

**UBH 6502 – ADVANCED FINANCIAL MANAGEMENT**

Date: 28-04-2025

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 PM

Section A**ANSWER ALL THE QUESTIONS****1x50=50 marks****Question 1**

Cube Co., A publicly traded company, intends to produce cutting-edge, environmentally friendly, and sustainable engineering products. The affordability of these products has made them highly marketable. Cube Co.'s mission statement emphasizes its commitment to operating at the highest ethical standards. These efforts have led to Cube Co. achieving an outstanding reputation and a considerably higher stock price relative compared to its rivals.

Cube Co. is evaluating a new initiative, the Pembley Project, which aims to produce drones for application in the agricultural sector. These drones will be at least 50% biodegradable and offered at competitive prices, This would allow farmers to boost crop production and minimize damage to their crops. Drone manufacturing is a new business area for Cube Co. The Pembley Project is projected to span a duration of four years.

Cube Co. also intends to embark on the Sachin Project, a continuation of the Pembley Project, focused on developing drones that are over 95% biodegradable. The Sachin Project is anticipated to last five years, beginning after the completion of the Pembley Project. However, even if the Pembley Project is stopped or sold before its four-year completion, the Sachin Project could still commence after four years.

Pembley Project

The anticipated production and sales figures for drones are as follows:

Year	1	2	3	4
The number of drones to be manufactured and sold	4,300	19,200	35,600	25,400

In the first year, every drone is projected to sell for \$1,200 with variable costs of \$480, the annual direct fixed costs are projected to total \$2,700,000. For the following three years, It is anticipated that the selling price will rise by 8% each year, variable costs will increase by 4% each year, with fixed costs will grow by 10% per year. Training costs are estimated at 200% of year one variable costs, 60% of year two variable costs, and 10% of variable costs in years three and four. There is significant uncertainty regarding the number of drones produced and sold, with Cube Co. estimating a 30% standard deviation for the project.

The Pembley Project will require working capital at the beginning of each year, which will amount to 20% of the sales revenue in the first year. In subsequent years, the working capital will adjust by 10% for every \$1 change in sales revenue, either increasing or decreasing accordingly. It is anticipated that the full working capital will be recovered upon completion of the Pembley Project.

An initial investment of \$35,000,000 will be made in machinery for the project. The machinery will be depreciated for tax purposes using a straight-line depreciation method at a rate of 15% annually. At the project's conclusion, the machinery is expected to have a post-inflation salvage value of \$7,000,000. Cube Co. has sufficient profits from other operations to fully utilize any tax loss relief, and taxes will be paid in the year they are incurred.

Sachin Project as a real option

Cube Co. acknowledges considerable uncertainty regarding the cash flows of the Sachin Project, with an estimated standard deviation of 50%. The project is expected to require a \$60,000,000 investment over a four-year period. Using traditional net present value (NPV) calculations, Cube Co.'s initial best estimate values the project at \$10,000,000 at the outset.

In addition to the NPV method, the company has also applied the real options approach to estimate values for the Sachin Project. The asset value (P_a) is calculated to be \$46,100,000, rounded to the nearest hundred thousand. The exercise price (P_e) stands at \$60,000,000, and the exercise date is set for four years. The risk-free rate is 2.30%, and the volatility is 50%. The values for d_1 and d_2 are 0.329 and -0.671, respectively, with $N(d_1)$ at 0.6288 and $N(d_2)$ at 0.2510. The calculated call option value is \$15,258,399. Cube Co.'s finance director is requesting clarification on how the asset value of \$46,100,000 was derived based on these inputs.

Stokes Co.'s offer

Stokes Co., a drone manufacturer, has offered to purchase the Pembley Project from Cube Co. for \$30,000,000 at the beginning of the project's third year.

To evaluate the Stokes Co. offer, Cube Co. has performed a real options valuation, the results of which are shown below.

Cube Co.'s finance director has asked for a real options valuation of Stokes Co.'s offer, seeking clarification on the initial variable values used to compute d_1 , d_2 , $N(d_1)$, and $N(d_2)$, given that the calculated values are accurate. The calculated values are as follows: $d_1 = 0.779$, $d_2 = 0.355$, $N(d_1) = 0.7821$, and $N(d_2) = 0.6387$. To determine the initial variables used to calculate these values, a breakdown of the inputs such as the asset value, exercise price, risk-free rate, volatility, and time to maturity would be required, along with how they were incorporated into the formula for d_1 and d_2 .

Additional information:

Both Stokes Co. and Cube Co. with a corporate tax rate set at 20%. Cube Co. has determined the cost of capital, adjusted for risk, for both the Pembley and Sachin Projects to be 11%, based on Stokes Co.'s asset beta. Cube Co. considers the current LIBOR rate of 2.30% to be an appropriate estimation of the risk-free rate of interest.

Required:

- a) How can the use of real options within net present value (NPV) analysis improve Cube Co.'s investment appraisal process? **(4 marks)**
- b) Draft a report for Cube Co.'s Board of Directors that:
 - i. Calculates and presents the NPV of the Pembley Project, prior to accounting for the Stokes Co. offer and the Sachin Project, and includes all supporting calculations. **(10 marks)**
 - ii. Address the Finance Director's requests by providing the initial variable values used in the real options valuation of the Stokes Co. offer, along with the resulting estimated value of that offer. **(8 marks)**
 - iii. Then, based on the calculations performed in parts (b)(i) and (b)(ii), evaluate whether the Pembley Project should proceed, discussing the underlying assumptions made in those calculations. **(8 marks)**

Cube Co.'s biodegradable drones generated significant global interest at a recent trade show, but potential customers expressed concern about the high price. Cube Co. believes that even a small price decrease would render the project unprofitable. To address this, the operations director proposed reducing costs by manufacturing drone components in Dactyl, a country where Cube Co. already has existing manufacturing relationships. However, the public relations director raised a concern: several of Cube Co.'s potential suppliers in Dactyl employ young teenagers, arguing that this practice is necessary to fund the teenagers' education and support their families.

Required:

Discuss the potential effects of the aforementioned sustainability and ethical dilemmas on Cube Co. and its objectives. Provide recommendations on how these issues can be resolved. **(10 marks)**

Professional marks in part (b) will be awarded based on the report's format, structure, and overall presentation. **(10 marks)**

(Total: 50 marks)

Section B

ANSWER ALL THE QUESTIONS

2x25=50 marks

Question 2

Monday Co., a publicly traded company specializing in formal wear for adults and children, has been listed for ten years following a period of consistent growth. The company's ownership is concentrated, with 70% of shares held by directors and their families with the other 30% held by outside investors, such as institutions.

Sportswear segment

Eight years prior, Monday Co. expanded into sportswear manufacturing, a move that has proven to be highly successful. Currently, the sportswear division represents 40% of the group's total revenue and is growing at a significantly faster rate than the original formal wear division.

While Monday Co.'s board has gradually delegated more autonomy to the sportswear division's management, it retains control over major policy and investment decisions. Although relations were initially positive, tensions have arisen in the past two years. The management of the sportswear division feels hampered by the board's rejection of recent investment proposals deemed too risky. They also desire more stringent policies for managing staff and suppliers to improve operational efficiency, but the board has not yet approved these changes.

Furthermore, despite initiating integrated reporting three years ago, Monday Co.'s board has struggled to obtain the necessary information from the division of sportswear.

Restructuring

Several months before, the sportswear division's management proposed a management buyout to Monday Co.'s board. However, their offer price was too low to convince the board to sell. Consequently, Monday Co.'s board has made the decision to spin off the sportswear division into a separate new entity., independent company called Maserati Co. Maserati Co.'s shareholding structure and proportions will mirror Monday Co.'s current structure. The current senior management team of the sportswear division will form the board of Maserati Co., and the newly established company will promptly pursue being listed on the same exchange as Monday Company

Financial information

Monday Co.'s current market capitalization is \$585 million. Monday Co. currently holds \$200 million in 5.9% loan notes, which are set to be redeemed in five years at a 5% premium. The company's equity risk measure is 1.4, reflecting an equity cost of 11.8%, while the pre-tax debt cost is 4.5%. The formal wear segment has an asset risk measure of 1.21, and when determining Monday Co.'s overall asset risk, the formal wear segment is given a weight of 60%, while the sportswear division accounts for 40%. The debt beta is considered to be zero.

In the upcoming demerger, current shareholders of Monday Co. will exchange 40% of the company's issued share capital for 100% of Maserati Co.'s issued share capital, reflecting the assets and obligations being relocated. The shares given up by Monday Co. will be canceled as part of the process. Following the demerger, Monday Co.'s market capitalization is expected to be \$351 million, while Maserati Co. would not carry any long-term debt, and the \$200 million loan note liability will remain with Monday Co.

The return on a risk-free investment is established at 3.4%, accompanied by a market risk premium of 6%, while the corporate tax rate is 28%

The sportswear division's current operating cash flows are \$36 million. Its management projects the following operating cash flow growth rates for Maserati Co. after the demerger.

Year	%
1	25
2	20
3	15
4 onwards	2

The management of the sportswear segment anticipates that Maserati Co. will need to allocate an extra \$20 million toward assets in Year 1. This investment is expected to rise to \$22 million annually in Years 2 and 3, and then increase to \$25 million per year starting from Year 4.

Required:

- a) Analyze the pros and cons of spinning off the sportswear segment into an independent entity. (4 marks)
 - b) Calculate:
 - i. The variation in the WACC for Monday Co. as a result of the demerger.
 - ii. The assessment of Maserati Co.'s value using the free cash flow method, based on the provided data and assumptions. Provide a brief discussion of the findings. (12 marks)
 - c) Identify the key factors that should guide Maserati Co.'s communication strategies with its shareholders and other important stakeholders. (4 marks)
- Note: Professional marks for part (b) will be awarded based on the format, organization, and presentation of the report. (5 Marks)

(Total: 25 marks)

Question 3

Based in the Eurozone, Dawkins Co. focuses on producing parts for farming equipment. The firm is funded through a mix of debt and shareholders' equity, and it went public Half a decade ago. Alongside the founder's ownership, the investor group consists of retirement funds and several institutional stakeholders. Historically, the company has operated primarily within the Eurozone, but its leadership is keen on broadening its reach, with North America recognized as a crucial market for expansion. Recently, the company secured its inaugural sale to a U.S. client, though payment is anticipated only after six months.

Risk Management Strategy and Stakeholder Implications

During a recent board session, the chief financial officer of Dawkins Co. emphasized that expanding into international markets necessitates a formal hedging policy. He argued that such a policy would increase shareholder value, particularly if it is clearly communicated to other stakeholders. However, the CEO disagreed, presenting two key arguments. First, the CEO contended that the current shareholders have a broad diversification of investments, meaning that additional risk mitigation measures would not deliver substantial advantages. Second, the CEO questioned the benefit of communicating the mitigating strategy to various interested parties—such as lenders, staff, clients, and vendors—arguing that it wouldn't lead to any positive impact on shareholder value. Your task is to support the finance director's stance before the next board meeting.

Risk Mitigation Tools

On March 1, 20X0, Dawkins Co. is set to collect \$18,600,000 from a U.S. client on August 31, 20X0. The CFO aims to minimize the company's foreign exchange risk and is considering utilizing forward contracts, exchange-listed futures, and derivative options as potential strategies to achieve this objective. Several quotes have been collected to aid in making a well-informed decision

Exchange rates (quoted as €/US\$1)

Spot	0.8707–0.8711
Six months forward rate	0.8729–0.8744

Foreign Exchange Futures (contract value of €200,000; strike price quoted in USD per €1)

Months	Strike price
March	1.1476
June	1.1449
September	1.1422

Foreign Exchange Options (contract value of €200,000; strike price quoted in USD per €1, with premium in US cents per €1)

Exercise price	March	Calls June	September	March	Puts June	September
1·1420	0·43	0·59	0·77	0·62	0·78	0·89

Suppose that both futures and option agreements are finalized on a monthly basis, without any pricing variations. For the sake of computations, the contract quantity must be adjusted to the closest whole unit. If achieving this is not feasible to achieve a perfect hedge using an exact number of futures or options, any residual risk will be managed through forward agreements

Collateral Requirements

Upon opening a position, the euro futures contract will be revalued daily based on the market's current settlement price. In accordance with the contract stipulations, Dawkins Co. is obligated to provide an initial deposit of \$3,500 per contract to the clearinghouse. It is assumed that the ongoing maintenance margin is equal to the initial deposit. The price movement increment for this contract is \$0.0001.

Manager has raised concerns about how maintaining an active futures position could affect Dawkins Co.'s cash reserves. In response, you have been assigned the task of calculating and clarifying how hypothetical fluctuations in the ending price during the first three days could impact the firm's cash flow.

Final settlement prices (USD per €1)

Date	Final transaction price
1 March	1·1410
2 March	1·1418
3 March	1·1433

Required:

- Discuss the reasoning behind Dawkins Co.'s approach to mitigating currency exchange risk and outline the possible advantages to shareholder value, presuming the approach is clearly conveyed to the company's primary parties of interest. **(6 marks)**
- Propose a suitable mitigating strategy for Dawkins Co.'s foreign currency inflows expected after six months, according to the available mitigating options under consideration by the finance director. Justify your choice with detailed analysis and calculations where appropriate. **(8 marks)**
- Determine and discuss the effect of the existing future stance on Dawkins Co.'s USD cash flow, taking into considering the provided final transaction prices. **(6 marks)**

Note: Part (b) will include marks for the organization, coherence, and overall layout of the report.

(5 Marks)

(Total: 25 marks)
