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# *FINANCIAL MANAGEMENT*

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This exam consists of **three** questions (100 marks).

1. Please read the instructions on this page carefully before you begin your exam. If you have any questions, raise your hand and speak with the invigilator before you begin. The invigilator cannot advise you on how to use the software.
2. Click on the **Start Exam** button to begin the exam. The exam timer will begin to count down. A warning is given five minutes before the exam ends. When the exam timer reaches zero, the exam will end. To end the exam early, press the **Finish** button.
3. You may use a pen and paper for draft workings. Any information you write on paper will not be read or marked.
4. The examiner will take account of the way in which answers are structured. Do not include anything which is not in direct response to the exam questions.
5. Ensure that all of your responses are visible on screen and are not hidden within cells. Your answers will be presented to the examiner exactly as they appear on screen.

**A Formulae Sheet and Discount Tables are provided with this exam paper.**

## 1. **Assume that the current date is 31 December 2017.**

Innovative Alarms (Innovative) is a division of a major quoted company and manufactures and sells a single alarm system to private houses and commercial premises. The financial management department of Innovative is considering two separate issues:

Issue One: Whether to launch onto the market a new type of alarm system, the Defender, which when triggered will not only ring a bell but also play a realistic recording of dogs barking.

Issue Two: How often the division's fleet of delivery vans should be replaced.

You are asked to provide advice on both of these issues and report to the head of the financial management department.

### 1.1 **Issue One: The Defender Project**

The Defender is to be evaluated over a planning horizon of three years from 31 December 2017. It has been agreed that on 31 December 2020 the rights to manufacture the Defender will be sold to a team made up of the current management of Innovative ('the team') as by that date the Defender is expected to be Innovative's only product. The finance director of Innovative, who is an ICAEW Chartered Accountant, will be a member of the team and is responsible for calculating the value of the rights to manufacture the Defender.

#### **The following information is available regarding the Defender project:**

- The selling price will be £399 per unit in the year to 31 December 2018 and the contribution per unit is expected to be 40% of the selling price. The selling price and variable costs per unit are expected to increase by 3% pa in the two years to 31 December 2020.
- The number of units sold in the year to 31 December 2018 is estimated to be 30,000 and is expected to increase by 6% pa in the two years to 31 December 2020.
- On 31 December 2017 the project will require an investment in working capital of £2 million, which will increase at the start of each subsequent year in line with sales volume growth and sales price increases. Working capital will be fully recoverable on 31 December 2020.
- Incremental fixed costs for the year ended 31 December 2018 are expected to be £0.5 million and are expected to increase by 5% pa in the two years to 31 December 2020.
- The Defender will require two hours of skilled labour per unit. Skilled labour is expected to be in short supply over the next three years. Innovative will need to transfer skilled labour from its existing product, which requires half the skilled labour time per unit of the Defender. The existing product has a selling price of £175 and an expected material and skilled labour cost of £150 in the year to 31 December 2018. The selling price and variable costs are expected to increase by 3% pa in the two years to 31 December 2020, the end of the existing product's life cycle. Innovative's skilled labour is paid at the rate of £15 per hour (in 31 December 2018 prices). Any working capital adjustments associated with the existing product can be ignored.

- New equipment will be required to manufacture the Defender, which will cost £8 million on 31 December 2017 and will have an estimated scrap value of £2 million on 31 December 2020 (in 31 December 2020 prices). The new equipment will attract 18% (reducing balance) capital allowances in the year of expenditure, except in the final year.

At 31 December 2020, the difference between the equipment's written down value for tax purposes and its disposal proceeds will be treated by the company as a:

- (1) balancing allowance, if the disposal proceeds are less than the tax written down value, or
  - (2) balancing charge, if the disposal proceeds are more than the tax written down value.
- Assume that the rate of corporation tax will be 17% for the foreseeable future and that tax flows arise in the same year as the cash flows that gave rise to them.
  - The finance director calculated the value of the rights to manufacture the Defender as three times the net contribution after tax for the year to 31 December 2020.
  - A suitable money cost of capital to appraise the project is 10% pa.

## Requirements

- (a) Using money cash flows, calculate the net present value of the Defender project on 31 December 2017 and advise whether Innovative should proceed with the project. **(16 marks)**
- (b) Outline the disadvantages of sensitivity analysis for the head of the financial management department and how simulation might be a better way to assess the risk of the Defender project. **(4 marks)**
- (c) Describe two real options that are available at the end of the project on 31 December 2020 as an alternative to selling the rights to manufacture the Defender. **(4 marks)**
- (d) Identify and discuss the ethical issues in relation to the sale of the rights to manufacture the Defender. **(3 marks)**

## 1.2 Issue Two: Replacing the fleet of delivery vans

Innovative would like to decide upon a policy for replacing its fleet of delivery vans, since no formal policy exists at the present time. A new delivery van costs £30,000. The following information is available:

Interval between replacement (years)	Trade-in value (£)	Maintenance cost (paid at the end of the year) (£)
1	22,500	500
2	17,000	2,500
3	12,000	3,500

A suitable cost of capital for evaluating the replacement policy is 15% pa.

### Requirement

Calculate the optimal replacement policy for the delivery vans and advise the head of the financial management department of the limitations of the approach used.

**Note:** Ignore inflation and taxation when determining the optimal replacement policy

**(8 marks)**

**Total: 35 marks**

2. **Assume that the current date is 1 December 2017**

Peel Kitchens plc (Peel) is a quoted wholesaler of kitchen cabinets and worktops and has a financial year end of 30 November.

The board of Peel is considering diversifying into the supply of domestic appliances and would need to raise finance of £200 million during 2018 should the diversification go ahead. The finance director of Peel, Debbie Harris (Debbie), needs to calculate the weighted average cost of capital (WACC) that will be used to appraise the potential diversification. She is also considering whether the finance required should be raised by debt in the form of 6% debentures issued at par or by equity in the form of an issue of 100 million ordinary shares. Debbie is particularly concerned about how the financial markets and the company's shareholders might react to the impact the additional £200 million finance may have on the company's capital structure.

The board of Peel is also contemplating its dividend policy beyond 2017. Extracts from Peel's management accounts are produced below:

	<b>Year ended 30 November</b>				
	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
	<b>£m</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>	<b>£m</b>
Profits before interest and tax	81.03	78.86	87.54	85.37	94.04
Interest	<u>(33.32)</u>	<u>(33.32)</u>	<u>(33.32)</u>	<u>(33.32)</u>	<u>(33.32)</u>
	47.71	45.54	54.22	52.05	60.72
Taxation	<u>(8.11)</u>	<u>(7.74)</u>	<u>(9.22)</u>	<u>(8.85)</u>	<u>(10.32)</u>
Profits after tax	<u>39.60</u>	<u>37.80</u>	<u>45.00</u>	<u>43.20</u>	<u>50.40</u>
Ordinary dividends	19.80	18.90	22.50	21.60	25.20
Special dividend	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>9.00</u>
Total dividends	<u>19.80</u>	<u>18.90</u>	<u>22.50</u>	<u>21.60</u>	<u>34.20</u>

<b>Capital at 30 November 2017</b>	<b>£m</b>
Ordinary shares (50p nominal value)	90.00
Retained earnings	<u>256.50</u>
	346.50
7% Debentures at nominal value (redeemable at par on 30 November 2022)	<u>476.00</u>
	<u>822.50</u>

The number of shares in issue has not changed during the period from 1 December 2012 to 30 November 2017.

**Additional information:**

- The cum-div share price on 1 December 2017 is £2.92 per ordinary share. The special dividend was paid in June 2017.
- The 7% debentures have a cum-interest market value of £111 per £100 nominal value.

- Peel has an equity beta of 1.3.
- A company that supplies domestic appliances has an equity beta of 1.1 and a debt:equity ratio of 40:60 by market values.
- The risk free rate is expected to be 3% pa.
- The market risk premium is expected to be 6% pa.
- Assume that the rate of corporation tax will be 17% for the foreseeable future.
- An analyst has calculated the gearing ratios (measured as debt/equity by market values) and interest cover for companies that operate in Peel's market sector as follows:

	<b>Maximum</b>	<b>Minimum</b>	<b>Average</b>
Gearing ratio	135%	80%	100%
Interest cover	3	2	2.4

Debbie has asked you to provide her with certain information so that she can prepare a report for the board of Peel.

### Requirements

- 2.1 Calculate Peel's WACC on 1 December 2017 using:
- The dividend valuation model (dividend growth should be estimated using the earliest and latest dividend information provided).
  - The CAPM. **(10 marks)**
- 2.2 Explain and evaluate whether either of the WACC figures calculated in 2.1 above would be appropriate for appraising Peel's diversification into supplying domestic appliances. **(5 marks)**
- 2.3 Determine whether the £200 million finance required should be raised from either debt or equity sources. You should discuss the likely reaction of both shareholders and the financial markets, and make reference to the gearing and interest cover data provided and give advice to Debbie on which source of finance should be used. **(12 marks)**
- 2.4 Assuming that Peel raises the £200 million finance required wholly from debt, identify the most appropriate project appraisal methodology that could be used to appraise the diversification. Also determine the project discount rate that should be used in these circumstances. **(3 marks)**
- 2.5 Discuss whether Peel's dividend policy over the last five years is appropriate for a listed company. **(5 marks)**

**Total: 35 marks**

3. **Assume that the current date is 30 November 2017**

Jewel House Investments Ltd (Jewel) is an investment company based in the UK. You work for Jewel and at a recent meeting with the company's finance director it was agreed that you would work on three specific tasks:

Task One: Hedging foreign exchange rate risk for receipts from foreign investors.

Task Two: Hedging a portfolio of investments.

Task Three: Arranging an interest rate swap for a loan that the company has recently taken out.

3.1 **Task One:** Jewel is due to receive an investment of \$8 million from a client in the USA on 31 March 2018. It was agreed with the client that Jewel would hedge the foreign exchange rate risk associated with the \$ receipt and invest the sterling equivalent of the \$8 million on behalf of the client.

You have the following information available to you on 30 November 2017:

**Exchange rates:**

Spot rate (\$/£)	1.2490 – 1.2492
Four-month forward contract discount (\$/£)	0.0031 – 0.0034

**Over-the-counter (OTC) currency option**

A put option to sell \$ is available with an exercise price of \$1.2400. The premium is £0.02 per \$ and is payable on 30 November 2017.

Jewel has funds on deposit which earns interest of 3% pa.

**Requirements**

(a) Calculate the amount of sterling to be invested on behalf of the US client using:

- a forward contract
- an OTC currency option

assuming that the spot price on 31 March 2018 is \$/£ 1.2697 – 1.2700 **(6 marks)**

(b) Using your results from 3.1 (a) above, explain the advantages and disadvantages of the two hedging techniques used and advise which hedging technique would be the more beneficial for Jewel's client. **(4 marks)**

(c) Outline whether currency futures would have been more advantageous than using a forward contract to hedge the foreign exchange rate risk associated with the \$8 million receipt. **(2 marks)**

3.2 **Task Two:** One of Jewel's investments is a portfolio of UK FTSE 100 shares, which is worth £100 million on 30 November 2017. The finance director of Jewel is concerned about a potential fall in value of the portfolio over the next four months.

You have the following information available to you on 30 November 2017:

- The FTSE 100 index is 7,261
- The price for a March 2018 FTSE 100 index future is 7,195
- The face value of a FTSE 100 index futures contract is £10 per index point

### Requirements

- (a) Calculate the outcome of hedging Jewel's £100 million portfolio using March 2018 FTSE 100 index futures. Assume that on 31 March 2018 both the FTSE 100 index and the FTSE 100 index futures price are 7,010 and that the portfolio value changes exactly in line with the change in the FTSE 100 index. **(6 marks)**
- (b) Explain why the hedge in 3.2 (a) above will not be 100% efficient. **(2 marks)**

3.3 **Task Three:** Jewel recently bought new premises and borrowed £50 million for a period of ten years. The loan is at a floating rate of LIBOR + 4% pa. LIBOR is currently 0.36% pa. The finance director of Jewel believes that interest rates are going to rise and he would like to protect the company against interest rate risk.

The finance director of Jewel identified Nevis plc (Nevis), which is a company that would like to swap £50 million of its 5% pa fixed rate loans to a floating rate. Jewel and Nevis agreed to enter into an interest rate swap with any benefits from the swap being shared equally between the two companies. Jewel can borrow at a fixed rate of 6.5% pa and Nevis can borrow at a floating rate of LIBOR + 3.5% pa.

### Requirements

- (a) Demonstrate how the interest rate swap between Jewel and Nevis would be implemented, with the floating rate leg of the swap set at LIBOR. **(4 marks)**
- (b) Calculate
- the initial difference in annual interest rates for Jewel if it enters into the interest rate swap with Nevis.
  - the amount to which LIBOR would have to rise for the cost of Jewel's floating rate borrowing to equal the fixed rate achieved through the interest rate swap. **(2 marks)**
- (c) Identify four advantages for Jewel of entering into an interest rate swap with Nevis. **(4 marks)**

**Total: 30 marks**