

Corporate Financial Management

November 2010

Suggested answers and examiner's comments

Important notice

When reading these answers, please note that they are not intended to be viewed as a definitive 'model' answer, as in many instances there are several possible answers/approaches to a question. These answers indicate a range of appropriate content that could have been provided in answer to the questions. They may be a different length or format to the answers expected from candidates in the examination.

Examiner's general comments

The pass rate for November 2010 was 38%, which was lower than average. Possible reasons for this are discussed below.

All examination papers include some opportunities for candidates to earn marks through knowledge of basic bookwork, or by doing calculations similar in format to calculations that they will have seen in the course of their studies. This paper was no exception, and it may well have been as a result of this that several questions were very popular. A large number of candidates attempted Questions 2 and 4, and almost all candidates answered Question 6, most of them well or very well. A further reason for the popularity of Question 6 was probably the fact that it was qualitative, and many candidates tend to avoid quantitative questions.

Many candidates tend to be less comfortable when they are required to apply their knowledge in a way that is different from what they may have seen in the past. This applies to both qualitative and quantitative questions and it applied in this paper, in particular, in some parts of Question 1 and in Question 3.

As with the June 2010 examination, it seems possible that the more popular questions were those that, as well as looking familiar, left less room for candidates to judge what needed to be done and how to go about answering the question.

Some candidates included irrelevant information in their answers in situations where it was clear that they did not know the answer, and this would have wasted time.

More detailed comments on individual questions are given below.

Section A

1. (a) A company has estimated that the cost of its ordinary share capital is 15%, and the cost of its non-voting preference share capital is 10%. Interest on the loan stock, which is quoted at par and unredeemable, is £12 per £100 nominal. The loan stock is secured on freehold land and buildings. The company's business is well run in a mature industry that is growing slowly, its profitability is good and increasing, and there are no cash flow problems. Suggest, giving your reasons, why the returns on the different kinds of capital appear to be inconsistent with normal theory (ignore taxation).

(4 marks)

Suggested answer

We would expect the return on equity, and the cost of ordinary share capital, to be higher than for other forms of capital because the risk for the investor is greatest. Dividends are not guaranteed, and the company is only allowed to pay dividends if it has distributable profits. Ordinary shareholders are the residual beneficiaries, and rank last for payment in the event of the company being wound up. The risk for loan stock holders is least: the company seems well placed to pay interest, which is a legal obligation, whatever the level of profits and the loan stock is secured. Loan stock holders would therefore expect the lowest return. The risk of preference shares is between the risk of equity and the risk of loan stock: preference dividends are not guaranteed, but have to be paid at a fixed rate provided the company has distributable profits. This means that preference shares rank before ordinary shareholders for payment of dividends. They also rank before them for distributions in the event of a winding up. But preference shares rank after loan stock holders for payment, since they are shareholders and not creditors, and this company's loan stock holders are not only creditors but secured creditors. Preference dividends are usually fixed, as they are here, and loan stock holders' interest is also fixed.

Preference shareholders would expect a return lower than that on equity, and more than that on loan stock. The relative return on preference shares here does not reflect the relative risks and benefits of the different forms of capital.

Examiner's comments

Most answers made some valid comments on the relationship between risk and return, and many identified the differences between the risks on the three forms of capital. Some answers gave the returns in figures but few answers identified the anomaly.

- (b) Explain why many small companies that are not in financial difficulties may pay small dividends or no dividends at all.

(4 marks)

Suggested answer

Many small companies are recently established, having been set up to exploit promising new business opportunities. Companies in sectors where growth is rapid, or where product or business process innovation is critical to competitive success, often need to invest heavily. One of the sources of capital for investment is retained funds, and the decision about which sources of capital to use will depend on the costs and risks of different forms of capital. Companies of the kind described may not have steady cash flows (which minimise the risks associated with interest and capital payments on loans) or substantial tangible fixed assets (which can provide security for loans). Equity tends to be more appropriate for such companies, since rapid growth that is difficult to predict or uncertainties associated with technological and other innovation means higher levels of business risk. A high level of investment and a preference for equity capital means that such a company is more likely to use retained earnings for investment and consequently pay out a smaller proportion (or even none) of its earnings as dividends. This approach is often acceptable to shareholders, who may be more prepared to wait for a return in

the form of capital growth rather than dividends, than they would be with an investment in a larger, better established company.

Examiner's comments

This question was well answered by most candidates.

(c) Explain the relationship between net present value and internal rate of return, and show how they may offer complementary methods for evaluating investments.

(4 marks)

Suggested answer

The net present value (NPV) of a capital investment project is the sum of the present values of all the project cash flows, calculated by discounting future cash flows to today's values using the cost of capital. The cost of capital may be a weighted average for the company or may be determined specifically for the project in question to reflect how it is financed or the degree of risk. A positive NPV for the project means that the project offers a surplus to the providers of capital over the return that they require.

Internal rate of return (IRR) is the discount rate (cost of capital) that makes the NPV of a project equal to zero. It represents the return that the project offers on the capital invested.

NPV and IRR are both based on discounting project cash flows, but are complementary because:

- NPV gives the project surplus in today's money, while IRR gives the percentage annual return on capital invested.
- IRR reflects the return from each pound invested for each year. NPV reflects the size, as well as the profitability, pound for pound, of a project. Thus NPV gives a measure of the total surplus over the cost of capital, whereas IRR gives a way of ranking projects in order of priority.
- The NPV's of two different projects can be added together to give the NPV from a combined investment in the two. The IRR of a combined project is somewhere between the IRRs of the separate projects, but has to be calculated from scratch using the combined cash flows of the two projects.
- In order to calculate a NPV, the cost of capital needs to be known, whereas IRR is determined solely by the project cash flows.
- IRR may be intuitively easier to understand for people who are not trained in accounting.

Examiner's comments

Most candidates explained what net present value and internal rate of return are, but far fewer demonstrated why they are complementary.

- (d) Using the dividend growth model, an analyst has estimated that her company's cost of equity capital is 13% per annum. The current ex-dividend share price is 345.5 pence, and the current dividend is 14 pence per share. Do calculations to show what rate of dividend growth the analyst is assuming.

(4 marks)

Suggested answer

The dividend growth model gives the cost of capital K_e , in terms of the ex dividend share price P_o , the current dividend d_o , and the expected annual dividend growth g :

$$K_e = \frac{d_o(1+g)}{P_o} + g$$

Using the values given for K_e , d_o and P_o :

$$13\% = \frac{14(1+g)}{345.5} + g$$

Which gives $g = 0.086 = 8.6\%$

Examiner's comments

Most answers gave the dividend growth model correctly in the form of an expression for either the rate of return on equity or the share price. Not all answers then correctly inserted the values of the variables. Even fewer answers then solved the equation to find the dividend growth rate.

- (e) A company has issued 5 pence share warrants that allow the holder to purchase one ordinary share for 120 pence for every four warrants held in three years' time. The current share price is 85 pence. Calculate the conversion premium as a percentage of the current share price.

(4 marks)

Suggested answer

	pence
Cost of 1 share at exercise price	120
Cost of 4 warrants	<u>20</u>
Cost of purchasing 1 share using warrants	140
Current share price	<u>85</u>
Premium on exercise	55
Premium as % of current share price	64.7%

Examiner's comments

Many candidates did not appear to know how to find the conversion premium.

- (f) Compare the strengths and weaknesses of Economic Value Added (EVA) and Return on Capital Employed (ROCE) as management performance measures.

(4 marks)

Suggested answer

EVA is calculated by deducting a capital charge (the capital employed multiplied by the company's cost of capital) and the tax charge from the operating profit. ROCE is calculated by dividing profit (usually the operating profit) by the capital employed. ROCE therefore adjusts the

profit measure for the size of the business. EVA is an absolute measure, which shows the amount in £ by which the profit available for shareholders exceeds the cost of capital.

Since ROCE adjusts for the size of the business, it can be used to compare the performance of businesses of different sizes – and their managers. This may not be an advantage over EVA, since the potential profitability of different businesses may vary, so that different ROCE targets needs to be set for different businesses. Targets for EVA vary between businesses to reflect size and other factors.

When calculating EVA, different costs of capital can be used for different businesses to reflect how they are capitalised and their differing degrees of risk. ROCE targets can be adjusted for similar reasons, though a target figure for ROCE may be set for the company as a whole, which may discourage varying target figures for individual business units.

Both EVA and ROCE are popular because they do not need cash flows to be estimated as with NPV and IRR, but can be calculated using Profit and Loss and Balance Sheet figures.

ROCE can be manipulated by managers whose performance is being measured, for example, by reducing the capital employed so that the operating profit is divided by the smallest possible capital figure. One way of doing this is to defer the replacement of assets, even though this may reduce profits and can exclude new investments with positive NPVs. Manipulation is also possible with EVA, but the effect on the calculated performance measure is much less dramatic than with ROCE.

Examiner’s comments

Almost all answers explained what the ROCE is, and most commented on its strengths and weaknesses, but few answers compared ROCE with EVA.

- (g) For an investment project that is currently being evaluated, the following estimates have been made of most likely, best and worst outcomes for the total cash outflows and the total cash inflows (all discounted to today’s date to give present values), together with their probabilities:

Total cash outflows	£5.0m	£6.0m	£8.0m
Probability	0.3	0.4	0.3

Total cash inflows	£4.0m	£8.0m	£14.0m
Probability	0.2	0.6	0.2

Calculate the expected net present value of the project (where the term ‘expected’ is used in the sense of a weighted average using probabilities).

(4 marks)

Suggested answer

$$\begin{aligned} \text{Expected total outflow: } & 0.3 \times \text{£}5.0\text{m} + 0.4 \times \text{£}6.0\text{m} + 0.3 \times \text{£}8.0\text{m} &= \text{£}6.3\text{m} \\ \text{Expected total inflow: } & 0.2 \times \text{£}3.0\text{m} + 0.6 \times \text{£}8.0\text{m} + 0.2 \times \text{£}14.0\text{m} &= \underline{\text{£}8.2\text{m}} \\ \text{Expected NPV:} & &= \text{£}1.9\text{m} \end{aligned}$$

Examiner’s comments

A reasonable number of candidates answered this question correctly, but many did not. A sizeable number did not appear to know how to go about calculating an ‘expected’ net present value, even though the question included what was required.

(h) Distinguish between operating leases, finance leases and hire purchase.

(4 marks)

Suggested answer

An operating lease is a short-term agreement for renting an asset. The agreement can be cancelled during the contract period, and the asset is returned to the lessor well before the end of its life.

A finance lease is a long-term non-cancellable agreement for renting an asset for substantially all of its economic life. The asset is usually selected by the lessee, and is bought by the lessor for the specific purpose of leasing it out to the lessee only. The lessee is usually responsible for maintaining and insuring the asset. In effect, the lessee borrows from the lessor to finance the acquisition of an asset without becoming its legal owner.

A hire purchase contract is another method of financing assets, which envisages that ownership will ultimately pass to the user, who therefore receives the capital allowances. In an operating lease, the lessor receives the capital allowances (which can be reflected in the level of lease charges). There are now provisions for the lessee to receive capital allowances for a finance lease.

Examiner's comments

This question was generally well answered.

(i) Distinguish between primary and secondary markets for shares, and outline the relevance of each to the cost of capital for a company.

(4 marks)

Suggested answer

A primary market is a market where shares are first issued. The company receives money from the sale of shares, either by offering them to the public or by placing them with institutional investors.

Secondary markets are markets in which shares are traded between market participants. In these transactions, the company is only a party to deals in special circumstances (for example, if buys its own shares to reduce its capital).

In a primary market, the price at which shares are issued, and consequently the cost of ordinary share capital, is influenced by the market's expectations concerning the size and growth of future dividends. These expectations are influenced in turn by the market's assessment of the company's business, management and prospects. Issue expenses in a public offering of shares increase in the cost of the capital raised.

In secondary markets the share price is known, though future dividends are still subject to uncertainty (but forecasts by the company and by analysts, based on past business performance and dividend history, are subject to less uncertainty than in an initial public offering). The market share price provides a basis, using valuation models, for finding the cost of capital on a continuing basis.

This makes it possible to determine the cost of all capital provided by shareholders' funds (including retained profits and reserves) which, apart from issue expenses, is the same as the cost of equity share capital.

Examiner's comments

Most candidates distinguished correctly between primary and secondary markets, though many answers incorrectly identified primary markets as the main stock markets, and secondary markets as other stock markets, including AIM. Many answers mentioned the significance of issue costs as a component of the cost of capital, but far fewer commented on the significance of the share price and expectations concerning returns, in connection with either primary or secondary markets. Very few answers commented on the significance of secondary markets in relation to the cost of capital.

- (j) Explain the difference between systematic and unsystematic risk in the context of the capital asset pricing model.**

(4 marks)

Suggested answer

Systematic risk affects all the shares in a market. It is caused by factors that affect all companies, such as the economic situation, major political events and market sentiment. Unsystematic risk is particular to individual shares. It is caused by factors that are not likely to affect other companies or their share prices, such as management succession and other management-related problems, product failures, equipment breakdowns, localised problems with staffing and localised events such as bad weather or interruptions of supplies or utilities. Such factors affect only one or a few companies, and their effects are assumed to be uncorrelated between companies. The effects of systematic risks on a portfolio are correlated between the shares in the portfolio (though the susceptibility of the return on a share to systematic risk varies from share to share).

The significance of this difference between systematic and non-systematic risk for the capital asset pricing model (CAPM) is that the overall effects of unsystematic risk, being uncorrelated, tend to be reduced as the size of a portfolio increases. Portfolio diversification reduces or removes non-systematic risk but not systematic risk. Since the CAPM assumes that investors are rational, in the sense that they are willing to accept risk if the return is sufficiently high to compensate them for it, the CAPM assumes that investors require an increased return to compensate for systematic risk, but not for non-systematic risk, which they can reduce or remove by diversifying their portfolios. The CAPM is therefore concerned only with systematic risk.

Examiner's comments

This question was generally well answered.

Section B

2. The following figures are from the current statement of financial position (balance sheet) of Bessemer plc ('Bessemer'):

	£000
Ordinary share capital	
Authorized: 50,000,000 shares of 20p	<u>10,000</u>
Issued: 40,000,000 shares of 20p	8,000
Share premium	2,000
Reserves	<u>6,000</u>
Shareholders' funds	16,000
6% irredeemable debentures	6,000

Bessemer has just paid an annual dividend of 2.2 pence per ordinary share. The recent rate of growth of ordinary share dividends has been 8% per annum, and this rate of growth is expected to continue. Annual interest has recently been paid on the debentures. The ordinary share price is 108 pence, and the price of the debentures (the par of which is £100) is £75.

Required

- (a) Estimate the weighted average cost of capital (WACC) for Bessemer as an annual percentage rate, correct to 1 decimal place, using:

- (i) Market values.
(ii) Book values.

(11 marks)

Suggested answer

- (i) Market value weightings

Cost of ordinary share capital K_e , given by the dividend growth model in terms of the ex-dividend share price P_0 , the current dividend d_0 , and the expected annual dividend growth g :

$$K_e = \frac{d_0(1+g)}{P_0} + g$$

$$K_e = \frac{2.2(1.08)}{108} + 0.08 = 10.2\%$$

$$K_d = \frac{6}{75} = 8\%$$

$$V_e = 40\text{m} \times \text{£}1.08 = \text{£}43.2\text{m}$$

$$V_d = \text{£}6\text{m} \times 75\% = \text{£}4.5\text{m}$$

$$\text{WACC} = \frac{V_e \times K_e + V_d \times K_d}{V_e + V_d}$$

$$\text{WACC} = \frac{43.2 \times 10.2\% + 4.5 \times 8\%}{43.2 + 4.5} = 10.0\%$$

(ii) Book value weightings

$$V_e = \text{£}16.0\text{m}$$

$$V_d = \text{£}6.0\text{m}$$

$$\text{WACC} = \frac{16.0 \times 10.2\% + 6.0 \times 8\%}{16.0 + 6.0} = 9.6\%$$

(b) Discuss the value and limitations of WACC as a discount rate for use in the appraisal of capital investment projects, and the relative merits of using book values and market values to calculate WACC.

(9 marks)

Suggested answer

WACC provides a practical basis for calculating a company-wide discount rate for evaluating investment projects. It is a weighted average of different types of long-term capital, most importantly equity (in the form of ordinary shares and reserves) and debt. It is based on the current capital structure, and represents the cost of capital across the mix of activities in which the company has invested in the past.

Calculation of WACC requires estimates of the value and cost of each type of capital. If there are no market values for the company's shares or debt, the cost of the capital concerned cannot be determined reliably and WACC cannot be reliably estimated.

WACC is a company-wide figure and is not related to separate sources of equity or debt capital that may be used to finance individual projects. WACC is not risk-adjusted and may lead to the company rejecting low-risk projects that might be accepted, and accepting high-risk projects that might be rejected, if a risk-adjusted rate was used.

The weighting factors used to calculate WACC may be either book values or market values. The book values of different kinds of capital are shown in the balance sheet. For a company whose shares and debt are traded, market values are also readily available. For a private company or an unquoted public company, whose share are not traded on a stock market, it may be possible to determine share prices on the basis of private sales, but these are less reliable than share prices for a quoted company, since trades may be infrequent and the prices may not be reported or published and are likely to vary erratically. For unquoted debt capital (such as fixed term bank loans) it may be difficult or impossible to determine a price.

Book values have the advantage that they are readily available. They have the disadvantage that they do not reflect changes in market conditions (such as variations in the general levels of share and loan stock prices and associated variations in dividend yields and interest rates). In the long term, a company needs to know about trends in the market costs of different kinds of capital, in order to assess the performance of investments and plan the provision of capital. So a market weighted figure for WACC is of value. It is also more consistent to use market values for capital when the costs of capital have been calculated using the market values of shares and debentures. However, in the shorter term, it may be confusing to have a cost of capital that is constantly changing from day to day, as a result of changes in the market prices of shares or loan stock, when decisions taken on the basis of the cost of capital take effect and are evaluated over a longer time scale.

Examiner's comments

This question was popular but, on the whole, only moderately well answered. Credit was given for different ways of calculating WACC in part (a), but many calculations were not complete or accurate. Errors and omissions included: incorrect calculation of the number of ordinary shares in issue, incorrect calculation of the book value of equity, and failure to adjust the nominal value of the debenture capital and the nominal debenture interest rate to take account of the market price in part (a)(i). Most answers to part (b) made some valid comments, but few were complete.

3. It is now the last quarter of the year 2010. Bromborough plc ('Bromborough') is proposing to take over Sheerness plc ('Sheerness'), a company engaged in a business that is not related to Bromborough's existing operations. Synergistic gains arising out of the takeover are expected to result in Sheerness's current profits before tax increasing by £4 million.

The most recent statement of financial position (balance sheet) of Sheerness is shown below:

		(£ million)
Non-current assets		
Land & buildings	45	
Plant & machinery	32	
Motor vehicles	<u>8</u>	
		85
Acquired Goodwill		10
Current assets		
Inventories	52	
Receivables	38	
Short-term investments	9	
Cash	<u>6</u>	
	105	
Current liabilities		
Payables	26	
Taxation	<u>19</u>	
	(45)	
Net current assets		<u>60</u>
Total assets less current liabilities		155
Non-current liabilities		
Bank term loan		(26)
Deferred taxation		<u>(10)</u>
		119
Equity		
Ordinary shares of 25 pence		30
Reserves		<u>71</u>
		101
5.5% preference shares of 25 pence		<u>18</u>
		<u>119</u>

In the year just ended, Sheerness's profits before tax amounted to £20 million. The current price/earnings (P/E) ratio of Sheerness's shares is 6. The land and buildings are estimated to have a market value of about £120 million. An estimated 15% of the receivables are

considered doubtful, but no provision has yet been made. A quarter of the stock value represents old, unusable materials with a scrap value equal to about 20% of the book value. Goodwill represents the value of patents and copyrights. The fair value of other assets is the same as their book value.

The summarised financial statements of Bromborough are:

Income Statement for the year ended 31 October 2010	
	£ million
Turnover	828
Operating profit	219
Less: Interest	88
Profit before taxation	131
Taxation	41
Profit after taxation	90
Dividends	54
Retained profit	36

Statement of Financial Position (Balance Sheet) as at 31 October 2010	
	£ million
Non-current assets	1,121
Net current assets	540
Total assets less current liabilities	1,661
Non-current liabilities	
Irredeemable 9% debentures	(1,010)
	651
Equity	
Ordinary shares of 50 pence	180
Share premium account	270
Revenue reserves	201
	651

Bromborough's shares currently have a P/E ratio of 11. The tax charge in the income statement above does not reflect the company's marginal corporation tax rate, which is expected to be 28% for the foreseeable future.

Required

- (a) Discuss the possible sources of synergistic gains in an acquisition of this nature. (4 marks)

Suggested answer

Since Sheerness' business is not related to Bromborough's existing operations, synergies arising from increased market share, monopoly power, combining production facilities and forward and backward integration are not likely. There may be scope for savings in the costs of central facilities such as corporate headquarters, corporate management and information systems. There may also be scope for centralising banking arrangements to obtain lower interest rates on larger-scale borrowing. Another source of synergy could be better performance in areas such as the management of working capital by combining the capabilities of both companies, and as a result of increased size.

(b) Estimate the potential value of Sheerness to the acquirer on the basis of:

- (i) Net assets.
- (ii) Earnings, using Sheerness's existing P/E ratio.

(7 marks)

Suggested answer

Net assets valuation	
	£m
Land and buildings	120
Plant and machinery	32
Motor vehicles	8
Goodwill	10
Stocks	41.6
Debtors	32.3
Other current assets	15
	<u>258.9</u>
Less: Current liabilities	45
Total assets less current liabilities	213.9
Less: Bank term loan	(26)
Deferred taxation	(10)
Preference shares	(18)
Net asset value	<u>159.9</u>

Projected earnings valuation	
Current profits before tax	£20m
Savings	£4m
Additional contribution to profit before tax	£24m
Taxation at 28%	<u>£6.72m</u>
Increase in earnings after tax	£17.28m
Existing P/E ratio of Sheerness	6.0
Valuation	£103.68m

(c) As an alternative to a cash acquisition, Bromborough is considering the possibility of issuing one new Bromborough share to Sheerness's shareholders in exchange for every two Sheerness shares. Using the pre-acquisition market value of Bromborough and the earnings valuation of Sheerness, evaluate this proposal in terms of its impact on Bromborough's earnings per share and share price. Suggest why Bromborough's shareholders might do better than your calculation indicates.

(9 marks)

Suggested answer

Share exchange

Number of shares

Shares in issue

Bromborough (before acquisition) = £180m/£0.50 = 360m

Sheerness = £30m/£0.25 = 120m

Bromborough shares issued in exchange for Sheerness shares
= 120m ÷ 2 = 60m

Bromborough (after acquisition) = 420m

EPS

Bromborough (before acquisition)	= £90m ÷ 360m	= 25p
Bromborough (after acquisition)	= (£90m+£17.28m)/420m	= 25.54p

Share price

Share price of Bromborough (before acquisition)	= 11 x £0.25	= £2.75
Value of Bromborough (before acquisition)	= 360m x £2.75	= £990m
Value of Sheerness (earnings basis)	= <u>£103.68m</u>	
Value of Bromborough (after acquisition)	= <u>£1,093.68m</u>	
New share price	= £1,093.68m/420m	= £2.604

The existing Bromborough shareholders would suffer a loss in value of:

$$360m \times (£2.75 - £2.604) = £52.56m$$

The share price and EPS calculated above for the combined company give a P/E ratio of £2.604/£0.2554 = 10.2, compared with Bromborough's pre-acquisition P/E ratio of 11.0. If the market judged that the P/E ratio of the combined company should remain at 11.0 (reflecting expectations that the Bromborough management would be able to achieve the same kind of return on the assets of the enlarged company as before the merger), the share price would be $11 \times £0.2554 = £2.802$.

Examiner's comments

This question was not answered by many candidates, and was not particularly well answered by those candidates who did attempt it. Comments on the scope for synergies in answer to part (a) were generally rather brief. In part (b), many calculations of the Sheerness net assets correctly incorporated adjustments to the values of land and buildings, inventories and receivables, but many did not deduct the value of the preference shares. Calculations of the value of Sheerness using the P/E ratio were not often correctly completed, often omitting the expected increase in pre-tax profits, and not always allowing for tax. The calculations of Bromborough's earnings per share and share price and the comment required in part (c) were also not complete in many answers.

4. Techimport plc ('Techimport'), which imports optical equipment from Germany for sale to UK providers of ophthalmic services, has ordered 50 ophthalmic testing machines from a German supplier at a price of Euro 7,500 each. The supplier will deliver the machines during the coming month, but Techimport has agreed with the supplier that it will not have to pay for the machines until Techimport has installed them and been paid by its customers, so it has negotiated payment in three months' time. Techimport has an arrangement with its banks whereby it can borrow to cover short-term cash shortages at 2.0% above base rate, and can invest surplus funds at 0.25% below base rate, in both the UK and Germany.

Current exchange rates Euro/£	
Spot	1.1415 - 1.1424
3 months forward	1.1365 - 1.1385

Current base rates	
Germany	1.0%
UK	0.5%

Required

- (a) Using the information above, do calculations to evaluate three ways in which Techimport might take action to reduce or remove the risks associated with its foreign exchange exposure.

(11 marks)

Suggested answer

Ways in which Techimport might deal with its foreign exchange exposure that can be evaluated using the information provided are:

- (i) Forward purchase

Buy 375,000 Euro three months forward. The cost in £ at the forward rate is 375,000 Euro/1.1365 = £329,960 payable in three months' time.

- (ii) Early payment

Pay early at the current exchange rate (since the forward rates show that the £ is expected to depreciate against the Euro). The sterling cost will be 375,000 Euro/1.1415 = £328,515 payable now. If Techimport pays in three months' time, and borrows the money for three months at an interest rate of 0.5% + 2.0% = 2.5%, it will have to pay back £328,515 ×

$$\left(1 + \frac{2.5\%}{4}\right) = £330,568 \text{ in three months' time.}$$

- (iii) Money market hedge

Buy Euro to invest at 1.0% - 0.25% = 0.75% per annum for three months to provide 375,000 Euro in 3 months' time.

$$\text{Techimport needs to buy today } \frac{375,000 \text{ Euro}}{1 + \frac{0.0075}{4}} = 374,298 \text{ Euro}$$

$$\text{At today's spot rate this will cost } \frac{374,298}{1.1415} = £327,900$$

If this amount is borrowed today at £ interest rates, the amount repayable in three months' time will be:

$$£327,900 \times \left(1 + \frac{2.5\%}{4}\right) = £329,949$$

Option (iii), a money market hedge (buying Euro now to invest at Euro interest rates to provide enough Euro to pay in three months' time) provides the cheapest hedge among the policies that can be evaluated (though the cost of option (i), a forward foreign exchange purchase, is almost identical).

(b) Identify and explain two other policies that Techimport might adopt in relation to its foreign exchange exposure.

(4 marks)

Suggested answer

Techimport could buy a currency option giving it the right, but not the obligation, to buy 375,000 Euro in three months' time at a price set now (the 'strike' price). If, when Techimport is due to pay its supplier, the sterling value of the Euro is higher than the strike price, the option gives Techimport the right to buy Euro at the strike price. If the sterling value of the Euro is lower, Techimport can let the option lapse and buy Euro at the market rate. The option puts a ceiling on the sterling cost of the 375,000 Euro that Techimport must purchase to pay its supplier. The option premium must be paid whether or not the option is exercised. The cost of the option is in effect the cost of insuring against a rise in the value of the Euro over the next three months, giving, in addition, the prospect of a saving if the Euro weakens against sterling. The information provided does not allow this hedge to be evaluated.

Techimport could choose to do nothing and take the risk of the spot rate changing. At the current exchange rate (if it does not change) the sterling cost in three months' time will be 375,000 Euro/Euro1.1415:£ = £328,515. The circumstances in which this policy might be appropriate would be analogous to those in which a company might choose to bear other risks itself rather than insuring with a third party. These could include: a large scale of operations or numerous transactions where risks may balance out, substantial financial resources in relation to the risk, a good understanding of the nature and scope of currency risks, or a corporate culture in which decision makers are not risk-averse.

(c) Explain how an international company can use 'leads and lags' to protect itself against foreign exchange risk.

(5 marks)

Suggested answer

Leads are deliberate early payments of amounts due to be paid in foreign currency to overseas suppliers, or other foreign currency payments. Leads can avoid the risk that the sterling cost of these payments may rise if the amounts of the payments are quoted in foreign currency and the foreign currency increases in value. Lags are deliberate delays in receiving money for export sales or other receivables denominated in a foreign currency if the foreign currency is expected to increase in value against sterling, so that the amount received is worth more in sterling terms if it is received, and converted to sterling, later rather than earlier.

Leads or lags may operate when there are differences or changes in:

- The timing of sales and purchases abroad.
- The timing of payment or collection of foreign currency, or the disposal of foreign currency obtained from exports.
- The country or currency in which imports and exports are financed.
- The currency in which imports and exports are invoiced.
- The purchase or sale of spot or forward exchanges arising from covering the exchange risk on the foreign transaction.

Leading payments or lagging receipts requires additional working capital, and is worthwhile if the expected saving due to avoidance of the effect of a sterling devaluation exceeds the cost of providing the extra capital.

Conversely, if a UK company expects the value of sterling to rise against a foreign company in which it carries out transactions, it could be worthwhile accelerating foreign currency receipts or delaying foreign currency payments. These will reduce the UK company's working capital requirements but will need the foreign party to make payments earlier or accept later payments by the UK company, which the foreign party may not be willing to do.

Examiner's comments

This question was popular, but few answers were complete. In part (a), most answers included some calculations using the information provided about spot and forward exchange rates. Fewer answers made correct use of the information on interest rates, and few completed accurate calculations on a money market hedge.

A number of answers included choices in part (a) for which calculations could not be done because the question did not provide the information needed. A policy of doing nothing was one of the possible answers to part (b), but not all answers included it.

Some answers mentioned forward contracts and money market hedging in part (b), but not in part (a), where the information provided in the question would have allowed calculations to be done. Most answers gave some comments on leads and lags in part (c).

5. You have recently been appointed as company secretary of Marketing Support Services plc (MSS) a company that develops software for marketing applications, and also uses its own and other companies' software to provide marketing support services. The Chairman of MSS has asked you to review a financial assessment of a proposed four-year project in a new export market. The assessment has been undertaken by the Finance Director's staff. The Finance Director is about to retire, and tends to be wedded to traditional accounting practices. The Chairman is sufficiently familiar with investment appraisal techniques to be suspicious about the present valuation that she has been given, both in the principles it uses and the way in which they have been applied. She has assured you that she will treat any comments you make with discretion, and has urged you to be as drastic as you wish in your review.

The assessment undertaken by the Finance Director's staff is shown below:

	(£000's)				
	2010	2011	2012	2013	2014
Sales revenue		1,560	1,560	1,560	1,560
Less:					
Direct Costs		(600)	(600)	(600)	(600)
Overheads		(150)	(150)	(150)	(150)
Depreciation		(350)	(350)	(350)	(350)
Working capital	(700)				
Interest on working capital		(90)	(90)	(90)	(90)
R&D expenses written off		(100)	(100)	(100)	
Total costs	(700)	(1,290)	(1,290)	(1,290)	(1,190)
Profit/Loss	(700)	270	270	270	370
Less: Tax at 28%		(75.6)	(75.6)	(75.6)	(103.6)
Net profit/loss	(700)	194.4	194.4	194.4	266.4

$$\text{Accounting Rate of Return} = \frac{\text{Average profit/(loss) } \pounds 37,400}{\text{Average investment } \pounds 980,000} = \text{-----} = 3.8\%$$

You have made some enquiries and obtained the following additional information:

- Figures in the assessment above relate to the company's financial year, which ends on 31 March, starting with the year to 31 March 2011. All of the above estimates are at prices for the year to 31 March 2011. The rate of inflation is expected to be 3% per annum for the foreseeable future.
- New equipment costing £1,600,000 will be purchased on 31 March 2011, and is expected to have a scrap value of £200,000, at the prices then prevailing, when it is disposed of just before the end of the fourth year.
- The cost of investment also includes the £80,000 book value of an office building in which the equipment will be housed. The current market value of the office building is estimated as £100,000, and it is expected to be worth £70,000 (at today's prices) in four years' time. No further capital allowances are expected on the building.
- Tax relief will be given on new equipment expenditure, with writing down allowances calculated on a reducing balance basis at 25% per annum. The balancing allowance or charge in the final year will be equal to the difference between the written down value at the start of the year and the sale proceeds.

- The corporation tax rate is 28%, and tax is payable in the year after profits are made. MSS expects to have taxable profits after deducting any allowances arising from this project.
- The research and development costs of £300,000 were incurred during 2008 – 2009.
- Overheads have been estimated as a percentage of direct labour costs, which is the company's normal practice. An independent assessment suggests that the incremental overheads attributable to this project are likely to amount to £90,000 a year.
- Service sales income from existing business is not expected to be affected by the new project.
- The company's weighted average after-tax cost of capital is 13%.

Required

- (a) As an initial part of the review that you will be doing, and using the information provided in the Finance Department assessment, supplemented and amended as appropriate by the information that you have collected, calculate the net present value and payback period of the proposed project.

(13 marks)

Suggested answer

MSS project cash flows for years to 31 March (£000)

	2011	2012	2013	2014	2015	
Revenue		1,606.8	1,655.0	1,704.6	1,755.7	
Direct costs		(618.0)	(636.5)	(655.6)	(675.3)	
Overheads		(92.7)	(95.5)	(98.4)	(101.4)	
Operating cash flow		896.1	923.0	950.6	979.0	
WDA/Balancing All.	(400.0)	(300.0)	(225.0)	(168.8)	(306.2)	
Taxable income	(400.0)	596.1	698.0	781.8	672.8	
Tax(paid)/relieved to be paid/received in following year	112.0	(166.9)	(195.4)	(218.9)	(188.4)	
Opportunity cost of office	(100.0)				78.8	
Capital expenditure	(1,600.0)				200.0	
Working capital	(700.0)				787.9	
Net cash flow	(2,400.0)	1,008.1	756.1	755.2	1,826.8	(188.4)

Payback period of the project = $2 + (2,400.0 - (1,008.1 + 756.1))/755.2 = 2.84$ years.

Project cash flows discounted to 2010/11

Year to 31 March	2011	2012	2013	2014	2015	2016
Net cash flow (£000)	(2,400.0)	1,008.1	756.1	755.2	1,826.8	(188.4)
Present value factor	1.0	0.885	0.783	0.693	0.613	0.543
PV of cash flow (£000)	(2,400.0)	892.2	592.	523.4	1,119.8	(102.3)

NPV of project = £625,100

- (b) State how you have done your calculation, as well as the assumptions that you have made or used, for each item of your analysis.**

(7 marks)

Suggested answer

Notes on calculations and assumptions

- (i) Inflation: The original revenue and cost estimates are at 2010/2011 prices, whereas the cost of capital incorporates the market's expectations about future inflation. The revenue and cost estimates, working capital and the value of the office building are inflated at 3% per annum for 2012 onwards.
- (ii) Relevant operating costs: Only the direct costs and overhead attributable to this project are relevant.
- (iii) Writing down allowances have been calculated on a reducing balance basis. They are not cash flows but tax payments calculated after allowances, taking account of timing, are cash flows attributable to the project.
- (iv) Capital expenditure: Capital expenditure on equipment at the start of the project and receipts from the sale of scrap at the end of the project (which have already been inflated) are project cash flows.
- (v) Use of the office building has an immediate opportunity cost of £100,000 (its market value), which is relevant and should be included. The inflated cash value at the end of the project is also relevant. The book value of the building is a historic cost that is not relevant.
- (vi) Research and development expenditure is a sunk cost, and not relevant. Research and development has not been capitalised, so it does not give rise to capital allowances or relief.
- (vii) Working capital: Investment in working capital at the start of the project and the amount that is assumed to be released at the end of the project are project cash flows. The cost of working capital is reflected by discounting the working capital cash flows, so interest on working capital is not included.
- (viii) Net cash flows are calculated after tax, so the after-tax cost of capital is used to discount project cash flows. There is nothing to tell us that the project risk is atypical, so no adjustment to reflect special risk is indicated.
- (ix) There is nothing to tell us that capital is to be provided on special terms, so there are no special interest charges that need to be included as project cash flows.

Examiner's comments

Candidates usually favour questions on discounted cash flow calculations, unless they include tax. This one did, and was not popular. Most discounted cash flow calculations were at least partly correct, but few were wholly correct. This was due partly to errors in the timing of cash flows and partly to incorrect decisions about which cash flows to include and which to exclude. The comments in part (b) on these decisions were in many cases rather sketchy, although the question asked for comments on each item. It seems possible that the need to decide which figures to include may have discouraged candidates from attempting this question.

6. (a) **Hubriss plc ('Hubriss') is a UK manufacturer of specialist injection mouldings. Hubriss has just reported a 60% increase in turnover for the past year, and the Chairman's statement in the annual report and accounts looks forward to even more rapid growth in the current year. The company has been growing steadily in previous years, though at a slower rate, and slightly increasing its share of a market that has been growing a little faster than the whole UK economy.**

The most important factor contributing to the company's recent rapid growth has been the retrenchment of Nemesis, one of its main competitors. Nemesis has recently been taken over by a private equity group, and has been pruning its less profitable product lines. The Chairman believes that this trend is set to continue, creating increased opportunities for Hubriss. Despite the Chairman's optimistic comments, some analysts have expressed concern about the financial position of the company. While cash holdings were £7.1 million a year ago, the latest statement of financial position (balance sheet) shows a cash balance of just £148,000 and an overdraft of £12.5 million. There has been no increase in the levels of long term finance during the year.

Required

Explain what is meant by 'overtrading' and identify the symptoms that you would look for in order to determine whether Hubriss is overtrading. Which symptoms are indicated by the information provided?

(10 marks)

Suggested answer

Overtrading occurs when a company grows rapidly without an adequate increase in its long-term capital to fund its increased working capital requirements. Most companies have a positive figure for working capital. When they grow, the increased level of sales is accompanied by higher levels of stocks and more credit extended to customers. The value of credit received from suppliers probably also increases with the volume of business, but the net effect of growth is that more cash needs to be invested in working capital.

If the increase in sales is permanent, the extra working capital should be funded by extra permanent, long-term capital – either equity or long-term debt. If it is not, one symptom of overtrading that becomes apparent is that increased investment in stocks and debtors leads to a disproportionate increase in short-term creditors or a deteriorating cash balance.

Relations with suppliers may become strained and the costs of purchases tend to rise because the company no longer qualifies for prompt payment discounts or does not qualify for discounts for quantity because cash shortages force it to buy in small quantities. Eventually trade creditors may cut off supplies.

Relations with bankers are also strained, particularly if increases in borrowing are not planned or the company exceeds overdraft limits.

Before this happens, relations with customers may also be affected if the company fails to provide a full range of goods because it cannot afford to adequate stocks or press customers for payment.

On the other hand, if the failure to manage cash efficiently is also matched by a failure to manage debtor and stock balances, stocks and debtors may rise, possibly even faster than turnover.

Profit margins may be reduced, either because of increased purchasing costs or because it offers discounts to encourage its customers to pay early. But a company that is overtrading may still be trading profitably when it become insolvent.

The symptoms of overtrading that are apparent in the description of Hubriss include:

- Rapid sales growth, faster than what has been sustained in the past.
- A rapid reduction in cash balances.
- A failure to match sales growth and the increased requirement for working capital associated with it, by a corresponding increase in long-term financing (at least some of the sales growth is likely to be maintained and, since Nemesis is narrowing its focus, some permanent increase in long-term capital is needed).

It is possible that the shortage of cash, particularly if unplanned and unsignalled to the company's bankers, may strain relations with the banks. It is also possible that Nemesis' focus on its more profitable lines will put pressure on Hubriss' prices and, coupled with Hubriss' apparent lack of intention to focus in a similar way on profitable products, will make it harder for Hubriss to achieve profitable sales and generate cash, even if the volume and value of sales grow fast.

(b) Describe and compare the advantages of the direct and indirect methods of credit checking.

(10 marks)

Suggested answer

The direct method of credit checking involves investigations carried out by company personnel and can include the following sources of information:

- Enquiries into a potential customer's creditworthiness through the sales force and its contacts.
- Local enquiries by the credit controller and others.
- Information collected from previously dealing with a customer where the level of business may be increased.
- Official records of directors' bankruptcies and disbarments.
- Local press and other published information.

These methods are flexible, taking account of the company's particular information needs and, provided a credit control function is in existence, the marginal cost of enquiries is low. If the credit controller is experienced, the enquiries that he or she makes can be searching and informative.

The indirect method relies on reports prepared by third parties who comment specifically on the potential creditworthiness of potential or actual customers. It can include:

- Specialist reports provided for a fee by specialist credit rating agencies such as Dun and Bradstreet, Experian, Moodys and Standard & Poors.
- Reports from the prospective client's bank.
- Reports from trade associations to which the company belongs.
- References from existing suppliers.

Reports from specialist credit rating agencies are comprehensive, and can give indications of the level of credit that would be appropriate. Their drawback is cost. Information from trade associations can be informative, provided it is available. Both of these sources may be more

explicit than bankers' reports (though these are useful if an experienced credit manager can read between the lines). Banks are likely to be cautious about incurring liability or upsetting existing customers, so their reports may not be particularly revealing. Bank and supplier references are likely to be free, apart from the time needed to obtain them. References from existing suppliers may not be representative, particularly if the prospective customer nominates them (companies sometimes treat certain suppliers particularly well, with the specific purpose of quoting them as references), and the relationship between the prospective customer and referee may not be fully disclosed.

Examiner's comments

This was a straightforward, qualitative question that required mainly familiarity with theory. It was popular, and was well answered by almost all the candidates who attempted it.

The scenarios included here are entirely fictional. Any resemblance of the information in the scenarios to real persons or organisations, actual or perceived, is purely coincidental.