Certified Finance and Accounting Professional Stage Examination

The Institute of Chartered Accountants of Pakistan

7 June 2022
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 Curum Metals Limited (CM) is a Pakistan-based company located in the province of Balochistan. CM is in the metallic mining industry and currently has two mines in operation. Copper metal ore is the primary deposit, though the company has also been successful in retrieving gold, silver, iron and sulphur deposits from these mines.

The price of copper fluctuates depending on market demand and supply for the metal, along with the availability of copper substitute metals.

CM is in the final stages of negotiations with Akum Build Limited (AB), a company based in Argentina. AB requires 300,000 pounds of copper in six months' time on 31 December 2022. AB wants that the contract price is set at the prevailing market rate when delivery takes place at the end of December.

CM's Finance Director, Maryam Ghafoor, is proposing that CM should hedge against a likely fall in the value of copper. She has obtained relevant financial information included below and would like your help in evaluating if a futures contract hedge on the price of copper is worthwhile.

Copper prices are quoted in the global commodity market as US dollars (USD) per pound.

Relevant financial information for copper hedge

Financial information	June 2022	Estimated December 2022
	USD/pound	USD/pound
Spot price	4.3525	4.2835
Futures contracts (December dated)	4.3675	4.2845
Contract size	25,000 pounds	
Tick size	0.0005 USD/pound	

Required:
(a) Recommend, with supporting calculations and explanations, if CM should proceed and hedge the sale of copper in six months' time. In doing so, compare a hedging strategy with the expected no hedge position and state your answers in USD. **(04)**

Maryam understands that the company would also be exposed to foreign exchange rate risk on sale of copper in USD. She would like you to explain and illustrate how CM could hedge against the risk of incurring foreign exchanges on the expected USD receipt from the sale of copper in USD on 31 December 2022.

Financial information for foreign currency hedge on sale of copper at 31 December 2022

	June 2022	Estimated 31 December 2022	
Spot price	0.5241	0.5593	USD/Rs. 100
Forward rate adjustment 6 months discount	0.0326	-	USD/Rs. 100
Futures contracts	0.5298	0.5596	USD/Rs. 100

Each futures contract has the following attributes:

Contract size	Rs. 2,000,000
Contract tick size	USD 0.0001/Rs. 100
Close out date	31 December 2022

Over the counter 31 December 2022 currency option contract
CM is able to obtain an option with an exercise price of USD 0.5250 / Rs. 100 with a premium of Rs. 10 million paid at the inception of the contract. This option can be exercised at any time from the contract start until the close out date of 31 December 2022.

Required:

(b) Based on the expected USD receipt on the sale of copper from part (a), explain, with calculations, how CM could hedge against the fall in value of the USD using:

- (i) forward contract **(02)**
- (ii) futures contract **(05)**
- (iii) options contract **(03)**

(c) Discuss your results in part (b) and recommend a hedging strategy for the expected USD receipt on the sale of copper. **(03)**

(d) Explain why the outcome of a futures hedge cannot be determined with absolute certainty. **(03)**

Q.2 Pamir Estates Limited (Pamir) is a land and property investment company listed on the Pakistan Stock Exchange. Pamir has significant property interests across Pakistan, resulting in five separate operating divisions. Each division specialises in a different type of property. The five divisions are: Office Buildings, Retail Buildings, Industrial Buildings, Residential Buildings and Hotel Buildings.

Revenue is generated through three separate services: (1) Design and build of new properties for Pamir to lease or sell on behalf of third-party clients, (2) Property management on behalf of clients, and (3) Leasing of Pamir-owned property.

A recent review of divisional trading identified strong performance in four of the five divisions. The Industrial Buildings division did not perform well, generating only 10% of Pamir's leased property income, despite comprising 25% of Pamir's property portfolio by value. The Industrial Buildings division does not currently have any properties that are managed on behalf of third parties. As a result, the board has decided to sell off the Industrial Buildings division and use the proceeds to invest and expand the Residential Buildings division.

In order to dispose of the Industrial Buildings division, the board has approved the creation and subsequent sale of a new company, Kurumdy Buildings Limited (Kurumdy). Pamir will transfer all the trade and net assets of the Industrial Buildings division to this Kurumdy, which will continue to be managed by the existing Industrial Buildings divisional management team until the new company is sold.

The board has not been able to identify a private buyer for Kurumdy. Therefore, it intends to realise the sale of the Industrial Buildings division by seeking a separate listing for the newly formed company on the Pakistan Stock Exchange.

As a member of Pamir's finance team, you have been asked to determine the likely valuation of Kurumdy, so that this can be incorporated within the stock exchange listing prospectus which will be issued to attract investors.

Your analysis should include a valuation of Kurumdy using each of the following valuation methods:

- Free cashflow valuation method
- Net asset valuation method
- P/E ratio valuation method
- Dividend valuation method

The following relevant information has been gathered by Pamir's chief financial officer:

Projected cash flows for Kurumdy (Industrial Buildings division)
Kurumdy's latest earnings are Rs. 30 billion. However, there are several properties that are not occupied. Difficult economic and trading conditions in 2020–2022 have resulted in the corporate failure and the subsequent liquidation of some industrial building occupants. This has resulted in writing off of bad debts and a higher percentage of vacant industrial properties than was budgeted for by the Industrial Buildings division.

The Industrial Buildings management team are confident about 2023 economic prospects and believe that the proportion of vacant buildings within the industrial buildings' portfolio will reduce, which supports the forecast growth in earnings.

Historically, earnings have been similar to cashflows with lease payments paid in advance on a quarterly basis, the expected free cashflows before interest after tax (stated in today's prices) are as follows:

Year ended 31 May	**2023**	**2024**	**2025**
Free cash flows before interest after tax	Rs. 35 billion	Rs. 40 billion	Rs. 45 billion

Kurumdy anticipate that there will be no vacant properties after a period of three years, and thereafter, earnings and cashflows will increase in line with inflation.

The current level of inflation is 10%. However, the board anticipates that inflation will decrease to 8% in 2023, 6% in 2024, 4% in 2025 and then remain at an average rate of 3% thereafter.

Assets
The current book value of assets owned by Kurumdy is Rs. 420 billion. This includes Rs. 40 billion in respect of Shalkot Industrial, a building located in Quetta.

Shalkot is currently vacant which is a concern for the board. There has been significant damage caused by land subsidence and it is unlikely that the building will be safe for future use. The most likely outcome for this building is that it will be demolished at a cost of Rs. 2.5 billion. As the land is now considered unsuitable for development, the cleared land would be sold for an estimated Rs. 15 billion. Pamir has submitted an insurance claim for Rs. 40 billion in respect of Shalkot. However, the insurance company is disputing the claim on the grounds that earlier subsidence had not been disclosed to the insurance company by Pamir, and so the claim cannot be accepted.

Debt finance
Pamir's property portfolio has been used as security for some of the debt finance within the business. Rs. 50 billion of debt is currently assigned to the Industrial Buildings division, which will be transferred to Kurumdy when the corresponding assets are transferred.

Pamir financial information
The directors require that the following Pamir's financial information be used to value Kurumdy, where relevant, as it can be assumed to be appropriate for Kurumdy.

- Pamir uses a nominal 10% weighted average cost of capital (WACC) for the lettings business.
- Pamir's quoted equity beta is currently 0.8.
- Pamir's price to earnings (P/E) ratio is currently 19.9 which compares favourably with the industry average of 14.6.
- Pamir currently retains 60% of earnings for future investment. Historically, shareholders have seen annual growth in dividends average at approximately 10%.
- The risk-free rate of return can be assumed to be 9% and the equity market premium is currently 6%.

Required:

(a) Determine a range of valuations using the valuation methods set out by Pamir's board of directors and recommend, along with reasons, an issue price at which the new shares in Kurumdy will be offered to investors prior to it commencing to trade on the Pakistan Stock Exchange. **(14)**

(b) Discuss reasons why the shares may trade at a higher or lower price than the price suggested by the free cash valuation in part (a). **(03)**

(c) Advise the board of directors on matters to be included in due diligence which will be expected by potential investors to support the new company listing before it proceeds with the spin-off of Kurumdy. **(04)**

Q.3 Centaurus Pakistan Limited (CP) is a manufacturer of ready-to-cook and ready-to-eat frozen foods based close to Rawalpindi, Pakistan. The company was founded by Aimen and Areesha Khan in 2012. Although the company is listed on the Pakistan Stock Exchange, the founders still own a large proportion of the equity share capital and until recently, the company was all equity financed.

The manufacturing process involves a blast freezing technique that freezes products quickly in order to retain the freshness and quality of the foods produced. Consumer demand for such convenience food has increased significantly in recent years. CP has found it difficult to grow the business due to constraints in the distribution network, both in terms of cold transport and also in terms of suitable retail outlets for consumers to purchase goods. Therefore, in 2021, the board embarked on an ambitious growth strategy that would remove the constraints on growth.

Phase one of the strategy has been completed which comprised of the acquisition of a cold transport logistics company. This acquisition was funded through an injection of new equity finance, bringing CP's equity value to Rs. 48 billion and new debt finance with the issue of new 3% corporate bonds of Rs. 15 billion. These bonds are redeemable in June 2032 at a 10% premium. The corporate bonds are currently AAA credit rated.

CP is now ready to commence phase two of its expansion plan, which involves raising Rs. 20 billion of debt through a bank loan for acquiring the equity of a small chain of retail outlets. The retail outlets will stock CP's inventory on an exclusive basis once acquired. A suitable, all equity, company has been identified. However, the acquisition is considered to be quite risky as the target company's ungeared beta is 2.23 which is greater than CP's most recently quoted equity beta of 1.25. You should assume that the cost of new debt finance is the same as the cost of its existing corporate bonds obtained in phase one.

The relevant Arbitrage Pricing Theory factors are shown below together with their appropriate β weighting:

	Factor	**Indicator**	**Market risk premium**	**β**
β1	Industry risk	Purchasing managers index (PMI) – manufacturing Pakistan	7%	1.16
β2	Gold prices	Return on investment in gold	2%	0.15
β3	Economy risk	Gross Domestic Product (GDP) for Pakistan	4%	0.22
β4	Inflation	Inflation rate	3%	0.06

Pakistan corporate tax rate is 29%, the average market return on the Pakistan Stock Exchange is 10% and risk free rate is 4%. CP's corporate bond βd at different credit rating is as follows:

CP's Corporate Bond credit rating	**βd**
AAA	0.00
A	0.25

Required:

(a) Calculate the current market value of the redeemable bonds and CP's overall gearing ratio (using market values) after phase one of its expansion strategy. **(02)**

(b) Calculate CP's cost of equity using the Arbitrage Pricing Theory and Capital Asset Pricing Model (CAPM), and briefly explain the difference in your answers. **(04)**

(c) Calculate the current weighted average cost of capital (WACC) for CP before embarking on phase two of the expansion strategy using the cost of equity from part (b) calculated using the CAPM. **(04)**

(d) Calculate the expected equity beta for CP after commencement of phase two of the project and calculate the revised cost of equity for CP using CAPM. **(04)**

(e) Explain, with relevant calculations, how a change in CP's credit rating from AAA to A may impact the market value of CP's corporate bonds. **(03)**

(f) Recalculate the WACC for CP after embarking on phase two of the project and explain why the WACC has changed. **(03)**

Q.4 Infrapower Limited (IP), a Karachi based listed company, is engaged in providing engineering design, procurement, and construction services.

IP provides a complete design, procurement, construction and installation service for new coal and gas-powered plants it supplies to its customer in Pakistan and for some internationally-based customers. Once a new power plant has been successfully engineered and installed, it is transferred to the customer who may use it to generate power for their own use or use it to supply electricity to the National Electricity Transmission Grid of Pakistan (National Grid).

The board has recognised the importance of renewable energy and is considering diversifying into the design and supply of commercially viable solar power plants by investing first in one site to test the use of its solar power technology design.

If investment appraisal for the new solar power plant is favourable, then this will provide the business case to construct the first new IP solar power farm. If, after launch, the solar technology used at this first site proves to be feasible then IP will use this design as a blueprint and design and deliver further solar power plant 'farms' to its power plant customers as part of its strategy to increase renewable energy production and supply.

Solar farm in Bahawalpur

The board is proposing to construct a new solar power plant which will be owned and managed by IP directly. The directors have assumed IP will sell all electricity generated to the National Grid.

A suitable 100-acre site has been identified in Bahawalpur for the first solar power plant as the land is flat and a National Grid connection point is close by. The site is available for long term rental at an annual cost of Rs. 42 million and IP anticipates taking on a 25-year lease if the directors of IP approve the pilot for the solar power plant design project. Site preparation costs are expected to be in the region of Rs. 52 million. In addition, cabling and pylons required to connect to the grid would cost Rs. 60 million.

The power capacity of the plant is described by reference to Mega Watts. A one Mega Watt system would require approximately five acres of panels at a total estimated cost of Rs. 90 million, inclusive of all installation costs. The useful life of the panels is expected to be 25 years, with zero residual value. Once installed there are routine operating and maintenance costs which are typically Rs. 1.9 million per MW per year.

Currently, electricity can be sold to the National Grid under a Power Purchase Agreement at Rs. 16 per KW. A one MW system should generate 1,000 KW of electricity per day.

The directors have assumed that IP will continue to pay corporate tax in Pakistan at 29% each year over the entire life of the project. Corporate tax is assumed to be paid in the year in which profits are earned.

As this is a very long-term project, the directors of IP have advised, for simplicity, to assume 10-year straight-line tax allowable depreciation is available on the investment in the panels, including any installation costs. Site preparation costs and grid connection costs do not qualify for tax allowable depreciation.

IP plans to fund 50% of the initial investment cost through raising of new debt finance. Funding of the remaining 50% and the payment of any new debt arrangement fees will be funded from IP's existing cash reserves which the company has ring-fenced for research and development expenditure. Early discussions with the bank suggest that a 25-year loan would be available at an interest rate of 12%, with new debt arrangement fees at 1.5% of the funds borrowed. Arrangement costs on new debt finance are deductible for corporate tax.

Market information

- IP's current gearing is a debt to equity ratio of 1:2.
- The directors of IP have identified a similar renewable energy company that has an asset beta of 1.6.
- The risk-free return in Pakistan is currently 9% and the market return on equity is 15%.

Required:

(a) Evaluate the proposed solar power plant investment by calculating the adjusted present value (APV) and its modified internal rate of return (MIRR). ***Ignore inflation.*** **(16)**

(b) Write a report to IP's board of directors which evaluates the proposed engineering project. Your report should include an explanation of APV and MIRR, their respective advantages and disadvantages, and include a recommendation in your report as to whether IP should proceed with a pilot for its new solar power plant design. ***Calculations are not required.*** **(06)**

Q.5 Go Limited (Go) is a public company listed on the Pakistan Stock Exchange which provides logistics, warehouse, and distribution services from its head office in Lahore and from several branches located in all the main cities in Pakistan.

Investment opportunities

Go has recently sold its shares in one of its subsidiary companies, resulting in surplus cash of Rs. 150 million. The board would like to invest the cash as soon as possible in order to expand and are considering several possible joint venture investment opportunities, all of which align with Go's strategic plans.

The investment opportunities set out in the table below are to acquire smaller rival distribution companies, motorcycle couriers or providers of advanced distribution logistics services or software. The estimated project cashflows associated with each opportunity are stated in the table below after corporate tax:

Year	Mango	Watermelon	Jamun	Date
	---------------------- Rs. in million			----------------------
0	(30.7)	(40.5)	(50.9)	(60.1)
1	(20.0)	(20.8)	(10.0)	(30.6)
2	70.5	50.2	20.3	30.6
3	50.7	40.3	30.3	30.6
4	-	20.5	30.3	40.0
5	-	(10.0)	30.3	40.0

The board of Go would like a recommendation on the optimal investment plan for Rs. 150 million of investment capital which is available immediately.

Where further capital investment is required at the end of the first year, then Go has time to borrow the additional capital as required.

For the purpose of this part, assume that cost of capital is 10%.

Required:

(a) Determine an optimal investment strategy for the Rs. 150 million assuming:

(i) Partial investment in each opportunity is possible.
(ii) Partial investment in each opportunity is not possible. **(07)**

Go's fleet of distribution vehicles

Go principally uses its own fleet of distribution vehicles to transport goods and it supplements booking road, rail, and air transportation space with various other third-party distribution companies.

Go has also decided to update its replacement policy for its fleet of distribution vehicles. Currently, the vehicles are used until they can no longer be repaired. However, this is proving to be expensive as the volume of increasing vehicle breakdowns are resulting in complaints and lost customers.

The directors of Go have decided that the company must address the problem of its ageing fleet of vehicles and the board is considering replacing its existing vehicles with a new vehicle each year, replace every two years or replace every three years.

Each new vehicle costs Rs. 2.4 million and Go has already set aside sufficient cash to fund this investment. The maintenance cost of one vehicle is Rs. 150,000 in year one. However, this increases by Rs. 100,000 for each subsequent year.

The trade-in-value for each vehicle reduces with the age of the vehicle – after one year, the vehicle could be sold for Rs. 1.9 million. However, this reduces by Rs. 300,000 each year.

Go is currently all equity financed and its current cost of capital is 10%.

Required:

(b) Determine the optimal replacement cycle for the fleet of vehicles using the information provided. ***Ignore tax.*** **(05)**

Additional debt finance

As some of the projects require additional funding in one year's time, the board plans to raise new finance to ensure that there is sufficient capital to invest. The board is considering one of the following two possible sources:

(i) **Bank loan from ABC Bank Limited**

The bank loan has an interest rate of 8% and would be secured on the business premises. The loan is subject to two financial covenants. The covenants are firstly, that the current ratio does not fall below 1.2 and secondly, that the dividend pay-out ratio does not exceed 60%. Bank interest is tax deductible at the current corporate tax rate of 29%.

(ii) **Issue 7% convertible bonds**

Each Rs. 1,000 convertible bond will be issued and redeemed at par. It would give the bond holder the right to redeem the bond at par value in five years or convert each Rs. 1,000 bond into four shares at this time. The current share price of Go is quoted on the Pakistan Stock Exchange at Rs. 200 per share. The board anticipates that the value of the shares will increase by 5% per annum. Bond interest is tax deductible at the current corporate tax rate of 29%.

Required:

(c) Prepare a briefing note for Go's board of directors which explains the impact of introducing debt finance into Go's capital structure and evaluates the respective costs of each proposed source of finance. **(05)**

(THE END)