



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 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.

DO NOT TURN OVER UNTIL YOU ARE INSTRUCTED TO BEGIN WORK

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

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- 1 Millar Ltd (Millar) is a small company that provides building and facilities management services to a range of businesses across the UK. The directors consider the company's main financial objective to be the maximisation of shareholder wealth and the shareholders look for a return of 10% per annum (expressed in money terms) on their investment in the company.

In response to declining demand for one of the company's more traditional activities – the maintenance of commercial boilers (CB) – the finance director, a member of the ICAEW, has suggested offering a new service in the area of water treatment (WT).

If Millar pursues the new WT service, it will need to purchase equipment on 30 September 2015, the last day of the company's accounting year, at a cost of £500,000 payable immediately. It is estimated that the equipment will have negligible residual value by 30 September 2019 when it is expected that it will have reached the end of its useful life and will be scrapped.

Regarding tax, the directors are assuming that if Millar buys the equipment it will attract capital allowances of 18% per annum on a reducing balance basis, with either a balancing charge or allowance arising at the end of the equipment's useful life. The company claims all tax allowances as soon as possible and the directors expect to pay corporation tax at a rate of 21% per annum over the life of the new equipment. It can be assumed that all tax is payable at the end of the accounting year to which it relates.

A recent market research exercise indicated that likely sales for the new WT service will be as follows (expressed in terms of 30 September 2015 prices):

<i>Year ending 30 September</i>	<i>£'000</i>
2016	320
2017	350
2018	400
2019	360

The introduction of the new WT service is planned to coincide with the discontinuance of the existing CB service. The decision to discontinue CB will release labour and the staff currently employed on the CB service can all be fully employed on the new WT service throughout the four-year life of the new equipment at a total annual salary of £65,000 (as at 30 September 2015 prices). One of the members of staff in the CB service is a family relative of the finance director.

If the new WT service is not introduced, it is estimated that the CB service can be kept going at viable levels only until 30 September 2018, generating revenues as follows (expressed in terms of 30 September 2015 prices):

<i>Year ending 30 September</i>	<i>£'000</i>
2016	150
2017	120
2018	120

Millar has already calculated that continuing the CB service until 30 September 2018 will generate a positive net present value.

Variable operating costs for both the CB and WT services are estimated to be 35% of sales revenue, whilst labour is a fixed cost for both services with the same staff being employed on each.

If the new WT service is not introduced, there will be redundancy costs of £35,000 in respect of the discontinuance of the CB service on 30 September 2018. This expenditure was taken into account in the investment appraisal of the CB service some years earlier. However, if the new WT service is introduced, there will instead be redundancy costs of £37,000 on 30 September 2019. Both redundancy cost figures are expressed in terms of 30 September 2015 prices.

Provision of both services does, however, require an investment of working capital equal to 10% of estimated annual sales demand. This investment will need to be put in place by the start of each year. All working capital will be released upon the termination of either service.

It is estimated that the rate of inflation applicable to the firm's costs and revenues will be 3% per annum for the foreseeable future.

Due to the age of the equipment used by Millar in the provision of the CB service, the capital allowances effect of discontinuing this service, either in 2015 or 2018, will be negligible.

The directors of Millar think that they may have difficulty raising additional external equity finance in respect of the new equipment and will therefore most likely finance the new equipment using a rights issue to existing shareholders.

Requirements

- (a) Calculate the incremental net present value, in money terms, of the investment in the new WT service and advise the directors whether or not they should proceed. **(15 marks)**
- (b) Calculate the sensitivity of the decision in (a) to
 - (i) The discount rate used
 - (ii) The lost contribution on CBFor each calculation, comment on your findings. **(7 marks)**
- (c) Explain how, in general, the existence of real options might influence capital investment decision-making and indicate three real options that might exist in this specific scenario. **(4 marks)**
- (d) Explain the concept of the 'equity funding gap' faced by many small firms and the potential ways in which it might be filled without pursuing a full listing. **(6 marks)**
- (e) What are the key ethical issues the finance director should consider as regards the proposed redundancies? **(3 marks)**

Total: 35 marks

- 2 For the past twenty years Gawsworth plc (Gawsworth) has been an established nationwide retailer of music CDs and DVDs and has also operated a radio station in Northern England for the last five years. However, the company has recently seen a steady decline in business volumes in its high street stores and as a result the directors have decided to withdraw completely from high street retailing and expand significantly in the operation of radio stations across the UK.

The board of directors has asked the finance director to conduct a financial appraisal of the proposal using net present value principles and has specifically requested that in undertaking the appraisal he uses an updated weighted average cost of capital figure as the discount factor.

The following information has been extracted from the company's most recent financial statements:

	£m
<i>Share capital and reserves</i>	
£1 ordinary shares	50
Retained earnings	<u>160</u>
	<u>210</u>
<i>Non-current liabilities</i>	
8% loan stock	40

The company's ordinary shares currently trade at £4.85 per share (ex-div) and the equity beta of the company is 1.3. The returns to the market are currently 10.6% p.a. and the risk free rate is 5.75% p.a. The loan stock is redeemable at par in four years' time and is currently trading at £108 per £100 nominal value. Dividend payments for the last four years have been as follows.

	2012	2013	2014	2015
Dividends (£m)	30.5	31.0	34.0	36.5

The withdrawal from retailing will involve the disposal of significant property assets, so the company will not need to raise new finance for the investment in new radio stations. In addition, the company intends to maintain its existing debt-equity ratio (measured by market values) following its move into new radio stations.

The finance director has examined the relatively small number of companies in the UK whose major activity is the operation of radio stations and has found that on average they are financed 60% by equity and 40% by debt (based on market values) and have an equity beta of 1.6. The UK corporation tax rate can be assumed to be 21%.

Requirements

- Calculate the existing WACC using both the dividend valuation model and CAPM for the cost of equity. **(10 marks)**
- Calculate the weighted average cost of capital that the finance director should use in appraising the proposed investment in new radio stations. **(7 marks)**
- Explain why the directors have requested the use of an updated weighted average cost of capital figure as a discount factor in this scenario. Identify and discuss the assumptions that underpin the use of a company's existing weighted average cost of capital as a discount factor in capital investment appraisal. **(12 marks)**
- Identify and discuss the practical problems that may be encountered by Gawsworth in ascertaining an appropriate equity beta for use in the weighted average cost of capital calculation in (b) above. **(6 marks)**

Total: 35 marks

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3 **Note.** In answering all parts of this question, assume that today is 1 August.

- (a) Woking plc wishes to borrow £4m at a fixed rate of interest to finance the purchase of a new item of plant. The company's long-term debt is currently rated CCC by the rating agencies and as a result the company has been informed by its bankers that it would have to pay 8.50% p.a. for fixed rate funds. The company can borrow floating rate funds at LIBOR+2.5% p.a. at the present time. The company is aware, however, that Harlech plc is also currently looking to borrow £4m at a floating rate and its AA rating gives it access to fixed rate funds at 6.75% p.a. and floating rate funds at LIBOR+2.0% p.a.

Requirement

Explain and illustrate how an interest rate swap could be used to the equal benefit of both companies assuming that the terms of the swap agreement are such that Woking plc's swap payment to Harlech plc is to be 6.75% fixed p.a. **(4 marks)**

- (b) The treasurer of Solomon plc has been advised by the company's finance director that in one month's time the company will want to borrow £3m for one year at a fixed rate of interest to finance a small acquisition. The prevailing (ie current spot) interest rate is 5.75% p.a. The finance director has expressed his concern that interest rates may rise during the next month and has therefore instructed the treasurer to hedge this exposure using traded interest rate options in a way that protects the company from interest rates rising above 6.5% p.a. The treasurer has obtained the following data in respect of short-term options on three month £500,000 sterling futures (option premiums are in annual % terms):

Strike Price	Call premiums		Put premiums	
	September	December	September	December
93.00	0.15	0.17	0.13	0.91
93.25	0.14	0.15	0.27	1.14
93.50	0.11	0.12	0.48	1.38

Requirements

- (i) Advise the treasurer which traded interest rate option would be most suitable to hedge the company's interest rate exposure in this situation.
- (ii) Illustrate the outcome of the option position, the company's overall outcome in monetary terms and the effective interest rate this overall outcome represents if, in one month's time, the prevailing spot interest rate is 7% p.a. and the futures price is 92.10. **(6 marks)**
- (c) The finance director of Davies Instruments Ltd is responsible for the management of the company's small portfolio of blue-chip UK shares. At the present time, the finance director is concerned that share prices will fall over the next month and wishes to hedge this exposure using FTSE100 stock index futures. The portfolio has a current market value of £12m and the following data are available:
- (i) The prevailing spot value of the FTSE100 index is 5,000
- (ii) The quote on Euronext.Liffe for September FTSE100 index futures is 4,900
- (iii) The face value of a FTSE100 index contract is £10 per index point

Requirements

- (i) Determine which hedge should be undertaken and calculate the number of contracts required to protect the portfolio against falls in share prices.
- (ii) Calculate the outcome of the hedge and the overall gain or loss if one month later the market value of the portfolio is £11.6m and the FTSE100 index and the September futures index both stand at 4,800.
- (iii) Comment on your findings. **(5 marks)**

- (d) The finance director of Davies Instruments Ltd is also considering the use of traded FTSE100 index options to hedge the exposure outlined in part (c) above. The following data from Euronext. Liffe are available:

FTSE100 INDEX OPTION (£10 per full index point)

Exercise Price	4,900		4,950		5,000		5,050		5,100	
	Call	Put	Call	Put	Call	Put	Call	Put	Call	Put
September	130	25	95	39	65	61	40	90	25	125
October	205	85	175	105	145	125	115	150	95	180

The finance director decides to take out an option to protect the current value of the portfolio in one month's time.

Requirements

Illustrate what will happen if in one month's time, contrary to the finance director's expectations, the portfolio's value actually rises to £12.24m and the FTSE100 index rises to 5,100. **(6 marks)**

- (e) Compare and contrast index futures and options as a means of hedging against the risk of price movements in a portfolio of shares. **(5 marks)**
- (f) The finance director of Davies Instruments Ltd has heard that the value of an option has two elements:
- (i) An intrinsic value
 - (ii) And a time value

They are unsure as to what these terms mean.

Requirement

Distinguish between the intrinsic value and the time value of a traded option contract. **(4 marks)**

Total: 30 marks

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Appendices



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. Gordon 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 p.a.</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
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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