows, have not been inflated to nominal cash flows. Both consultant costs and the fixed cost overheads would not be incurred if Omar rejects the project and does not proceed with the garment business.

4. The initial cost of the machine and accounting depreciation has been included in the calculation which is double counting which overstates cost. The scrap proceeds of the machine have been excluded which has an understating impact. Omar would sell the machine at the end of the project as there is no other use for it.

5. The timing of the tax cash flow is incorrectly included in year profit/loss was made, rather than one year in arrears, which represents the actual timing of income tax liabilities which are settled in the year following the year of assessment. A tax loss in Year 1 would be available to offset tax losses in Year 2, and this has been ignored. In addition, it does not appear that the rate of 25% has been correctly applied in Year 2.

6. Accounting depreciation is not a relevant cash flow as it represents a non-cash adjustment which aims to match asset usage with revenue generation. Additionally, accounting depreciation is not tax deductible although included by Omar in the tax calculation. Omar should have incorporated the tax effect of capital allowances as well as calculating the tax charge on profits excluding accounting depreciation. These two tax items are often presented separately in an NPV calculation to provide transparency.

7. Accuracy is a key requirement when forecasting and casting is incorrect in at least two areas of Omar's calculation.

8. Project returns must satisfy the business owner and the debt provider, not just interest payments to the bank. Therefore the discount rate must be the weighted average cost of capital representing the pool of finance from which project financing will be drawn. It is unclear how Omar's rate of 10% has been derived. The discount rate applied must be the company's nominal current weighted average cost of capital (WACC) as this is the current representation of the minimum required return of the investors. The real weighted average cost of capital is 8%.
The nominal cost of capital is therefore approximately 11% after applying general inflation of 3%. \((1.08 \times 1.03 = 11.24\%)\).

Omar has discounted at a year-end rate of 10% rather than a mid-year rate of 11%, representing the correct nominal weighted average cost of capital. The nominal rate of 11% is applicable as the cash flows are nominal cash flows, as they have been inflated to current values.

(9) Omar intends to pay himself a bonus will be paid at the end of the project. As the business owner, this payment represents a return on investment and is therefore already included in the discount rate as the cost of capital is equivalent to the required return of the investors. The bonus should therefore be excluded from the calculation. Had the bonus been payable to an employee this would be classified as a relevant cash flow as this would be a true project cost and not a distribution of project returns.

(10) Omar's time spent researching the project is deemed to be a sunk cost. This cost should be excluded from the NPV calculation as the amount is unchanged regardless of a decision to proceed with the project or reject it. In addition, this is a value Omar has placed on this work so is not a future incremental cash flow resulting from a decision to proceed with the project.

(11) Interest costs should not be included as a cash flow in NPV calculation despite being a future cash flow. This is because interest represents a return to a bank or other lender finance used to fund the project and the cost of debt finance is included in the weighted average cost of capital used as the discount rate. To include interest as a further relevant cash flow would amount to double counting of the same cost.

(b)

<table>
<thead>
<tr>
<th>Year</th>
<th>Year 0 S$'000</th>
<th>Year 1 S$'000</th>
<th>Year 2 S$'000</th>
<th>Year 3 S$'000</th>
<th>Year 4 S$'000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turnover</td>
<td>600.0</td>
<td>936.0</td>
<td>1622.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variable costs</td>
<td>(300.0)</td>
<td>(486.0)</td>
<td>(874.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consultants costs</td>
<td>(22.0)</td>
<td>(24.2)</td>
<td>(26.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed costs</td>
<td>(110.0)</td>
<td>(121.0)</td>
<td>(133.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Omar's bonus</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net cash flow before tax</td>
<td>168.0</td>
<td>304.8</td>
<td>588.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax</td>
<td>(42.0)</td>
<td>(76.2)</td>
<td>(147.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax benefit of capital allowances (W)</td>
<td>13.8</td>
<td>10.3</td>
<td>5.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of machine</td>
<td>(220.0)</td>
<td></td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Net cash flow</strong></td>
<td>(220.0)</td>
<td>168.0</td>
<td>276.6</td>
<td>622.1</td>
<td>(141.1)</td>
</tr>
<tr>
<td>Discount at 11% (Note)</td>
<td>1.000</td>
<td>0.949</td>
<td>0.855</td>
<td>0.770</td>
<td>0.694</td>
</tr>
<tr>
<td><strong>Present values</strong></td>
<td>(220.0)</td>
<td>159.5</td>
<td>236.5</td>
<td>479.2</td>
<td>(97.9)</td>
</tr>
</tbody>
</table>

NPV = S$557,300. This differs significantly from Omar's NPV of S$197,000.

**Note:** Mid-year discount factor rates using the nominal WACC of 11% have been applied.
**Workings**

Calculation of tax benefit on capital allowances (assuming 25% WDA each year on a reducing balance basis):

<table>
<thead>
<tr>
<th>Year</th>
<th>Year 0 S$'000</th>
<th>Year 1 S$'000</th>
<th>Year 2 S$'000</th>
<th>Year 3 S$'000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine WDV at year end</td>
<td>220</td>
<td>165</td>
<td>123.7</td>
<td></td>
</tr>
<tr>
<td>WDA</td>
<td>0</td>
<td>55</td>
<td>41.3</td>
<td>23.7 (BA)</td>
</tr>
<tr>
<td>Tax benefit at 25%</td>
<td>0</td>
<td>13.8</td>
<td>10.3</td>
<td>5.9</td>
</tr>
<tr>
<td>Year claimed</td>
<td>Yr 2</td>
<td>Yr 3</td>
<td>Yr 4</td>
<td></td>
</tr>
</tbody>
</table>

The balancing allowance is S$23,700 (S$123,700 WDV less S$100,000 sales proceeds).
10. Teo Trading

Teo Trading is listed on the Singapore Exchange (SGX) and operates a chain of large retail outlets selling a range of high value electrical products and homeware. At a recent Board meeting the decision was made to expand by opening three new stores in 20X9 (next year). These new shops will for the first time carry items aimed at a more mature demographic who are believed to have greater disposable spending power. Each of these outlets will cost S$15 million to build and each will carry S$4.75 million of inventory for sale.

Additionally, Teo Trading is also looking to upgrade the look of its current retail chain to improve the retail experience for its customers to enjoy. It intends to achieve this by refreshing it in-store design and layout, increasing in-store demonstrations and offering dedicated areas to sit, eat and drink with the provision of in-store catering, internet browsing and areas with products for consumer to try products for themselves. This strategy is intended to increase product desirability so more consumers make the decision to buy before they leave the store.

The Board had very different views on how to finance the expansion:

**Director A:** 'To save issue costs and the uncertainty involved in raising new external finance, we should use our retained profits to finance our expansion. We should sell the least profitable of our stores to finance the balance.'

**Director B:** 'Our share price has risen by 50% over the last year. To finance expansion we should issue new shares. We should act quickly to take advantage of our currently high share price. Our dividend yield is only 3% – this is cheap finance at low risk.'

**Director C:** 'We should raise new debt to finance the expansion. The return on these new stores is bound to be greater than the cost of debt, so a profit is assured, and thus the risk is minimal. We could either issue corporate bonds for which I have calculated a post-tax cost of 6.12% or we could raise a bank loan at a post tax cost of 5.12%.'

**Proposed acquisition of Bean & Gone Coffee Ltd**

Teo Trading is looking to grow and diversify within the retail sector through a serious of strategic acquisitions. The first target is Bean & Gone Coffee Ltd (BG), which is listed on the SGX. BG runs a chain of coffee shops throughout South-East Asia. It originally grew organically in Singapore and, after many years of successful trading as a local chain, expanded by international acquisition immediately following its listing twenty years ago.

**Required**

(a) Identify and explain four strategic advantages that will accrue to Teo Trading if the acquisition of Bean & Gone Coffee Ltd goes ahead. (4 marks)

(b) Evaluate the PESTEL factors which will impact on a coffee shop business. (6 marks)

(c) Conduct a present value calculation for the acquisition of Bean & Gone Coffee Ltd to determine a current value for the company's equity shares. Show all calculations. Comment on the reliability of your results and explain any reservations. (13 marks)

(d) Evaluate the comments made by Directors A, B and C on the financing options for the expansion of Teo Trading. In doing so, evaluate the potential financing for the acquisition of Bean & Gone Coffee Ltd using additional debt finance and explain the feasibility of two other financing options available to Teo Trading. (8 marks)

(e) Based on your findings in parts (c) and (d) recommend, with reasons, whether the acquisition of Bean & Gone Coffee Ltd should proceed. (4 marks)

(f) Identify five post-acquisition integration risks if Teo Trading decide to acquire Bean & Gone Coffee Ltd and determine how each of those risks can be mitigated. (5 marks)

(Total = 40 marks)
Appendix 1: Financial statements of Teo Trading and Bean & Gone

Post-tax cash flows for Bean & Gone Coffee Ltd

On the basis of published accounts, industry information and discussions with BG’s directors, the Teo Trading’s directors have forecast the following year-end post-tax cash flows for BG.

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4 and beyond</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net after tax cash flows (S$millions)</td>
<td>16.48</td>
<td>17.52</td>
<td>18.51</td>
<td>20.21</td>
</tr>
</tbody>
</table>

In determining the cash flows the Directors have made the following assumptions:

1. These cash flows include growth due to expected increases in sales volumes in Year 1 to Year 4. No further growth has been forecast after Year 4 due to uncertainties of long-term planning.

2. All cash flows are assumed to fall at the year-end for valuation purposes.

3. These cash flows are stated in real terms; that is they do not include inflation.

4. These cash flows are stated before loan interest on BG’s existing debt liabilities.

The Directors of Teo Trading expect inflation in Years 1 and 2 to be 2% per annum, and inflation to be 1.5% per annum in Years 3 and 4. Inflation in Year 5 and beyond is estimated to be 1% per annum.

Teo Trading evaluates all its investment decisions at a nominal, post-tax discount rate of 11% which is equivalent to its weighted average cost of capital. BG’s directors estimate that its current company cost of capital is 12%.

Summary of financial statements of acquirer (Teo Trading) and takeover target (Bean & Gone Coffee Ltd)

STATEMENT OF CONSOLIDATED INCOME FOR THE YEAR ENDED 31 MARCH 20X7

<table>
<thead>
<tr>
<th></th>
<th>Teo Trading</th>
<th>Bean &amp; Gone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>500.5</td>
<td>108.8</td>
</tr>
<tr>
<td>Operating profit</td>
<td>122.5</td>
<td>32.3</td>
</tr>
<tr>
<td>Finance costs</td>
<td>24.0</td>
<td>8.0</td>
</tr>
<tr>
<td>Profit before tax</td>
<td>98.5</td>
<td>24.3</td>
</tr>
<tr>
<td>Taxation</td>
<td>16.7</td>
<td>4.1</td>
</tr>
<tr>
<td>Profit after tax</td>
<td>81.8</td>
<td>20.2</td>
</tr>
</tbody>
</table>

STATEMENT OF FINANCIAL POSITION AS AT 31 MARCH 20X7

<table>
<thead>
<tr>
<th></th>
<th>Teo Trading</th>
<th>Bean &amp; Gone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-current assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Property, plant and equipment</td>
<td>318.0</td>
<td>62.5</td>
</tr>
<tr>
<td>Current assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade receivables and inventories</td>
<td>121.5</td>
<td>30.5</td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>17.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Total assets</td>
<td>457.0</td>
<td>94.5</td>
</tr>
</tbody>
</table>
### Equity and liabilities

<table>
<thead>
<tr>
<th></th>
<th>Teo Trading</th>
<th>Bean &amp; Gone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share capital (Nominal value of S$1)</td>
<td>60.0</td>
<td>30.0</td>
</tr>
<tr>
<td>Retained earnings</td>
<td>145.0</td>
<td>22.5</td>
</tr>
<tr>
<td><strong>Total equity</strong></td>
<td><strong>205.0</strong></td>
<td><strong>52.5</strong></td>
</tr>
<tr>
<td>Non-current liabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secured loan stock 7% repayable 20Y0</td>
<td>200.0</td>
<td></td>
</tr>
<tr>
<td>Secured loan stock 10% repayable 20Y1</td>
<td></td>
<td>34.0</td>
</tr>
<tr>
<td>Current liabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade and other payables</td>
<td>52.0</td>
<td>8.0</td>
</tr>
<tr>
<td><strong>Total liabilities</strong></td>
<td><strong>252.0</strong></td>
<td><strong>42.0</strong></td>
</tr>
<tr>
<td><strong>Total equity and liabilities</strong></td>
<td><strong>457.0</strong></td>
<td><strong>94.5</strong></td>
</tr>
</tbody>
</table>

### Other financial information:

<table>
<thead>
<tr>
<th></th>
<th>Teo Trading</th>
<th>Bean &amp; Gone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share price today</td>
<td>7.85</td>
<td>4.95</td>
</tr>
<tr>
<td>Shares in issue</td>
<td>60 million</td>
<td>30 million</td>
</tr>
<tr>
<td>Shares last traded on</td>
<td>19 May 20X7</td>
<td>31 January 20X7</td>
</tr>
<tr>
<td>High-Low share prices in past 12 months</td>
<td>3.25–9.90</td>
<td>4.50–2.50</td>
</tr>
</tbody>
</table>

### Taxation

Both companies expect to pay tax at an average of 17% from next year for the foreseeable future.

**Extract from Debt agreement between First Bank and Bean & Gone Coffee Limited**

There is a clause in BG’s debt agreement that says the whole of the S$34 million debt is repayable immediately in the event of a successful takeover bid.
10. Teo Trading: Answer

Mapping of contents

<table>
<thead>
<tr>
<th>Item number</th>
<th>Title</th>
<th>Learning outcome</th>
<th>Textbook chapter</th>
<th>Cognitive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Acquisition; investment appraisal; Business valuation; Source of finance</td>
<td>Assess the appropriateness and cost of the various traditional sources of financing (eg debt and equity) available to an organisation. Describe the environment in which an organisation operates, including the main economic, legal, political, social, technical, international and cultural forces. Explain, apply, and justify the use of income, asset-based, and market valuation approaches used for investment decisions, business planning, and long-term financial management. Analyse the current and future financial position of an organisation, using techniques including ratio analysis, trend analysis and cash flow analysis. Apply capital budgeting techniques in the evaluation of capital investment.</td>
<td>4, 5</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3, 6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3, 7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3, 7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Marking Guide

(a) Identify and explain four strategic advantages that will accrue to Teo Trading if the acquisition of Bean & Gone Coffee Ltd goes ahead
   • Improve market share by better management or improving the retail experience in Teo Trading Stores
   • Achieve sales and cost synergies
   • Grow quickly vs organic growth
   • Acquire valuable skills, expertise or assets

(b) Evaluate the PESTEL factors which will impact on a coffee shop business
   • Political – at least one point and linked to BG operations
   • Economic – at least one point and linked to BG operations
   • Social and cultural factors – at least one point and linked to BG operations
   • Technological – at least one point and linked to BG operations
   • Environmental – at least one point and linked to BG operations

4 marks 7 mins 6 marks 11 mins
### (c) Present Value Calculation for Bean & Gone Coffee Ltd

Conduct a present value calculation for the acquisition of Bean & Gone Coffee Ltd to determine a current value for the company's equity shares. Show all calculations. Comment on the reliability of your results and explain any reservations. Inflate real cash flows to nominal cash flows.

- Calculate a terminal value for Years 5 and onwards
- Apply 11% discount factor and explain to use the required return of the investor as from Teo Trading's perspective
- Calculate present values (PV) for each year
- Calculate final PV
- Deduct outstanding borrowings to determine value of equity
- Add on estimated cash at hand and explain adjustment
- Present the final PV and comment on current value of BG's equity shares
- Explain uncertainty in the predicted cash flows (sales, growth, inflation,) potentially overstating valuation
- Explain discount factor could be understated if BG business risk is higher than currently Teo Trading 11% discount factor, potentially overstating valuation
- Explain cash flows have not been verified so subject to due diligence processes
- The valuation ignores the potential synergy as sales increase in Teo Trading due to BG
- Provide a recommendation, with reasons, whether or not the acquisition should proceed

### (d) Financing Options Evaluation

Evaluate the comments made by Directors A, B and C on the financing options for the expansion of Teo Trading. In doing so, evaluate the potential financing for the acquisition of Bean & Gone Coffee Ltd using additional debt finance and explain the feasibility of two other financing options available to Teo Trading.

- Director A and issue of retained profits
- Director B and equity finance, discussion of dividend yield
- Director C and debt finance, looking at use of WACC and gearing considerations
- Calculate impact on gearing if purchase Bean & Gone with additional finance and comment if acceptable to existing shareholders
- Explain that a further S$45m will be require if TT's strategy to expand with three new stores is pursued as well as the acquisition of BG.
- Explain impact of new finance requirement as BG has S$34m of repayable debt in the event of takeover
- Explain possibility of a rights share issue or public issue by Teo Trading to raise funds, however this may delay acquisition
- Explain possibility of a merger by purchasing BG with the issue of new shares Teo Trading, explaining this will dilute ownership and share control with BG Board of Directors
- Explain a hybrid financing arrangement of new debt and equity will maintain gearing
Based on your findings in parts (c) and (d) recommend, with reasons, whether the acquisition of Bean & Gone Coffee Ltd should proceed
• Comment on strategic rationale for the acquisition
• Comment on price to be paid based on valuation, existing share price of BG and need for due diligence
• Comment on preferred method of financing
• Provide clear conditions on which to proceed with acquisition – subject to due diligence and negotiation.

Identify five post-acquisition integration risks if Teo Trading decide to acquire Bean & Gone Coffee Ltd and determine how each of those risks can be mitigated if expected revenue synergies fail:
• Key people and/or knowledge leave
• Cultural difficulties
• Systems integration cause problems
• Organisational structure issues

Answer Points
(a) **Strategic reasons for acquisition**

To achieve synergies. This is sometimes known as the $2 + 2 = 5$ effect. Two businesses combined into one can achieve more than the two businesses separately. Synergy can result in higher revenues, lower costs and lower risk when organisations combine.

**Sales synergies**

The acquisition of a chain of coffee shops provides expansion and diversification. The acquisition creates an opportunity to introduce the established BG brand into existing or new Teo Trading (TT) stores that will act as complimentary service attracting existing customers, who will visit more frequently, to enjoy coffee, cakes and other snacks and attract new customers who want to enjoy shopping as an experience so expect food, beverage and internet facilities in the shops they choose to visit.

Furthermore, BG revenues can increase above the forecast by factors such as better management, improved business strategy or increased consumer demand due to association with the TT brand.

**Cost synergies**

Examples of cost synergies are savings in purchasing costs due to buying in larger quantities (which may happen if BG beans open outlets in the retail stores, or the stores stock large amounts of BG beans); and reductions in administrative costs by combining administration and management systems. In this case for example, buying coffee beans in bulk may afford savings that could benefit the wider group. Further cost efficiencies may be achievable if the combined group can be better managed than the current owners of BG.

As a combined company, BG may raise their perceived status with suppliers and customers, and be able to compete more successfully with competitors.

**Reduction in risk synergy**

The diversification of the revenue streams means that overall company results may be less impacted in an economic downturn as consumers buy less consumable products, however, they continue to spend on leisure and eating out, as a ‘feel good’ to compensate for lack of economic confidence.
Acquisition of skills, expertise, talent and

The acquisition of BG will provide the knowledge, skills and experience of incorporating low-level catering into the TT retail chain, reducing the risk of introducing the strategic aim to update the retail experience to include a café and internet culture.

To acquire valuable assets. These might be key staff (such as managers, buyers or those with specific skills) or strategic physical locations. In this case locations and brand are likely to be key drivers of value and the target company. There is a concern that if much of the value is tied up in the current owner, this value may be lost when that current owner is bought out.

Speed of growth

To grow quickly. Growth through acquisition is much faster than organic growth. BG has benefited from this pace of growth since being quoted on the Singapore Stock Exchange in 1996.

(b) Political

Competition policy: this is not likely to be an issue as TT and BG are in related, but operate in different, industries. The acquisition of BG will not reduce competition in the retail sector as it is not acquiring a similar chain of retail outlets.

Licensing laws: the provision of produce for public consumption (such as coffee) will be subject to regulatory restrictions requiring training and licensing arrangements to be in place. These laws maybe changed a relatively short notice in response to political pressure.

Economic

Interest rates: higher interest rates may push up the group's financing costs.

Exchange rates: as an international group, movement in exchange rates will affect the profitability of BG as it is a coffee bean importer.

Income levels: for some, buying coffee in a coffee shop is somewhat of a luxury item – therefore demand may reduce in economic slumps.

Social and cultural factors

Popularity of coffee is ever-increasing and this will impact positively on BG growth.

Eating habits: For example, habits may change such that people buy their coffee more on the way to work and make it when they get there. That will increase the sale of beans, but decrease the sale of retail and takeaway coffees.

Health reports on coffee consumption: Increased health concerns about the consumption of coffee may depress demand. Generally though coffee consumption is seen as healthy in moderation and unless that changes, health concerns do not seem to have had a major impact on sector growth.

Technological

Availability of cheaper home coffee machines means that the sale of beans will increase but actual coffees will decline.

Improved supply chain management: This may yield letter quality coffee at a lower price; for example with closer, more productive relationships with local suppliers.

Automation of coffee ordering – apps and table ordering. This has the potential to achieve cost and operational synergies in the coffee shop side of the business.

Environment

Concern over coffee production: Concern over fair trade could either favour or be detrimental to the group depending on their policies on corporate social responsibility.

Recycling of ‘disposable’ coffee cups is an ongoing issue, as they are often not recycled by consumers and/or the coffee cups themselves are not disposable.
Legal

Tax rates will need to monitored.

Opening hours: Restrictions on opening hours may have adversely affect demand.

Besides, taxes and operating hours, a further critical legal matter is on labour laws, which affect employment terms and conditions.

(c) Valuation of Bean & Gone Company Limited

<table>
<thead>
<tr>
<th>Year</th>
<th>Nominal cash flows (S$m)</th>
<th>Inflation adjustment</th>
<th>Nominal cash flows S$m</th>
<th>Terminal value for Year 5 and onwards</th>
<th>Terminal value at Year 4 value</th>
<th>Present value (S$m)</th>
<th>Total present value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>16.48</td>
<td>17.52</td>
<td>18.51</td>
<td>20.21</td>
<td>21.88/(0.11 – 0.01)</td>
<td>218.8</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>16.81</td>
<td>18.23</td>
<td>19.55</td>
<td>21.66</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>21.88/(0.11 – 0.01)</td>
<td>0.901</td>
<td>0.812</td>
<td>0.731</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>14.79</td>
<td>14.29</td>
<td>14.27</td>
<td>14.27</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 and onwards</td>
<td>144.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The outstanding borrowings for BG at the end of 20X7 are S$34 million. Therefore the estimated value of BG’s equity is S$202.62m – S$34.0m = S$168.62 million.

The estimated cash in hand at the end of 20X7 is S$1.5 million, which is not substantial. It is stated that the cash should be considered surplus to requirements, which means that it could be paid out as dividends to shareholders without affecting the PV valuation.

This increases the valuation of the company's equity in only a minor way, from S$168.62 million to S$170.12 million. However, it is likely some cash is required to maintain operational liquidity and therefore the Directors of TT are likely to negotiate a price lower as some cash may not be considered as surplus.

Uncertainties and reservations in the valuation of BG

The predicted cash flows are uncertain for the following reasons:

(i) Although the directors of TT have been involved in the sales growth, there is no guarantee this level of sales will be achieved following acquisition and growth may be optimistic reflecting a desire by the directors to acquire BG and a confident economic outlook.

(ii) Inflation is predicted to be 2% in Year 1, falling to 1.5% in Year 3 and then to 1% from Year 5 onwards with no rationale for this. It is possible inflation may rise. Therefore it is more prudent to assume inflation is maintained at 2% in the valuation, at least.

(iii) There is insufficient information to determine if sufficient costs have been incorporated as the growth in revenue could instead be driven by an unrealistic reduction in costs.

(iv) The valuation assumes BG continues into perpetuity with growth of 1%. Terminal values tend to over value companies for this reason.

(v) The valuation appears to ignore post-acquisition integration costs which, if significant, would lower the value of BG to TT.

They factors could significantly reduce the valuation thereby increasing the risk that the TT overpays for BG. It is recommended that the purchase of BG is subject to due diligence procedures to gain some assurance about the certainty and possibility variability of the forecast cash flows.
The valuation currently uses TT's existing discount factor of 11% which assumes there will be no change in business risk or financial risk as a result of the acquisition. This is unrealistic as BG operates in a different industry and it is likely additional debt finance will be required to finance, or partly finance, the acquisition which will raise financial risk.

On the positive side, the valuation ignores the potential sales and cost synergies where sales increase in TT's retail stores due to introducing the BG brand in-store and improving the consumer experience. Although difficult to quantify, this is a source of additional shareholder value, which reduces acquisition risk, and is the main driver for this acquisition.

(d) **Director A's comment – use retained earnings**

Retained profits do not have issue costs and hence appear attractive.

Retained profits are also relatively cheap as there are no issue costs and convenient, for example there will be some risk and cost in raising external finance. This is a form of equity finance as the use of available cash will reduce dividend pay outs in the short term so this investment will require a relatively high rate of return to compensate shareholders for the acquisition risk and loss of short term dividends that they are taking on.

However, Teo is an established listed company. The share price is currently high and it should be possible to raise the external finance required on reasonable term.

The director has misunderstood the nature of retained profits. Retained profits do not reflect cash balances that can be drawn on for capital expenditure; they reflect the amount of equity capital tied up in the whole business, not just cash. The business only has S$17.5 million of cash which is nowhere near sufficient to fund the acquisition of BG.

The sale of the least profitable TT stores will raise some cash. However, it may not be sufficient to the fact that they are making low profits. There will also be uncertainty over their sale, as well as transaction costs involved in the sale.

Although free and quick to raise, retained profits belong to the shareholders.

**Director B's comment – raise new equity finance**

Director B is advocating an issue of new shares has he believes these are cheap given dividend yield is 3%. Dividend yield is measured using current dividends, not the future dividends that will be important for this project. The dividend yield does not reflect the total reward that may be demanded by shareholders, since they may also require a capital gain, so understates the required return of new equity investors and so understates the cost of a new issue.

New investors would expect at least the current cost of equity as their required return and possibly higher if the business risk of BG is perceived to be higher than TT.

Whilst it is true that the financial risk to TT's shareholders would fall as its gearing will reduces with the issue of new share capital, the overall weighted average cost of capital is likely to rise as, fundamentally, equity finance is more expensive than that debt finance due to the higher risk that equity investors take on.

A new share issue is time consuming as a prospectus is required to market the share issue to new investors. This time delay may be too long for BG shareholders to wait or another predator company making a bid for BG. A rights issue can be completed in a shorter timeframe so may be preferable if there is appetite for further investment by the existing shareholders.
Director C’s comment – raise new debt finance

Teo will face increased financial risk as gearing increases, along with the possible increase in business risk. The security that the company provides, compared with the debt it has, will also not improve as gearing levels increase.

To establish whether it is worthwhile to open the new stores, Teo should appraise the **future returns using a project-specific weighted average cost of capital (WACC)** based on the different costs of all the sources of finance the company uses. WACC should be calculated using a revised cost of equity that takes account of the increases in business and financial risk. The cost of other forms of debt may also rise because of the increased risks.

The cost of debt capital should be compared with the costs of other sources of finance (equity shares). In addition there is no single cost that applies to all types of debt. Different forms of debt themselves have different costs. The director's estimate of the post-tax cost of debt of 6.12% for corporate bonds and 5.12% for bank loans suggests that additional debt finance is cheap relative to equity finance. However, these costs are not verified and may not apply to the significant amount of debt required to finance this acquisition.

There are four key financing difficulties facing TT if it proceeds to finance the acquisition of BG with additional debt finance:

1. **The acquisition price is significant, even if substantially renegotiated so the value of additional debt required will increase gearing to possibly unacceptable levels.**

   If TT pay a 10% premium on the current market value of BG it will need to raise new finance of S$163.3m (30m shares × S$4.95 × 1.1) in order to pay BG shareholders to gain 100% ownership. This would be in addition to TT's current debt of S$200m. Assuming the share price of TT remains unchanged, this would raise gearing to 43.5% as a proportion of total finance measure at market value (S$363.3m/ S$363.3m + (60m shares × S$7.85)).

   **Note:** Candidates could use the valuation figure from part (c) to evaluate the impact on gearing.

   43.5% gearing is high, but possibly acceptable to its shareholders. TT would need to convince its shareholders of the merits of the takeover and seek confirmation that the increased level of gearing is acceptable.

2. **The debt in BG is repayable immediately on takeover due to a clause in the BG debt agreement with its bank.** If this cannot be renegotiated by TT on acquisition, then TT will need to borrow a further S$34m to repay this finance, as there is insufficient surplus cash in both BG and TT to repay this. This would increase total debt to S$200m + S$163.3m + S$34m = S$397.3m and further increase gearing to 45.8% (S$397.3m/S$397.3m + (60m shares × S$7.85))

3. **A further S$59.25m will be required if TT wish to simultaneously pursue its own expansion with three new stores (3 × (S$15m + S$4.75m)).** This will increase gearing to $49.22m (S$456.6m/S$456.6m + (60m shares × S$7.85)). This is likely to be considered unacceptable.

4. **It is not certain TT may not be able to raise S$197.3m in new debt finance required to complete the acquisition, although it is possible.** In order to pursue Director C's strategy TT would need to hold discussions with banks at the earliest opportunity to establish the availability of additional debt and under what terms it would be offered. As TT has current loans of S$200m then it is unlikely it will have sufficient security in non-current assets which is likely to increase the cost of additional debt beyond the 5.12% per annum expected. The directors could also consider the feasibility for a new issue in the corporate bond market using its listed status and new strategy to attract new corporate bond investors however given this is diversification into an untried strategy, it is unlikely that the expected cost of 6.12% on new corporate bonds will be sufficient.
Alternative finance options

(i) **New share issue.** This follows Director B’s preference and could either be a rights issue to existing shareholders or a new public issue of shares to new shareholders. As new equity finance is expensive then TT are advised to re-evaluate the potential acquisition price to ensure it incorporates the higher cost of equity finance so it can deliver the expected returns to its new equity investors.

(ii) **‘Hybrid’ combination of debt and equity.** A financing arrangement of new equity and additional debt finance to avoid unacceptable gearing levels and to obtain the some benefit from cheaper debt finance.

(iii) **Merger financed by new shares.** An exchange of BG shares for new shares in TT would avoid raising new debt or equity finance and paying in cash. However, this would significantly dilute ownership and control by the shareholders of TT and its directors and there may not be appetite by BG shareholders to accept the terms of a merger instead of a cash sale or accept the sharing of control.

(e) **Recommendation**

The acquisition is also a good fit for the following strategic reasons.

(i) BG is a retail offering, so fits in with TT current retail operations.

(ii) It represents some diversity into the food and beverage service market which may generate some synergy with TT’s retail outlets.

(iii) It is locally owned and listed on the SGX so the acquisition process should be relatively smooth and it will be apparent quickly if the market approves by the reaction of the share price.

The current market value of BG is S$148.95m (30m shares × S$4.95) which suggests the cash flow valuation of S$170m from part (c) is not excessive. It is recommended that the directors of TT appoint independent advisors to perform due diligence procedures on BG and revise the valuation based on their findings which includes an assessment for potential sales and costs synergies. The acquisition should then proceed if suitable finance can be put in place, the price negotiated below the revised valuation to limit the risk of over-paying.

The acquisition is significant and may raise debt to uncomfortable levels if financed wholly by new debt finance, especially if there are unforeseen post-acquisition challenges resulting in lower than predicted cash flows or higher than forecast integration costs. It is therefore recommended that a combination of new debt and new equity finance is used to finance this acquisition. This would allow sufficient finance to be raised to buy BG, repay BG existing S$34m debt and raise S$59m to fund the expansion of three new TT retail outlets, to maximise synergy.

To avoid the inevitable delay of a new share issue, a rights issue to existing investors is recommended as this can be done relatively quickly. The directors of TT will need to model the preferred combination of debt and equity to minimise the cost of the finance at a level of gearing acceptable to its existing shareholders.

(f) **Key risk: Expected revenue synergies may not be realised**

TT would expect the combined revenues of both companies will increase post-acquisition. BG will be able to access the distribution methods offered by Teo’s retail chains to either open more coffee shops or as a coffee bean distributor. TT would be planning to leverage the café/beans side of BG to bring more customers into their retail shops.

A major risk is if that fails, or if management fails to combine these cross-promotional and cross-selling opportunities.
Key risk: Key people and key specialist knowledge (eg original owners of BG, local wholesale import contacts) may leave

This is particularly an issue for BG, as the coffee wholesale and import market is reliant on coffee and local knowledge. A large amount of the value of the acquisition relates to the skills, knowledge and networks of those individuals.

The consideration could be at least in part contingent upon post-acquisition performance, for example, a profit share over the following five years.

The acquisition process could include bonding new staff with new contracts or employment offers. A loyalty bonus of, say, a year's salary could be payable to key people in three years' time and contingent upon performance.

Key risk: Cultural difficulties on integration

There is always a chance of culture clash in any acquisition, and this may well be the case where an innovative, smaller company like BG is taken-over by a larger operation such as a retail chain. Culture clash or difficulties are mitigated by the fact both companies are in the same sector, and both are locally owned.

Key risk: Systems integration will cost money and/or may be problematic

This will reduce business performance. This issue should be thoroughly investigated pre-acquisition and integration costs factored in to negotiations. A tentative project plan should be outlined to ensure the post-acquisition process is as clear and timely as possible.

Key risk: Organisational structure issues

Although the acquisition is an opportunity to refresh the human resources structure of the new business (for example some shared services with TT, in terms of human resource, administration, some of the retail side) there is the risk that personnel are not clear who their line manager is and what their role is. This may increase staff turnover, and reduce motivation and organisational effectiveness. This should be planned pre-acquisition as much as possible in consultation with BG owners and communicated swiftly.
11. Fortune Fashion

Fortune Fashion Ltd is a well-known, traditional retailer with a well-established customer base. For the last 15 years it has successfully operated stores in high-end shopping malls selling high fashion, branded ladies apparel. In recent years its sales have plateaued and are now beginning to decline. This is having an impact on net profit, with profits decreasing by over 6% in the last year (from 20X6 to 20X7). Research into the cause of the decline has identified the company’s lack of an online sales platform as the main reason.

Online sales project

Consequently Fortune Fashion is developing a comprehensive online sales operation with a view that it may ultimately migrate most of its business online and close many of its existing physical stores.

In the past the company has relied on manual and very rudimentary computer systems. The creation of the online operation will necessitate the migration of existing customer records, supplier information and inventory records. The company then intends to purchase an off-the-shelf e-commerce suite from a major software supplier. Transactions will be effected through a large internet payment gateway.

The company has very little experience with online operations and so it intends to recruit a number of new staff to develop and run the e-commerce system.

The Chief Executive Officer (CEO), Adam Raja, would like to ensure the risk during the transition to computerised records and the creation of the e-commerce platform is minimised.

External audit of Fortune Fashion

A new Non-executive Director has recently joined the Board of Fortune Fashion, Thomas Lee. He has a financial background and Adam Raja has asked him to lead the Audit Committee. As part of this role, Thomas Lee has decided to initially assess the operation of the external audit.

In relation to the external audit Thomas has discovered the following:

Fortune Fashion is the largest client of Lin Tan Chee and Co which has conducted the public audit for a number of years. There is an impression internally that Lin Tan Chee is reliable and has done excellent work over the 12 years that the relationship has existed.

To further his investigation Thomas Lee decides to speak to Edwin Chandler, Chief Financial Officer (CFO) of Fortune Fashion, regarding the external auditors. He tells you that he selected them because he went to school with the senior partner Jim Chee and states:

‘Jim always does a great job of the public audit. It always runs smoothly as he always uses Rita Ng as the senior manager in charge of the audit team; she has good experience as she has done the role for years. She uses pretty much the same team every year which is great because they all know the business and staff so well. In fact many of the team have even more experience from doing advisory work for us. Rita always runs any problems past me first. Basically they do a great job for us at a good price.’

Internal audit: Risk management and internal control systems.

The Head of Internal Audit, Jenny Ho, is reviewing the effectiveness of information and communication within Fortune Fashion’s risk management and internal control systems, specifically in relation to the proposed e-commerce project.

Jenny needs to determine which aspects of information and communication within the risk management and internal control systems should be reviewed for Fortune Fashion, and what practical measures might be taken to carry out this review.

Required

(a) Identify six specific IT risks relevant to this project. (6 marks)

(b) Recommend the specific IT controls Fortune Fashion should put in place to manage these six risks. (6 marks)
(c) Advise the Audit Committee of Fortune Fashion on the issues with respect to their external auditor and the service they provide. Justify any concerns and state recommendations for action.  
(6 marks)

The Head of Internal Audit, Jenny Ho, is reviewing the effectiveness of information and communication within Fortune Fashion's risk management and internal control systems, specifically in relation to the proposed e-commerce project.

Jenny needs to determine which aspects of information and communication within the risk management and internal control systems should be reviewed for the project, and what practical measures might be taken to carry out this review.

(d) Identify, with reasons, what aspects of information and communication within the risk management and internal control systems should be reviewed.  
(6 marks)

(e) Recommend what practical measures might be taken to carry out this review for each of the aspects you have identified in (d).  
(6 marks)

(Total = 30 marks)
Appendix 1: Summary financial statements

SUMMARY STATEMENT OF PROFIT OR LOSS FOR THE YEAR TO 30 JUNE 20X7

<table>
<thead>
<tr>
<th>Description</th>
<th>S$m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>571.5</td>
</tr>
<tr>
<td>Cost of sales</td>
<td>(249.3)</td>
</tr>
<tr>
<td>Gross profit</td>
<td>322.2</td>
</tr>
<tr>
<td>Sales and marketing costs</td>
<td>(22.2)</td>
</tr>
<tr>
<td>Administrative expenses</td>
<td>(138.0)</td>
</tr>
<tr>
<td>Operating profit</td>
<td>162.0</td>
</tr>
<tr>
<td>Finance costs</td>
<td>(35.4)</td>
</tr>
<tr>
<td>Profit before taxation</td>
<td>126.6</td>
</tr>
<tr>
<td>Taxation</td>
<td>(21.6)</td>
</tr>
<tr>
<td>Profit after taxation</td>
<td>105.0</td>
</tr>
</tbody>
</table>

SUMMARY STATEMENT OF FINANCIAL POSITION AS AT 30 JUNE 20X7

<table>
<thead>
<tr>
<th>Description</th>
<th>S$m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intangible assets</td>
<td>20.4</td>
</tr>
<tr>
<td>Tangible non-current assets</td>
<td>312.4</td>
</tr>
<tr>
<td>Trade receivables and prepayments</td>
<td>227.7</td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>6.1</td>
</tr>
<tr>
<td>Total assets</td>
<td>566.6</td>
</tr>
<tr>
<td>Equity shares and reserves (140 million shares)</td>
<td>245.3</td>
</tr>
<tr>
<td>Borrowings</td>
<td>194.8</td>
</tr>
<tr>
<td>Current liabilities</td>
<td>126.5</td>
</tr>
<tr>
<td>Total equity shares/reserves and liabilities</td>
<td>566.6</td>
</tr>
</tbody>
</table>
11. Fortune Fashion: Answer

Mapping of contents

<table>
<thead>
<tr>
<th>Item number</th>
<th>Title</th>
<th>Learning outcome</th>
<th>Textbook chapter</th>
<th>Cognitive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>IT risks and controls; External auditors; Risk information</td>
<td>Analyse business risks, including strategic, operational and financial risks. Explain how business organisations use policies and techniques to mitigate various types of strategic, operational and financial risks. Explain how deficiencies in internal controls should be assessed and addressed. Evaluate the role that technology plays in internal control. Describe the importance of internal controls on both internal and external audits. Explore and evaluate the effectiveness of internal control systems. Evaluate the qualities and characteristics of information required in internal controls, risk management and risk monitoring. Assess the importance and limitations of information for risk management.</td>
<td>13, 14</td>
<td>3</td>
</tr>
</tbody>
</table>

Marking guide

(a) Identify specific risks relevant to the project:
   - Lack of IT experience
   - Data integrity
   - Systems development
   - Costs and delays
   - Unauthorised changes
   - Reliability
   6 marks 11 mins

(b) Recommend specific controls to manage the risks identified in (a). Six of the following controls:
   - Password protection
   - Prevention and detection of data theft
   - Checks on accuracy of migrated information
   - Exception reporting
   - Employee training on data entry
   - Reconciliations of information
   - Project adequately specified, product meets specification
   - Specialised project manager
   - Use of project management discipline
   - Adequate resourcing
   - Adequate testing of system before go live
   6 marks 11 mins
(c) Advise the AC on issues relating to the external audit – issue and recommended action
   - Auditor/company personal relationship threatening independence and familiarity leading to insufficient professional scepticism
     - Use another partner
     - Put audit firm out to tender
   - Independence threatening self-interest as there is non-audit income stream
     - Separate audit and non-audit income streams
   - Reporting issues directly to Edwin Chandler, not the Audit Committee
     - Change reporting stream so direct to Audit Committee

(d) Identify what aspects of information and communication within the risk management and internal control systems need to be reviewed.
   Three of the following, with the risk information and why it is desirable for each aspect:
   - Accuracy and completeness in data
   - Purpose and relevance of the e-commerce project scope
   - User-targeted risk information
   - Timely
   - Cost-benefit

(e) For each area of review identified in (d):
   Recommend two practical measures that could be used to carry out the review for each identified aspect:
   - Accuracy and completeness in data
   - Purpose and relevance of the e-commerce project scope
   - User-targeted risk information
   - Timely
   - Cost-benefit

TOTAL

Answer Points

(a) Examples of risks relating to the IT system are:

Risks from lack of IT experience: operational risks

Fortune has rudimentary computer systems, and there is a risk that its existing staff will make mistakes in switching to the online system.

Data integrity

The customer and inventory records will be computerised. There is a risk that in the course of computerising records data is incorrectly migrated. The transfer process is inevitably highly vulnerable to human error. This is especially the case at Fortune where staffs in this area are not IT experts and the online sales environment is new. There does not appear any specific staff training in place as yet.

There is also a danger that data may be lost in the migration process. This can be large sections of data, or even small sections of numbers or financials which may be difficult to pick up on, unless a reconciliation procedure for migration is established. The new external staff hired by Fortune to manage this project will need to be aware of the danger of lost, and/or incorrectly entered, data onto the purchased e-commerce system.
Systems development

The e-commerce system purchased may not properly meet Fortune's requirements, especially as it is an off the shelf system, and levels of specific customisation may be low. There may also be a risk of the supplier going out of business, or failing to provide continuing support. Other considerations are the availability of the source code (which may not be made available to Fortune Fashion, as systems support is often part of the business agreement of purchased software) and training for Fashion employee-programmers. There are always dangers inherent in outsourcing system software development and support to a third party.

Excessive costs and delays

Cost overruns may occur when developing or tailoring the purchased software system. This may occur if Fortune requests more customisation than initially scoped, or support during operation is larger than anticipated, or if Fortune employees need more training in using the system.

Delays may occur in the implementation of the e-commerce system. Costs of implementation may be much higher than expected. Again, this may be due to the system not operating as expected, or as initially scoped and developed.

There may also be unexpected ongoing costs of operating the system, such as costs of software/system upgrades, ongoing licence costs, larger than expected support costs, or further training needed by Fortune employees.

Ongoing unauthorised changes

Inappropriate/unauthorised changes may be made to the e-commerce platform in the course of implementation into the Fortune system – this may be from badly trained Fortune employees, or internal developers looking to find a 'quick fix' to the e-commerce system.

Reliability

Company reputation and sales will potentially be damaged if there is initial poor performance of the new e-commerce platform, and this poor performance flows through to the customer experience.

(b) The IT system will require numerous operational IT controls when the system is activated in order to address the risks identified above. The first control to be put in place may be to set up an IT function with an experienced and capable head supervising an appropriately trained and qualified team.

For example, there will be controls relating to password protection for files, this is especially important as e-commerce retains customer personal and credit card data. This will retain data integrity. There will be application of authority levels for access to files (restricted access, monitoring access).

There should be controls to prevent or detect data theft and unauthorised file transfer – again, this is essential when storing financial and identifying information as collected in an e-commerce environment.

IT controls to manage these risks in data migration include:

(i) Checks could be created to verify the accuracy of migrated information. This could include exception reporting of field values outside an expected range. Another suggested control, especially in relation to financial records, is to introduce a procedure where the master file is reconciled both before, and after, migration.

However, in relation to data integrity the risk of human error cannot be totally eliminated, especially since Fortune employees have had little to no exposure to e-commerce platforms and the operations of an online sales environment.

(ii) Ensure that all employees are adequately trained on the procedures for transferring information.
Reconciliations could be carried out to ensure completeness of information in order to avoid data loss.

**In relation to the systems development risk, the following controls could be utilised:**

(i) Ensure that Fortune Fashion’s requirements have been properly specified and the product selected meets that specification.

(ii) Fortune should appoint a specialised project manager and project management discipline enforced. Measure actual progress against milestones. Take remedial action for cost/time overruns. This will control the risk of excessive costs and delays.

(iii) Keep full documentation in relation to any changes from Fortune’s original specification and require authorisation. Create audit trail of how system developed.

(iv) Ensure that adequate resources are employed – sufficiently knowledgeable staff are employed and or existing Fortune staff adequately trained – for the development and running of the e-commerce platform.

(v) Ensure adequate test running of system before it goes live. This will assist in ensuring reliability.

(iv) Ensure adequate sign-off procedures are in place before go-live. This is two-fold and includes user testing needs to be completed, accepted and signed-off, as well as IT and systems development testing, acceptance and sign-off.

(c) Issues in relation to the **external auditor independence** for Fortune Fashion are discussed below:

Senior partner Jim Chee, the partner responsible for the audit, is a personal friend of the finance director. This carries the risk that the relationship could influence the audit opinion. A recommendation is to ensure another partner, who does not have a close relationship with Jim Chee, is responsible for the audit opinion.

Lin Tan Chee and Co has been responsible for the public audit for a long period of time, 12 years. This familiarity may lead to auditors failing to exercise sufficient professional scepticism. Fortune should consider putting the audit out for tender.

Rita Ng – the manager in charge of the audit – has performed the audit for a long period. The audit team are very familiar with Fortune Fashion through previous audit and other work. As above, independence may be threatened by excessive familiarity and the audit team may be too prepared to accept Edwin Chandler’s judgment and opinions. A recommendation is to ensure the rotation of the senior manager and staff involved with audit.

Lin Tan Chee and Co also performs considerable additional work for Fortune Fashion and will not wish to damage this relationship. This creates the risk that independence is threatened by self-interest as the partnership seeks to protect the income stream from non-audit work.

A recommendation is to use different staff on audit and non-audit work. Lin Tan Chee and Co should also examine implementing a formal audit/non-audit work policy. A recommendation is for the Audit Committee to review the fee income generated from other advisory and non-audit work. A second recommendation is to consider placing limit on the amount of non-audit work carried out by Lin Tan Chee and Co, if they want to continue to audit Fortune Fashion.

Rita is effectively pre-reporting any issues that arise directly to the finance director. The responsibility of the auditors is to provide an opinion on the financial statements to shareholders. A report on concerns in relation to the adequacy of internal controls should be made to management and the audit committee. This may be undermined if Rita feels that she reports concerns directly to Edwin. To address this issues, Rita should ensure reports of internal control weaknesses, fraud etc are reported to main Board of Fortune Fashion and Audit Committee. There should also be an annual meeting between the Audit Committee of Fortune Fashion and auditors of Lin Tan Chee and Co, without any executive management present, to ensure any issues that
may compromise independence are resolved. Lastly, Fortune should introduce an annual review of auditor independence by the Audit Committee.

(d) The first step in a review should be to **establish the facts of the project**. What information about risks relating to the e-commerce project is gathered and recorded? Who obtains it, and who is the information communicated to (and when)? How is the information used in the project? What does it cost to collect, store and update this risk information on the e-commerce project?

**Further steps**

Having determined what information is obtained and communicated and how it is used within the project, the review can consider what the desirable qualities of risk information are and whether the risk information obtained and used by Fortune Fashion for this project has these desirable qualities.

**Quality of risk information: Accuracy and completeness**, as well as reliability of information for the scoping of the e-commerce requirements of the system.

Why the quality is desirable:

(i) Software developers and internal stakeholders of the e-commerce project will have more confidence in the information in the system.

(ii) Reliable information leads to better-informed decisions (and so, in general, better decisions) about shaping the requirements of the system prior to implementation.

**Quality of risk information: Purpose and relevance of the e-commerce project scope.**

Why the quality is desirable:

(i) Information for this project should have a purpose (effective and reliable system implementation) and the information obtained should be relevant to that purpose.

(ii) If information does not meet the purpose of successful system implementation it should not be obtained.

(iii) If information is obtained for the project purpose but it is not relevant for the scope, other (more relevant) information should be obtained.

**Quality of risk information: User-targeted** – the information collated for the project scope must be targeted to all stakeholders in the e-commerce project.

Why the quality is desirable:

(i) Information about the risks in the scope of the project should be targeted at the individuals who need it and use it, such as internal users and customers. Information is of no value unless it is communicated to the people who need, including developers and internal stakeholders.

**Quality of risk information: Timeliness**

Why the quality is desirable:

(i) The information about risk in the project scope should be gathered and communicated in time for its intended user to make effective use of it.

(ii) Information communicated late has no value or diminished value.

(iii) Timeliness is very important in an IT project, where risk information needs to be collected and communicated prior to project implementation.

**Quality of risk information: Cost-benefit**

Why the quality is desirable:

(i) The costs of obtaining the risk information for the project should not exceed the value of the benefits obtained from using the information.
(e) **Quality of risk information: Accuracy and completeness**, as well as reliability of information for the scoping of the e-commerce requirements of the system.

Measure to review quality of the information and communication:

(i) Review project plan for incidents of inaccurate information, and review for opinions of internal and external stakeholders.

(ii) Use of questionnaires to obtain views of users of the e-commerce system (internal/external; back-end/front-end)

**Quality of risk information: Purpose and relevance of the e-commerce project scope**

Measure to review quality of the information and communication:

(i) Review who receives the information about risk – who are the project sponsors, who has a stake in the risks of the project. Check whether there is a record of individuals with responsibilities for managing risks, and the risks they manage. This may or may not include specific project partners.

(ii) Review who (or what system) is responsible for communicating the information to the end-user of the system and whether the information is communicated as required.

(iii) Review whether the intended user of the information about risks contained in the e-commerce project scope actually receives the information and uses it.

**Risk information: User-targeted**

Measure to review quality of the information and communication:

(i) Review who receives the information about risk – who are the project sponsors, who has a stake in the risks of the project. Check whether there is a record of individuals with responsibilities for managing risks, and the risks they manage. This may or may not include specific project partners.

(ii) Review who (or what system) is responsible for communicating the information to the end-user of the system and whether the information is communicated as required.

(iii) Review whether the intended user of the information about risks contained in the e-commerce project scope actually receives the information and uses it.

**Risk information: Timeliness**

Measure to review quality of the information and communication:

(i) Review when items of risk information are obtained and communicated, to establish whether there are unnecessary and avoidable delays in communication, which will lead onto, and impact on, project implementation.

**Quality of risk information: Cost-benefit**

Measure to review quality of the information and communication:

(i) Review the costs of obtaining information during the e-commerce project scoping stage. Does the organisation have a cost and management accounting system capable of doing this?

(ii) Assess the benefits and compare with costs.

(iii) Review the IT and user control measures actually taken on the basis of risk information collected (specifically on the IT risks of the e-commerce system), and the effects that such control measures have had on projects in the past: risk registers may be useful for this purpose.

(iv) Note that such a large scale IT project has not been undertaken by Fortune Fashion, so similar information in a company risk register may not be available. External risk registers, or risk management expertise, may have to be accessed.
12. Woodlands Furniture

Woodlands Furniture Ltd is a large furniture manufacturer listed on the Singapore Exchange (SGX). It began life as a small furniture maker 40 years ago which was owned and operated by the Chakravarty family. The company grew organically until it became the largest manufacturer of retail furniture and office furniture in Singapore.

It listed on the SGX 15 years ago, and began pursuing an aggressive growth strategy.

Woodlands is no longer controlled by the Chakravarty family, although the grandson of the founder is a Board member and owns 2% of the share capital. The company's other directors and senior managers own a further 8% between them.

The aggressive growth strategy has proved highly successful. The business has expanded rapidly through the acquisition of other furniture manufacturers in Singapore and across South East Asia and Australasia, and is now one of the top retail and office furniture manufacturers in the region.

Proposed acquisition

Today is 30 June 20X7, and the directors of Woodlands believe they have exhausted possibilities for future expansion in South East Asia and Australasia unless they are to diversify into different products, such as domestic and household furniture design and manufacture.

They have identified a potential acquisition target based in the Asian country, Country C. Luxury Furniture Ltd (‘Luxury’) is the largest listed furniture manufacturer in Country C and is listed on the country’s stock exchange. Luxury owns and operates six manufacturing facilities in Country C and surrounding countries, and exports to more areas than Woodlands – Luxury exports high quality domestic furniture to all continents, with large markets in China, Western Europe and areas of South America. They have an established and well-respected global brand.

The Appendix 1 includes summary financial information for Luxury and Woodlands.

Required

(a) Conduct a valuation of Luxury Ltd as at 30 June 20X7 using the free cash flow method to determine its market capitalisation. (Note to Candidates: market capitalisation is Luxury’s combined value of equity and value of debt.) (8 marks)

(b) State a maximum price Woodlands should pay for the acquisition based on your calculations in part (a). Recommend if Woodlands should proceed with the project. (3 marks)

(c) Calculate the value of Luxury based on its current market value of shares. State your assumptions. Compare this to the free cash flow valuation in part (a), and identify possible reasons for the variation. (8 marks)

(d) Evaluate the strategic reasoning behind the proposed acquisition of Luxury. (6 marks)

(Total = 25 marks)
Appendix 1 – Financial information

Post-tax forecast cash flows for Luxury

On the basis of published accounts, industry information and discussions with Luxury's directors, the Woodlands' directors have ignored inflation to forecast the following post-tax real cash flows for Luxury:

<table>
<thead>
<tr>
<th>Year to 30 June</th>
<th>20X8</th>
<th>20X9</th>
<th>20Y0</th>
<th>20Y1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net free cash flows before interest and after tax (C$millions)</td>
<td>31.5</td>
<td>37.5</td>
<td>41.5</td>
<td>47.2</td>
</tr>
</tbody>
</table>

Post-tax cash flows beyond Year 4 are estimated to grow at 2% per annum.

The cash flows are in real terms; that is they do not include inflation. Woodlands evaluates all its domestic investment decisions at a nominal, post-tax discount rate of 10%. Luxury's directors estimate their company's weighted average cost of capital as 12%. However, Woodlands' directors think this rate of 12% does not adequately reflect the risk of Luxury's cash flows.

The directors of Woodlands have decided to evaluate the Luxury acquisition at a weighted average cost of capital of 14% which represents the additional risks of expanding overseas.

Summary of financial statements of acquirer (Woodlands) and takeover target (Luxury)

STATEMENT OF CONSOLIDATED INCOME FOR THE YEAR ENDED 31 MARCH 20X7

<table>
<thead>
<tr>
<th></th>
<th>Woodlands Furniture</th>
<th>Luxury Furniture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$m</td>
<td>C$m</td>
</tr>
<tr>
<td>Revenue</td>
<td>1,051.5</td>
<td>215.8</td>
</tr>
<tr>
<td>Operating profit</td>
<td>241.5</td>
<td>63.6</td>
</tr>
<tr>
<td>Finance costs (including overdraft interest)</td>
<td>48.0</td>
<td>15.0</td>
</tr>
<tr>
<td>Profit before tax</td>
<td>193.5</td>
<td>48.6</td>
</tr>
<tr>
<td>Taxation</td>
<td>46.9</td>
<td>11.5</td>
</tr>
</tbody>
</table>

STATEMENT OF FINANCIAL POSITION AS AT 31 MARCH 20X7

<table>
<thead>
<tr>
<th></th>
<th>Woodlands Furniture</th>
<th>Luxury Furniture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$m</td>
<td>C$m</td>
</tr>
<tr>
<td>Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-current assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Property, plant and equipment</td>
<td>895.0</td>
<td>245.0</td>
</tr>
<tr>
<td>Current assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade receivables and inventories</td>
<td>275.0</td>
<td>88.0</td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>45.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Total assets</td>
<td>1,215.0</td>
<td>345.0</td>
</tr>
<tr>
<td>Equity and liabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share capital (Nominal value of S$1 and C$1 respectively)</td>
<td>245.0</td>
<td>50.0</td>
</tr>
<tr>
<td>Retained earnings</td>
<td>290.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total equity</td>
<td>535.0</td>
<td>150.0</td>
</tr>
</tbody>
</table>
### Woodlands Furniture

#### Non-current liabilities
- Secured loan stock 7% repayable 20X9: $475.0
- Secured loan stock 10% repayable 20X8: $135.0

#### Current liabilities
- Trade and other payables: $205.0

#### Total liabilities
- $680.0

#### Total equity and liabilities
- $1,215.0

### Luxury Furniture

#### Non-current liabilities
- Secured loan stock 7% repayable 20X9: $135.0

#### Current liabilities
- Trade and other payables: $55.0

#### Total liabilities
- $190.0

#### Total equity and liabilities
- $340.0

### Other financial information as at 30 June 20X7

<table>
<thead>
<tr>
<th></th>
<th>$</th>
<th>C$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share price today</td>
<td>6.85</td>
<td>6.95</td>
</tr>
<tr>
<td>Shares last traded on</td>
<td>19 May 20X7</td>
<td>31 January 20X7</td>
</tr>
<tr>
<td>High-Low share prices in past 12 months</td>
<td>9.25–6.25</td>
<td>7.50–5.50</td>
</tr>
<tr>
<td>Debt value (market) per S$100</td>
<td>105.50</td>
<td>N/A</td>
</tr>
<tr>
<td>Debt last traded on</td>
<td>30 December 20X6</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Notes
1. The spot exchange rate at 30 June 20X7 is C$/S$0.30 (that is, C$1 = S$0.30).
2. Current economic data relevant to Singapore and Country C are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Singapore</th>
<th>Country C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk-free interest rate per annum</td>
<td>3.5%</td>
<td>6.5%</td>
</tr>
<tr>
<td>Inflation rate per annum</td>
<td>2.5%</td>
<td>4.5%</td>
</tr>
</tbody>
</table>

The method of interest rate parity applies when forecasting exchange rates.

### Taxation

Both companies will pay tax at an average of 25% from next year for the foreseeable future. Assume a double taxation treaty is in existence between Singapore and Country C.

### Debt agreement

There is a clause in Luxury's debt agreement that says the whole of the C$135 million debt is repayable immediately in the event of a successful takeover bid.
## 12. Woodlands Furniture: Answer

### Mapping of contents

<table>
<thead>
<tr>
<th>Item number</th>
<th>Title</th>
<th>Learning outcome</th>
<th>Textbook chapter</th>
<th>Cognitive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Evaluation of acquisition and recommendation</td>
<td>Assess the impact of a project upon a company's exposure to foreign exchange, cross-border transactions and economic risk. Analyse the current and future financial position of an organisation, using techniques including ratio analysis, trend analysis and cash flow analysis. Apply capital budgeting techniques in the evaluation of capital investment decisions. Explain, apply, and justify the use of income, asset-based, and market valuation approaches used for investment decisions, business planning, and long-term financial management. Evaluate strategic considerations in mergers and acquisitions.</td>
<td>6, 2</td>
<td>3</td>
</tr>
</tbody>
</table>

### Marking guide

(a) Conduct company valuation using the free cash flow method:

- Forecast the future exchange rates using interest rate parity
- Spot rate calculation/ totals years 0–5
- Adjust real to nominal cash flows C$ at the correct inflation rate
- Apply forecast exchange rates
- Calculate equivalent nominal cash flows in S$
- Apply 14% discount factor
- Correctly calculate discounted cash flow
- Determine the terminal value for Years 5 onwards
- State market capitalisation (value of debt and value of equity)

(b) Subtract debt from total market capitalisation to determine value of equity of Luxury

- Determine maximum price for the acquisition
- Recommend if Woodlands should proceed with the project

(c) Determine value of Luxury shares

- Compare to current market value
- Determine purchase consideration
- State whether above or below current market value
- Reason for variation – synergy
- Reason for variation – Luxury over-valued
- Reason for variation – illiquidity of Luxury shares
- State all assumptions
(d) Evaluate the strategy reasoning behind proposed acquisition of Luxury
- Organic growth reached saturation
- Need to diversify to grow
- Explain reasons for diversification through internal resources or organic growth
- Recommend diversification through acquisition
- Reasons – achievement of synergies
- Reasons – access to market diversification

TOTAL

Answer Points

(a) **Note:** All the figures for the calculations are in the Appendix to the case study information.

**Exchange rate forecast using interest rate parity method**

Future spot rate C$/S$ = Spot rate C$/S$ × (1 + Singapore interest rate)/(1 + Country C interest rate)

<table>
<thead>
<tr>
<th>Year</th>
<th>C$/S$</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.300</td>
</tr>
<tr>
<td>1</td>
<td>0.292</td>
</tr>
<tr>
<td></td>
<td>[0.300 × 1.035/1.065]</td>
</tr>
<tr>
<td>2</td>
<td>0.283</td>
</tr>
<tr>
<td></td>
<td>[0.292 × 1.035/1.065]</td>
</tr>
<tr>
<td>3</td>
<td>0.275</td>
</tr>
<tr>
<td>4</td>
<td>0.268</td>
</tr>
<tr>
<td>5</td>
<td>0.260</td>
</tr>
</tbody>
</table>

**Free cash flow valuation**

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal cash flows (C$millions)</td>
<td>31.5</td>
<td>37.5</td>
<td>41.5</td>
<td>47.2</td>
</tr>
<tr>
<td>(1+4.5%)</td>
<td>(1+4.5%)²</td>
<td>(1+4.5%)³</td>
<td>(1+4.5%)⁴</td>
<td></td>
</tr>
<tr>
<td>Nominal cash flow C$</td>
<td>32.92</td>
<td>40.95</td>
<td>47.36</td>
<td>56.29</td>
</tr>
<tr>
<td>Exchange rate C$/S$</td>
<td>0.292</td>
<td>0.283</td>
<td>0.275</td>
<td>0.268</td>
</tr>
<tr>
<td>Nominal cash flow in S$ million</td>
<td>9.61</td>
<td>11.59</td>
<td>13.02</td>
<td>15.09</td>
</tr>
<tr>
<td>14% mid year discount factor (Woodlands $$ cost of capital)</td>
<td>0.937</td>
<td>0.822</td>
<td>0.721</td>
<td>0.632</td>
</tr>
<tr>
<td>Discounted cash flow</td>
<td>9.00</td>
<td>9.53</td>
<td>9.39</td>
<td>9.54</td>
</tr>
<tr>
<td>Valuation of equity and debt</td>
<td>37.46</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**For free cash flows from Year 5 onwards**

Assuming further growth of 2% per annum, the present value of the free cash flows into perpetuity from Year 5 = \(\frac{15.09(1.02)}{0.14 – 0.02} = S$219.88\) million at Year 4 values.

The present value of the perpetuity as at Year 0 (using the 4 year mid year discount factor) = \(219.88 \times 0.632 = S$139.0\) million.

Luxury’s market capitalisation, representing the combined value of equity and value if debt = 37.46 + 139.90 = $173.48 million

The weighted average cost of capital (WACC) of 14% represents the director’s estimate of the additional risk of operating overseas in a new market. There is a risk that 14% is too low for this level of additional risk. If this is the case, then the value of Luxury to Woodlands will be significantly lower.
(b) **Recommendation to proceed**

S$133m is a significant amount, however, the acquisition provides Woodlands with an opportunity to enter an overseas market with an existing company which has an established brand, infrastructure and customer base. At a value of $133m, the acquisition will deliver a 14% return if the forecast cash flows are achieved and higher returns should further growth or synergies be realised.

That said, the acquisition is not without risk, this is Woodlands first expansion overseas and Luxury, although listed, is a relatively unknown company to the Board of Woodland. Therefore, caution is advised, with the acquisition proceeding only on the basis of successful and extensive due diligence processes on Luxury to confirm the reasonableness of Luxury's forecast cash flows and the sufficiency of 14% as the appropriate risk adjusted discount rate in determining the company's value.

**Maximum price**

Luxury's market capitalisation, representing the combined value of equity and value if debt = 37.46 + 139.90 = **S$173.48 million**.

However, this includes the value of Luxury's debt, which much be deducted, as Woodlands is purchasing the equity shares only.

The total debt in Luxury is C$135m which is equivalent to S$40.5m at C$/S$0.30

Therefore, the Value of Equity in Luxury = S$173.48m – S$40.5m = S$133.0m

S$133.0m represents the maximum price which the directors of Woodlands should pay if the minimum required return is 14%. It is possible that Woodlands may agree to pay a higher value if significant revenue and cost synergies can be identified which can be valued with a degree of certainty. This is unlikely in the short term as Luxury operates in a different overseas market. On this basis, and subject to further due diligence, the maximum price to be paid is S$133.0m.

(c) **Comparison to current market value**

From the above calculations, the value of Luxury shares is **S$133.0 million**, which is above its current market value, which is 50 million \* 6.95 \* 0.3 = approximately **S$104 million**. The value of equity is S$29m above Luxury's quoted market valuation, representing a premium of 27.9%. It is usual for companies to pay a premium of between 10–25% for a target company, or even higher, as often an acquiring company can add value by changing management or operations, implementing a new strategic direction, or generating synergy due to combined nature of the new business.

**Assumptions**

(i) The current market value reflects all available information in the company, market is operating efficiently and there is sufficient trading liquidity of Luxury shares. The DCF valuation suggests shareholders will require an acquisition premiums in addition to the DCF valuation as an incentive for shareholders to sell.

(ii) Any identified synergies would raise the maximum price that Woodlands might be prepared to pay for Luxury as these additional cash flows are not included in the forecast valuation. Revenue synergy may include successfully launching Luxury products in the Singapore market, or Woodlands products in Country C. Cost synergies may include further economies of scale or combined manufacturing operations which could reduce cost of sales and overheads to increase profit margins.

**Reasons for variations**

This is so far below estimates we have made of the value of Luxury's equity shares to Woodlands using NPV that it requires further investigation. At best, it shows the hidden synergies that could be unlocked from Luxury as part of the Woodlands Group. At worst it may mean that the estimates
of Luxury’s value are over-optimistic. If we examine the last traded date on both shares, Luxury shares were last traded on 31 January 20X7, compared to 19 May 20X7 for Woodlands shares. This demonstrates that a lack of liquidity of Luxury shares could be a reason for the variation between Luxury’s market price and the valuation hence the market price does not fully reflect the value of the company or the forecast could be too optimistic.

(d) Businesses add value in two main ways – through organic growth and through merger or acquisition.

It is clear the Woodlands has achieved a high level of growth in its product area of retail and office furniture through both strategies in the past – both organic growth and strategic Asian alliances.

Woodlands is now a large market player in the office and retail furniture space and may have achieved almost total saturation here.

They need to diversify to continue to grow. Again, Woodlands could choose to diversify using internal resources and/or organic growth strategies. This is risky as Woodlands do not have the design or manufacturing expertise to produce other types of furniture – such as domestic furniture which, at least design-wise, is very different to retail space and office furniture. This is particularly the case in domestic furniture as that is highly reliant on style and design, as well. While Woodlands may well be able to use its own manufacturing facilities to produce such furniture, the lack of expertise in the design areas is critical to the success of any future diversification.

Woodlands also lacks any key clients in this new product and market.

Woodlands would also be able to predict that domestic furniture may be able to be sold to at least some of their existing client base.

Acquisition in order to achieve product diversification is a very attractive strategy here. The acquisition of Luxury would allow for synergies in revenues and costs to be realised in this manner generating value over and above the purchase price paid. The strong brand of Luxury is of particular value as the Woodlands brand is unknown; coupled with the design and management expertise, this provides strong non-financial reasons in favour of the acquisition strategy.

Luxury also has access to export markets not currently accessed by Woodlands. This provides for market diversification as well.
13. Global Bank and Farma Ltd

Bank’s acquisitions: 20X0 – 20X4

A major global bank made a number of acquisitions in the years 20X0–20X4 where serious problems with risk management subsequently emerged.

The Board of Directors of the bank had a policy of pursuing growth through acquisitions, and allowing the management of acquired subsidiaries to run their business with only limited involvement or interference from Head Office. As a result, risk management was devolved to the management of the individual subsidiaries.

Three acquisitions were a source of serious problems:

(i) In 20X4 the bank acquired a consumer finance business in the USA, which provided loans to small borrowers, including so called ‘sub-prime’ loans where the credit quality was poor. In the financial collapse of 20X7, when there were widespread defaults on sub-prime loans, the bank incurred losses of billions of dollars.

(ii) In 20X3, the bank acquired a subsidiary in Mexico which was subsequently accused of assisting with the money laundering of drug money. The bank paid a fine of US$1.9 billion to the US authorities.

(iii) In 20X0, the bank acquired a private bank in Switzerland. During the years 20X5–20X7, the private bank assisted large numbers of foreign customers with measures to evade (or avoid) tax in their own country. A whistle-blower gave details to the French authorities in 20X7 and subsequently (although not until 20Y6) details of the bank’s activities and the client accounts were given to the world press. The full implications of these revelations for the bank are not yet known, although it is reported to be trying to divest itself of this subsidiary operation in Switzerland.

Global bank blue chip investment plan

The global bank offers its retail customers access to a range of blue chip shares listed on the Singapore Exchange (SGX) through a monthly blue chip investment plan. The bank selects a range of companies, trusts and exchange traded funds that appear on its list of available investment options. Potential investments are evaluated on the basis of their ability to create value for investors, and the degree of risk associated with them. The bank regularly reviews the investments in the portfolio, in order to try to maximise the performance of customers’ investment plans. One of the companies whose shares are currently included in the plan is the pharmaceutical company, Farma Ltd.

Farma Ltd is a multinational global pharmaceutical company based in Singapore and listed on the SGX. It develops medicines that it sells globally.

Farma Ltd is currently facing two major risks. The first is that it may need to spend large amounts of money on research and development of new drugs, only to find that they fail to pass clinical trials and so cannot be produced for commercial sale. Experience seems to show that when the company is able to launch a new drug on to the market, it is likely to be a commercial success. A second risk, however, is the possibility of legal action by users of the company’s drugs, particularly in the USA, claiming compensation for the alleged harm caused to patients from using a drug.

The following information relates to the composition of the Board and Board Committees of Farma Ltd, as they appear in the company’s recently published annual report and accounts:

<table>
<thead>
<tr>
<th>The Board of Directors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr Wu Hon Wah</td>
</tr>
<tr>
<td>Mrs Brenda Tay</td>
</tr>
<tr>
<td>Ms Wong Kok Liang</td>
</tr>
<tr>
<td>Mr Mujeeb Ansari</td>
</tr>
<tr>
<td>Ms Lin Xi Kheng</td>
</tr>
<tr>
<td>Mr Leo Chew</td>
</tr>
<tr>
<td>Mrs Teng Chiew Yee</td>
</tr>
<tr>
<td>Mr Ng Kum Tao</td>
</tr>
</tbody>
</table>
The Board Committees

<table>
<thead>
<tr>
<th>Nominating Committee (NC)</th>
<th>Audit Committee (AC)</th>
<th>Remuneration Committee (RC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr Wu Hon Wah (Chair)</td>
<td>Mr Leo Chew – Chair</td>
<td>Mr Mujeeb Ansari – Chair</td>
</tr>
<tr>
<td>Mrs Brenda Tay</td>
<td>Mr Wu Hon Wah</td>
<td>Mrs Teng Chiew Yee</td>
</tr>
<tr>
<td>Mr Leo Chew</td>
<td>Mr Mujeeb Ansari</td>
<td>Mr Ng Kum Tao</td>
</tr>
<tr>
<td>Mrs Teng Chiew Yee</td>
<td>Ms Lin Xi Kheng</td>
<td></td>
</tr>
<tr>
<td>Mr Ng Kum Tao</td>
<td>Mr Ng Kum Tao</td>
<td></td>
</tr>
</tbody>
</table>

Enterprise Risk Management at the global bank

Last year, the global bank appointed a new Chairman.

Since taking office, the Chairman has been reviewing the bank’s organisation-wide approach to risk management. He has found that the bank has made some significant improvements in the quality of its overall risk management in recent years, although he believes there is still room for further improvement.

In a recent discussion about the bank’s enterprise risk management, the Chairman made the following comments:

‘The bank’s initiatives to improve the quality of risk management appear to have focused almost exclusively on reducing existing risks, rather than looking at how the bank creates and enhances value for its stakeholders.

The Board has produced a risk register identifying the risks that could affect the bank’s performance of its strategy, and the Board assesses the severity of those risks. Risks have been prioritised and the bank has developed its responses to the risks in accordance with this prioritisation. However, the Board doesn’t appear to consider risk when evaluating alternative strategies, nor to evaluate the potential impact of those strategies on the bank’s risk profile. When management propose new strategies, the Board should review them to ensure they align with the bank’s core values, but this doesn’t currently happen.

In addition, the bank needs to do more to define the desired behaviours that characterise its desired culture.’

The Chairman believes that it would be beneficial for the Board to adopt the principles of COSO’s 2017 enterprise risk management framework Enterprise Risk Management – Integrating with Strategy and Performance. He told the directors that the points it makes about the relationships between risk, strategy and value could be particularly important for the bank to consider.

However, the other directors are not familiar with the 2017 Framework and have asked for more information about it.

Required

(a) Critically evaluate what the three acquisitions in 20X0–X4, and the subsequent events, indicate about the quality of risk management and the risk management framework within the bank at that time. (6 marks)

You have been asked to help provide training to the Board of the bank about COSO’s 2017 Enterprise Risk Management (ERM) framework.

(b) With reference to the rationale in COSO’s ERM framework, briefly explain how ERM can help an organisation deliver value to its stakeholders. (6 marks)

(c) With reference to the principles in COSO’s ERM framework, evaluate the bank’s current ERM practices, as far as is possible based on the Chairman’s comments about them. (9 marks)
You have also been asked to review some aspects of risk management at Farma Ltd.

(d) Explain how the Board of Directors of Farma Ltd can decide the company's risk appetite for the development of new drugs, and how risk tolerance limits may be set that are consistent with the Board's risk appetite. If you consider that it is not possible to establish a risk appetite, explain why. (6 marks)

(e) Explain how much information Farma Ltd, as a listed company in Singapore, should provide in its annual report about risks facing the company and the company's management of those risks. Advise how important and useful this information may be to investors. Justify your advice, ensuring it is linked to Farma Ltd. (6 marks)

(f) Evaluate the composition of the Board of Directors and the Board committees of Farma Ltd. Explain the areas of compliance and non-compliance with the guidelines of the Code of Corporate Governance. (4 marks)

(g) For three instances of non-compliance identified in (d) above, recommend a change to achieve compliance that does not increase the total size of the Board of Directors. (3 marks)

(Farmer Ltd has a large pesticide manufacturing and distribution division. The manufacturing process for its pesticides involves the handling of toxic materials, and the company and its Board are highly aware of the need for strict safety procedures to prevent accidents to employees and damage to the environment (which could create public health problems).

(h) The chairman of the AC has asked the Head of Internal Audit to carry out an investigation into internal control measures for health and safety in the company's pesticide manufacturing operations.

Prepare a report explaining the plan for the internal audit exercise, explaining the matters that the internal auditors should review and investigate. (5 marks)

(Total = 45 marks)

Mapping of contents

<table>
<thead>
<tr>
<th>Item number</th>
<th>Title</th>
<th>Learning outcome</th>
<th>Textbook chapter</th>
<th>Cognitive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Risk assessment framework; COSO ERM framework; Board composition; Internal controls and Internal Audit</td>
<td>Describe and evaluate a risk assessment framework. Demonstrate how an organisation should implement the twenty Principles of the COSO Enterprise Risk Management Framework. Describe how an integrated organisation-wide approach to risk management and internal control can help create, enhance and protect stakeholder value. Explain risk appetite and how this affects risk policy. Assess the importance and limitations of information for risk management. Explain and evaluate the roles and responsibilities of Boards of Directors and the composition and structure of the Board. Describe and assess the purposes, roles and responsibilities of directors and non-executive directors (NEDs), including independent directors. Explain and evaluate the role and purpose of the Board committees in effective corporate governance. Explain the importance of internal controls and risk management in corporate governance. Describe the importance of internal controls in both internal and external audits. Explore and evaluate the effectiveness of internal control systems.</td>
<td>13,14</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1, 13</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16</td>
<td>3</td>
</tr>
</tbody>
</table>
### Marking guide

<table>
<thead>
<tr>
<th>(a)</th>
<th>6 marks</th>
<th>11 mins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critically evaluate each of the three acquisitions and events in terms of risk management.</td>
<td><strong>(a)</strong></td>
<td><strong>(a)</strong></td>
</tr>
<tr>
<td>Determine what they indicated about the quality of risk management and risk management framework.</td>
<td><strong>(a)</strong></td>
<td><strong>(a)</strong></td>
</tr>
<tr>
<td>Make a strong conclusion and argument that risk management appears to have been very poor in the bank.</td>
<td><strong>(a)</strong></td>
<td><strong>(a)</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(b)</th>
<th>6 marks</th>
<th>11 mins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain key arguments in the COSO Framework about risk management and value.</td>
<td><strong>(b)</strong></td>
<td><strong>(b)</strong></td>
</tr>
<tr>
<td>Identify and explain key concepts in Framework: ensuring strategies align with mission and values; understanding the implications of strategies before choosing them; managing risks to executing strategies.</td>
<td><strong>(b)</strong></td>
<td><strong>(b)</strong></td>
</tr>
<tr>
<td>Explain implications of these concepts for managing risk and creating value.</td>
<td><strong>(b)</strong></td>
<td><strong>(b)</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(c)</th>
<th>9 marks</th>
<th>16 mins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify components (and/or principles) of the ERM Framework which are relevant: Governance and culture; Strategy and objective-setting; Performance.</td>
<td><strong>(c)</strong></td>
<td><strong>(c)</strong></td>
</tr>
<tr>
<td>Identify and evaluate issues highlighted by Chairman’s comments:</td>
<td><strong>(c)</strong></td>
<td><strong>(c)</strong></td>
</tr>
<tr>
<td>Board risk oversight.</td>
<td><strong>(c)</strong></td>
<td><strong>(c)</strong></td>
</tr>
<tr>
<td>Define desired culture.</td>
<td><strong>(c)</strong></td>
<td><strong>(c)</strong></td>
</tr>
<tr>
<td>Evaluate alternative strategies.</td>
<td><strong>(c)</strong></td>
<td><strong>(c)</strong></td>
</tr>
<tr>
<td>Identify and assess risks affecting ability to achieve strategy.</td>
<td><strong>(c)</strong></td>
<td><strong>(c)</strong></td>
</tr>
<tr>
<td>Prioritise risk, and select appropriate risk responses.</td>
<td><strong>(c)</strong></td>
<td><strong>(c)</strong></td>
</tr>
<tr>
<td>Importance of risk management linking to strategy, and objective-setting, not just reducing existing risks.</td>
<td><strong>(c)</strong></td>
<td><strong>(c)</strong></td>
</tr>
<tr>
<td>Assessment of how well the bank is performing these different elements of ERM.</td>
<td><strong>(c)</strong></td>
<td><strong>(c)</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(d)</th>
<th>6 marks</th>
<th>11 mins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define risk appetite.</td>
<td><strong>(d)</strong></td>
<td><strong>(d)</strong></td>
</tr>
<tr>
<td>Present broad risks facing the development of new drugs and medicines.</td>
<td><strong>(d)</strong></td>
<td><strong>(d)</strong></td>
</tr>
<tr>
<td>Present points determining how Board of Directors can set the company’s risk appetite for the development of new drugs.</td>
<td><strong>(d)</strong></td>
<td><strong>(d)</strong></td>
</tr>
<tr>
<td>Set risk tolerance limits that are consistent with the Board risk appetite.</td>
<td><strong>(d)</strong></td>
<td><strong>(d)</strong></td>
</tr>
<tr>
<td>Discuss impediments to establishing risk tolerance limits.</td>
<td><strong>(d)</strong></td>
<td><strong>(d)</strong></td>
</tr>
<tr>
<td>Explain clearly (and why) it may not be appropriate to establish risk tolerance limits.</td>
<td><strong>(d)</strong></td>
<td><strong>(d)</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(e)</th>
<th>6 marks</th>
<th>11 mins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish relevant elements of Mainboard listing rules and Code of Governance for reference.</td>
<td><strong>(e)</strong></td>
<td><strong>(e)</strong></td>
</tr>
<tr>
<td>Importance of information about risk for Farma investors including the bank.</td>
<td><strong>(e)</strong></td>
<td><strong>(e)</strong></td>
</tr>
<tr>
<td>Useful of the information about risk for Farma investors including the bank.</td>
<td><strong>(e)</strong></td>
<td><strong>(e)</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(f)</th>
<th>4 marks</th>
<th>7 mins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain areas of compliance and non-compliance with the Code of Corporate Governance.</td>
<td><strong>(f)</strong></td>
<td><strong>(f)</strong></td>
</tr>
<tr>
<td>Composition of the Board.</td>
<td><strong>(f)</strong></td>
<td><strong>(f)</strong></td>
</tr>
<tr>
<td>Composition of the NC.</td>
<td><strong>(f)</strong></td>
<td><strong>(f)</strong></td>
</tr>
<tr>
<td>Composition of the AC.</td>
<td><strong>(f)</strong></td>
<td><strong>(f)</strong></td>
</tr>
<tr>
<td>Composition of the RC.</td>
<td><strong>(f)</strong></td>
<td><strong>(f)</strong></td>
</tr>
</tbody>
</table>
(g) Recommend a chance to achieve compliance that does not increase the total size of the Board
Three of the following:
- Composition of the Board
- Composition of the NC
- Composition of the AC
- Composition of the RC

(h) Explain the matters that the internal auditors should review and investigate:
- Strategy and policy for health and safety
- People and structures
- Processes and controls
- Assurance and assessment
- Report conclusions and recommendations

Answer Points

(a) Although full information is not available, it would seem that the problems that subsequently emerged in the acquired subsidiaries were already in existence at the time of the acquisitions. If so, it might seem that the bank did not carry out sufficient due diligence into the businesses and their risk before making the acquisitions. Risk was probably a subordinate consideration to the strategic push for growth in the bank’s business.

After acquiring these subsidiaries, the bank’s Board and senior management appear to have delegated all responsibilities for risk and risk management to the management of the subsidiaries. Presumably the same delegation of authority for risk management occurred in other subsidiaries acquired by the bank during the period. However, although it is appropriate to delegate authority for risk management within an enterprise risk management framework, there must also be accountability. The Board of Directors and senior management within the bank must also retain responsibility for risk. This does not appear to have happened. Instead of an integrated enterprise risk management system covering all the bank’s operations, there seem to have been separate and uncoordinated risk management systems at subsidiary company level.

Risk management within the three subsidiaries seems to have been poor. In two cases, where the bank assisted with breaking the law, there appears to have been serious breaches of ethical standards. This may have been due to poor monitoring of risk by management or it may have been deliberate criminal/unethical activity by the bank’s management.

Banks usually have a large risk management structure, with a Risk Committee of the Board, management risk committees, specialist risk officers, money laundering reporting officers, internal auditors, and so on. It may be asked why the bank, if it did have such a risk management structure, failed to identify the problems at a much earlier stage. In the Swiss private bank, the problem was identified initially by a whistle-blower, not by any manager or risk officer within the bank.

The fact that a whistle-blower had to take information to government authorities suggests that the bank lacked a whistle-blowing procedure that employees could trust.

(b) All the decisions an organisation takes have an impact on value – either through creating new value, or preserving existing value. For senior management, these decisions could relate to strategy selection, or establishing business objectives and performance targets, or the allocation of resources.

COSO's 2017 ERM Framework recommends a change in the way organisations view ERM in the context of strategy and performance. Traditionally, many organisations have viewed the principal focus of risk management as preventing the erosion of value, and controlling risk to an acceptable
level to aid the successful execution of existing strategies. (The Chairman’s perception is that this is the approach to risk management which the bank has taken in recent years.)

However, COSO argues that ERM should be integral to strategy setting and to identifying opportunities to create and maintain value, not simply focusing on reducing risk to an acceptable level. The Updated Framework Document argues that ERM can help organisations create, preserve and realise value by addressing three key concepts:

- Ensuring strategies and business objectives align with mission and core values
- Understanding the implications of potential strategies before choosing them
- Managing the risks to executing a strategy successfully.

The third of these points characterises the traditional view of ERM, but COSO argues the other two could potentially have a far greater impact on an organisation’s value.

Selecting a strategy that does not match to an organisation’s mission, core values and culture could potentially be very damaging to an organisation – and in the worst case could even result in organisation failure. Therefore, ERM has a key role to play in assessing whether a potential strategy aligns with an organisation’s mission and core values, before that strategy is selected.

Similarly, before choosing a given strategy, an organisation needs to understand the implications of that strategy – in terms of its risk profile, and the resources it will require. For example, if an organisation doesn't have the resources or capabilities to execute a strategy successfully, this will undermine the value the organisation can generate from that strategy.

An ERM approach which integrates all three of these points should help an organisation manage not only the downside risks (attached to implementing its existing strategies) but also the upside risks associated with potential new strategies. If an organisation manage these risk successfully, this should help it create value and seize competitive advantage.

The Chairman’s findings provide us with some insights into the bank’s ERM practices in relation to three of the five main components of ERM highlighted by COSO: governance and culture; strategy and objective-setting; and performance.

**Governance and culture**

Governance sets the organisation’s tone, including reinforcing the importance of ERM and establishing oversight responsibility for it. Culture encompasses an organisation’s ethical values and desired behaviours, as well as an organisation’s understanding of risk. An organisation’s culture is typically reflected in its decision-making.

- **Board risk oversight** – COSO recommends that, as part of providing oversight, the board should review management’s proposed strategies to ensure they align with the organisation’s mission and core values. However, the Chairman’s findings suggest that the board is not currently undertaking this review (or is not undertaking it as thoroughly as it could be).

- **Define desired culture** – Another of the principles recommended in the Framework is that an organisation should define the desired behaviours that characterise its desired culture. It appears that the bank has made some attempt to define the desired behaviours, although the Chairman's assessment is that it still 'needs to do more'.

**Strategy and objective-setting**

- **Evaluate alternative strategies** – One of the key messages in COSO’s 2017 Framework is that organisations need to integrate risk management into the process of setting their strategies and business objectives. Accordingly, one of the principles in the Framework is that – as part of the process of evaluating alternative strategies – an organisation should consider the strategies’ potential impact on its risk profile. Again, however, the bank doesn't appear to be doing this. Perhaps more significantly, the bank doesn't appear to consider the risks associated with different strategies when evaluating them.
Performance

Principles 10–14 of COSO’s ERM Framework advise that an organisation needs to identify and assess the risks that may affect its ability to achieve its strategy and business objectives. The organisation should then assess the severity of the risks, and prioritise them in order to select response to them, based on their severity. Having prioritised the risks, the organisation should then identify and select appropriate risk responses.

By producing a risk register, prioritising the risks, and developing responses based on this prioritisation, the bank appears to be carrying out this aspect of ERM well.

In effect, the ‘performance’ aspect of ERM could be seen as the ‘traditional’ aspect of risk management – managing the threats associated with existing strategies, to enable an organisation to pursue them successfully. As such, it should perhaps not be a surprise that the bank is performing well in this area, because this is consistent with the Chairman’s overall comment that the focus of the bank’s risk management has been on reducing existing risks rather than looking to create and enhance. As mentioned in the answer to part (b), the aspects of ERM linked to strategy and objective-setting have greater potential to create and enhance value, but the bank’s ERM practices currently appear to be very weak in this area.

A policy on risk appetite is a statement by the Board about the scale or scope of risk that it is prepared to allow a company to accept in pursuit of its business objectives. In the case of Farma Ltd, policy will relate to the Board’s risk appetite for developing new drugs and medicines.

The risks are failure to develop a new drug so that it obtains regulatory approval for commercial development (and the costs associated with aborted development work), and risk from legal actions against the company from dissatisfied users of the company's drugs.

The company's business is to develop and sell drugs and medicines, but if some types of drugs or medicines are more likely to obtain regulatory approval than others, the Board may decide on limits to its investment in the type of drugs that are least likely to get through development and clinical trials successfully.

The Board may also decide that Farma should restrict the number of new drugs or medicines in development at any time.

Risk tolerance limits could therefore be set on budgeted spending limits for research and development into various/different types of drugs, and also a maximum limit to the number of development projects at any time.

It may be impossible to decide a policy on risk tolerance for the costs of legal action. Once a drug has been launched on to the commercial market, this is a risk that the company's management cannot control. The ideal number of legal actions against the company is zero, but legal actions are decided by the users of drugs (or their representatives), not by the company.

However, if the risk of legal actions is particularly high in the USA, and if the costs of legal actions are a threat to the overall profitability of a drug, the Board of Farma may decide on a risk appetite policy of restricting or avoiding the sale of certain drugs to customers in the USA. This is a matter on which the company's risk officers or legal staff may be able to advise.

(e) Importance of the information about risk

Investors' decisions about whether or not to invest in a company are based on the investors' expectations about future returns and also the risk of variability in these expected returns. Risk should be an important element in any investment decision. In this case, when evaluating whether or not to include a company's shares in the list of shares available to its customers, the bank needs to consider the risks associated with that company. If the bank includes shares in its portfolio which subsequently perform poorly, this could damage the reputation of the bank's investment plan with its customers, and could mean that fewer customers invest in the plan in future. The bank, and other investors', assessment of risk could be particularly important in relation to major pharmaceutical companies like Farma Ltd, who will be highly exposed to financial (global...
operations) and operational (drug research and production) risks. They are also highly regulated across operations and jurisdictions. The bank, and all other investors, should be wary of any pharmaceutical company that does not provide full disclosure of a comprehensive risk program in its annual report.

Usefulness of the information about risk

However, the information provided by Farma also needs to be useful (as well as comprehensive). It needs to be understandable and relevant from a global and a local perspective. Information about key risks and measures taken to deal with those risks, and information about significant 'risk incidents' and how these were dealt with, can be very useful in assessing the risk of investing in Farma. The bank, and other investors, should be reassured by evidence indicating that the risk management system is robust. (Simple assurances by Farma in its annual report that it has reviewed the risk management system and found it to be effective, have little value without supporting evidence). Companies can make risk information very vague as publically available information on these matters is a commercial risk as the competition can access it. Farma will need to balance the commercial risk against the need to publish comprehensive and specific risk information.

Composition of the Board

The basic rule is that at least one-third of the Board should consist of independent directors. However in some circumstances, at least half of the Board should be independent directors: these include situations where the chairman is part of the management team or is not an independent director. Here, Mr Wu Hon Wah is an executive and so cannot be independent, which means that to comply with the Code guidelines, at least half the Board should be independent. At the moment only three out of eight directors are independent, which is less than half.

Composition of the Nominating Committee (NC)

The NC should consist of at least three directors, and the majority of its members including the chairman of the NC should be independent. The NC currently consists of five members and the majority are independent; however the chairman is Mr Wu Hon Wah, who is not independent.

Composition of the Audit Committee (AC)

The AC should consist of at least three non-executive directors, and the majority of its members including the chairman of the AC should be independent. The AC currently consists of five directors, one of whom is Mr Wu Hon Wah (executive) and two are non-executives but not independent. The current chairman (Leo Chew) of the AC is independent. However, there should be three non-executive directors on the AC, so it is not currently compliant.

Composition of the Remuneration Committee (RC)

All members of RC should be non-executive directors. The RC should consist of at least three non-executive directors, and the majority of its members including the chairman of the RC should be independent. The RC currently consists of three directors, and the majority are independent. However, although the RC chairman, Mr Mujeeb Ansari, is a non-executive director he is not independent.

Mr Ng is a member of all three Board committees, which may not be satisfactory – both in terms of whether he is able to give sufficient commitment to all three committees as well as the main Board, and also in terms of whether the Board may become over-reliant on his contribution to its work.

Composition of the Board – Recommendation

Without increasing the size of the Board, there are two possible solutions to achieve compliance with the Code. Firstly, Mr Wu might agree to become a co-vice chairman, alongside Mrs Tay, and one of the independent directors could be appointed as chairman. More than one-third of the Board would be independent, and this would comply with the Code.
Secondly, two non-independent non-executive directors could be asked to resign from the Board. However this would leave a Board that is perhaps too small, with only three non-executive directors available to act as members of the Board committees.

**Composition of the NC – Recommendation**

To comply with the Code, Mr Wu Hon Wah should give up the chairmanship of the NC, but can remain on the committee. One of the independent directors should be appointed as NC chairman.

**Composition of the AC – Recommendation**

To comply with the Code requirement that all AC members should be non-executive directors, the AC could be reduced to three members, with Mr Wu Hon Wah and one of the non-executive directors who are not independent leaving the committee. (An alternative would be to replace Mr Wu with independent director, Mrs Teng, if the Board wishes to keep the two non-independent non-executive directors on the committee.)

**Composition of the RC – Recommendation**

To comply with the Code, the membership of the committee can remain unchanged, but one of the independent directors should become the RC chairman.

(h) The report needs to contain the plan under all the following categories for review and investigation.

**Aspects of the IC system**

(i) **Strategy and policy for health and safety**

The IA team should establish that the company has clear policy objectives for health and safety. These may be expressed in general terms, such as ‘to prevent chemical accidents at work’ or ‘to prevent illegal and damaging emissions to the environment arising from pesticide production’. Policy objectives may also be specified, such as: ‘preventing any serious injury at work to an employee and restricting minor injuries to no more than x% of the work force in any year’. Quantitative limits on emissions to the environment due to pesticide production may also be specified. There should be a review of applicable regulatory and industry-specific standards, such as the Ministry of Manpower’s Workplace Safety and Health Act.

(ii) **People and structures**

The IA team should verify that there is a clear organisational structure of responsibilities for health and safety, with individual managers personally responsible for control over specific aspects of operations and control measures over dangerous manufacturing.

(iii) **Processes and controls**

The IA team should review the formal working processes and procedures, and the controls that are embedded in those processes and procedures.

Due to the dangerous nature of production, there will be legal requirements and official industry standard practices, the IA team should verify that the processes and procedures used by the Farma pesticides division conform to the industry standards.

The processes, procedures and controls that are investigated should cover all aspects of the pesticides manufacturing operation: materials storage; materials handling; product processes and the use of materials; the treatment of waste; cleaning procedures; and emissions to air, land or water.

(iv) **Assurance**

The IA team should look at the measures that are taken by management to ensure that the controls over pesticides production are properly applied in practice, that the controls are having their intended effect, and that the required processes and procedures are properly applied.
The internal auditors are looking for assurance that the established standards and rules are actually applied in practice.

The IA team should consider using subject matter experts in their review of the all controls due to the specialised and sensitive nature of the industry.

The auditors should look at accident reports that have been produced for management, management committees and the AC (or Board) – and the measures that were taken in response to these reports. The IAs should obtain data about the number of accidents or excessive emissions from the pesticides manufacturing process.

The IAs should obtain their own evidence about compliance with standard processes and procedures, and their embedded controls. Evidence may be obtained by means of physical inspection (for example, of accident reports, chemical spill reports or related emissions reports), observation of the work environment and operations or interviews with employees.

(v) Assessment

At the end of the exercise, the Head of IA should consider the audit evidence that has been gathered and reach a view about whether the health and safety policy objectives are being met, and the supporting internal control system is effective in contributing to those objectives.

Report conclusions and recommendations

State whether, in the views of IA, the operating procedures and processes practiced in pesticides manufacturing comply with legal requirements and industry standards and with the company's health and safety policy objectives.

State whether there appear to be any significant control weaknesses and if so: what they are; whether they have been reported to management; and the measures (if any) that management are taking to deal with them.

Provide an assessment by IA of the risks to employees in the pesticides manufacturing division; to the continuing achievement of the company's policy objectives for health and safety; and the risks to public health. The assessment may attempt an estimate of the potential risk to the company in terms of costs (legal claims for compensation, absences from work due to injury) that remain (ie the residual risk within the existing system).
14. Rochor Automotive

Rochor Automotive Ltd is a well-established listed automotive technology business in Singapore. It has turnover of around S$485 million per annum, and its gearing level is 1:3 (Debt: Equity by market value). Dividends last year were S$0.25 a share, representing a pay-out ratio of 40%. The share price is currently S$9.40 per share for the 100 million shares in issue.

Rochor has developed and successfully patented a new type of rechargeable battery for electronic vehicles that dramatically increases the range of those vehicles to over 500 miles on a single charge. Perhaps most impressive, however, is the battery's ability to recharge fully in under a minute using Rochor-manufactured charging equipment. This equipment is also patent-protected.

The Board of Rochor are looking to set up their manufacturing plant for the battery cells and charging equipment. They are open to suggestions as to the best way to achieve this, but so far they have been considering two options:

Acquisition of Sembawang Precision Engineering Pte Ltd (SPE)

SPE is an all-equity financed, listed manufacturing business based in Singapore that currently manufactures traditional batteries and ancillary equipment for use in industrial applications. The majority shareholders (old friends of Rochor's Chief Executive Officer (CEO)) are looking to sell their shares and retire.

Earnings last year were S$7.5 million on S$100 million turnover. The current sales mix for their batteries and ancillary equipment is 65% heavy industry and 35% automotive.

Foreign Direct Investment in Myanmar

Rochor has developed reasonably good links with the Myanmar Government, and is considering taking advantage of the low cost base in that location to set up a manufacturing plant, with a life of approximately 25 years. However, Rochor has little experience of overseas investment, and the Board is concerned with the array of additional risks this presents.

Despite reasonably good relationships with the government, and the existence of a double tax treaty with Singapore, the Board are concerned that the Myanmar Government may tighten up legislation relating to employment and foreign investors as the Myanmar economy grows.

Inflation in Myanmar is running at around 5% per annum compared to around 0% per annum in Singapore. The current exchange rate for the Myanmar kyat against the Singapore dollar is MMK761/S$1.

The Singapore weighted average cost of capital is 15%.

Required

(a) Explain the advantages and disadvantages of investing overseas compared to domestically specifically in Rochor's case. (4 marks)

(b) Apart from foreign direct investment, identify two alternative options Rochor could consider for expansion into Myanmar. (4 marks)

(c) Recommend, based on your answers to (a–b), how you think the expansion should be achieved. (2 marks)

(d) Explain the different methods for valuing SPE. Clearly identify the pros and cons of each technique in this scenario. (5 marks)

(e) Explain the likely direction of exchange rates between Singapore and Myanmar, and the implications of this for the decision of whether or not to invest. Justify your commentary. (3 marks)

(f) Recommend a suitable WACC for use in the valuation of the Myanmar plant and explain your choice. (6 marks)
(g) Identify four areas of risk when managing an overseas operation such as the Myanmar project, and recommend how each risk can be managed. (4 marks)

(h) Determine the options available to finance the possible routes for expansion. Which do you recommend in each case? Justify your recommendations. (6 marks)

(Total = 34 marks)
14. Rochor Automotive: Answer

Mapping of contents

<table>
<thead>
<tr>
<th>Item number</th>
<th>Title</th>
<th>Learning outcome</th>
<th>Textbook chapter</th>
<th>Cognitive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>Expansion options: Valuations; Funding and overseas risks</td>
<td>Evaluate strategic considerations in mergers and acquisitions.</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Discuss the arguments for and against the use of mergers and acquisitions as a method of corporate expansion.</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assess the impact on a project upon a company's exposure to foreign exchange, cross-border transactions and economic risk.</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assess the impact of an acquisition or merger on the risk profile of the acquirer.</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evaluate the significance of exchange controls for a given investment decision and strategies for dealing with restricted remittance.</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Compare the various sources of financing available to an organization, including bank financing, financial instruments and bond, equity and treasury markets.</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

Marking guide

(a) Two advantages:
- Low cost location
- Myanmar Government relationship
- International diversification

Two disadvantages:
- FX risk
- Unknown culture and language
- Distance
- Foreign investor and government policy risk

4 marks 7 mins

(b) Identify the two following options for expansion (not foreign direct investment) into Myanmar:
- Joint venture – identification and discussion of operation
- Under licence – identification and discussion of operation

4 marks 7 mins

(c) Recommend how you think the expansion should be achieved
- Joint venture
- Reason for joint venture due to high risk nature of investment

2 marks 4 mins

(d) Options for valuing SPE:
- Current share price
- Cash flow based
- Revised net assets
- Earnings based
- EVA and MVA

5 marks 9 mins
(e)  
- Use PPP to determine exchange rate movement  
- Determine Burmese Kyat set to devalue  
- MMK cost will lower in S$  
- Operation run as cost centre and value enhanced  
- Consider change in inflation and 25-year nature of investment  

3 marks  5 mins

(f)  
- Use forecast exchange rates  
  - Translate cash flows  
  - Discount at 15%  
  - Use discount  
  - Discount MMK flows at MMK weighted average cost of capital (WACC)  
  - Translate Singapore WACC  
  - Determine future spot rate using interest rate parity  
  - State assumptions and determine problems with method  

6 marks  11 mins

(g)  
- Four risk areas in managing Myanmar operation: Distance – joint venture is an option  
- Language/culture/religion/local customs – maintain local relations  
- Local laws – use local advisers, strategies for repatriation of funds  
- FX risks – source of finance, hedging strategies  

4 marks  7 mins

(h)  
- Recommendation for SPE acquisition is debt  
  - Current gearing  
  - External availability  
  - Security  
  - Cash resources  
  - Taxable profits  
  - Recommendation for Myanmar potential investment is debt  
    - Availability of capital  
    - Operational hedge  
    - Kyat-denominated bonds  

6 marks  11 mins

TOTAL  
34 marks  61 mins

Answer Points

(a)  
**Advantages**

The advantages are that Myanmar is a low cost location, and the venture builds on existing good relationships with the Myanmar Government. An additional advantage is international diversification in that there is less exposure to the Singapore economy.

**Disadvantages**

There are three foreign exchange risks. These are transaction (potentially if supplies are purchased from overseas), translation (financial reporting risk as the overseas investment is consolidated) and economic (NPV of the project affected by exchange rate movements).

Myanmar is a relatively unknown culture and language for Rochor. This makes communications difficult, and local practices may lead to unanticipated errors or issues. There is the issue of distance, making operations more difficult to control. Lastly, as a foreign investor Rochor could be targeted by Myanmar policies in the future (e.g. repatriation restrictions or additional taxes).
(b) Two other options for expansion into Myanmar outside of the foreign direct investment being considered are discussed below:

(i) **Joint venture** – This could help manage the risk of overseas investors being targeted by the Myanmar Government, and bring in some local knowledge of law, culture and regulation, but would mean sharing the returns available. It also cedes some control of the project to the joint venture partner.

(ii) **Licence** – Effectively allow products to be manufactured under licence by an established local manufacturer, and purchase from them. This is not an ownership option, but may be a sound option to try before entering Myanmar through direct investment.

In either case a key issue would be the price paid by Rochor for the output of the factory, and the contractual relationship with the joint venture partner or licensee.

(c) After considering the three viable options available to Rochor of expanding into Myanmar; either foreign direct investment, a joint venture, or manufacturing products through a licence with a local manufacturer, the best method may be for Rochor to first enter Myanmar through a joint venture. Rochor has little experience of overseas investment, and Myanmar has a high inflation rate, a relatively unstable political environment, and is still a developing economy. It should be approached with caution, especially by a company that has little overseas investment experience or knowledge. A joint venture with a local partner is a good compromise option – it still allows Rochor to enter the market via a form of ownership (unlike a licensing arrangement) but the risks and responsibilities are shared with the local joint venture partner.

**Note:** Other options suggesting foreign direct investment or license are acceptable where sufficient justification is provided.

(d) (i) **Net assets approach**

(1) **Revised net assets** – Net assets off the balance sheet will be adjusted for market value of some key non-current assets, and potentially some intangible assets too. As a manufacturing business SPE has many tangible non-current assets, so this method has some merit, and it may well act as a floor in negotiations (minimum the seller would accept). However this ignores the business as a future income stream. In addition, market values of some assets, especially intangibles, may be difficult to estimate.

(2) **Earnings based** – Take future maintainable earnings and multiply by a suitable P/E ratio.

**Note:** Rochor P/E ratio is S$9.40/($0.25/40%) = 15. This assumes that SPE and Rochor are in a similar industry; this is debatable, and assumes ‘bootstrapping’ ie adopting the parent PE ratio is appropriate. This is a reasonable method, although SPE is not identical to Rochor, making the 15 P/E ratio potentially unsuitable.

(ii) **Income approach**

(1) Business risk – Rochor is automotive, SPE is batteries only; SPE serves different markets to Rochor. The business risk is different for each entity.

(2) Financial risk – Rochor’s gearing is currently 1:3 Debt:Equity. SPE is currently ungeared. Therefore, any impact on financial risk depends on acquisition finance.

Discount the future incremental free cash flows at a suitable cost of capital:

(1) If business and financial risk are unaffected, the current 15% WACC is acceptable.

(2) If business risk only is affected, then a suitable proxy will need to be used to acquire an asset beta to assist in the calculation.
(3) If finance risk is affected, an Adjusted Present Value calculation will be appropriate to reflect the impact on valuation of a change in capital structure as well as the value of the acquisition.

(4) If both business and financial risk are affected, then a weighted average equity beta, geared up to the post acquisition gearing level would be a suitable basis for calculating a discount rate.

Candidates need to decide whether business risk and financial risk would be affected in this circumstance. The income approach to valuation is rigorous, but difficult to forecast future cash flows given the new product.

(iii) Market approach

Valuations based on the current share price values SPE as a stand-alone business so may not be suitable if Rochor is planning to make changes. It could, however, be seen as a ‘floor’ in negotiations – given the current owners would be reluctant to accept any less.

(iv) Economic Value Add (EVA) and Market Value Added (MVA)

Estimate the current economic value of the assets, and add the net present value of future economic earnings. Future economic earnings are very difficult to estimate (especially given Rochor's pending new product launch), as is the economic value of the assets.

(e) Purchasing Power Parity suggests that differences in inflation rates should be ironed out by exchange rate movements.

Thus, for example, in one year's time the exchange rate would be expected to be:

\[ \text{MMK 761/s} \times (1.05/1.00) = \text{MMK 799.05/s} \]

Ie, the Burmese Kyat looks set to devalue in the next 12 months. This means MMK costs will be lower in Singapore dollars. Assuming the Myanmar operation runs as a cost centre (ie sales are not invoiced from Myanmar to end customers) then this will enhance the value of the investment. This makes it even more attractive to invest.

However, inflation rates change, and the plant is forecast to have a 25-year life. More fundamental research may be required into the economic outlook of both locations to form a view on the longer term direction of inflation rates.

(f) There are two approaches to calculating the net present value of the Myanmar operation:

Forecast exchange rates, translate MMK cash flows into S$ and discount at 15% (current WACC)

Discount the MMK flows at an MMK WACC, and translate the resulting MMK NPV at the current spot rate. In this case, the Singapore WACC will need to be 'translated':

\[ \frac{1 + \text{MMK WACC}}{1 + \text{S$ WACC}} = \frac{\text{Future spot rate/current spot.}}{1.15} \]

The future spot rate, using interest rate parity = 761 \times 1.05/1.0 = 799.05

So \( \frac{1 + \text{MMK WACC}}{1.15} = 799.05/761 \)

So \( 1 + \text{MMK WACC} = 1.2075 \)

Ie, MMK WACC = 20.75%

Alternatively, a slightly more direct calculation:

The difference between the future spot rate and the current spot rate is explained by interest rate parity, hence could calculate MMK WACC as follows:

\[ \frac{1 + \text{MMK WACC}}{1 + \text{S$ WACC}} = \frac{1 + \text{MMK inflation}}{1 + \text{S$ inflation}} \]

\( 1 + \text{MMK WACC}/1.15 = 1.05/1.00 \)

\( 1 + \text{MMK WACC} = 1.05 \times 1.15 = 1.2075 \)

Ie, MMK WACC = 20.75 or 21%
This assumes the inflation differential will remain constant over the life of the project (unlikely in reality). It assumes the business and financial risk of the Myanmar operation is the same as Rochor Singapore. If not, then the translated Singapore WACC would not be appropriate – the WACC might need to be estimated using proxy company information that fits the Myanmar operational circumstances.

Source finance from Myanmar (eg bank loan): this acts as a hedge against translation risk, but more importantly in this context it would be an operational hedge. Should legislation change dramatically and drastically, net exposure to Myanmar would be reduced if financed from there.

Keep as many avenues open for repatriation of funds as possible, then if one is targeted other options are available. For example:

(i) Transfer prices: for materials that may be sent to Myanmar
(ii) Head office charges: for use of intellectual property, or management support
(iii) Royalties: If the Rochor name is used in Myanmar
(iv) Interest payments on intercompany finance

(g) Risk area 1 – Distance: Direct supervision is difficult

Ways to manage the risk of distance includes regular visits both ways, video conferencing, basing some Singapore staff in Myanmar and/or think about using a joint venture partner.

Risk area 2 – Language/culture/religion: Misunderstandings and mistakes may occur

Ways to manage language difficulties are to employ some bi or multi-lingual staff (Mandarin/English/Burmese). Internal training and operations will be a difficulty if there is a language barrier. The companies may need to settle on a central language, with the most likely option being English. Therefore, English proficiency must be adequate with all.

Language is not the only barrier between cultures. Ways to manage difficulties posed by cultural and religious difficulties include undertaking internal training, possibly via a local joint venture or using local business advisers.

Maintain local relations, not only with the company but with the Myanmar Government. Rochor already has sound links with the Myanmar Government. Work should be targeted to maintain these relationships. Lobby locally to ensure Rochor views are known and considered by policy makers.

Risk area 3 – Local legislation and customs

To help assist with understanding and adhering to local customs, SPE should use local business advisers and third parties for local operations guides, first introductions, steps – in fact, all the operational set-up. It is also recommended to use local business advisers on an ongoing basis. Similarly, SPE should employ a local law firm with local experience for all negotiations at outset and on an ongoing basis.

Keep as many avenues open for repatriation of funds as possible, then if one is targeted under any changes to local legislation than other options are available. For example:

(i) Transfer prices: for materials that may be sent to Myanmar
(ii) Head office charges: for use of intellectual property, or management support
(iii) Royalties: If the Rochor name is used in Myanmar
(iv) Interest payments on intercompany finance

Risk area 4 – Foreign exchange risks

Lastly, to manage foreign exchange risks SPE should hedge and/or borrow from Myanmar.

Obtaining source finance from Myanmar (for example, a bank loan), acts as a hedge against translation risk, but more importantly in this context it would be an operational hedge. Should legislation change dramatically and drastically, net exposure to Myanmar would be reduced if financed from there.
(h) Recommendation on SPE acquisition is debt.

**Current gearing** (1:3 Debt:Equity) compared to industry average – If it is lower than industry average, debt may reduce WACC; if higher than industry average, equity may reduce WACC.

**External availability** – Appetite for existing investors to invest more, risk assessment of banks. This is financing a new product that might be considered risky at present.

**Security** – If either Rochor’s current operations or new operations have good quality security, this would make loans more attractive as they are likely to be offered at a lower interest rate.

**Internal availability of cash resources** – If Rochor has plenty of cash resources, cash is easy to use and cheap to raise as you have it already. However, acquiring businesses is often very costly. For example, the Singapore acquisition might cost, using an **earnings method**:

(i) $$\text{P/E} \times \text{earnings}$$

(ii) $$\text{P/E for Rochor} = \frac{\text{S}\$9.40}{(\text{S}\$0.25/40\%)} = 15$$, reduce to say 10 to allow for the fact SPE is not listed

(iii) SPE earnings recently S$7.5m

(iv) Indicative value might be: $$10 \times \text{S}\$7.5m = \text{S}\$75 \text{ million}$$

**Availability of taxable profits** – Interest is generally tax-deductible so would benefit Rochor if it has a tax bill to reduce.

Myanmar vs Singapore denominated (for the Myanmar potential investment) recommendation is also **debt**. This is because of a lack of **availability of capital** in Myanmar.

Myanmar debt acts as an **operational hedge** in case of drastic changes to local environment (political unrest, legislation to target foreign investors).
15. C2Cycle & BiOs

Part 1: High growth start-up – C2Cycle

The Board of Somerset Trading Pte Ltd (Somerset) has just returned from a very pleasant and informative meeting with the owner of a business they are interested in acquiring – C2Cycle Pte Ltd (C2C).

C2C has developed and patented battery-powered spectacles (glasses) for use by cyclists. They are lightweight, scratch-resistant and impact-resistant, and have high resolution screens built into the lenses, with high-speed ‘Bluetooth’ connectivity. Batteries are charged by the movement of the cyclist, hence under normal operating conditions they should never run out of power. The glasses are transparent like regular glasses; however, information can be superimposed into the field of vision, semi-transparently so the cyclist can still see their environment clearly.

Somerset is a large, well-established software developer and it feels that it could be an ideal business partner for C2C. Somerset has recently developed software, originally designed to be used in advanced handle-bar mounted cycle computers but that could be adapted for use in the C2C glasses. The combined product would incorporate a digital display of user-specified statistics (eg speed, distance, gradient), and provide satellite navigation along predefined routes, and even a virtual cycling partner for race practice and training programmes. To facilitate this, the glasses would connect to a smartphone app via Bluetooth.

The owner of C2C is currently seeking partnerships with leading cycle manufacturers to help launch the C2C glasses. The owner does not appear to be desperate to sell the business but does however see the benefit of presenting a more ‘complete’ product to the cycle manufacturers.

The Board is struggling with valuing C2C. Key information it has found so far is as follows:

- Realisable value of net assets: S$193,000
- Recent profit performance:
  - Current year: S$(65,000) loss
  - Previous year: S$(85,000) loss – this was the first year of trading
  - Revenue each year: S$nil

Required

(a) Identify the key issues associated with valuing C2C using conventional valuation techniques. (4 marks)

(b) Recommend to Somerset the best valuation technique for valuing C2C. (2 marks)

(Total = 6 marks)

Part 2: Funding innovation with venture capital – BiOs

BiOs Ltd (BiOs) is an unlisted public company that provides consultancy services to the biotechnology industry. It has been trading for four years. It has an excellent reputation for providing innovative and technologically advanced solutions to clients’ problems. The company employs 18 consultants plus a number of self-employed contract staff and is planning to recruit additional consultants to handle a large new contract. The company ‘outsources’ most administrative and accounting functions. A problem is recruiting well-qualified experienced consultants and BiOs has had to turn down work in the past because of a lack of appropriate staff.

The company's two owners/directors have been approached by the marketing department of an investment bank and asked if they have considered using venture capital financing to expand the business. No detailed proposal has been made but the bank has implied that a venture capital company would require a substantial percentage of the equity in return for a large injection of capital. The venture capitalist would want to exit from the investment in five to six years' time.

The company is all-equity financed and neither of the directors is wholly convinced that such a large injection of capital is appropriate for the company at the present time.
Financial information

Revenue in year to 31 December 20X3 $3,600,000
Shares in issue (ordinary S$1 shares) 100,000
Earnings per share 756 cents
Dividend per share 0
Net asset value $395,000 (see Note)

Note: The net assets of BiOs are the net book values of purchased buildings, equipment and vehicles plus net working capital. The book valuations are considered to reflect current realisable values.

Forecast

(a) Sales revenue for the year to 31 December 20X4 is projected at S$4,250,000. This is heavily dependent on whether or not the company obtains the new contract.

(b) Operating costs are expected to average 50% of revenue in the year to 31 December 20X4. You can assume that the company being a services company has minimal property, plant and equipment and depreciation and other non-cash adjustments can be disregarded for the purpose of your computations.

(c) Company tax rate is 17%.

(d) Assume book depreciation equals capital allowances for tax purposes. Also assume for simplicity that profit after tax equals year-end cash flow.

Growth in earnings in the years to 31 December 20X5 and 20X6 is expected to be 30% per annum, falling to 10% per annum after that. This assumes that no new long-term capital is raised. If the company is to grow at a faster rate than expected then new financing will be needed.

This is a niche market and there are relatively few listed companies in Singapore or internationally doing precisely what BiOs does. However, if the definition of the industry is broadened the following figures are relevant:

Price/earnings (P/E) ratios

Industry average: 18
Range (individual companies): 12 to 90

Cost of equity

Industry average: 12%
Individual companies: Not available

BiOs does not know what its cost of equity is.

Required

(c) Calculate a range of values of BiOs to be used in negotiation with a venture capitalist. State all assumptions. (8 marks)

(d) List the advantages and disadvantages of using either venture capital financing to assist with expansion of BiOs or alternatively a listing on the stock exchange in two years’ time. Explain considerations around structuring, highlighting the use of earn-out clauses and deferred consideration. Explain the likely exit routes for the venture capital company. (12 marks)

(Total = 20 marks)

(Total for Part 1 and Part 2 = 26 marks)
### 15. C2Cycle & BiOs: Answer

#### Mapping of contents

<table>
<thead>
<tr>
<th>Item number</th>
<th>Title</th>
<th>Learning outcome</th>
<th>Textbook chapter</th>
<th>Cognitive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Valuing high growth start-ups; sources of non-traditional finance</td>
<td>Demonstrate an understanding for valuing high growth start-ups. Outline the problems of overvaluation of target companies. Explain, apply and justify the use of income, asset-based, and market valuation approaches used for investment decisions, business planning and long-term financial management. Compare the various sources of financing available to an organisation, including bank financing, financial instruments and bond, equity and treasury markets. Assess the appropriateness and cost of the various non-traditional sources of finance available to an organisation, including Islamic financing, crowd funding, venture capital and business angels.</td>
<td>7, 7, 3, 7, 4, 4</td>
<td>2, 2, 2, 3, 2</td>
</tr>
</tbody>
</table>

#### Marking guide

**Part 1**

(a) Asset based:
- Do not reflect future earning potential
- Do not include intangible assets

Income based:
- History cannot predict future earnings
- Difficult to determine discount rate and P/E

(b) Recommend the best valuation technique for valuing C2C:
- Venture capitalist approach
- Top-down approach

**Part 1 TOTAL**

6 marks
11 mins

**Part 2**

(c) Calculate the cost of equity of BiOs:
- Conduct net asset valuation or calculation
- Assess value of net asset method
- Conduct P/E ratio method calculation
- Assess value of P/E ratio method
- Assess present value (PV) of future cash flows calculation
- Show workings of PV future cash flows calculation
- Determine final cost of equity
- Discuss findings

8 marks
14 mins
Advantages of venture capital:
- Specialising in early-stage and risky venture
- Offers funding during low revenue start up stage
- Funds offered five-to-seven year time frame

Advantages of stock exchange listing:
- Investment realised
- Equity finance easy to raise
- Status is raised
- Consideration for acquisition

Disadvantages of venture capital:
- Selection of investments
- Participation of venture capitalist

Disadvantage of stock exchange listing:
- Accountability is increased
- Costs are incurred

Considerations around structuring:
- Earn-out clauses
- Deferred consideration with a performance measure
- Linking funds to KPIs

Exit routes for the venture capital company:
- Stock exchange listing
- Sell shares to another investor
- Sell shares to original owners

---

### Answer Points

(a) The conventional valuation techniques are either asset-based or income-based valuations.

Asset-based valuations do not reflect future earning potential. They do not include the value of intangible assets – C2C's entire value is tied up in the intellectual property it has developed. In this case therefore the asset valuation presented of S$193,000 can effectively be ignored.

With income based valuations, history does not reflect future earning potential – in this case only losses have been made to date and no revenue has arisen; this does not mean the business has no/a negative value. It is also difficult to predict future earnings – as a brand new product it is difficult to research future earning potential, hence valuing future free cash flows is likely to be problematic. The risk of acquiring a start-up is high, hence a high discount rate should be applied. However, identifying what rate to apply is difficult as listed company betas will not reflect sufficient risk, and Somerset is itself unlisted. It is difficult to find a suitable proxy, and it would have to be listed and therefore very unlikely to be representative of C2C's risk and/or earnings profile.

(b) Venture capitalist approach

Under the venture capitalist approach it is suitable to estimate future earnings in, say, three years' time (this can be difficult but Somerset could make assumptions, based on a share of the high-end cycle computer market, and produce a range).

The next step is to value those earnings using a listed proxy (lower risk but see next point) – P/E for example.

Then it is time to discount the earnings heavily to today's value, using a high discount factor to represent risk – say 35–50% (sadly arbitrary but not an untypical rate for a venture capitalist).
Finally, this approach requires the valuation to be done on C2C as a standalone business (as a floor to negotiations) and in combination with Somerset (to provide a ceiling).

OR

Top-down approach

Under the top-down approach it is suitable to estimate the total market size for cycle computer equipment (e.g., by reviewing industry analysis of listed competitors). This will need to build in the global growth of cycling as a mode of transport and sport.

The next step is to estimate market share given market reactions to innovative products in the past. This should produce forecast revenues – complete this over a reasonable period e.g., annual revenue for the next five to ten years.

Then it is time to deduct estimated costs based on these implied volumes, leaving incremental net cash flows (remember the additional capital expenditure required to manufacture and update the intellectual property).

The final step is to discount the incremental net cash flows to give an NPV. The discount rate should be based on equally high risk businesses – practically, this information may be difficult to find.

(c) Range of values for the company

Valuation methods

A company can be valued in terms of the underlying value of its assets and its ability to generate future profits and cash flows (economic value).

Asset based valuation: net assets

Asset values are mainly of relevance if the company is to be broken up for disposal. BiOs net asset value is S$395,000 which, we are told, reflects the realisable value of its assets. This gives a 'floor level' value for the company, but is far too low to be of relevance to negotiations with the investment bank, because the company is a going concern and is not about to be broken up and, as BiOs is a consultancy, most of its assets (know-how, skills, contacts) are intangible and their value is not included in the net asset value.

It is more relevant to estimate the economic value of BiOs, which can be done in a number of ways.

Earnings based method: Price/earnings (P/E) ratio method

In this method, which gives a quick approximation to economic value, equity earnings are multiplied by a suitable P/E ratio taken from quoted companies in the same industry.

BiOs' earnings in 20X3 = 756 cents \( \times \) 100,000 shares

\[ = \text{S$756,000} \]

<table>
<thead>
<tr>
<th>P/E ratio</th>
<th>Valuation ($’000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>9,072</td>
</tr>
<tr>
<td>18</td>
<td>13,608</td>
</tr>
<tr>
<td>90</td>
<td>68,040</td>
</tr>
</tbody>
</table>

The problem with P/E ratios is that they are affected significantly by the expected growth rate of the company. In the industry examined, P/Es vary between 12 and 90. Given that BiOs is predicted to grow fast, we would expect its value to be in the top half of this range, at least, but the P/E ratio method does not adequately allow for the growth rate in the computation.

Note that any reasonable estimate can be made using the P/E ratio of comparable companies and/or other transactions in the biotech sector. The Directors are advised to apply the P/E ratio of a close competitor with a similar revenue, market share, risk and product range to its own earnings to determine the most relevant earnings-based valuation.

This approach to valuation is therefore relevant but simplistic and subject to large margins of error.
Free cash flow valuation: present value (PV) of future cash flows

This method estimates a stream of future cash flows rather than just one profit figure and discounts the cash flows at a cost of capital (earnings and cost of equity) suitable for the risk of the company's operations.

Using the assumptions that profit after tax equals cash flow, that this will grow in Years 2 and 3 at 30% per annum, followed by 10% per annum after that, and that the industry average cost of capital is suitable, we can estimate the company's value as follows:

20X3 = Year 0, 20X4 = Year 1 etc.

<table>
<thead>
<tr>
<th>Year</th>
<th>Earnings</th>
<th>Mid-Year Discount Factor</th>
<th>PV</th>
</tr>
</thead>
<tbody>
<tr>
<td>20X4</td>
<td>$4,250m*</td>
<td>0.945</td>
<td>$1,666.8</td>
</tr>
<tr>
<td>20X5</td>
<td>30% higher</td>
<td>0.844</td>
<td>$1,935.2</td>
</tr>
<tr>
<td>20X6</td>
<td>30% higher</td>
<td>0.753</td>
<td>$2,244.5</td>
</tr>
<tr>
<td>20X7</td>
<td>10% growth</td>
<td>(W1)</td>
<td>$123,446.8</td>
</tr>
<tr>
<td>PV of future cash flows:</td>
<td></td>
<td></td>
<td>$129,293.3</td>
</tr>
</tbody>
</table>

Working: PV (at 20X6) of the perpetuity from Year 4 onwards, growing at 10% per annum = 3,278.8/(12% – 10%) = 163,940. To find the PV as at Year 0, discount by the 3-year factor: 163,940 x 0.753 = 123,446.8

Comment on valuation using present value (PV) of future cash flows

The value of BiOs by this method is S$123.4 million.

Although there is a substantial margin of error on this valuation estimate, the method is considerably more useful than the P/E approach because it allows for earnings growth estimates. The company's growth projections are dependent on the ability to find skilled consultants, who are in short supply.

A significant uncertainty is the high estimate growth of 10% into perpetuity from Year 4 onwards. This is unrealistic and substantially overvalues BiOs. It is recommended that the directors re-evaluate the expected growth rate using due diligence processes and if necessary, apply a lower growth rate to revise the estimated value.

Conclusion

On the basis of the figures given, the company's cost of equity is probably in the range of S$65 million to S$130 million. Further information is needed on the assumptions on which earnings forecasts are based, in particular the assumption that staffing resources can deliver the predicted growth rates, and the company's cost of capital would help to make a more accurate assessment. This can be achieved by appointing independent advisors to complete due diligence procedures prior to acquisition.

(d) Advantages of using venture capital

Venture capital funds specialise in financing early-stage, risk-oriented ventures like BiOs. They will offer finance and assistance once a company has started to generate revenue and shows that it has high growth prospects.

The funds offered by venture capital are typically for five to seven years, and BiOs directors want to exit in between five and six years' time. At the end of this period it is presumed that the company will have grown and will be looking for more permanent sources of funds, at which point the venture capital fund will seek an exit route.
Disadvantages of using venture capital

(i) Selection of investments

Extensive research is carried out on potential companies for venture capital investment and only a very small percentage of applications are accepted. The fact that BiOs has been approached by the marketing department of an investment bank is no guarantee that a venture capital fund will find the company an acceptable proposition.

(ii) Participation of venture capitalist

The venture capital fund becomes an equity participant in the company through a structure typically comprised of a combination of a substantial proportion of shares, warrants, options, and convertible securities. It also provides a representative who sits on the company's board, offers strategic advice to the management team and assures that the fund's interests are considered. If the directors of BiOs would not welcome this level of investor involvement, they should not consider venture capital.

Structuring and earn-out clauses

Venture capitalists are more likely to invest in BiOs if they are offered a deal which makes the investment appealing from their perspective.

This may include structuring in an earn-out clause or deferred consideration to make investing initially a viable option.

An earn-out arrangement means that the venture capitalist could make an initial investment of funds at the beginning of the project to seed investment and growth. It could then structure in a guaranteed minimum amount of deferred consideration be given to the two owner/directors at a certain point in the future – say in two years’ time. The most appealing structure for the venture capitalist is to then add in an extra layer of deferred consideration which is based solely on performance – so, additional funds will be paid only if the company meets a projected target based on performance indicators and/or profitability.

Separate to an official earn-out clause, the two owners/Directors of BiOs could be given concrete Key Performance Indicators (KPIs) by the venture capitalist company which they must meet for funding to be ongoing. If the KPIs are not met, then the agreement is broken and the venture capitalist can exit as determined by the agreement.

Exit route for a venture capital company

The most profitable exit route for a venture capital company is when the company in which it has invested achieves a stock exchange listing (see below). Alternatives are to sell their shares to another investor (which might be another venture capital fund, but could be a potential acquirer of BiOs) or back to the original owners.

Stock market flotation

The alternative under consideration by BiOs is to continue with existing sources of funds and to go for a stock exchange flotation within two to three years. To achieve a listing, the company needs to demonstrate that, in addition to good growth prospects, it has a strong management team, strong financial controls and good management reporting systems. These last factors will probably need improvement, as most of BiOs’ administration systems are currently outsourced.

(i) Advantages of obtaining a stock exchange listing

Existing owner directors can realise some or all of their investment and new equity finance is easier to raise. Also, the company's status is raised, and the company's shares can be used as consideration for an acquisition.

(ii) Disadvantages of obtaining a stock exchange listing

Accountability is increased – Directors must be seen to be accountable to outside shareholders and there is more scrutiny over the company's activities. Costs are incurred for the initial flotation and as ongoing annual fees.
16. Governance case studies

(1) **Toxica Ltd needs to review its internal controls**

Toxica Ltd is a listed manufacturing company based in Singapore.

Toxica's manufacturing processes involve the handling of toxic materials, and the company and its Board are highly aware of the need for strict safety procedures to prevent accidents to employees and damage to the environment (which could create public health problems).

The chairman of the Audit Committee (AC) has asked the Head of Internal Audit to carry out an investigation into internal control measures for health and safety in the company's manufacturing operations.

The Board of Directors is also considering a proposal to establish a Risk Committee (RC) of the Board. If it does so, some of the current responsibilities of the AC will be transferred to the RC.

The Chairman of the AC has argued, however, that the AC must retain some responsibilities for risk, and by establishing a RC, there may be two separate committees of the Board with differing, and possibly conflicting, attitudes towards risk and risk management.

Other members of the Board of Toxica fully understand the concerns of the AC Chairman, but they decide nevertheless that a RC of the Board should be established.

(2) **DEF Bank makes a loan to Golden Ships**

A narrow view of corporate governance is that a Board of Directors should lead the company in such a way as to maximise the wealth of its shareholders.

A broader view of corporate governance is that a company has various stakeholders, some more influential or powerful than others. Each stakeholder group has its own interests in the company, and what they expect from it. They also have their different claims on the company – what they can demand that the company should give them or do for them.

DEF Bank granted a loan for $400,000 to a Golden Ships Ltd (GSL), a shipbuilding company. The loan was negotiated with the bank by GSL's Chief Executive Officer (CEO), who is also a Director of the company. The loan was not used for its intended purpose and GSL was soon unable to make the scheduled payments to the bank. After several months of non-payment, the bank decided that it must take action against GSL and/or its CEO to recover the money that it is owed.

(3) **Golden Ships Ltd has a disappointing year**

Golden Ships Ltd (GSL) is a Singapore-based shipbuilding private company, which used to be part of the Toxica family of companies. Three years ago, the CEO and three partners bought GSL from Toxica and it has since been run as a private company. It has just completed a very disappointing year. Profits were 80% lower than in the previous year, due to a combination of a depressed global economy and a fall in demand for the size of ships that GSL builds. A subsidiary company in a South American country has been accused of bribing government officials to win a contract. An accident at the company's Singapore shipbuilding yard during the year resulted in several deaths and injuries to employees. An institutional investor in the company recently disposed of its shares, stating that the company's risk management system was poor and investing in the company was too risky for the size of returns that its shares provided.

A newly-appointed chairman of the Board at GSL has decided to review the company's risk management policies. The chairman is also aware that the company needs a more risk aware culture and that it is the responsibility of the Board to set the 'tone at the top' in order to influence the behaviour of management and other staff.
Required

(1) Toxica Ltd

(a) Prepare a plan for the internal audit exercise, explaining the matters that the internal auditors should review and investigate. \(5\) marks

(b) Recommend how the responsibilities for risk should be divided between the AC and the RC of the Board, and evaluate what arrangements should be put in place to reduce the likelihood of disagreements or misunderstandings between the two committees. \(5\) marks

The RC of the Board has been informed by the management risk committee that tolerance limits for environmental protection had been breached on 25 separate occasions in the past six months. The official tolerance limit is five times maximum in any six-month period.

(c) Advise how the RC should react to this information. \(5\) marks

(2) DEF Bank

(d) Examine the scenario presented above and answer the following questions:

(i) Explain what action the bank could bring against Golden Ships and/or its CEO for non-payment of money owed. \(6\) marks

(ii) Explain what action Golden Ships might take against its own CEO for obtaining a loan that Golden Ships did not use for its intended purpose and which the company was unable to repay. \(6\) marks

(3) Golden Ships Ltd

(e) The Board is carrying out a review of the adequacy of the risk management policy. Explain what aspects of risk management they should consider. \(5\) marks

(f) Recommend measures that the Board of Directors might take to demonstrate its concern for risk management and to set a suitable ‘tone at the top’ for the company. \(4\) marks

(Total = 30 marks)
16. Governance case studies: Answer

Mapping of contents

<table>
<thead>
<tr>
<th>Item number</th>
<th>Title</th>
<th>Learning outcome</th>
<th>Textbook chapter</th>
<th>Cognitive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>A series of case studies; Governance and responsibility; Internal audit; Risk management</td>
<td>Explain the importance of internal controls and risk management in corporate governance.</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Explore and evaluate the effectiveness of internal control systems.</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Explain and evaluate the role and purpose of Risk Committees and Audit Committees in effective corporate governance.</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Explain and evaluate the roles, interests and claims of the following stakeholders involved in corporate governance: directors; management; investors; auditors; and regulators and government.</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Understand the effects of 'tone at the top' on sound corporate governance.</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Explain and evaluate the roles and responsibilities of Boards of Directors and the composition and structure of the Board.</td>
<td>9</td>
<td>3</td>
</tr>
</tbody>
</table>

Marking guide

(a) Outline a plan for the IA audit and identify the matters the internal auditors should review and investigate

- Strategy and policy for health and safety
- People and structures
- Processes, systems and controls
- Assurance
- Conclusions

5 marks | 9 mins

(b) Roles of both committees

- Responsibilities of the Audit Committee
- Responsibilities of the Risk Committee

Reduce the likelihood of disagreements or misunderstandings between the two committees

- Cross representation of membership
- Company Secretary same on both committees
- Board retain overall control of certain elements of risk

5 marks | 9 mins

(c) Risk Committee reaction

Five of the following:

- Informed of reasons for the breaches
- Seriousness of consequences
- Remedial action
- Correct setting of limits
- Report at next board meeting
- Adequacy of the internal control systems

5 marks | 9 mins
(d) • Steps for legal action against the bank for non-payment
• Comprehensive discussion of difficulties in taking legal action
• Steps for legal action against the CEO
• Comprehensive discussion of difficulties in taking legal action

(e) • Formal risk management statement
• Risk tolerance levels set
• Clear risk organisational structure
• Risk identification, management and assessment procedures
• Risk documentation systems
• Risk mitigation actions
• Assess current resourcing
• Staff training in risk
• Priority list for risk management activities
• Review procedures

(f) Demonstrate its concern for risk management
• Is genuine in commitment
• Whether board and management need to be reviewed and changed (if needed)
  Set a suitable ‘tone at the top’ for the company
• Issue value statement
• Code of Conduct
• Policy statements
• Present regular risk reports and presentations
• Performance reviews follow up on risk responsibility
• Targets

TOTAL 30 marks 54 mins

Answer Points

(a) Plan for internal audit (IA) exercise at Toxica

The table below outlines a plan for the IA exercise and highlights the matters that the internal auditors will need to review and investigate.

<table>
<thead>
<tr>
<th>Area of investigation/report format</th>
<th>Main points for review</th>
<th>Practicalities for investigation/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health and safety</td>
<td>Establish clear policy objectives in place</td>
<td>Important as toxic materials being dealt with</td>
</tr>
<tr>
<td>People and structures</td>
<td>Clear responsibilities for health and safety</td>
<td>Persons to be personally responsible for specific elements of operations</td>
</tr>
</tbody>
</table>

**TOTAL** 30 marks 54 mins
<table>
<thead>
<tr>
<th>Area of investigation/report format</th>
<th>Main points for review</th>
<th>Practicalities for investigation/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processes, controls, systems</td>
<td>Controls are properly applied in practice and cover all toxic manufacturing operations</td>
<td>Systems – both software systems and manual systems – subject to testing, review, controls and sign-off procedures</td>
</tr>
<tr>
<td></td>
<td>Processes are properly followed and cover all toxic manufacturing operations</td>
<td>All legal requirements met Relevant to the production of toxic materials</td>
</tr>
<tr>
<td></td>
<td>Adequate systems in place and cover all toxic manufacturing operations</td>
<td>All industry standards met Relevant to the production of toxic materials</td>
</tr>
<tr>
<td>Assurance</td>
<td>Established standards and rules are actually applied in practice</td>
<td>Collect relevant data Numbers of accidents, excessive emissions of toxic materials, leaks</td>
</tr>
<tr>
<td></td>
<td>Collect evidence Physical inspection – Accident reports and measures to respond</td>
<td>Collect evidence Physical inspection – Accident reports and measures to respond</td>
</tr>
<tr>
<td></td>
<td>Observation of work environment and operations</td>
<td>Observation of work environment and operations</td>
</tr>
<tr>
<td></td>
<td>Interviews with employees</td>
<td>Interviews with employees</td>
</tr>
<tr>
<td></td>
<td>Determine from evidence collected if the health and safety objectives being met</td>
<td>Assess if supporting internal control systems are working</td>
</tr>
<tr>
<td>Conclusions</td>
<td>Conclude if procedures, processes and systems comply with legal requirements and industry standards</td>
<td>Identify any significant control weaknesses, if they’ve been reported, and if action has been taken</td>
</tr>
<tr>
<td></td>
<td>Conclude if procedures, processes and systems comply with Toxica health and safety policy objectives</td>
<td>Assess if Toxica is continuing to achieve objectives for health and safety</td>
</tr>
<tr>
<td></td>
<td>Assess overall risks to employees</td>
<td>Assess overall risks to employees</td>
</tr>
<tr>
<td></td>
<td>Assess overall risks to public health</td>
<td>Assess overall risks to public health</td>
</tr>
<tr>
<td></td>
<td>Make estimate of potential risk to the company in terms of costs of non-compliance</td>
<td>Note legal claims for compensation, absences from work due to illness or injury, loss of brand and corporate goodwill</td>
</tr>
</tbody>
</table>
(b) **The Audit Committee**

The primary responsibility of the AC should be to monitor the independence of the external auditors, review the quality of the audit and make recommendations about the re-appointment of the current auditors or appointment of new auditors. The AC should also make a recommendation to the Board about approving the financial statements of the company prior to publication.

The AC therefore has an interest in any risks that could result in misleading financial statements or in an unreliable audit opinion about the financial statements.

The AC should retain responsibility for monitoring the independence of the external auditors and risks to that independence. The AC should therefore be given responsibility for establishing guidelines about the nature, scope and amount of non-audit work given to the external audit form by the company.

The AC should retain responsibility for monitoring the effectiveness of the internal control system as set by the RC and reporting to the Board on this matter. This means that the AC will also have responsibility for the effectiveness of the systems for detecting fraud. It is the job of the AC to monitor the risk management plan as established by the RC.

**The Risk Committee**

The RC of the Board should be the main communications link between the Board and the management risk committees and specialist risk officers. The Committee should report to the Board of Toxica regularly on risk management issues.

The RC should be responsible for reviewing the effectiveness of the systems of risk management and internal control within the company, except to the extent that internal control for financial risks is reviewed by the AC.

The RC should therefore monitor the effectiveness of strategic risk management, and whether the management of strategic risks is consistent with the Board's policies (risk appetite).

The RC should similarly monitor the effectiveness of internal control systems for operational risks and compliance risks (except to the extent that the AC monitors risks and risk management issues relating to accounting and financial reporting).

The RC should, therefore, monitor the ability of the company to identify and manage risks. It is not the role of the AC, despite what the Chairman of the AC at Toxica may think.

It should have a process for timely monitoring of large exposures to risk, and exposures to critically important types of risk.

It should review reports on material breaches of risk limits and the adequacy of management's response. It should review all risk reports to management and management's responses. To perform this task it will need to maintain communications with the management risk committee(s) or senior management responsible for risk.

It should advise the Board on the risk aspects of any major strategic transaction under consideration by the Board.

It should review the adequacy of the company's procedures for whistle-blowing. In this respect there will probably be some overlap with the work of the AC.

**Reducing the likelihood of disagreements between the two committees at Toxica**

Have some cross-representation of members on the committees (ensuring that at least some members of each committee are standalone). The AC Chairman may be appointed as a member of the RC and the RC Chairman may be appointed as a member of the AC. This should serve to make the AC chairman happier about the change of structure being proposed.
The Company Secretary should be secretary to both committees and should notify the committees of any possible disagreement or misunderstanding with the other committee, so that the problem can be discussed and (hopefully) resolved.

The Board of Toxica as a whole should retain overall responsibility for certain aspects of risk, such as risk appetite and risk tolerance levels.

(c) The Committee should have been informed of the reasons for each of the breaches, their consequences, and the measures so far taken by management in response.

The Committee should assess the seriousness of the consequences of the breaches of the tolerance level limits – for example might financial penalties be imposed by the regulatory authorities?

The Committee should ask management about the effects of any remedial action taken so far. The Committee should also ask to be kept informed promptly of any further breaches of the tolerance level limits.

It is a high number of breaches. The Committee should look at two issues. Are the limits set correctly and are they set by the regulatory body or the company.

The Committee may decide to report on the matter to the Board at the next Board meeting.

Are the internal controls in place at Toxica been correctly established, and once established, properly followed? The Committee may also consider the matter when making an assessment of the adequacy of the internal control systems for operations and regulatory compliance.

(d) DEF Bank

DEF bank could take legal action against GSL for non-payment of the debt. Action could take the form of an application to the court for compulsory insolvency of GSL, and for the court to appoint a liquidator to wind up the company and its affairs. This might be an appropriate course of action if the bank could expect to obtain full or partial repayment of the loan. However legal action is both costly and time-consuming, and the bank may delay taking legal action until it is convinced that recovery of the debt is not possible in any other way.

The CEO, as Director of GSL, is an agent of the company and negotiated the loan in the company’s name. The bank cannot take legal action against the CEO personally.

If the CEO has failed to act with due diligence in obtaining the loan from the bank, or has acted in any way that deliberately damaged the company's interests, the Board of Directors could take legal action against the CEO of GSL to recover losses that the company has suffered.

However we do not know why the loan was not used for its intended purpose, and the Board of Directors may have approved the application for a loan.

(e) Golden Ships Ltd

The Board should have a formal statement of its objectives for risk management and internal control, and this needs to be incorporated into its risk appetite statement. If it does not have such a formal statement, setting out in general terms the company's attitudes to risk, its risk appetite and the need for risk management is required.

The Board of Directors should have made a formal decision about its risk tolerance, and the extent to which the company should accept exposures to risk in order to achieve its strategic objectives. Risk tolerance should be reviewed regularly by the Board. The Board should therefore consider whether it discusses and makes decisions about risk tolerance at a strategic level: if it does not, this would indicate weakness in its risk management policy.

There should be a clear organisation structure for risk management. This is particularly important for Golden Ships given the legitimate concerns about its business operations and lack of risk management oversight. This should include individual line manager responsibilities for particular risks. The organisation structure may also include specialist risk management officers, providing
support to line managers; and possibly also an internal audit function to review the effectiveness of control systems. In other words there must be a clear structure for the risk architecture within the company. Based on past experience, this does not exist at GSL. The Board should consider the existing risk architecture and whether this is adequate.

There should be established procedures, at various levels within the organisation (Board level, business unit level, divisional level and so on), for identifying risks and ranking them in order of priority. Risks that are highest in the priority list should receive the most attention from management. The Board should consider whether such formal procedures exist within the company – it seems they do not exist (or they are inadequate) at GSL – and at what levels (Board, business unit, division, etc). In other words, there must be well-established risk assessment procedures.

There must be a system for documenting risks and their assessment, responsibilities of individual managers for risk, actions taken to manage the risk, and 'risk events' that have occurred and their consequences. The Board should consider the adequacy of risk documentation systems.

There should be established procedures for assessing whether exposures to risk exceed established tolerance limits, and if so what risk mitigation actions have been taken. This process has previously not existed, or has been inadequate, at Golden Ships. Risk mitigation measures must be implemented in this company. There should be a process of reporting actions taken to mitigate risks. The Board should consider whether formal policies exist for monitoring, escalating and reviewing risk management actions.

The Board should consider whether an appropriate amount of resources has been allocated to risk management, and whether the Board decides or reviews the adequacy of resource allocation decisions. The Board is ultimately responsible for the allocation of resources to risk management and internal control.

The Board should consider whether the company has an established plan or policy for training staff in how to deal with risks, and how to identify potential risk problems (such as suspected cases of fraud). For example, at GSL there must be an anti-bribery and anti-money laundering training program as a matter of urgency.

The Board should check whether there is an established list of priorities for risk management activities in the current/next year. Management should prepare such a list as part of the budgeting process, for approval by the Board. This is imperative to the ongoing survival of GSL, with 80% down on profit this is a viable concern.

The Board should consider whether (and to what extent) it carries out a review at least annually of the effectiveness of the risk management and internal control systems.

(f) The Board will be unable to set the right 'tone at the top' unless its members are committed to effective risk management at GSL. Current board members need to be reviewed, as it is this Board that has allows the fraud and health and safety issues continue on at GSL. There has only been a new Chairman appointed – not a new Board.

The commitment to the right tone at the top should be genuine, and not simply paying 'lip service' to the desirability of effective risk management. For it to work, the old Board and old management all need to be reviewed and changed (if needed).

Moving forward, the newly improved Board (in attitude, and maybe in members) may then demonstrate its commitment to risk management in a variety of different ways, such as:

(i) Issuing a formal value statement about commitment to risk management, for circulation to all staff.

(ii) Publication of a formal code of conduct on risk management procedures, or several codes of conduct. One such code may deal with anti-laundering and bribery procedures.
(iii) Issuing clear **policy statements** on any risks or practices for which there will be zero tolerance, such as the use of bribery to win contracts, or failure to prevent serious accidents in the workplace.

(iv) Requiring management to present regular **risk management reports** to the Board or Board committee (AC or RC, if there is one).

(v) Reward compliance by staff and Board Members with risk management guidelines. Conversely, punish transgressors for example, don't promote people when they are proved to be cutting corners or potential acting outside the rules.

(vi) Requiring senior management to make a periodic **formal presentation** about risk management and internal control to the Board.

(vii) Ensuring that there is a **clear allocation of responsibility for managing specific risks**, and that the management performance review system includes review of risk management by those individuals.

(viii) If possible, include **targets** for risk management performance within the bonus incentive schemes for managers (and possibly other staff). For example, a bonus may be paid if the number of accidents at work is less than a target number. Similarly, if decisions are taken to reduce the company's exposure to strategic risks (such as, in the case of GSL, creating greater diversity in the size of ships that the company can build), managers may be rewarded for making progress towards achieving the strategy objective.
17. Somerset Electronics

The Head of Finance for Somerset Electronics Pte Ltd (Somerset), an unlisted Singapore-based manufacturing business, is looking to expand operations into Vietnam.

The Board of Somerset recently returned from an exploratory trip to Ho Chi Minh City, Vietnam, where they met with the owners of Vung Tau Electronics SC (VTE). VTE manufactures super-bright LEDs specifically designed for use in deep sea exploration. There is a stable and growing demand for this product currently, and VTE is the global market leader.

The purchase price would be around Vietnamese Dong (VND) 1,580,000 million. This will require new finance to be raised by Somerset to fund the acquisition.

The outline plan would be to trade VTE for four years while Somerset seeks to exploit VTE’s networks and contacts for on-selling other Somerset products. After around four years, the aim would be to sell VTE for a 30% premium over the Vietnamese Dong acquisition price.

Although excited by the prospect of international expansion, the Board is acutely aware that this is new ground for them. They have not invested internationally before, and are concerned about the added risks for the potential transaction because of the international dimension.

Figures for valuation exercise

- The exchange rate for the purposes of this question is: Vietnam Dong against the Singapore dollar is: VND15,800/S$1.
- Inflation in Vietnam is running at 1% per annum, although it was 5% per annum six months ago.
- Inflation in Singapore is running at –0.2% per annum (ie deflation), although it was + 2.7% per annum six months ago.

Required

(a) Estimate a value for the subsequent sale of VTE in S$, explaining any theory you use to predict exchange rates, and any concerns you have with the validity of your calculations. (8 marks)

(b) Evaluate the specific foreign exchange risks faced by Somerset in this transaction. Recommend which risk would be of the most concern and justify your recommendation. (7 marks)

(c) Identify five business risks that will apply to the potential acquisition. Advise on risk mitigation techniques for each risk. (10 marks)

(Total = 25 marks)
17. Somerset Electronics: Answer

Mapping of contents

<table>
<thead>
<tr>
<th>Item number</th>
<th>Title</th>
<th>Learning outcome</th>
<th>Textbook chapter</th>
<th>Cognitive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Valuation of, and risks associated with, overseas acquisitions</td>
<td>Evaluate the significance of exchange controls for a given investment decision and strategies for dealing with restricted remittance. Assess the impact on a project upon a company's exposure to foreign exchange, cross-border transactions and economic risk. Analyse business risks, including strategic, operational and financial risks. Explain how business organisations use policies and techniques to mitigate various types of strategic, operational and financial risks.</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>13,14</td>
<td>2</td>
</tr>
</tbody>
</table>

Marking guide

(a)  
- Calculate premium
- Compare Purchasing Power Parity (PPP) and IRP methods
- Confirm PPP method
- Exchange rate calculation
- Select inflation figures used
- Disposal value in S$
- Estimate a value for subsequent sale of VTE in S$
- Dong weakening negative impact on disposal value

(b)  
- Translation risk – discussion and level of concern
- Transaction risk – discussion and level of concern
- Economic risk – discussion
- Conclusion that economic risk is of most concern

(c) All five of the following risks plus action to mitigate risk:
- Political or country risk
  - Eg of mitigating action – lobby locally, consider joint venture, have various fund repatriation techniques in place
- Management control risk due to language and distance
  - Eg of mitigating action – employ local management, settle on English
- Culture risk
  - Eg of mitigating action – consider joint venture, use local advisers
- Lack of experience in overseas acquisition
  - Eg of mitigating action – use experienced advisers, Board compliance measures
- Legal risk – civil law versus common law
  - Eg of mitigating action – Board compliance measures, must use local lawyers with knowledge of civil law systems

TOTAL  
25 marks  45 mins
Answer Points

(a) 30% premium so $1,580,000 \times 1.3 = VND2,054,000m$. This will be translated at the spot rate at the point of disposal (unless hedged beforehand).

Use Purchasing Power Parity to predict exchange rates – this states that differences in inflation rates will be eliminated by exchange rate movements over time – ‘the law of one price’. One practical issue with this is that inflation rates themselves are not easy to predict. Interest Rate Parity would be an alternative, but again predictions for interest rates going out four years are likely to be very unreliable.

Candidates could stress the need to research ‘best estimate’ inflation forecasts going out four years.

The exchange rate based on current inflation rates would be:

$$15,800 \times \left(\frac{1.01}{0.98}\right)^4 = VND17,825/$1$$

giving a disposal value of $2,054,000m / 17,825 = S$115m$

The exchange rate based on inflation rates six months ago:

$$15,800 \times \left(\frac{1.05}{1.027}\right)^4 = VND17,263/$1$$

giving a disposal value of $2,054,000m / 17,263 = S$119m$

Concerns/notes with calculations

Whichever figures are used, the Dong appears to be set to weaken. This will be detrimental to the disposal value.

The disposal value is not hugely affected (4/115 = 3.5%) by the choice of inflation figures used. Although in percentage terms it may seem small, 3.5% still represents S$4m. Also, the inflation rate may vary over the four-year forecast period.

The key consideration here is what the impact will be on the purchase value should the overall economic outlook change. Deflation in Singapore is likely to be transitional as oil prices correct.

(b) Translation risk. Financial reporting retranslations will generate profits or losses. Although not directly cash-flow related, this affects reported earnings (and hence value) – albeit Somerset is not listed – and affects financial ratios that may form part of bank covenants. That said, this may not be a major concern as its principle effect is to change reported earnings, and as this is a private company it won't affect a listed share price.

Transaction risk. Profits or losses between point of sale/purchase and settlement. The extent of the exposure depends on the level of foreign trade undertaken by VTE. Because VTE is the global leader in its niche market, transaction risk is likely to be significant. This will affect cash flow management and so is likely to be very important.

Economic risk. Impact on the fundamental value of the investment by Somerset due to long-run trends in exchange rates affecting the net present value of the asset. Given the intention of Somerset is to sell the business in four years' time, the value of the sales proceeds is likely to be significantly affected by exchange rates and their trends.

Economic risk is the key concern of the three FX risks facing the transaction for the reasons outlined above.

(c) Political or country risk. There is a risk of regime change in Vietnam leading to political uncertainty, taxation treatment of foreign investors may change in Vietnam due to a regime change, repatriation restrictions placed by Vietnam will impact on how funds are removed from the country, Vietnam could change its tariff structure, and legal compliance and governance systems could change in either country. There is also a risk of Singapore changing tariffs or taxation treatment of overseas investments.

Recommendations to mitigate the risk of political or regime change in Vietnam include considering using a joint venture, so that some local ownership is maintained in Vietnam. Somerset will also
have to ensure that they have a range of repatriation methods operating in tandem – royalties, management charges, internal funding charges etc – to limit the impact of any current or future repatriation restrictions.

**Management control risk.** Vietnam uses Vietnamese as its first language, and English generally as the second language. Vietnamese is not widely spoken in Singapore, and this will provide a management difficulty. Distance is also an issue as Vietnam is some distance away from Singapore. Language and distance will make management control more difficult for Somerset.

Recommendations to mitigate the risk include employing local management; relocating some Singapore management to Ho Chi Minh City with associated language training in English as a common language for all parties (especially from the Vietnamese side). There is also an opportunity to manage using regular online conference and file sharing services.

**Cultural risk.** Linked to a different language and distance, is differences in cultures and customs between Singapore and Vietnam. There is a risk of Somerset misunderstanding local practices and norms during the initial negotiations and then in implementation of the acquisition. This means that expected synergies may not be realised, and/or Somerset may pay too much for the business initially.

Recommendations to mitigate the risk include consulting with and/or engaging local experts during the purchase negotiations, or considering a joint venture with a local partner initially.

**Lack of Somerset experience in overseas acquisitions.** This increases the risk of errors or omissions in the acquisition process.

Recommendations to mitigate the risk include using experienced external advisers throughout the transaction. Secondly, the Somerset Board should establish appropriate checks and balances for these external specialist advisers.

**Different legal systems.** Singapore operates under the English common law system. However, Vietnam was colonised by the French and its legal system is still based on the French civil law system. These are very different legal systems, and means that the way the law is applied will be different. This is an extra challenge to the normal challenge of different laws and regulations on employment, product, health and safety etc between countries.

Because of the different legal system, Somerset must employ local Vietnamese law firms at all stages of the transaction, and as adviser during implementation. Additionally, the Somerset Board will need to put in place appropriate checks and balances for the external lawyers, and may have to consult with experts in civil law systems in order to do this.
18. Balestier Cosmetics Solutions

Balestier Cosmetic Solutions Ltd (Balestier) manufactures and retails a range of high quality and innovative cosmetic products and beauty solutions in Singapore.

Balestier is considering an opportunity to produce an innovative component to insert into existing laser beauty and medical equipment which, when sold to laser treatment salons, will allow them to provide more laser treatments over a shorter space of time to the same customer.

The component can be manufactured using either process Omega or process Zeta. Although this is an entirely new line of business for Balestier, it is of the opinion that developing either process over a period of four years and then selling the production rights at the end of four years to another company may prove lucrative.

The annual after-tax cash flows for each process are as follows:

**Process Omega**

<table>
<thead>
<tr>
<th>Year</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>After-tax cash flows (S$'000)</td>
<td>(3,800)</td>
<td>1,220</td>
<td>1,153</td>
<td>1,386</td>
<td>3,829</td>
</tr>
</tbody>
</table>

**Process Zeta**

<table>
<thead>
<tr>
<th>Year</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>After-tax cash flows (S$'000)</td>
<td>(3,800)</td>
<td>643</td>
<td>546</td>
<td>1,055</td>
<td>5,990</td>
</tr>
</tbody>
</table>

Balestier has 10 million shares trading at S$1.80 each.

Its loans have a current value of S$3.6 million and an average before-tax cost of debt of 5.40%.

Balestier's capital structure is unlikely to change significantly following the investment in either process.

**Competitor information**

The only known competitor in this niche new product, Laserfast Ltd, is also located in Singapore. It manufactures laser machines, and has just started the production of a component similar to the one being considered by Balestier.

Laserfast's equity beta is 1.40, and it is estimated that the equivalent equity beta for its other activities, excluding the component production, is 1.25.

Laserfast has 400 million shares in issue trading at S$1.20 each. Its debt finance consists of variable rate loans redeemable in seven years.

The loans paying interest at base rate plus 120 basis points have a current value of S$96 million. It can be assumed that 80% of Laserfast's debt finance and 75% of Laserfast's equity finance can be attributed to other activities excluding the component production.

**Additional information**

Both companies pay annual corporation tax at a rate of 17%.

The current base rate is 3.5% and the market risk premium is estimated at 5.8%.

Assume the debt beta is zero.

**Required**

(a) Provide a reasonable estimate of the cost of capital that Balestier should use to calculate the net present value (NPV) of the two processes. Include all relevant calculations, including the WACC and cost of equity. (10 marks)
(b) Calculate net present value (NPV) and the internal rate of return (IRR) of Process Omega and Process Zeta using the weighted average cost of capital calculated in part (a). Mid year discount factors are to be used. Recommend which process, if any, Balestier should proceed with and explain your recommendation.

(10 marks)

(Total = 20 marks)
18. Balestier Cosmetics Solutions: Answer

Mapping of contents

<table>
<thead>
<tr>
<th>Item number</th>
<th>Title</th>
<th>Learning outcome</th>
<th>Textbook chapter</th>
<th>Cognitive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Calculate NPV and WACC; Calculate internal rate of return (IRR)</td>
<td>Explain, apply, and justify the use of income, asset-based, and market valuation approaches used for investment decisions, business planning, and long-term financial management. Analyse an organisation's cash flow and working capital requirements. Analyse the current and future financial position of an organisation, using techniques including ratio analysis, trend analysis and cash flow analysis.</td>
<td>3,7,2</td>
<td>3</td>
</tr>
</tbody>
</table>

Marking guide

(a) Provide estimate of cost of capital
- Determine Laserfast's current capital structure and Balestier's current capital structure
- Use the formula to degear Laserfast's equity beta, overall and for other activities.
- Use a weighted average to determine the asset beta for the laser component industry
- Use the formula to regear the beta to Balestier's capital structure
- Use CAPM to determine the cost of equity if Balestier enters the Laser beauty treatment industry
- Use Balestier's capital structure to estimate WACC

(b) Calculate the NPV of Process Omega and Process Zeta at the WACC calculated in part (a)
- Calculate IRR for Process Omega and Process Zeta using WACC discount fact and PV
- Compare the NPV and IRR for Process Omega and Process Zeta
- Recommend which Process (Omega or Zeta) to proceed with

TOTAL

10 marks | 18 mins

10 marks | 18 mins

20 marks | 36 mins
Answer Points

(a) Use the information for Laserfast to estimate the component project's asset beta. Then use Balestier Co's capital structure to estimate the project's equity beta and WACC. Here, it is assumed that the beta of debt is zero.

**Laserfast's capital structure**

Laserfast MV_e = S$1.20 \times 400m shares = S$480m of which 75% or S$360m is for other activities.

Laserfast MV_d = S$96m of which 80% or S$76.8m is for other activities.

Degear Laserfast's overall equity beta and other activities equity beta using the Hamada equation:

\[
\beta_u = \beta_g \times \frac{V_E}{V_E + V_D(1 - t)}
\]

Laserfast overall asset beta (\(\beta_u\)) = \(1.40 \times \frac{S$480m/(S$480m + S$96m \times (1 - 0.17))}{1.200}

Laserfast asset beta of other activities (\(\beta_u\)) = \(1.25 \times \frac{S$360m/(S$360m + S$76.8m \times (1 - 0.17))}{1.062}

Use the assets beta's to find the laser component asset beta

Assuming that the overall assets beta is a weighted average of its activities, then:

\(1.200 = \text{laser component asset beta} \times 0.25 + 1.062 \times 0.75\)

Component asset beta = \((1.200 - (1.062 \times 0.75))/0.25 = 1.614\)

**Find laser component equity beta based on Balestier Co capital structure**

Balestier Co MV_e = S$1.80 \times 10m shares = S$18m

Balestier Co MV_d = S$3.6m

\(\beta_g = \beta_u \times \left[1 + (1 - t)V_d/V_e\right] = 1.614 \times \left[1 + (1 - 0.17) S$3.6m/S$18m\right] = 1.882\)

**Use CAPM to determine Balestier's cost of equity**

Cost of equity = 3.5% + 1.882 \times 5.8% = 14.42%

**Find the Balestier Co WACC for the laser component project**

\[
WACC = k_e \left[\frac{V_E}{V_E + V_D}\right] + k_d \left[1 - t\right] \left[\frac{V_D}{V_E + V_D}\right]
\]

WACC = (14.42\% \times S$18m + 5.4\% \times (1 - 0.17) \times S$3.6m)/(S$18m + S$3.6m) = 12.80%, rounded to 13%.

(b) **Process Omega**

<table>
<thead>
<tr>
<th>Year</th>
<th>Cash flow (S'000)</th>
<th>Discount factor 13%</th>
<th>PV (S'000)</th>
<th>Discount factor 20%</th>
<th>PV (S'000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>(3,800)</td>
<td>1.000</td>
<td>(3,800)</td>
<td>1.000</td>
<td>(3,800)</td>
</tr>
<tr>
<td>1</td>
<td>1,220</td>
<td>0.941</td>
<td>1,148</td>
<td>0.913</td>
<td>1,114</td>
</tr>
<tr>
<td>2</td>
<td>1,153</td>
<td>0.832</td>
<td>960</td>
<td>0.761</td>
<td>877</td>
</tr>
<tr>
<td>3</td>
<td>1,386</td>
<td>0.737</td>
<td>1,021</td>
<td>0.634</td>
<td>879</td>
</tr>
<tr>
<td>4</td>
<td>3,829</td>
<td>0.652</td>
<td>2,496</td>
<td>0.528</td>
<td>2,023</td>
</tr>
</tbody>
</table>

|   | NPV              | 1,825                | NPV        | 1,092                |            |
Process Omega IRR

IRR is approximately \(13\% + \left(\frac{1,825}{(1,825 - 1,092)}\right) \times (20\% - 13\%) = 30.4\%\)

Process Zeta

<table>
<thead>
<tr>
<th>Year</th>
<th>Cash flow $'000</th>
<th>Discount factor 13%</th>
<th>PV $'000</th>
<th>Discount factor 20%</th>
<th>PV $'000</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0 (3,800)</td>
<td>1.000</td>
<td>(3,800)</td>
<td>1.000</td>
<td>~0 (3,800)</td>
</tr>
<tr>
<td>1</td>
<td>643</td>
<td>0.941</td>
<td>605</td>
<td>0.913</td>
<td>587</td>
</tr>
<tr>
<td>2</td>
<td>546</td>
<td>0.832</td>
<td>455</td>
<td>0.761</td>
<td>415</td>
</tr>
<tr>
<td>3</td>
<td>1,055</td>
<td>0.737</td>
<td>777</td>
<td>0.634</td>
<td>669</td>
</tr>
<tr>
<td>4</td>
<td>5,990</td>
<td>0.652</td>
<td>3,905</td>
<td>0.528</td>
<td>3,164</td>
</tr>
<tr>
<td></td>
<td>NPV</td>
<td>1,942</td>
<td></td>
<td>NPV</td>
<td>1,036</td>
</tr>
</tbody>
</table>

Process Zeta IRR

IRR is approximately \(13\% + \left(\frac{1,942}{(1,942 - 1,036)}\right) \times (20\% - 13\%) = 28.0\%\)

Comparison between NPV and IRR

The NPV provides an assessment of present value of the project after the project return of 13% per annum has been delivered to the investors. The higher the NPV, the more value the project is expected to create.

IRR assumes that positive cash flows are reinvested at the IRR. The result produced is usually consistent with the net present value, however, this is not always the case as IRR is less reliable that NPV.

Here, the IRR for Process Omega is the highest at 30.4% suggesting the Process Omega is selected

However, the NPV for Project Omega at the risk adjusted WACC is S$1,825,000, which is lower than the NPV for Project Zeta where the NPV is S$1,942,000

Managers are advised to follow the highest NPV at its weighted average cost of capital as this is expected to maximise the increase in shareholder wealth between the two options. Therefore the decision is to select Process Zeta with the highest NPV of S$1,942,000.

However, both processes are expected to add significant value to Balestier Co and the difference between NPVs of Process Omega and Process Zeta is marginal. Therefore, it is advised further research and consideration is given any risk, cost or operating differences between the two processes or if there are any non-financial factors, such as the consumer experience, which should influence the decision before the final choice is made.
19. Sentosa Trading

Eric Lin, the Finance Director of Sentosa Trading Pte Ltd (Sentosa) is evaluating the financial viability of two separate overseas investments and reporting his findings to the Board of Sentosa. Wherever possible, all project surpluses will be remitted to Singapore at the end of the year in which the cash flows arise. Assume both projects are mutually exclusive.

**Project 1:** Country = Batania; Currency = batan (B)
- The project will require an investment of B7.2 million on equipment, which will have no scrap value in 5 years' time. Depreciation is charged on a straight line basis.
- The project is expected to generate annual net profit after tax of B2.8m for 5 years stated in current values.
- Tax on company profits in Batania is 25% and is payable at the end of the year in which profits arise. Depreciation is an allowable deduction for tax purposes. There is a double tax treaty between Singapore and Batania, so no additional tax will need to be paid in Singapore on the profits of the project.

**Project 2:** Country = Modalia; Currency = modal (M)
It will require an immediate investment of M18 million.

The project will generate annual net cash flows, as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Net cash inflow (M'000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-12,000</td>
</tr>
<tr>
<td>2</td>
<td>+16,000</td>
</tr>
<tr>
<td>3</td>
<td>+18,000</td>
</tr>
<tr>
<td>4</td>
<td>+20,000</td>
</tr>
<tr>
<td>5</td>
<td>+23,000</td>
</tr>
<tr>
<td>6</td>
<td>+17,000</td>
</tr>
<tr>
<td>7</td>
<td>+9,000</td>
</tr>
</tbody>
</table>

These cash flows have been adjusted for expected inflation and are the expected money cash flows from the project.

In an attempt to stimulate growth, the Modalian Government has recently reduced the corporation tax rate from 20% to zero. Any surplus funds remitted to Singapore will, however, be taxed at 17%, 12 months after the remittance.

Eric has provided some background information to help appraise the investments:
- Current exchange rate: 8 Batan = S$1; 20 Modal = S$1
- Batania inflation: 0.5% per annum
- Singapore inflation: 1.8% per annum
- The Modal is expected to depreciate against the S$ by 4% per year
- Sentosa expects all potential investment projects to generate returns in excess of 15%
- Use year-end tax flows

**Required**

(a) Calculate the expected project net present value (NPV) of both projects. (8 marks)

(b) Detail the critical assumptions used in the calculations, highlighting weaknesses in the assumptions. (2 marks)

(c) Recommend to the Board four other relevant considerations when making its decisions about the investment projects. (2 marks)

(Total = 12 marks)
19. Sentosa Trading: Answer

Mapping of contents

<table>
<thead>
<tr>
<th>Item number</th>
<th>Title</th>
<th>Learning outcome</th>
<th>Textbook chapter</th>
<th>Cognitive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Evaluation of investments</td>
<td>Explain, apply, and justify the use of income, asset-based, and market valuation approaches used for investment decisions, business planning, and long-term financial management. Assess the impact of a project on a company's exposure to foreign exchange, cross-border transactions and economic risk.</td>
<td>3, 7</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

Marking guide

(a) Calculate the expected project NPV for Project 1:
- Net cash flow in B and S$
- 15% discount factor
- Cumulative PV
- NPV in S$

Calculate the expected project NPVs for Project 2:
- Net cash flow M and S$
- 15% discount factor
- Cumulative PV
- NPV in S$

(b) Critical assumptions/weaknesses for each project
- Cash flow assumptions for each project
- Use of 15% discount rate
- Inflation rates are reliable and stable
- Modalian currency stable and Batan exchange rate change each year with PPP
- Year-end cash flows
- Tax rate constant
- No exchange controls
- Project surpluses will be remitted to Singapore

(c) Four other relevant considerations
- Availability of finance
- Compare political, legal and cultural risks
- Likelihood of government change
- Currency flows estimate/sensitivity of currency returns

TOTAL 12 marks 22 mins
**Answer Points**

(a) **Calculation:**

*Project 1*: Country = Batania; Currency = batan (B)

<table>
<thead>
<tr>
<th>B'000</th>
<th>Year 0</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment</td>
<td>(7,200)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net cash flow = profit before depreciation</td>
<td>4,261</td>
<td>4,283</td>
<td>4,304</td>
<td>4,325</td>
<td>4,347</td>
<td></td>
</tr>
<tr>
<td>Year 0 values:</td>
<td>(2.8+1.44) = 4.24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation at 0.5%</td>
<td>4,261</td>
<td>4,283</td>
<td>4,304</td>
<td>4,325</td>
<td>4,347</td>
<td></td>
</tr>
<tr>
<td>Tax at 25%</td>
<td>(704)</td>
<td>(707)</td>
<td>(711)</td>
<td>(714)</td>
<td>(718)</td>
<td></td>
</tr>
<tr>
<td>Year 0 values: (2,800 × 25%) = 700. Inflation at 0.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net cash flow</td>
<td>(7,200)</td>
<td>3,557</td>
<td>3,576</td>
<td>3,593</td>
<td>3,611</td>
<td>3,629</td>
</tr>
<tr>
<td>Exchange rate (W)</td>
<td>8</td>
<td>7.898</td>
<td>7.797</td>
<td>7.697</td>
<td>7.599</td>
<td>7.502</td>
</tr>
<tr>
<td>Net cash flow in S$</td>
<td>(900,000)</td>
<td>450,367</td>
<td>458,638</td>
<td>466,805</td>
<td>475,194</td>
<td>483,738</td>
</tr>
<tr>
<td>15% discount factor</td>
<td>1</td>
<td>0.870</td>
<td>0.756</td>
<td>0.658</td>
<td>0.572</td>
<td>0.497</td>
</tr>
<tr>
<td>Present value</td>
<td>(900,000)</td>
<td>391,819</td>
<td>346,730</td>
<td>307,158</td>
<td>271,811</td>
<td>240,418</td>
</tr>
<tr>
<td>Cumulative PV</td>
<td>(900,000)</td>
<td>(508,181)</td>
<td>(161,451)</td>
<td>145,707</td>
<td>417,518</td>
<td>657,936</td>
</tr>
</tbody>
</table>

At 15%, **NPV = S$ 657,936**

*Working*

Forecast exchange rate = using relative inflation rates

\[ 8 \times \left( \frac{1.005}{1.018} \right) = 7.898 \]
\[ 7.898 \times \left( \frac{1.005}{1.018} \right) = 7.797 \]
\[ 7.797 \times \left( \frac{1.005}{1.018} \right) = 7.697 \]
\[ 7.697 \times \left( \frac{1.005}{1.018} \right) = 7.599 \]
\[ 7.599 \times \left( \frac{1.005}{1.018} \right) = 7.502 \]

*Calculation:*

*Project 2*: Country = Modalia; Currency = modal (M)

<table>
<thead>
<tr>
<th>Year</th>
<th>Cash flow M'000</th>
<th>Exchange rate (Depreciating at 4% per year)</th>
<th>Cash flow S$</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>(18,000)</td>
<td>20.000</td>
<td>(900,000)</td>
</tr>
<tr>
<td>1</td>
<td>(12,000)</td>
<td>20.800</td>
<td>(576,923)</td>
</tr>
<tr>
<td>2</td>
<td>16,000</td>
<td>21.632</td>
<td>739,645</td>
</tr>
<tr>
<td>3</td>
<td>18,000</td>
<td>22.497</td>
<td>800,107</td>
</tr>
<tr>
<td>4</td>
<td>20,000</td>
<td>23.397</td>
<td>854,810</td>
</tr>
<tr>
<td>5</td>
<td>23,000</td>
<td>24.333</td>
<td>945,218</td>
</tr>
<tr>
<td>6</td>
<td>17,000</td>
<td>25.306</td>
<td>671,777</td>
</tr>
<tr>
<td>7</td>
<td>9,000</td>
<td>26.319</td>
<td>341,958</td>
</tr>
</tbody>
</table>
### Summary Table

<table>
<thead>
<tr>
<th></th>
<th>Batania</th>
<th>Modalia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment in S$</td>
<td>$900,000</td>
<td>$900,000</td>
</tr>
<tr>
<td>NPV in S$ (to nearest S$1,000)</td>
<td>$658,000</td>
<td>$762,000</td>
</tr>
<tr>
<td>Life</td>
<td>5 years</td>
<td>7 years</td>
</tr>
<tr>
<td>Tax rate – Country of investment</td>
<td>25%</td>
<td>0%</td>
</tr>
<tr>
<td>Tax rate – Singapore</td>
<td>0%</td>
<td>17%</td>
</tr>
</tbody>
</table>

### Conclusions

The NPV of the Batanian project is helped by the fact that the Batan is strengthening against the S$.

The Modalian project gives a higher overall NPV, despite the fact that Modals are depreciating against the S$, reducing the value of returns in S$. This is because it has a longer life and a lower tax rate.

It is not clear whether the Board are considering investing in both projects or choosing between them. The fact they both require an initial investment of S$900,000 might suggest the latter. In which case the choice of investment may be based on the estimated NPV, risk and discounted payback period for the projects.

### Critical assumptions/weaknesses with assumptions

The calculated NPVs depend on the following critical assumptions. As the projects extend into time, the greater is the risk that these may no longer apply. For each assumption any weakness is discussed.

(i) Further calculations could be undertaken to explore the sensitivity of each project to the assumptions made about cash flows (revenues and expenditures).

(ii) 15% discount rate appropriate to both projects: this may not reflect the risks involved in each project.

(iii) Inflation rates will remain stable and estimates of inflation are reliable.

(iv) Modalian currency will continue to depreciate at 4% and the Batan exchange rate will change each year in accordance with purchasing power parity theory.

(v) Year-end tax flows.
(vi) Tax rate will stay constant and Modalian tax rate will be zero for life of project.

(vii) No exchange controls exist, and all project surpluses will be remitted to Singapore as soon as possible.

(c) There are other considerations and questions that should be considered by the Board. For example, does Sentosa have finance available to invest in both projects? The next question is, how do the political, legal and cultural risks in each country compare? (This may influence the appropriate cost of capital for each project.)

What is the likelihood of changes in government, affecting economic policies and tax rates? For example, Modalian tax rate is unlikely to be zero for the next seven years. Another consideration is how the currency flows been estimated and the sensitivity of currency returns to changes in estimated prices/volumes/costs etc. Lastly, the Board should consider if the investments have a risk profile that is consistent with the strategic objectives and risk appetite of the company's board of directors.
20. Igaku Pharmaceutical

Igaku Pharmaceutical Company Ltd (Igaku) is a global pharmaceutical company, listed on the Singapore Stock Exchange (SGX). It manufactures a wide range of pharmaceutical drugs. Competitive advantage in the pharmaceutical industry depends on a drug company's ability:

(i) To develop new drugs and therapies, using the latest available technologies; and then,

(ii) To recoup the costs of research and development by selling successful drugs under exclusive patents, which typically last for between 10 and 20 years.

The process of taking a drug from research to market takes a considerable amount of time and involves a high degree of risk. Long term success is therefore heavily dependent on the quality of research and development and the existence of a ‘pipeline’ of drugs in development. Industry research suggests that a drug in the discovery or pre-clinical stage is a very risky proposition, with less than a 1% chance of getting to market. As the drug moves through the development process, the risk decreases: Drugs entering Phase I clinical trials have a 15% probability of becoming a marketable product; for those in Phase II, the odds of success rise to 30%, and for Phase III, they climb to 60%. Once clinical trials are complete and the drug enters the final approval phase, it has a 90% chance of success.

Singapore has built an international reputation for clinical research and clinical trials management and has a number of renowned bio-medical research institutes. This, together with the availability of world-class intellectual property protection, has led to many global pharmaceutical companies investing in strategic partnerships with Singapore bio-technology businesses or setting up their own research units, and as a result the bio-pharmaceutical industry in Singapore continues to experience rapid growth in conjunction with the broader bio-technology industry.

Acquisition of Punggol Medical Research Pte Ltd (PMR)

To date, Igaku has grown its business organically, but it is now looking to expand its bio-technology and bio-medical capabilities as quickly as possible.

To do this, it is considering the acquisition of Punggol Medical Research Pte Ltd (PMR), a Singapore-based bio-technology company. PMR is a private company operating in the biotechnology industry and is owned by a consortium of business angels and company managers. The owner-managers are highly skilled scientists who have developed a number of technically complex bio-tech and bio-medical products, but have found it difficult to commercialise them. They have also been increasingly constrained by the lack of funds to develop their innovative products further.

Discussions have taken place about the possibility of PMR being acquired by Igaku. PMR's managers have indicated that the consortium of owners is happy for the negotiations to proceed. If PMR is acquired, it is expected that its managers would continue to run the PMR part of the larger combined company.

However, there are two opinions of how the PMR should be valued to determine the acquisition price for PMR which is acceptable to both Igaku and PMR directors and shareholders.

Opinion 1 – PV of excess cash flows over average returns

The directors of PMR are of the opinion that most of PMR's value is in its intangible assets, comprising intellectual capital. Therefore, the premium payable on acquisition should be based on the present value to infinity of the average actual after-tax earnings the company has generated in the past three years, in excess of expected earnings based on the average return on capital employed of the biotechnological industry.

Opinion 2 – Post acquisition increase in value ie value post acquisition less value pre-acquisition

However, Igaku is of the opinion that the premium should be assessed on synergy benefits created by the acquisition plus the increase in company value due to the changes in the price/earnings (P/E) ratio before and after the acquisition.
Statement of financial position

Given below are extracts of financial information for Igaku for 20X7 and PMR for 20X5, 20X6 and 20X7:

<table>
<thead>
<tr>
<th>Year ended 31 March</th>
<th>Igaku</th>
<th>PMR</th>
<th>PMR</th>
<th>PMR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20X7</td>
<td>20X7</td>
<td>20X6</td>
<td>20X5</td>
</tr>
<tr>
<td>Earnings before tax</td>
<td>1,980</td>
<td>397</td>
<td>370</td>
<td>352</td>
</tr>
<tr>
<td>Non-current assets</td>
<td>3,965</td>
<td>882</td>
<td>838</td>
<td>801</td>
</tr>
<tr>
<td>Current assets</td>
<td>968</td>
<td>210</td>
<td>208</td>
<td>198</td>
</tr>
<tr>
<td>Share capital (25c/share)</td>
<td>600</td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Reserves</td>
<td>2,479</td>
<td>183</td>
<td>166</td>
<td>159</td>
</tr>
<tr>
<td>Non-current liabilities</td>
<td>1,500</td>
<td>400</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>Current liabilities</td>
<td>354</td>
<td>209</td>
<td>180</td>
<td>140</td>
</tr>
</tbody>
</table>

Additional information

- The current average P/E ratio of the biotechnology industry is 16.4 times.
- It has been estimated that PMR's P/E ratio is 10% higher than this.
- However, it is thought that the P/E ratio of the combined company would fall to 14.5 times after the acquisition.
- The annual after-tax earnings of the combined company will increase by S$140 million due to synergy benefits resulting from combining the two companies.
- Both companies pay company tax at 17% per annum.
- PMR's annual weighted average cost of capital is estimated at 7%.
- Igaku's current share price is S$9.24 per share.
- The biotechnology industry's pre-tax return on capital employed is currently estimated to be 20% per annum.

Funding the acquisition

Igaku has proposed to pay for the acquisition of PMR using one of the following three methods:

(1) A cash offer of S$5.94 for each PMR share;
(2) A cash offer of S$1.33 for each PMR share plus 1 Igaku share for every 2 PMR shares;
(3) A cash offer of S$1.25 for each PMR share plus one S$100 3% convertible bond for every S$5 nominal value of PMR shares. In 6 years, the bond can be converted into 12 Igaku shares or redeemed at par.

Required

(a) Based on the two different opinions on the applicable premium to be paid for PMR expressed by Igaku and PMR, calculate the maximum acquisition premium payable in each case in addition to the current market value of PMR. (8 marks)

(b) Calculate the percentage premium per share that Igaku shareholders will receive under each acquisition payment method (ie in addition to the current market price) and justify, with explanations, which payment method would be most acceptable to them. (12 marks)

(Total = 20 marks)
20. Igaku Pharmaceutical: Answer

Mapping of contents

<table>
<thead>
<tr>
<th>Item number</th>
<th>Title</th>
<th>Learning outcome</th>
<th>Textbook chapter</th>
<th>Cognitive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Acquisition; impact of financing decisions</td>
<td>Explain, apply and justify the use of income, asset-based, and market valuation approaches used for investment decisions, business planning and long-term financial management. Compare the various sources of financing available to an organisation, including bank financing, financial instruments and bond, equity and treasury markets. Assess the appropriateness and cost of the various traditional sources of financing (eg debt and equity) available to an organisation. Outline the problems of overvaluation of target companies.</td>
<td>3,7</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4,5</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td>2</td>
</tr>
</tbody>
</table>

Marking guide

(a) Maximum premium based on excess earnings
- Average pre-tax earnings
- Average capital employed
- Pre-tax and post-tax premiums
- PV of annual premium in perpetuity
Maximum premium based on P/E ratio
- PMR and Igaku post-tax profit
- PMR and Igaku current value
- Value of combined company

8 marks | 14 mins

(b) Calculate the percentage premium share for:
- Cash offer: premium % to PMR shareholder
- Cash and share offer: premium % to PMR shareholder
- Cash and bond offer: premium % to PMR shareholder

Comment on cash offer from PMR and Igaku's perspectives
Comment on cash and share offer from PMR and Igaku's perspectives
Comment on cash and bond offer from PMR and Igaku's perspectives
Decide on which payment offer (of the three) would be most acceptable to PMR shareholders and justify your reasons

12 marks | 22 mins

Total

20 marks | 36 mins
Answer Points

(a) PMR current value = 16.4 \times 1.1 \times \$397m \times (1 - 0.17) \text{ (using 20X7 post tax earnings)} = \$5,944.2m

No of PMR shares = \$300m/0.25c \text{ per share} = 1,200m \text{ shares}

Current value per share (PMR) = \$5,944.2m/1,200m \text{ shares} = \$4.95 \text{ per share.}

For the offer to be successful, Igaku must pay a premium over the current value of \$5,944.2m or \$4.95 per share which will be guided by Opinion 1 and Opinion 2 as part of the sale negotiation.

**Opinion 1 – Maximum premium based on excess earnings:**

Average pre-tax earnings of PMR = \{397 + 370 + 352\}/3 \text{ years} = \$373m

Average capital employed = \{(882 + 210 - 209) + (838 + 208 - 180) + (801 + 198 - 140)\}/3 = \$869.3m

Average expected earnings (pre-tax) = \$869.3m \times 20\% = \$173.8m

Excess annual earnings premium (pre-tax) = \$373m - \$173.8m = \$199.2m

Post-tax annual earnings premium = \$199.2 \times (1 - 0.17) = \$165.3m

PV of annual premium in perpetuity = \text{earnings premium/WACC} = 165.3/0.07 = \$2,360.8m

The maximum premium payable for PMR, based on excess earning, is \$2,360.8m.

**Opinion 2 – Maximum premium based on P/E ratio**

Igaku current value = \$9.24 \times 2,400m \text{ shares} = \$22,176m

PMR current value = \$5,944.2m

Value of combined company before acquisition = (\$22,176m + \$5,944.2m) = \$28,120.2m

PMR’s post-tax profit (most recent) = \$397m \times 0.83 = \$329.5m

Igaku’s post-tax profit = \$1,980 \times 0.83 = \$1,643.4m

Combined post tax earnings after acquisition = Igaku + PMR + synergy = (1,643.4 + 329.5 + 140) = \$2112.9m

Combined value after acquisition = \$2112.9m \times 14.5 = \$30,637.1m

Maximum premium = \text{Value after acquisition} - \text{Value before acquisition}

Maximum premium payable for PMR = \$30,637.1m - \$28,120.2m = \$2,516.9m

The maximum premium payable for PMR, based on synergy and uplift in company value is \$2,516.9m.

Both Opinion 1 and Opinion 2 are similar in value and represent a maximum price based on the respective assumptions. Both values are estimated and therefore the final acquisition price will be subject to negotiation and is likely to be lower due to uncertainties concerning the assumptions made and method of valuation.

(b) Current value of a PMR share = \$5,944.2m/1,200m \text{ shares} = \$4.95 \text{ per share}

Maximum premium % based on excess earnings = \$2,360.8/5,944.2 \times 100 = 39.7\%

Maximum premium % based on P/E ratio = \$2,516.9/5,944.2 \times 100 = 42.3\%
Evaluation of the three purchase methods

(i) Cash offer of $5.94 per share: premium % to PMR shareholder

A cash offer of $5.94 for each PMR share;

\[
\frac{5.94 - 4.95}{4.95} \times 100 = 20.0\
\]

Comment

This cash offer is approximately half of the premium estimated by either method in part (a).

However, the maximum premium of between 39.7% and 42.3% is uncertain, as it relies on the growth and earnings assumptions in PMR being fully realised. Furthermore, using an expected P/E ratio or perpetuity to value a business is not reliable.

For many investors, an immediate 20% premium in excess of the current market price will be attractive, as many will choose to immediately invest this gain in other investments with equivalent growth potential. Therefore this cash offer could succeed, or may only require raising slightly. The directors of Igaku will need to determine the availability of cash in order to complete the acquisition.

(ii) Cash and share offer of $1.33 for each PMR share plus 1 Igaku share for every 2 PMR shares: premium % to PMR shareholder

Terms of offer: 1 Igaku share for 2 PMR shares

Igaku share price = $9.24 which is equivalent to 2 PMR shares

Therefore, price per PMR share = $9.24/2 = $4.62

Cash payment per PMR share = $1.33

Total return = 4.62 + 1.33 = $5.95

Premium = \[
\frac{5.95 - 4.95}{4.95} \times 100 = 20.2\%
\]

Comment

This method of financing would increase the number of shares in Igaku by 600m shares under a 1 for 2 offer (1,200m PMR shares/2 = 600m new Igaku shares).

Given there are currently 2,400m Igaku shares ($600m/0.25c), then this offer represents a 20% dilution in control as PMR shareholders would take 20% holding. The directors of Igaku would need to consider the implications of this sharing of control. The key benefit to Igaku with a purchase with shares, is that it limits the cash required to complete the acquisition which avoids increasing the gearing. This option is attractive if it is difficult for Igaku to raise the necessary cash to fund a cash offer in option 1 of $5.94 (option 1).

From a shareholders perspective, their return will be more uncertain as it relies on discretionary dividends and uncertain capital gains in the share price. An uplift of 0.2% (20.2% – 20%) in comparison with the cash offer of $5.94 (option 1) is not sufficient for the additional risks of accepting Igaku shares. For this option of financing to be acceptable, Igaku will either need to raise the cash offer element or offer additional Igaku shares for every PMR share. This will result in further dilution of control for Igaku shareholders.

(iii) Cash and bond offer: premium % to PMR shareholder

Term of the offer: A cash offer of $1.25 for each PMR share plus one $100 3% convertible bond for every $5 nominal value of PMR shares. In 6 years, the bond can be converted into 12 Igaku shares or redeemed at par.

Each share has nominal value of $0.25 so $5 is 20 shares

Bond value $100/20 shares = $5 per share

Cash payment per PMR share = $1.25
Total return = 5 + 1.25 = S$6.25

Premium = (6.25 – 4.95)/4.95 \times 100 = 26.0% 

**Comment**

Based on the calculations above, the cash plus bond offer will give the highest return to PMR shareholders. In addition, the bond can be converted to 12 Igaku shares, giving a value per share of S$8.33 (100/12), which is below the current share price and so already in-the-money. If the share price increases over the six-year period, then the value of the bond should also increase. The bond will also earn interest of 3% per year for the holder.

The 26% return is the closest to the maximum premium based on excess earnings and the maximum premium based on P/E ratios, but it is not as high as either of them. Despite this, this method is still the best of the three suggested to transfer more of the value to the owners of PMR.

This payment method also gives the lowest initial cash payment of the three methods being considered. This may make it seem more attractive to the Igaku shareholders as well, although they stand to have their shareholding diluted most by this method, if the bonds are converted after six years have passed.

Additionality the shareholder of PMR will be accepting risk associated with debt. If Igaku default on the bond, or become insolvent, then they will face a substantial loss. Many investors will view the additional 6% return on the cash offer (26% – 20%) as insufficient for this risk.

The cash and share offer gives a return in between the other options. Although the return is lower than the cash and bond offer, PMR's shareholders could sell the Igaku shares immediately if they wish to. However, if the share price of Igaku falls between now and the acquisition, the return to PMR shareholders will be lower.

It seems most likely that PMR's shareholder/managers, who will continue to work in the new entity, will accept the mixed cash and bond offer. This maximises their current return and also gives them the chance to gain in the future when converting the bond. The choice of payment method could be influenced by the impact on personal taxation situations, though.

**Overall**

From Igaku's perspective, the cash offer is preferable as it avoids dilution (option 2) or potential dilution of control (option 3) if the convertible bond is exercised. However, Igaku does not have sufficient cash to fund the acquisition without additional borrowing and this may increase financial risk and gearing beyond acceptable levels.

The cash and bond offer (option 2) is the next best financing option for the following reasons:

(i) It avoids excessive utilisation of its cash reserves and so avoids potential liquidity problems post acquisition.
(ii) It uses cheaper debt finance, with has the tax advantage that interest is tax deductible.

If avoids a dilution of control, approximately 20%, unless the bond is converted in six years' time.

However, there are two challenges for Igaku to overcome for Option 2 to be accepted:

(i) The issue of the new bond may increase gearing and financial risk beyond levels acceptable to Igaku's shareholders. It is advised Igaku consult with its major shareholders to understand their reaction to the rise in gearing to determine if it is acceptable.
(ii) The shareholders of PMR may be reluctant to exchange their investment in PMR shares for an investment in Igaku bonds. Investors would need to be reassured that the level of risk is lower than an equity investment. Increasing the cash and bond offer to a 30% premium on the share price may be sufficient to convince PMR shareholders to accept the cash and bond offer.

Before a price is negotiated, it is essential Igaku obtains a more accurate free cash flow valuation of PMR's forecast revenue, different costs categories and synergies as part of independent due diligence processes. This includes determining the best, average and worse case values for each assumption and creating a range of free cash flow valuations based on the range of assumptions. These will help management to facilitate a more robust decision-making process. The results of this should reassure both parties as to a reasonable valuation and help them to negotiate a final price.
FORMULAE
## Present Value Table

Present value of 1 ie \((1 + r)^{-n}\)

Where  
- \(r\) = discount rate
- \(n\) = number of periods until payment

### Discount rate (r)

<table>
<thead>
<tr>
<th>Periods</th>
<th>1%</th>
<th>2%</th>
<th>3%</th>
<th>4%</th>
<th>5%</th>
<th>6%</th>
<th>7%</th>
<th>8%</th>
<th>9%</th>
<th>10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n)</td>
<td>0.990</td>
<td>0.980</td>
<td>0.971</td>
<td>0.962</td>
<td>0.952</td>
<td>0.943</td>
<td>0.935</td>
<td>0.926</td>
<td>0.917</td>
<td>0.909</td>
</tr>
<tr>
<td>2</td>
<td>0.980</td>
<td>0.961</td>
<td>0.943</td>
<td>0.925</td>
<td>0.907</td>
<td>0.890</td>
<td>0.873</td>
<td>0.857</td>
<td>0.842</td>
<td>0.826</td>
</tr>
<tr>
<td>3</td>
<td>0.971</td>
<td>0.942</td>
<td>0.915</td>
<td>0.889</td>
<td>0.864</td>
<td>0.840</td>
<td>0.816</td>
<td>0.794</td>
<td>0.772</td>
<td>0.751</td>
</tr>
<tr>
<td>4</td>
<td>0.961</td>
<td>0.924</td>
<td>0.888</td>
<td>0.855</td>
<td>0.823</td>
<td>0.792</td>
<td>0.763</td>
<td>0.735</td>
<td>0.708</td>
<td>0.683</td>
</tr>
<tr>
<td>5</td>
<td>0.951</td>
<td>0.906</td>
<td>0.863</td>
<td>0.822</td>
<td>0.784</td>
<td>0.747</td>
<td>0.713</td>
<td>0.681</td>
<td>0.650</td>
<td>0.621</td>
</tr>
<tr>
<td>6</td>
<td>0.942</td>
<td>0.888</td>
<td>0.837</td>
<td>0.790</td>
<td>0.746</td>
<td>0.705</td>
<td>0.666</td>
<td>0.630</td>
<td>0.596</td>
<td>0.564</td>
</tr>
<tr>
<td>7</td>
<td>0.933</td>
<td>0.871</td>
<td>0.813</td>
<td>0.760</td>
<td>0.711</td>
<td>0.665</td>
<td>0.623</td>
<td>0.583</td>
<td>0.547</td>
<td>0.513</td>
</tr>
<tr>
<td>8</td>
<td>0.923</td>
<td>0.853</td>
<td>0.789</td>
<td>0.731</td>
<td>0.677</td>
<td>0.627</td>
<td>0.582</td>
<td>0.540</td>
<td>0.502</td>
<td>0.467</td>
</tr>
<tr>
<td>9</td>
<td>0.914</td>
<td>0.837</td>
<td>0.766</td>
<td>0.703</td>
<td>0.645</td>
<td>0.592</td>
<td>0.544</td>
<td>0.500</td>
<td>0.460</td>
<td>0.424</td>
</tr>
<tr>
<td>10</td>
<td>0.905</td>
<td>0.820</td>
<td>0.744</td>
<td>0.676</td>
<td>0.614</td>
<td>0.558</td>
<td>0.508</td>
<td>0.463</td>
<td>0.422</td>
<td>0.386</td>
</tr>
<tr>
<td>11</td>
<td>0.896</td>
<td>0.804</td>
<td>0.722</td>
<td>0.650</td>
<td>0.585</td>
<td>0.527</td>
<td>0.475</td>
<td>0.429</td>
<td>0.388</td>
<td>0.350</td>
</tr>
<tr>
<td>12</td>
<td>0.887</td>
<td>0.788</td>
<td>0.701</td>
<td>0.625</td>
<td>0.557</td>
<td>0.497</td>
<td>0.444</td>
<td>0.397</td>
<td>0.356</td>
<td>0.319</td>
</tr>
<tr>
<td>13</td>
<td>0.879</td>
<td>0.773</td>
<td>0.681</td>
<td>0.601</td>
<td>0.530</td>
<td>0.469</td>
<td>0.415</td>
<td>0.368</td>
<td>0.326</td>
<td>0.290</td>
</tr>
<tr>
<td>14</td>
<td>0.870</td>
<td>0.758</td>
<td>0.661</td>
<td>0.577</td>
<td>0.505</td>
<td>0.442</td>
<td>0.388</td>
<td>0.340</td>
<td>0.299</td>
<td>0.263</td>
</tr>
<tr>
<td>15</td>
<td>0.861</td>
<td>0.743</td>
<td>0.642</td>
<td>0.555</td>
<td>0.481</td>
<td>0.417</td>
<td>0.362</td>
<td>0.315</td>
<td>0.275</td>
<td>0.239</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Periods</th>
<th>11%</th>
<th>12%</th>
<th>13%</th>
<th>14%</th>
<th>15%</th>
<th>16%</th>
<th>17%</th>
<th>18%</th>
<th>19%</th>
<th>20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n)</td>
<td>0.901</td>
<td>0.893</td>
<td>0.885</td>
<td>0.877</td>
<td>0.870</td>
<td>0.862</td>
<td>0.855</td>
<td>0.847</td>
<td>0.840</td>
<td>0.833</td>
</tr>
<tr>
<td>2</td>
<td>0.812</td>
<td>0.797</td>
<td>0.783</td>
<td>0.769</td>
<td>0.756</td>
<td>0.743</td>
<td>0.731</td>
<td>0.718</td>
<td>0.706</td>
<td>0.694</td>
</tr>
<tr>
<td>3</td>
<td>0.731</td>
<td>0.712</td>
<td>0.693</td>
<td>0.675</td>
<td>0.658</td>
<td>0.641</td>
<td>0.624</td>
<td>0.609</td>
<td>0.593</td>
<td>0.579</td>
</tr>
<tr>
<td>4</td>
<td>0.659</td>
<td>0.636</td>
<td>0.613</td>
<td>0.592</td>
<td>0.572</td>
<td>0.552</td>
<td>0.534</td>
<td>0.516</td>
<td>0.499</td>
<td>0.482</td>
</tr>
<tr>
<td>5</td>
<td>0.593</td>
<td>0.567</td>
<td>0.543</td>
<td>0.519</td>
<td>0.497</td>
<td>0.476</td>
<td>0.456</td>
<td>0.437</td>
<td>0.419</td>
<td>0.402</td>
</tr>
<tr>
<td>6</td>
<td>0.535</td>
<td>0.507</td>
<td>0.480</td>
<td>0.456</td>
<td>0.432</td>
<td>0.410</td>
<td>0.390</td>
<td>0.370</td>
<td>0.352</td>
<td>0.335</td>
</tr>
<tr>
<td>7</td>
<td>0.482</td>
<td>0.452</td>
<td>0.425</td>
<td>0.400</td>
<td>0.376</td>
<td>0.354</td>
<td>0.333</td>
<td>0.314</td>
<td>0.296</td>
<td>0.279</td>
</tr>
<tr>
<td>8</td>
<td>0.434</td>
<td>0.404</td>
<td>0.376</td>
<td>0.351</td>
<td>0.327</td>
<td>0.305</td>
<td>0.285</td>
<td>0.266</td>
<td>0.249</td>
<td>0.233</td>
</tr>
<tr>
<td>9</td>
<td>0.391</td>
<td>0.361</td>
<td>0.336</td>
<td>0.310</td>
<td>0.284</td>
<td>0.263</td>
<td>0.243</td>
<td>0.225</td>
<td>0.209</td>
<td>0.194</td>
</tr>
<tr>
<td>10</td>
<td>0.352</td>
<td>0.322</td>
<td>0.295</td>
<td>0.270</td>
<td>0.247</td>
<td>0.227</td>
<td>0.208</td>
<td>0.191</td>
<td>0.176</td>
<td>0.162</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Periods</th>
<th>11%</th>
<th>12%</th>
<th>13%</th>
<th>14%</th>
<th>15%</th>
<th>16%</th>
<th>17%</th>
<th>18%</th>
<th>19%</th>
<th>20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n)</td>
<td>0.317</td>
<td>0.287</td>
<td>0.261</td>
<td>0.237</td>
<td>0.215</td>
<td>0.195</td>
<td>0.178</td>
<td>0.162</td>
<td>0.148</td>
<td>0.135</td>
</tr>
<tr>
<td>12</td>
<td>0.286</td>
<td>0.257</td>
<td>0.231</td>
<td>0.208</td>
<td>0.187</td>
<td>0.168</td>
<td>0.152</td>
<td>0.137</td>
<td>0.124</td>
<td>0.112</td>
</tr>
<tr>
<td>13</td>
<td>0.258</td>
<td>0.229</td>
<td>0.204</td>
<td>0.182</td>
<td>0.163</td>
<td>0.145</td>
<td>0.130</td>
<td>0.116</td>
<td>0.104</td>
<td>0.093</td>
</tr>
<tr>
<td>14</td>
<td>0.232</td>
<td>0.205</td>
<td>0.181</td>
<td>0.160</td>
<td>0.141</td>
<td>0.125</td>
<td>0.111</td>
<td>0.099</td>
<td>0.088</td>
<td>0.078</td>
</tr>
<tr>
<td>15</td>
<td>0.209</td>
<td>0.183</td>
<td>0.160</td>
<td>0.140</td>
<td>0.123</td>
<td>0.108</td>
<td>0.095</td>
<td>0.084</td>
<td>0.074</td>
<td>0.065</td>
</tr>
</tbody>
</table>
### Annuity Table

Present value of an annuity of 1 is given by the formula:

\[
\frac{1-(1+r)^{-n}}{r}
\]

Where:
- \( r \) = discount rate
- \( n \) = number of periods

#### Discount rate (r)

<table>
<thead>
<tr>
<th>Periods</th>
<th>1%</th>
<th>2%</th>
<th>3%</th>
<th>4%</th>
<th>5%</th>
<th>6%</th>
<th>7%</th>
<th>8%</th>
<th>9%</th>
<th>10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n) 1</td>
<td>0.990</td>
<td>0.980</td>
<td>0.971</td>
<td>0.962</td>
<td>0.952</td>
<td>0.943</td>
<td>0.935</td>
<td>0.926</td>
<td>0.917</td>
<td>0.909</td>
</tr>
<tr>
<td>2</td>
<td>1.970</td>
<td>1.942</td>
<td>1.913</td>
<td>1.886</td>
<td>1.859</td>
<td>1.833</td>
<td>1.808</td>
<td>1.783</td>
<td>1.759</td>
<td>1.736</td>
</tr>
<tr>
<td>3</td>
<td>2.941</td>
<td>2.884</td>
<td>2.829</td>
<td>2.775</td>
<td>2.723</td>
<td>2.673</td>
<td>2.624</td>
<td>2.577</td>
<td>2.531</td>
<td>2.487</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Periods</th>
<th>11%</th>
<th>12%</th>
<th>13%</th>
<th>14%</th>
<th>15%</th>
<th>16%</th>
<th>17%</th>
<th>18%</th>
<th>19%</th>
<th>20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n) 1</td>
<td>0.901</td>
<td>0.893</td>
<td>0.885</td>
<td>0.877</td>
<td>0.870</td>
<td>0.862</td>
<td>0.855</td>
<td>0.847</td>
<td>0.840</td>
<td>0.833</td>
</tr>
<tr>
<td>2</td>
<td>1.713</td>
<td>1.690</td>
<td>1.668</td>
<td>1.647</td>
<td>1.626</td>
<td>1.605</td>
<td>1.585</td>
<td>1.566</td>
<td>1.547</td>
<td>1.528</td>
</tr>
<tr>
<td>3</td>
<td>2.444</td>
<td>2.402</td>
<td>2.361</td>
<td>2.322</td>
<td>2.283</td>
<td>2.246</td>
<td>2.210</td>
<td>2.174</td>
<td>2.140</td>
<td>2.106</td>
</tr>
<tr>
<td>4</td>
<td>3.102</td>
<td>3.037</td>
<td>2.974</td>
<td>2.914</td>
<td>2.855</td>
<td>2.798</td>
<td>2.743</td>
<td>2.690</td>
<td>2.639</td>
<td>2.589</td>
</tr>
<tr>
<td>11</td>
<td>6.207</td>
<td>5.938</td>
<td>5.687</td>
<td>5.453</td>
<td>5.234</td>
<td>5.029</td>
<td>4.836</td>
<td>4.656</td>
<td>4.486</td>
<td>4.327</td>
</tr>
</tbody>
</table>
Discount factors: PV of $1:

\[ DF = \frac{1}{(1 + r)^n} \]

where

- \( r \) = the cost of capital
- \( n \) = the time period (year)

When cash flows occur at an even rate throughout the year, use mid-year discount factors: \( n = 0.5 \) for Year 1, \( n = 1.5 \) for Year 2, and so on.

Present value of an annuity

\[ AF = \left( \frac{1 - \frac{1}{(1 + r)^n}}{r} \right) \]

or

\[ AF = \left( \frac{1 - (1 + r)^{-n}}{r} \right) \]

Present value of an annual cash flow in perpetuity

\[ PV = \frac{A}{r} \]

where

- \( A \) = the annual cash flow
- \( r \) = the cost of capital

Economic value added

\[ EVA = NOPAT - (\text{Capital employed} \times \text{Cost of capital}) \]

Dividend valuation model for shares

\[ MV = \frac{d}{k_s} \]

where

- \( MV \) = the current market price of the share
- \( d \) = annual dividend (the same every year).
- \( k_s \) = cost of equity.

Dividend growth valuation model

\[ MV = \frac{d_0 (1 + g)}{(k_s - g)} \]

where

- \( g \) = annual growth in dividends

This formula (the Gordon Growth model) is also used to calculate the terminal value of a business at the end of a project discounting period. When used to calculate a terminal value for a business:

\[ MV = \frac{FCF_n (1 + g)}{(k_s - g)} \]

where

- \( FCF_n \) is the free cash flow in the final year of the project
- \( g \) = expected annual growth rate in free cash flow in future years (in perpetuity)

This gives a terminal value as at Year \( n \), and this should be further discounted to a Year 0 present value.
Capital asset pricing model

\[ k_s = R_f + \beta_s (R_m - R_f) \]

where

- \( k_s \) = cost of equity for a company's share
- \( R_f \) = risk-free rate of return
- \( R_m \) = market rate of return
- \( \beta_s \) = beta value for the company's shares

Weighted average cost of capital

\[ WACC = k_e \left( \frac{V_E}{V_E + V_D} \right) + k_d (1 - t) \left( \frac{V_D}{V_E + V_D} \right) \]

where

- \( k_e \) = the cost of equity
- \( k_d \) = the pre-tax cost of debt
- \( V_E \) = the current market value of the company's equity shares
- \( V_D \) = the current market value of the company's debt capital
- \( t \) = the rate of taxation

Modigliani-Miller formulae

Value of similar geared and ungeared companies

\[ V_g = V_u + Dt \]

where

- \( V_g \) = value of debt plus equity in a geared company
- \( V_u \) = value of equity in an equivalent ungeared company
- \( D \) = market value of the debt capital in the geared company
- \( t \) = rate of taxation

\( Dt \) is therefore the 'tax shield' on the company's debt capital

Cost of equity

\[ k_{eu} + (k_{eu} - k_d) \frac{V_d}{V_e} (1 - t) \]

where

- \( k_{eu} \) = cost of equity in a geared company
- \( k_{eu} \) = cost of equity in an identical but ungeared company
- \( V_d, V_e \) = market values of debt and equity respectively
- \( k_d \) = cost of debt pre-tax

Adjusted cost of capital

\[ k_{adj} = k_{ue} (1 - tL) \]

where

- \( k_{adj} \) = the weighted average cost of capital in a geared company
- \( k_{ue} \) = the cost of equity in an ungeared company
- \( L \) = gearing ratio (or leverage ratio), measured as the market values of debt/(debt + equity)

Hamada formula for relationship between asset beta and equity beta

Where it is assumed that company debt is risk-free and has a beta = 0:
\[ \beta_u = \beta_g \times \frac{V_E}{V_E + V_D (1 - t)} \]

where

\( \beta_u = \) beta factor of an ungeared company: also called the asset beta \( \beta_a \)

\( \beta_g = \) beta factor of equity in a geared company: the geared beta: also called the equity beta \( \beta_e \)

\( V_D = \) market value of the debt capital in the geared company

\( V_E = \) market value of the equity capital in the geared company

**Purchasing Power Parity**

Future exchange rate A$/B$ = Current exchange rate A$/B$ \times \frac{(1 + \text{country A inflation rate})}{(1 + \text{country B inflation rate})}

Where A relates to the variable currency and B to the base currency

**Interest rate parity**

Future spot rate A$/B$ = Current spot rate A$/B$ \times \frac{(1 + \text{country A interest rate})}{(1 + \text{country B interest rate})}