**The Institute of Chartered Accountants of Pakistan**

## Certified Finance and Accounting Professional Stage Examination

5 December 2023
3 hours – 100 marks
Additional reading time – 15 minutes

# Business Finance Decisions

**Instructions to examinees:**
(i) Answer all **FIVE** questions.
(ii) Answer in **black** pen only.

Q.1 You work for the finance department in Bacalt Ltd (Bacalt), a company that operates in the restaurant business. Bacalt has many restaurants with operations in several continents. The company is considering opening its first restaurant in London, England.

Initially, Bacalt intends to open and operate a London restaurant for a five-year period. The restaurant will open 52 weeks a year.

The board anticipate acquiring leasehold premises at a fixed cost of £400,000 per annum. Bacalt would negotiate a five-year term, which is in line with the other leases that the business has. Lease payments will be paid at the end of the relevant year.

Fit-out costs and equipment will be £1.5 million, incurred at the beginning of the project. At the end of the five-year lease period, this equipment has an expected scrap value of just £100,000. Bacalt depreciates such investments on a straight-line basis. The expenditure is not eligible for tax relief.

The number of covers (meals served) in the first year are expected to average 500 per week. This should increase to 750 in the second year before reaching and remaining at full capacity of 1,000 covers per week in year three.

The average revenue per cover, calculated as a global average for the company, based on current prices, is the equivalent of £50 with a 50% gross margin.

Variable operating costs are expected to be £100,000 in the first year (in Year 1 prices). These will increase in line with sales volume growth.

Sales, cost of sales and variable operating costs can be assumed to increase annually by 4% inflation.

Investment in working capital is considered immaterial for the first phase of project evaluations.

The rate of corporate tax in England is 25%, paid in the year that the profits arise.

Bacalt's nominal cost of capital is 10%.

You are preparing information to be included in a report to the board that assesses the proposed expansion. You have been asked to calculate the key metrics that must be satisfied prior to approval of any capital project. The project is currently at the first phase of analysis and must demonstrate financial viability before progressing to phase two, where more detailed analysis is undertaken.

The first phase of the approval process requires the project to satisfy three key metrics:

- Payback period (payback) to be less than four years;
- The accounting rate of return on average investment (ARR) to exceed the target of 20%; and
- A positive GBP net present value (NPV).

The board are also concerned that the volume of sales may be overstated and have asked that you include a calculation, and explanation, of the project sensitivity, in respect of sales volume.

Finally, you should include some non-financial considerations that may influence the expansion, and an explanation of the real options that may be available for Bacalt.

**Required:**

(a) Determine the payback, ARR and NPV of the London opportunity, and assess the sensitivity of the project in respect of sales volume. Conclude whether the project demonstrates financial viability. **(10)**

(b) Recommend, with reasons, whether Bacalt should open its first restaurant in London.

Your answer should include an assessment of the non-financial aspects of the expansion and include a discussion on the real options that are available to Bacalt. **(05)**

Q.2 You work in the finance department of Malahro Ltd (Malahro), a privately owned manufacturing company that produces terracotta pots used for garden plants. The company has developed a strong customer base and exports to many locations worldwide.

The factory is not currently at full capacity and so the board have decided to diversify, and are currently considering manufacturing garden furniture, alongside pots. The board hopes to generate sales to many of its existing retailers who, typically, also stock outdoor furniture in their stores.

Historically, Malahro has used a discount rate of 10% to appraise investments. One of the directors questioned whether this would still be suitable for this new business, and you have been asked to calculate a suitable rate to appraise this new venture. Malahro's current cost of capital reflects a debt:equity gearing ratio of 1:4.

You have identified a company, FPK Ltd (FPK), that manufactures garden furniture. FPK is listed on the Pakistan Stock Exchange and has an equity beta of 1.5. FPK's debt:equity gearing ratio is 1:2.

Assume that capital structure of Malahro remains same after the investment in new venture.

Corporate debt can be assumed to be risk free.

Corporate tax in Pakistan is 29%, payable in the year of the expense.

**Market information**

| | |
|---|---|
| Risk free borrowing rate | 7% |
| Average returns on the Pakistan Stock Exchange | 15% |

**Required:**

(a) Calculate a suitable discount rate for the garden furniture project. Include a brief explanation of your approach. **(07)**

If the board does proceed with this new venture, there will be a significant investment in some new equipment. The manufacturer of the equipment has offered Malahro the option to lease or purchase the equipment outright. You have been asked to advise which option will be the cheapest for Malahro.

**Outright purchase**

The new equipment can be purchased for Rs. 28 million. The board estimates that the equipment will have a life of five years and would realise a scrap value of Rs. 2.8 million at the end of its useful life.

The equipment would be eligible for tax depreciation at 25% in the year of acquisition and then 15% thereafter, on a reducing balance basis. On disposal, there would be a balancing adjustment.

**Lease**

Malahro could lease the equipment under a five-year lease comprising five annual payments of Rs. 6 million payable in advance. The lease payment qualifies for tax relief calculated on an accruals basis.

**Required:**

(b) Recommend, with supporting calculations, whether the new equipment should be leased or purchased. **(07)**

Q.3 You work in the finance department for Fastoll Industrials Ltd (Fastoll), a company that manufactures machinery used in the medical industry. Currently, the company manufactures X-ray equipment from the main manufacturing plant, which is based in Karachi. The board are considering two potential projects that they believe will lead to an increase in the company share price.

**New manufacturing plant in China**

The first project is to establish a new manufacturing plant for X-ray machines in northern China. In many ways, this is a copy of the existing plant in Karachi. The expansion to China will open a new geographical market for Fastoll. Details of the expected cash flows from this project are shown below.

*Investment cashflows:*

Fastoll has already incurred ¥500,000 in market research and legal fees in relation to securing the lease on suitable premises. The company will also invest in specialised equipment, necessary to manufacture X-ray machines.

The company will initially purchase one specialised piece of equipment at a cost of ¥10 million, which will support the manufacture of up to 30 X-ray machines per year. Additional equipment will be purchased, as required, to satisfy the production and sales demand such that, once demand exceeds 30 X-ray machines, Fastoll will need to purchase another piece of equipment at a further cost of ¥10 million and so on as demand levels increase. Investment in the new equipment will take place just before the beginning of each relevant year. The board anticipates that the price of this equipment will not change over the next five years.

*Operating cashflows:*

The company expects to manufacture and sell 10 X-ray machines in the first year. Production and sales in the second year will be 20 machines, and this is expected to increase by 20 machines per annum in each of the next three years, such that 80 machines would be sold in the fifth year. Each X-ray machine can be sold for ¥800,000 in today's prices.

Variable costs are 40% of the sales value. Fixed costs, which include the lease costs for the premises will be ¥1.9 million in year one, ¥2 million in year two, ¥2.2 million in both the third and fourth year and ¥2.5 million in the fifth year. All costs are stated in today's prices. Operating cashflows are expected to increase in line with inflation.

Working capital required at the beginning of each year is as follow:

| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|
| ------ | ------ | ------ | ¥'000 | ------ | ------ |
| 4,000 | 8,000 | 10,000 | 13,000 | 15,000 | 15,000 |

All after tax cashflows from the project will be remitted to, or from, Pakistan as appropriate at the end of the relevant year. Double tax relief is available such that Pakistan tax of 4% is payable at the end of each year in respect of the taxable cashflows of the project. Any operating losses from the venture will be offset against Pakistan operating profits, leading to a relevant tax saving when the loss arises.

**New manufacturing plant in Karachi**

The company has successfully completed the initial research phase for the design and manufacture of magnetic resonance imaging (MRI) machines. Details of the expected cash flows from this project are shown below:

*Investment cashflows*
To date, Fastoll has invested Rs. 140 million in research and development for the new MRI machines. It has also secured a lease on suitable premises. New equipment will need to be purchased, costing Rs. 1,500 million in total. This will be acquired and paid for in three equal amounts with the first purchase taking place immediately, just before the end of the current accounting period. The subsequent payments will be in one and two years' time. You should assume that there is an immediate tax saving as a result of the initial payment.

*Operating cashflows*
Each MRI machine sells for Rs. 280 million in current terms. Fastoll expects to sell 5 machines in each of the first and second year, and then 15 machines in each of the next three years. Variable costs will be 55% of sales. Annual fixed costs, which include building lease costs, are Rs. 100 million in the first two years, and these will increase to Rs. 150 million in each of the following three years. Operating cashflows will increase in line with inflation.

Investment in working capital is also required. This comprises an initial investment of Rs. 320 million. Working capital will need to increase to support the growth in sales such that working capital required for the second year of trade will increase to Rs. 440 million, followed by a further increase to Rs. 560 million for Year 3 onwards.

**Project appraisal**
Fastoll appraises all projects over a planning horizon of five years, at a nominal cost of capital of 12%. A terminal value is always included at the end of the fifth year. The terminal value of the project is calculated as five times the after tax operating cash profit in Year 5.

**Other relevant information**
Annual inflation:

| | |
|---|---|
| China | 2% |
| Pakistan | 8% |

Corporate tax:

| | |
|---|---|
| China | 25% |
| Pakistan | 29% |

Tax is payable in the same year as the profits arise.

Given the specialist nature of the manufacturing equipment required for both projects, both China and Pakistan allow 100% tax relief in the year of acquisition.

The current exchange rate is: CNY:PKR 1:35.

**Required:**
(a) Determine the NPV of each investment. **(15)**

The board does not want to raise additional funding at the current time. Consequently, capital available for investment is limited to Rs. 900 million. A further Rs. 150 million could be invested in one year's time, and an additional Rs. 100 million in two years' time. After, the board would consider raising new finance to fund these or any other potential projects.

The board does not want to delay either of the projects but recognises that there are insufficient funds to invest fully in both projects based on the current projections. Both projects are scalable such that planned investment in either project could be reduced, resulting in the same proportionate reduction in net present value. The board would not want to scale up either of the projects.

You have been asked to recommend an investment strategy that maximises shareholder wealth given the funds available for investment.

**Required:**

(b) Identify the investment strategy that will maximise wealth for shareholders given the available total funds of Rs. 1,150 million. ***(You should formulate the linear programming problem and illustrate how it can be solved graphically.)***

Also, calculate the resulting expected increase in the market capitalisation of the company, assuming that the final investment strategy is communicated to the shareholders. **(10)**

Q.4 For the purpose of this question, **assume that the date today is 1 July 2023.**

Walmor Holdings Ltd (Walmor) is the holding company of a conglomerate which has many subsidiaries in a diverse range of industries. Walmor has identified a target, Xon Inc. (Xon), and is actively looking to buy this company. Xon is a small book publisher and is a wholly owned subsidiary of Yepple Inc. (Yepple). Both Yepple and Xon are based in the USA. Yepple is a global publishing company and is listed on the New York Stock Exchange.

Walmor has already had some initial discussions with Yepple. You work for a firm of financial advisors that have been engaged to advise Walmor in respect of the purchase, principally to assist it in the negotiation for the acquisition of Xon and to help it to negotiate the maximum acceptable purchase value.

You have been provided with the following information:

**Xon Inc.**
**Statement of financial position extract**

| | **Year ended 30 June 2023** |
|---|---|
| | **$'000** |
| Share capital ($1 each) | 1,000 |
| Retained profits | 12,570 |
| 10% irredeemable debentures | (4,000) |
| | 9,570 |

**Statement of profit or loss extract**

| | **Year ended 30 June 2023** |
|---|---|
| | **$'000** |
| Operating loss | (5,500) |
| Interest | (400) |
| | (5,900) |
| Corporate tax @ 21% | - |
| Loss after interest and tax | (5,900) |

Xon's board are confident that the operating results will improve in the year ended 30 June 2024, and are currently forecasting operating profit to be $1 million. The cash operating profit is expected to be the same as the statement of profit or loss. Xon pays corporate tax at 21%, which is paid in the same year as the profits are earned. Growth beyond 2024 is difficult to predict but a cautious estimate of 5% per annum has been suggested by Xon's board.

**Market information**

| | **Walmor** | **Yepple** |
|---|---|---|
| P/E ratio | 15 | 12 |
| Asset beta | 0.95 | 0.73 |
| Gearing [D/(D + E)] | 35% | 40% |
| | **Pakistan** | **USA** |
| Market return | 15% | 13% |
| Risk free return | 7% | 5% |

**Required:**

(a) Prepare a report that provides a range of valuations suitable for the Walmor board to use in negotiating the purchase of Xon. Advise the board on the appropriateness of the valuation methods used. **(11)**

Given the location of Xon, the valuation will be in USD. Walmor's board is concerned that due to the recent strengthening of the USD relative to PKR, the business would face considerable exchange rate risk given the delay between agreeing a purchase price and the completion date.

The board has asked that you demonstrate how Walmor could use OTC options and a money market hedge to protect against this uncertainty. You should assume that the purchase will be completed in three months' time at the end of September 2023.

**Additional information**

| | **Pakistan** | **USA** |
|---|---|---|
| Borrowing rate | 7% | 5% |
| Investing rate | 6% | 4% |
| Spot exchange rate | Rs. 230 | $1 |

You have ascertained that USD OTC September dated options are available. The premium for the entire purchase price is as follows:

| **Strike price** | **Call** | **Put** |
|---|---|---|
| Rs. 227 | Rs. 60 million | Rs. 38 million |
| Rs. 233 | Rs. 40 million | Rs. 68 million |

**Required:**

(b) Briefly explain, with supporting calculations, how Walmor can hedge against the exchange rate risk. Assume the purchase price for Xon is $10 million for your illustration. **(06)**

Q.5 For the purpose of this question, **assume that the date today is 1 June 2023.**

Redd Ltd (Redd) is an all-equity company, listed on the Pakistan Stock Exchange. The company is in the construction industry. Ahmed Faraz has recently joined the company as the chief financial officer (CFO). Ahmed was surprised that the company was only financed by equity and would like to reduce the overall finance costs by introducing debt into the capital structure.

He has asked that you appraise three different debt options and recommend the most suitable option for Redd. Information in relation to each type of borrowing is as follows:

**Redeemable debentures**

Unsecured 10% debentures each with a nominal value of Rs. 10,000 could be issued at par and redeemed in five years' time at a premium of 10%.

**Convertible debentures**

Unsecured 8% debentures with a nominal value of Rs. 10,000 could be issued at par. Each issue of Rs. 10,000 debt may be converted into five ordinary shares in eight years' time.

Redd's current share price is Rs. 1,750, which compares favourably to Rs. 1,510 three years ago. The directors expect the future rate of growth in the share price to be the same as recent historic growth.

**Bank loan**

The PBY Bank will provide a 10-year loan with fixed interest at 7%, secured on Redd's head office building in Karachi. The bank loan would come with several covenants. An extract is noted below:

**Covenants extract**

1. Interest cover
   1.1 The interest cover ratio should not fall below 3.0.
   1.2 This ratio is to be calculated on a quarterly basis during the reference period.

2. Current ratio
   1.1 The current ratio should not fall below 1.5.
   1.2 This ratio is to be calculated on a monthly basis during the reference period.

Applicable corporate tax rate is 29%.

**Required:**

(a) Prepare a short report for the Redd board that recommends, with reasons, the most suitable form of debt for Redd. Include a calculation of the cost of each type of debt. **(15)**

Redd owns 100% of a subsidiary, Greenly Ltd (Greenly), which is based in the UK. Greenly is also in the construction industry. Some archaeological ruins were recently discovered at one of Greenly's building sites and, consequently, the project completion has been delayed by several months. This has altered the cashflow projections such that there will be a cash shortage in three months' time. Greenly will need a short-term loan of £1 million for the nine-month period commencing 1 September 2023.

Greenly's bank currently offers short-term, unsecured loans at SONIA (previously referred to as LIBOR) plus 2%.

SONIA is 3% on 1 June 2023.

Greenly's directors are concerned that interest rates might change prior to September. They would like to understand how they can protect themselves against this interest rate risk. Information regarding managing interest rate risk is shown below:

| | |
|---|---|
| **Forward rate agreement (FRA)** | |
| 3/9 FRA | 3.20% – 2.70% |
| 3/12 FRA | 3.30% – 2.80% |
| | |
| **Futures contracts** | |
| Contract size | £500,000 for three months' deposit |
| June futures | 97.20 |
| September futures | 96.80 |
| ***Assume that any basis changes evenly over time.*** | |
| | |
| **OTC Options** | |
| Strike price | 3% |
| Option premium: | |
| Call | 0.3% |
| Put | 0.4% |

**Required:**

(b) Demonstrate, with supporting calculations, how Greenly can hedge against an increase or decrease in the interest rate on the short-term loan. Include a calculation of the effective annual interest cost for each type of hedge.

Assume that on 1 September 2023 SONIA:

(i) increases to 4%; or
(ii) decreases to 2.5%. **(14)**

**(THE END)**