



FINANCIAL MANAGEMENT

This paper consists of **THREE** questions (100 marks).

1. Ensure your candidate details are on the front of your answer booklet. You will be given time to sign, date and print your name on the answer booklet, and to enter your candidate number on this question paper. You may not write anything else until the exam starts.
2. Answer each question in black ballpoint pen only.
3. Answers to each written test question must begin on a new page and must be clearly numbered. Use both sides of the paper in your answer booklet.
4. The examiner will take account of the way in which answers are presented.
5. When the assessment is declared closed, you must stop writing immediately. If you continue to write (even completing your candidate details on a continuation booklet), it will be classed as misconduct.

A Formula Sheet and Discount Tables are provided with this examination paper.

IMPORTANT

Question papers contain confidential information and must NOT be removed from the examination hall.

You **MUST** enter your candidate number in this box.

**DO NOT TURN OVER UNTIL YOU ARE
INSTRUCTED TO BEGIN WORK**

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1 Clearchannel Dredging Ltd

Clearchannel Dredging Ltd ('the company') has recently won a contract with the Avon River Authority ('the authority') to keep a stretch of the river Avon in a condition such that it can be navigated by small vessels. This contract runs from 1 July 2016 to 30 June 2020. This follows on from a similar contract the company currently has with the authority which comes to an end on 30 June 2016.

The company uses its own dredging equipment on the current contract. This could continue to be used on the new contract for its full duration. Alternatively, the company could buy new equipment which would yield savings on fuel, maintenance and labour costs.

The existing equipment cost £2m when it was bought new during the year ended 30 June 2015. It could be sold at 30 June 2016 for an estimated £500,000. Alternatively, it could be leased out to another company for two years from 1 July 2016 for an annual rent of £250,000, payable in advance. By June 2018, it is estimated that this existing equipment would have no disposal value and it would be scrapped. Under the leasing contract the user would take responsibility for all maintenance. If kept to use on the new contract it would be disposed of on 30 June 2020 for zero proceeds.

The new equipment would be bought on 30 June 2016 for £5m. It would be expected to be kept for the duration of the new contract and disposed of on 1 July 2020 for an estimated £1m (at 1 July 2020 prices).

Capital allowances

Assume that both the existing equipment and the new equipment can be treated as a short-life asset and excluded from the 'pool' (assume that 're-pooling' does not apply). This means that the plant would attract an 18% (reducing balance) writing down allowance in the year of acquisition and in every subsequent year of its being owned by the company, except in the last year. In the last year the difference between the plant's written down value for tax purposes and its disposal proceeds will be allowed to the company as an additional tax relief.

Cost savings

The annual cost savings from operating the new equipment, compared with operating the existing equipment, are estimated to be as follows (at 1 July 2016 prices).

	£m
2016-2017	1.0
2017-2018	1.1
2018-2019	1.2
2019-2020	1.3

Working capital

The company finds that working capital equal to 10% of the operating costs is required for dredging operations. This needs to be in place by the first day of the year concerned.

Corporation tax

The company's reporting date is 30 June. The relevant rate of corporation tax is expected to be 21% for the foreseeable future. Tax is payable at the end of the accounting period.

Estimated annual inflation rates

The annual general rates of inflation are expected to be as follows.

	%
2016-2017	4
2017-2018	4
2018-2019 and thereafter	5

The annual operating cost savings are expected to alter in line with the general level of inflation.

The company's directors have as a target an annual 'real' after-tax return of 10%.

Requirements

- 1.1 Prepare a schedule of relevant annual cash flows in money terms and use it to assess whether or not the new equipment should be acquired. **(21 marks)**
- 1.2 Calculate, and comment on, the sensitivity of the decision in part 1.1 to changes in the cost savings for the project. **(4 marks)**
- 1.3 Suggest practical techniques that Clearchannel Dredging could use to deal with both risk and uncertainty in forecasting the costs and revenues associated with the equipment decision. **(4 marks)**
- 1.4 Identify and explain the real options that may be associated with the project. **(6 marks)**

Total: 35 marks

2 Ravine plc

The management of Ravine plc ('Ravine'), an engineering company, is considering a major investment opportunity that will cost £1m. Ravine's management is keen to establish a cost of capital figure that it could use to appraise the proposed investment. Ravine's financing as at 31 May 2016 comprised the following:

	£'000
Ordinary share capital (50p shares)	1,600
6% Irredeemable preference share capital (25p shares)	700
Revenue reserves	<u>3,500</u>
	5,800
8% Debentures	<u>750</u>
	6,550
Current liabilities	<u>1,850</u>
Total equity and liabilities	<u>8,400</u>

Information from Ravine's Income Statement for the year to 31 May 2016 is shown below:

	£'000
Profit before taxation	1,500
Taxation	<u>(315)</u>
Profit for the period	<u>1,185</u>

The current market prices for the company's shares and debentures are:

- Ordinary shares: £1.42 each (cum div.)
- 6% Irredeemable preference shares: £0.10 each (ex div.)
- 8% Debentures: £105

The ordinary dividend of £544,000 (17p per share) for the year to 31 May 2016 is due to be paid very soon. This is the first dividend to be paid since the year to 31 May 2012 when the dividend per share was 14p. The annual growth implied by these two dividends is expected to continue in future. The number of ordinary shares of Ravine in issue has not changed since March 2011.

The year's preference dividend of £42,000 has been paid.

The annual debenture interest has also recently been paid. The 8% debentures are redeemable at par in ten years' time and are secured by a fixed charge on the company's premises.

Shares in the engineering sector typically have an asset beta of 1.2, the risk free rate is 7% and the return from the market portfolio is 16%.

It has been decided that, if the investment is taken on, then it would be prudent to raise sufficient additional long-term finance to cover the initial outlay in full. Two methods of raising the finance have been proposed:

- A rights issue of ordinary shares at a discount of approximately 25% on current market value; or
- An issue of redeemable debentures.

Two of Ravine's directors, Christine Norton and Alex Taylor, are both unhappy about the possible use of debentures and the most recent set of board minutes recorded the following:

'Christine said that issuing even more debentures puts unnecessary pressure on our balance sheet as our gearing would more than double and the increased risk could easily lead to a fall in the share price. Alex said that, with debentures being expensive at the moment (ours cost £105, when the normal price is £100), this would be looked upon negatively by the stock market and the share price would fall. He also felt that the company is undervalued by the market at present anyway, bearing in mind that, according to the balance sheet, the net assets per share are worth about £1.81/share and that a share price increase in the short term was therefore inevitable – unless jeopardised by issuing expensive capital.'

The rate of corporation tax is 21%.

Requirements

- 2.1 Using the dividend growth model, calculate an appropriate weighted average cost of capital that could be used to appraise Ravine's proposed investment and briefly discuss the circumstances in which this figure would be appropriate. **(13 marks)**
- 2.2 Discuss the difficulties and uncertainties associated with using your estimates in 2.1. **(5 marks)**
- 2.3 Using the capital asset pricing model, calculate a cost of equity using the beta of 1.2 given and comment on the validity of using this figure as an alternative to the cost of equity calculated using the dividend growth model above. **(3 marks)**
- 2.4 Comment on whether a project which differs significantly from a company's existing business can be appraised using the CAPM. **(3 marks)**
- 2.5 Comment on the views of Christine Norton and Alex Taylor. **(6 marks)**
- 2.6 The accountant has suggested using convertible debt or loan stock with warrants rather than redeemable debentures. Compare briefly these three types of debt and their effect on the company's gearing. **(5 marks)**

Total: 35 marks

3 Kwacker Ltd

Kwacker Ltd is based in the UK in the heavy engineering sector. It has frequent import and export transactions and adopts various hedging strategies – matching, forward contracts, options, etc – as it thinks appropriate. The treasury department also takes a very active approach to managing the company's surplus funds and often buys shares in specific companies rather than the more normal approach of placing cash on term deposit with banks. This approach reflects the personality and priorities of the company's owner, who founded the company some 20 years ago and who has always been something of a risk-taker.

The current date is 1 June. In three months' time the company should receive payment amounting to €5m for the sale of goods to a company based in Barcelona, Spain. The day after that receipt is due, the company will have to pay €9m for the purchase of a large piece of engineering equipment, imported from a company based in Stuttgart, Germany.

The owner intends to use a forward currency contract to guard against adverse exchange rate movements.

Forward currency rates are as follows:

€/£

Spot	1.2877 – 1.2896
1 month	1.2863 – 1.2882
2 months	1.2850 – 1.2870
3 months	1.2838 – 1.2858

One of the company's investments is in PB whose current share price is £5.47.

Although the owner feels that the share price will not move materially in the next three months, he has been caught out before and therefore wants to buy suitable options now that will limit any losses that might occur when the shares are sold. Any premiums needed to purchase the options will be funded by selling sufficient shares immediately.

	<i>Pence</i>	<i>Calls (pence per share)</i>			<i>Puts (pence per share)</i>		
		<i>June</i>	<i>July</i>	<i>August</i>	<i>June</i>	<i>July</i>	<i>August</i>
PB	540	17.25	27.00	33.50	9.00	16.50	24.75

Requirements

3.1 Explain the meaning of the terms:

- (a) In the money
- (b) Out of the money
- (c) At the money
- (d) Intrinsic value

(5 marks)

3.2 Calculate and explain what is meant by the time value of options using the PB 540 call options as an example and explain the other factors that determine option prices.

(5 marks)

- 3.3 (a) Show how the company could use a forward exchange contract to fix the sterling cost of the euro transactions required in three months' time.
- (b) Kwacker has also considered using a money market hedge to manage its foreign currency risk. The following information is available about interest rates in the UK and in Spain:

	<i>UK</i>	<i>Spain</i>
	£	€
Borrowing rate pa	5.6%	5.4%
Deposit rate pa	5.5%	5.3%

Construct a money market hedge for the euro due for payment in three months' time. What forward exchange rate has been 'manufactured' by this hedge? **(6 marks)**

- 3.4 Instead of holding just a few types of share, the company has begun to invest in a wide variety of shares, approximately representative of the FTSE 100 Index. Assume that the value of the company's portfolio is £7m and that the current index stands at 5,600. Using the data below, show how an index option can be used to safeguard the company against a fall in the index from the current level over the next three months.

*FTSE 100 Index option (*5600) £10 per full index point*

	5400		5500		5600		5700		5800	
	C	P	C	P	C	P	C	P	C	P
<i>June</i>	212	30	138	57	93	86	20	212	7	300
<i>July</i>	362	126	274	159	216	198	118	301	81	354
<i>August</i>	405	188	310	223	280	262	178	358	136	415

*Underlying index value

Illustrate the outcome if the FTSE Index falls to 5300. **(5 marks)**

- 3.5 As well as foreign currency risk, Kwacker Ltd faces other types of risk that result from foreign trade. Discuss, with examples, how Kwacker Ltd might manage **any three** of these foreign trade risks. **(9 marks)**

Total: 30 marks

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Appendices

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FORMULAE AND DISCOUNT TABLES

Formulae you may require

(a) Discounting an annuity

The annuity factor:
$$AF_{1 \rightarrow n} = \frac{1}{r} \left[1 - \frac{1}{(1+r)^n} \right]$$

Where AF = annuity factor
 n = number of payments
 r = discount rate as a decimal

(b) Dividend growth model: $k_e = \frac{D_0(1+g)}{P_0} + g$

Where k_e = cost of equity
 D_0 = current dividend per ordinary share
 g = the annual dividend growth rate
 P_0 = the current ex-div price per ordinary share

(c) Capital asset pricing model: $r_j = r_f + \beta_j (r_m - r_f)$

Where r_j = the expected return from security j
 r_f = the risk free rate
 β_j = the beta of security j
 r_m = the expected return on the market portfolio

(d) $\beta_e = \beta_a \left(1 + \frac{D(1-T)}{E} \right)$

Where β_e = beta of equity in a geared firm
 β_a = ungeared (asset) beta
 D = market value of debt
 E = market value of equity
 T = corporation tax rate

Note. Candidates may use other versions of these formulae but should then define the symbols they use.

DISCOUNT TABLES

<i>Interest rate pa</i>	<i>Number of years n</i>	<i>Present value of £1 receivable at the end of n years</i>	<i>Present value of £1 receivable at the end of each of n years</i>
1%	1	0.990	0.990
	2	0.980	1.970
	3	0.971	2.941
	4	0.961	3.902
	5	0.951	4.853
	6	0.942	5.795
	7	0.933	6.728
	8	0.923	7.652
	9	0.914	8.566
	10	0.905	9.471
5%	1	0.952	0.952
	2	0.907	1.859
	3	0.864	2.723
	4	0.823	3.546
	5	0.784	4.329
	6	0.746	5.076
	7	0.711	5.786
	8	0.677	6.463
	9	0.645	7.108
	10	0.614	7.722
10%	1	0.909	0.909
	2	0.826	1.736
	3	0.751	2.487
	4	0.683	3.170
	5	0.621	3.791
	6	0.564	4.355
	7	0.513	4.868
	8	0.467	5.335
	9	0.424	5.759
	10	0.386	6.145
15%	1	0.870	0.870
	2	0.756	1.626
	3	0.658	2.283
	4	0.572	2.855
	5	0.497	3.352
	6	0.432	3.784
	7	0.376	4.160
	8	0.327	4.487
	9	0.284	4.772
	10	0.247	5.019

<i>Interest rate pa</i>	<i>Number of years</i>	<i>Present value of £1 receivable at the end of n years</i>	<i>Present value of £1 receivable at the end of each of n years</i>
20%	1	0.833	0.833
	2	0.694	1.528
	3	0.579	2.106
	4	0.482	2.589
	5	0.402	2.991
	6	0.335	3.326
	7	0.279	3.605
	8	0.233	3.837
	9	0.194	4.031
	10	0.162	4.192

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