INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

22 April 2024 (am)

Subject CB1 – Business Finance
Core Principles

Time allowed: Three hours and twenty minutes

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

If you encounter any issues during the examination please contact the Assessment Team on T. 0044 (0) 1865 268 873.

1 The shareholders of Company F, a quoted media company, are concerned that their directors lack the ability to manage the company effectively. How might the capital market support Company F's shareholders if their concerns are valid?

A Company F's market listing will be suspended
B Governance regulations will be enforced
C Quoted company share prices will be compared
D Rival companies will acquire Company F at a premium.

[2]

2 Company S wishes to remunerate its executive directors in a manner that aligns their interests with those of the shareholders. Which form of remuneration will achieve that objective?

A A generous annual salary
B A percentage of reported profit
C An annual allocation of shares
D The use of a company car.

[2]

3 An individual has served as a lending officer for K Bank for the past year. During that time the lending officer has become increasingly concerned that K Bank is making loans recklessly to borrowers who cannot afford to repay those loans.

Which of the following reflects the lending officer's ethical responsibility?

A The lending officer should ask K Bank's board to resign
B The lending officer should ignore the matter
C The lending officer should report the problem to the press
D The lending officer should resign from K Bank.

[2]

4 Which of the following explains the purpose of Double Taxation Relief (DTR)?

A DTR enables countries to receive more tax
B DTR prevents profit from being taxed twice
C DTR safeguards countries' economic interests
D DTR simplifies the calculation of tax liabilities.

[2]

5 Which of the following would explain why an investor would invest in a company that had a negative beta coefficient?

A The investor does not wish to diversify upside risk
B The investor does not wish to invest in a portfolio
C The investor wishes to limit exposure to systematic risks
D The investor wishes to pay less because of the negative beta.

[2]

6 An actuary is considering purchasing a pocket calculator costing $80. The Internal Rate of Return (IRR) of this investment is 800%.

Which of the following statements is a logical interpretation of this IRR?

A Several calculators should be purchased
B The actuary has calculated the IRR incorrectly
C The small initial investment has driven the high IRR
D There must be multiple IRRs for this investment.

[2]

7 Company R plans to make an investment in a project with a positive Net Present Value (NPV). Confidential briefings of investment analysts who specialise in Company R's industry indicate that the analysts do not believe that the project will succeed.

How does the shareholder value approach suggest that the project will affect Company R's share price?

A The share price will decrease because of the analysts' opinions
B The share price will increase because of the positive NPV
C The share price will increase because shareholders will trust Company R's directors
D The share price will remain unchanged because of the uncertainty.

[2]

8 Which of the following is true of opportunity costs in a project appraisal?

A Opportunity costs are irrelevant to project evaluation
B Opportunity costs arise only when capital is rationed
C Opportunity costs exist only when there are alternatives
D Opportunity costs should be reflected in project cash flows.

[2]

9 G plans to use their savings to open a holiday resort specialising in beach holidays in their hometown. The business will be G's only investment and their only significant asset. The weather in G's hometown can be very variable and unpredictable.

Which of the following is true of the risk faced by G because of the weather?

A G cannot mitigate the risk associated with bad weather
B G should ignore the risk because it is unsystematic
C G should not distinguish systematic and specific risks
D G should not invest in this business because it is risky.

[2]

10 Company T's earnings per share is £3.00 and its dividends per share is £1.20.

What is the company's dividend cover?

A 0.4
B 0.6
C 1.5
D 2.5.

[2]

11 Explain the implications of information asymmetries for sound corporate governance. [5]

12 H is a software designer who is working on a program that has a large potential market. H requires a large injection of funding to complete the development and fund the marketing of their program. They are considering offering convertible loan stock to potential investors.

Explain the advantages and disadvantages to H of issuing convertible loan stock. [5]

13 Explain the role of shadow banks. [5]

14 An airline is planning to acquire four new aircraft, financing the acquisition using a finance lease.

Explain the advantages of leasing an asset compared to taking out a loan in order to purchase the asset outright. [5]

15 A retailer operates as a sole trader. The retailer is considering incorporating the business as a limited company.

Explain the advantages and disadvantages of incorporating this business. [5]

16 Company M, a manufacturer, intends to build a new factory in which skilled staff will operate complex and dangerous machinery.

Recommend, with reasons, a suitable means of mitigating the risk of injury to staff and the resulting risks to Company M. [5]

17 Explain why parent companies are required to publish consolidated financial statements rather than focusing on the financial statements of the parent company itself. [5]

18 Company G's return on capital employed is significantly higher when calculated as profit before tax divided by equity than when it is calculated as profit before tax and interest divided by the total of equity and long-term debt.

Explain the implications of that difference for the analysis of Company G's performance. [5]

19 The information provided below was obtained from Company V's bookkeeping records on 31 March 2024.

Company V
Trial balance as at 31 March 2024

	$000	$000
Administrative expenses	8,120	
Bank	1,720	
Cost of goods sold	28,800	
Directors' salaries	5,100	
Dividends paid	2,000	
Inventory	6,250	
Loan interest	260	
Loans (repayable 2030)		2,400
Property, plant and equipment – accumulated depreciation		7,000
Property, plant and equipment – cost	43,000	
Retained earnings		9,250
Revenue		90,860
Selling expenses	26,100	
Share capital		10,000
Share premium		14,000
Software licence – cost	6,000	
Trade payables		980
Trade receivables	7,140	
	134,490	134,490

The software licence was purchased for $6 million on 1 April 2023. No entries have been made in the bookkeeping records other than the purchase. The software is used to analyse sales and to enhance Company V's marketing activities. The useful life of the software has been estimated at 10 years.

The tax charge on the year's profits has been estimated at $5 million.

An error has been discovered in the inventory figure. The value according to the trial balance has been overstated by $70,000.

(i) Prepare the following financial statements for Company V, in a form suitable for publication:

(a) Statement of profit or loss. [6]

(b) Statement of changes in equity. [2]

(c) Statement of financial position. [7]

(ii) Explain your treatment of the information relating to the software licence. [5]

[Total 20]

20 Q is a quoted airline company that operates a network of intercontinental flights. Q has 100 million shares in issue and the company has a market capitalisation of $1.1 billion.

Q's board plans to acquire 100% of L, a quoted hotel company. L owns hotels in many of the countries that are served by Q's flights. Q's directors believe that doing so will enable Q to offer holiday packages as well as flights and so will be more profitable.

L has 50 million shares in issue and the company has a market capitalisation of $0.5 billion. Q's board plans to issue 50 million new shares and exchange one new share for each of L's existing shares.

Each of Q's directors is remunerated with a salary and a percentage of Q's annual profit.

(i) Evaluate the planned acquisition of L as a means of creating growth for Q. [7]

(ii) Evaluate the agency implications for Q's shareholders of the proposal by Q's directors to acquire L. [7]

(iii) Discuss the possibility that L's directors will advise L's shareholders to reject Q's proposal once it has been announced. [6]

[Total 20]

END OF PAPER

Institute and Faculty of Actuaries

EXAMINERS' REPORT

CB1- Business Finance

Core Principles

April 2024

Introduction

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

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

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

For some candidates, this may be their first attempt at answering an examination using open books and online. The Examiners expect all candidates to have a good level of knowledge and understanding of the topics and therefore candidates should not be overly dependent on open book materials. In our experience, candidates that spend too long researching answers in their materials will not be successful either because of time management issues or because they do not properly answer the questions.

Many candidates rely on past exam papers and examiner reports. Great caution must be exercised in doing so because each exam question is unique. As with all professional examinations, it is insufficient to repeat points of principle, formula or other text book works. The examinations are designed to test "higher order" thinking including candidates' ability to apply their knowledge to the facts presented in detail, synthesise and analyse their findings, and present conclusions or advice. Successful candidates concentrate on answering the questions asked rather than repeating their knowledge without application.

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

Sarah Hutchinson
Chair of the Board of Examiners
June 2024

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

The aim of the Finance and Financial Reporting subject is to provide a basic understanding of corporate finance including a knowledge of the instruments used by companies to raise finance and manage financial risk, and to provide the ability to interpret the accounts and financial statements of companies and financial institutions.

This paper examines basic finance including raising funds by a variety of methods, taxation, basic management accounting, net present value and project appraisal and other topics, it has both calculations and essay type questions on these topics. The paper also examines financial reporting including preparation of the main financial statements and interpretation of financial statements. It also considers the basis of the preparation of statements and the information needs of a variety of end users of financial statements.

Different numerical answers may be obtained to those shown in these solutions depending on whether figures obtained from tables or from calculators are used in the calculations, but candidates are not penalised for this.

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

Many candidates performed well in this exam. The MCQs were answered very well with more candidates gaining high marks than the previous few diets. The short response questions were mostly answered well, however there were obvious differences in competency between candidates who clearly passed where an application of knowledge to an unfamiliar scenario was required. Performance in Question 19 was very good.

Question 20 produced mixed responses. This is an area (2024 Syllabus topic 2: How corporates are financed) where candidates' performance is often weakest in each diet and generally shows clear delineation of competency in this subject. Candidates should ensure a sounds knowledge of finance and be able to apply their knowledge to scenarios. Either question 19 or 20 will be on this area of the syllabus in every exam.

The pass mark was set at 63 due to several questions being easily answerable from the core reading alone, along with other indicators that those scoring below this did not demonstrate the level of competency required in this subject.

C. Pass Mark

The Pass Mark for this exam was 63.
1358 presented themselves and 893 passed.

Solutions for Subject CB1 – April 2024

Q1	D	[2]
Q2	C	[2]
Q3	D	[2]
Q4	B	[2]
Q5	C	[2]
Q6	C	[2]
Q7	A	[2]
Q8	C	[2]
Q9	C	[2]
Q10	D	[2]

[Total 20]

Commentary:
In general, the marks for questions 1-10 were good. The question which was most often answered incorrectly was Q1.

Q11

Information asymmetries arise in the context of governance because directors have access to more information than shareholders. [1]

That can mean that shareholders are less capable of supervising the actions of their boards and of measuring their performance. [1]

For example, the annual report will give a clear indication of the company's position and performance, but it will not provide the shareholders with details of all of the decisions made by management or of every misjudgement. [1]

The directors can use that asymmetry to justify keeping their jobs or being paid a higher remuneration. [1]

The response may be that shareholders have to seek greater assurance, such as paying for a good quality external audit to reassure them of the quality of the information with which they have been provided. [1]

[Total 5]

Commentary:
This question was answered well by many candidates.

Q12

H may find it relatively easy to secure investment using convertible loan stock because they will give buyers the reassurance associated with debt during the bond phase, along with the potential for capital gain if the stock is worth converting. [1]

That makes the loan stock less expensive than traditional debt and so reduces the burden of that debt while the business is developing its new product. [1]

It may also be unnecessary for H to raise cash to repay the loan stock if the holders decide to exercise their right to convert and so receive equity instead. [1]

The disadvantage of convertibles is that H may dilute their ownership of the company if the company prospers. [1]

If the company grows and prospers then loan stock holders will be able to obtain shares at a discount to their potential value. There could be a significant opportunity cost to H and to any other potential shareholders [1]

[Total 5]

Commentary:
This question was well answered. The core reading was used by many candidates to answer this question. It is very important that candidates reference the core reading at the end of their answer.

Q13

Shadow banks create liquidity for lending by taking out short-term borrowings and making long-term loans. [1]

Doing so enables borrowers to access funds that would otherwise be unavailable for the durations that they require for their funding needs. [1]

That also creates opportunities for institutions that are holding short-term cash balances to lend those out and so generate interest that would otherwise be unavailable. [1]

The ability of shadow banks to operate is constrained by the fact that they are not regulated in the same manner as banks. [1]

That can enable them to offer better terms and conditions than traditional banks, but there may be a higher risk associated with doing business with them. [1]

[Total 5]

Commentary:
This question was answered very well by most candidates. This was a knowledge question and most answers were mainly taken from the core reading. It is important that candidates reference answers that are taken directly from the core reading.

Q14

Finance leases differ from traditional lending because the lessor provides the lessee with the use of the asset rather than the means to buy the asset outright. [1]

The lessor retains ownership of the asset, which reduces the risk associated with default on the lease. If the lessee does not pay then the lessor can repossess the asset. [1]

It is reasonable to expect that airliners will have a ready market in the event that the lessor is forced to take them back and so there should be a reasonably low risk of loss. [1]

That protection will reduce the risk to the lessor and will, hopefully, reduce the cost of the finance in the process. [1]

The fact that the asset itself will form the security for the arrangement will also mean that the airline will not be required to pledge any of its other assets as security. [1]

[Total 5]

Commentary:
This question was answered reasonably well by many candidates however fewer candidates scored full marks than in other questions. *Many candidates attempted to discuss the treatment of the lease in the financial statements and marks were awarded for this if the answer was correct.* *Candidates were unsure about the ownership of the asset.*

Q15

The biggest advantage is that the retailer will be protected in the event that the business fails while leaving unpaid debt. [1]

Creditors will be able to claim the company's assets, but will have no right to claim those of the retailer. [1]

There is a disadvantage to incorporating in that potential lenders and creditors will be aware of the risk of default and may take steps to protect themselves. [1]

The company may be required to enter into onerous contracts, such as debt covenants, which could complicate future funding activities. [1]

Alternatively, they may demand personal guarantees from the retailer agreeing to be liable in the case that the company defaults. That could remove the benefit of becoming a limited company. [1]

[Total 5]

Commentary:
Candidates generally scored well on this question. Many candidates were able to make good suggestions of the benefits of becoming a limited company.

Q16

The most logical means of addressing this risk would be to establish safeguards and procedures that will enable staff to operate the equipment safely. [1]

Staff should then be trained and monitored to ensure that they are operating the machinery in accordance with those procedures. [1]

This approach to mitigation would reduce the likelihood of accidents occurring because operators would be required to take greater care. [1]

It would also reduce the risk of successful legal action because Company M would be able to demonstrate that it had taken precautions to avoid accidents. [1]

Finally, from both an ethical and reputational perspective, Company M could claim that it had behaved responsibly, with a view to protecting staff from harm. [1]

[Total 5]

Commentary:
Most candidates made good suggestions of how risk could be mitigated. This question scored high marks with many achieving full marks.

Q17

The parent company's financial statements reflect only those transactions and balances that the parent was directly associated with. [1]

It is possible that the parent will have no direct involvement with group trading activities and so the financial statements might show little more than investments in subsidiaries and dividend receipts and payments. [1]

The consolidated financial statements would reflect the group as an economic and trading entity, which would be far more helpful to the shareholders. [1]

Group accounts show totals for revenues and expenses and reflect the group profit, adjusted to eliminate intercompany transactions. [1]

The consolidated statement of financial position enables shareholders to understand the manner in which their equity has been invested. [1]

[Total 5]

Commentary:
This question was answered well by many candidates, but candidates who struggled with the question tended to score very poorly.

Q18

The two formulae calculate both return and capital employed differently. The first shows profit before tax divided by equity and the second profit before tax and interest divided by total long-term finance. [1]

One would normally expect the return on equity to be higher than the return paid to lenders as interest because lenders are taking much less risk. [1]

The fact that there is a significant difference between the results of the two ratios suggests that the company is highly geared. [1]

The high gearing will be desirable to the shareholders as long as the company remains profitable. The fact that the return paid to lenders is fixed means that the shareholders do not have to share any increase in profit with them. [1]

There is, however, a problem in that the shareholders' return will be far more volatile in relation to changes in earnings before interest and tax. Any decrease in that figure will result in a much poorer return to the shareholders because interest will still have to be paid. [1]

[Total 5]

Commentary:
Performance in this question was weaker than most other questions. *Many candidates did not discuss gearing or debt which was the main point of the question.*

V

Statement of Profit or Loss
for the year ended 31 March 2024

	$000		
Revenue	90,860		[½]
Cost of Sales	(28,870)		
Gross profit	61,990		
Distribution Costs	(26,700)		
Administrative Expenses	(13,220)		
Operating profit	22,070		
Finance costs	(260)		[½]
Profit before tax	21,810		
Income Tax Expense	(5,000)		[½]
Profit for the year	16,810		
		FORMAT	[1]

V

Statement of Changes in Equity for the year ended 31 March 2024

	Share capital	Share premium	Retained Earnings	Total	
	£000	£000	£000	£000	
Opening balance	10,000	14,000	9,250	33,250	[½]
Profit for the year			16,810	16,810	[½]
Dividends			(2,000)	(2,000)	[½]
Closing balance	10,000	14,000	24,060	48,060	
				FORMAT	[½]

V

Statement of Financial Position as at 31 March 2024

	Notes	£000	
Non-current assets			
Property, plant and equipment	[1]	36,000	
Intangible assets	[2]	5,400	
		41,400	
Current Assets			
Inventory		6,180	
Trade receivables		7,140	[½]
Bank		1,720	[½]
		15,040	
Total assets		56,440	
EQUITY AND LIABILITIES			
Equity			
Called-up share capital		10,000	
Share premium account		14,000	
Retained earnings		24,060	
Total equity		48,060	
Non-current liabilities			
Loans (repayable 2030)		2,400	[½]

Current liabilities			
Trade payables	980		[½]
Tax	5,000		[½]
	5,980		
Total of equity and liabilities	56,440		
		FORMAT	[1]

Notes

1. Property, plant and equipment

	£000	
Cost	43,000	[½]
Depreciation	(7,000)	[½]
	36,000	

2. Intangible assets

Cost	6,000	[½]
Amortisation	(600)	[½]
	5,400	

Workings

Cost of sales

Before adjustment	28,800	[½]
Inventory correction	70	[½]
	28,870	

Inventory

Before adjustment	6,250	[½]
Inventory correction	(70)	[1]
	6,180	

Distribution

Selling expenses	26,100	[½]
Amortisation of software	600	[1]
	26,700	

Administrative expenses

Expenses	8,120	[½]
Directors' salaries	5,100	[½]
	13,220	

[Total 15]

(ii)
The licence will provide service to V for ten years, so it is necessary to account for it as a non-current asset. [1]

The licence is a legal right, which means that it will be accounted for as an intangible asset. [1]

The licence has been used for one year of its ten year life, which suggests that amortisation of £600,000 should be charged as an expense. [1]

That is consistent with the accruals concept, charging expenses in the year in which they are incurred. [1]

The amortisation reduces the book value of the licence to £5.4 million, which is consistent with the cost and going concern concepts. [1]

[Total 5]

[Total 20]

Commentary:
Performance in Question 19 was very good. Most candidates achieved a high mark in this question. Quite a number of candidates scored full marks for this question which was excellent.

Q20

(i)

Q will effectively be diversifying by adding holidays to the provision of flights. As such, there will be some industrial logic to this expansion. [1]

There is the potential for synergy between the provision of flights and accommodation in foreign locations. [1]

Customers may find it attractive to be able to book a package holiday with a single company, simplifying bookings and potentially obtaining a lower price for a package compared to making separate arrangements for flights and hotels. [1]

Q will have to consider whether its existing flight network would be suitable for supporting package holidays, otherwise the scope for synergy may be lost. [1]

Package holidays often involve short to medium distance travel, so there may be limited demand for package holidays designed round a network of intercontinental flights. [1]

Q's destinations might be better suited to business travel than vacation travel. In that case, L might not be able to offer a sufficiently wide range of different hotels to meet the needs of business travellers. [1]

If there is no synergy then there will be no particular advantage in Q's acquisition of L and so shareholder wealth may be impaired. [1]

[Total 7]

(ii)

There could be a conflict of interest here because Q's directors are more likely to benefit from the acquisition of L than Q's shareholders. [1]

The acquisition of a profitable company will increase the Q group's profits, which will increase directors' bonuses. [1]

Q's directors are almost guaranteed to benefit from higher remuneration if this acquisition takes place. [1]

There is no guarantee that this will be a positive NPV investment for Q and the acquisition may even have a negative NPV if too much is paid for L. [1]

Q's directors will also continue to receive their salaries and may even be able to justify an increase in those on the grounds that the Q Group has grown because of this acquisition. [1]

Any problems associated with the acquisition may take some time to emerge, which means that Q's directors are likely to benefit from the acquisition before their shareholders become aware of any problems. [1]

There is very little downside risk to Q's directors if they proceed with this acquisition, while there is a significant downside risk to the shareholders. [1]

[Total 7]

(iii)
L's directors may be unwilling to support this acquisition because they will no longer be directors of an autonomous quoted company. [1]
At best, they will be required to report to Q's Board on any strategic decisions that have to be taken. [1]
At worst, Q's directors may decide to replace L's board in order to ensure that they have greater control over their new acquisition. [1]
L's shareholders are likely to benefit from the proposed acquisition. Their shares have a market value of $10.00 each. The combined value of the company will be $1.6 billion and there will be 150 million shares, making each worth $10.66. [1]
In the short term, L's shareholders could accept this offer and sell their shares in Q to yield a guaranteed profit. [1]
It is rarely advisable to reject an offer to acquire a company because the bidders are usually required to pay a premium over the existing share price. [1]

[Total 6]

[Total 20]

Commentary:
This question was answered poorly by many candidates. The topic (2. How corporates are financed: 2024 Syllabus) is usually assessed at a higher order thinking level and candidates often fail to provide the required depth of analysis and critical thinking in their answers. *Part (i) was on the whole answered well with many candidates discussing synergies.* *Part (ii) was attempted reasonably well by some who answered with some very good points. However most candidates had difficulty explaining any agency implications.* *Part (iii) was not answered well with few candidates able to explain reasons why shareholders might be asked to reject the proposal by the directors.*

[Paper Total 100]

END OF EXAMINERS' REPORT

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