UNIRAZAK
UNIVERSITI TUN ABDUL RAZAK

FINAL EXAMINATION

MARCH 2024

COURSE TITLE **PRINCIPLES OF FINANCE**

COURSE CODE **RFIN2213**

DATE/DAY **20 JUNE 2024 / THURSDAY**

TIME/DURATION **02:00 PM - 04:00 PM / 02 Hour(s) 00 Minute(s)**

INSTRUCTIONS TO CANDIDATES :

1. Please read the instruction under each section carefully.
2. Candidates are reminded not to bring into examination hall/room any form of written materials or electronic gadget except for stationery that is permitted by the Invigilator.
3. Students who are caught breaching the Examination Rules and Regulation will be charged with an academic dishonesty and if found guilty of the offence, the maximum penalty is expulsion from the University.

(This Question Paper consists of **11** Printed Pages including front page)

*****DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE TOLD TO DO SO*****

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This question paper consists of TWO (2) Sections. Answer ALL QUESTIONS in the question paper. [50 MARKS]

SECTION A (10 Marks)
There are TEN (10) questions in this part. Answer ALL questions in the question paper.

1. Asset returns that move in the same direction implies that it is _____.

   A. negatively correlated and an increase in some assets' returns will most likely be decreased in some others.
   B. negatively correlated and an increase in some assets' returns will most likely be increased in some others.
   C. positively correlated and an increase in some assets' returns will most likely be increased in some others.
   D. positively correlated and an increase in some assets' returns will most likely be decreased in some others.

2. A model that provides a risk-return trade-off in which risk is measured in terms of beta is known as _____.

   A. Risk and Return Model
   B. Dividend Growth Model
   C. Capital Asset Pricing Model
   D. Beta Modelling

3. Political risk is a _____.

   A. Firm-specific risk
   B. Market risk
   C. Systematic risk
   D. Diversifiable risk

4. Corporate debt can be in the following forms EXCEPT:

   A. loans from financial institutions.
   B. short term borrowings from creditors.
   C. preferred stock issuance in the financial market.
   D. private debt instruments in the financial market.

5. Bonds are rated to determine the issuers _____ risk.

   A. credit
   B. market
   C. default
   D. operational

6. Which of the following best measures an asset's risk?
   A. Expected return
   B. The standard deviation
   C. The probability distribution
   D. The cash return

7. You are considering investing in a firm that has the following possible outcomes:

   Economic boom: probability of 25%; return of 25%
   Economic growth: probability of 60%; return of 15%
   Economic decline: probability of 15%; return of -5%

   What is the standard deviation of returns on the investment?

   A. 84.75%
   B. 9.21%
   C. 15.28%
   D. 12.47%

8. Common stockholders have the most junior claim in the event of company's liquidation, which means:

   A. the stockholders' voting rights are junior to senior capital holders.
   B. the stockholders' rights to claim on income and on assets are the last to be exercised.
   C. the stockholders will have to find another party to sell its shares in the company.
   D. the stockholders' rights to claim on income and on assets are the first to be exercised.

9. Based on Constant Dividend Growth Model, common stock value will decrease when there is an increase in _____.

   A. inflation rate
   B. required rate of return
   C. last paid dividend
   D. the holding period

10. A mutually exclusive project is _____.

   A. a project that cannot be accepted without the other project
   B. a project which once accepted, the company must reject another project
   C. a standalone project that will not be accepting the decision on another project
   D. multiple projects that the company can accept at a given duration

SECTION B **(40 Marks)**
There are THREE (3) questions in this part. Answer ALL questions in the question paper.

QUESTION 1 **(10 Marks)**

Prime Berhad's is funded by the following financial instruments:

Common stocks: The dividend paid for financial year ending 2023 was RM0.017 per unit and dividend is deemed to grow at constant growth of 5.5%. The return on the stock is 7.22%.

Preferred stocks: The dividend rate is 9.3% on a par value of RM100, and the interest rate is 8.15%.

Bonds: The company's 25-year bond was issued 10 years ago for RM915 with a semi-annual coupon of 6%, and the current interest rate is 7.33%.

New bonds: As part of the company's expansion, new bonds issuance is planned at the end of 2024. The bond maturity is 20 years, annual coupon at a rate of 6%, and floatation cost of 1.5%. The current interest rate is 6.45% p.a.

Required:

a) Calculate the current price of the common stock. (2 marks)

b) Calculate the price of the preferred stock. (2 marks)

c) Calculate the bond's current price. (3 marks)

d) Calculate the net proceed of the bond issuance. (3 marks)

QUESTION 2 **(10 Marks)**

The following is the capital structure of Prime Berhad:

Capital	Details	Cost of Capital
Bonds	RM890 per unit and total outstanding bond issue is 5,000 units	6.45%
Preferred stocks	Total valuation is RM2.5 million	10.14%
Common stocks	Total value of outstanding common stock is RM8 million	6.11%

Table 1: Prime's Capital Structure

Your analysis of Prime Berhad's indicated that the beta is 1.23. The risk-free rate instrument return is 2.87% and the current market return is 8.31%. The company's tax rate is 24%.

Required:

a) Calculate the company's weighted average cost of capital (wacc) and adjusted wacc. (5 marks)

Capital Structure	Value (RM)	Rate (%)	Weig htage	Wacc (%)	Adj. Rate (%)	Adj. wacc (%)

b) Calculate the company's cost of capital based on Capital Asset Pricing Model. (2 marks)

c) You are interested in investing in the company. Will you proceed with the investment? Explain. (3 marks)

QUESTION 3 **(20 Marks)**

Prime Berhad plans to expand its manufacturing capacity. The project cost is RM2.7 million, including a working capital of RM500,000. An additional cost of RM1.1 million will be spent to fit the plant with equipment to increase the manufacturing capacity. 40% of the equipment's cost will be recovered at the end of 5 years project. The working capital will also be recovered at the termination.

The operating cash flows for the five years are as follows:

Year	Operating Cash Flow (RM)
1	850,000
2	1,280,000
3	2,300,000
4	1,000,000
5	750,000

Table 2: Prime's Operating Cash Flows

The company's weighted average cost of capital is 6.54%.

Required:

a) Calculate the Initial Outlay and Terminal Value of the project. (2 marks)

Initial Outlay:

Terminal Value:

b) Complete the following assessment of the project viability based on Capital Budgeting Model. (6 marks)

Year	OCF	PV	FV
0			
1			
2			
3			
4			
5			
	Total		

c) Calculate the Payback Period and the Discounted Payback Period. (2 marks)

d) Calculate the Net Present Value (NPV) and Profitability Index (PI). (2 marks)

e) Calculate the Internal Rate of Return (IRR) and Modified Internal Rate of Return (MIRR). (2 marks)

f) Based on Equivalent Annual Annuity, calculate the annualized payment of the project. (2 marks)

g) Explain **TWO (2)** systematic risks that must be taken into consideration in determining the project's viability. (4 marks)

***** END OF QUESTION PAPER *****

FORMULA SHEET

Risk & Return	Expected Return $\hat{k} = P_1k_1 + P_2k_2 \ldots\ldots P_nk_n$ Standard Deviation: $\delta = \sqrt{\Sigma(k_i - \hat{k})^2 Pi}$ The Coefficient of Variation (CV): $CV = \sigma/\hat{k}$ The Expected Return on a Portfolio: $\hat{k}p = w_1\hat{k}_1 + w_2\hat{k}_2 + \ldots\ldots + w_n\hat{k}_n$ Portfolio Beta: $\beta_p = w_1b_1 + w_2b_2 \ldots\ldots + w_nb_n$ Security market Line = SML = $k = k_{rf} + (k_m - k_{rf})\beta$ $k = k_{rf} + (RP_m)\beta$
Security Valuation	Current yield = $\frac{\text{annual interest payment}}{\text{market price of bonds.}}$ Basic Security Valuation Equation: Value (V) = $\frac{CF_1}{(1+k)^1} + \frac{CF2}{(1+k)^2} + \ldots\ldots + \frac{CF_n}{(1+k)^n} + \frac{M_n}{(1+k)^n}$ VB = PMT (PVIFAi,n) + PV (PVIFi,n) YTM = $\frac{C + \frac{PV - MP}{n}}{\frac{PV + MP}{2}}$ Valuing Preferred Stock: $V_{ps} = \frac{\text{annual dividend}}{\text{required rate of return } k_{ps}} = \frac{D}{k_{ps}}$ Valuing Common Stock: Common Stock Value With Zero Growth. "A zero growth stock is perpetuity" $P_0 = \frac{D}{k_s}$ where: D dividend the investor expect k_s required rate of return Common Stock with Single Holding (one year holding) $V_{cs} = \frac{D_1}{(1+k_s)^t} + \frac{P_1}{(1+k_s)^t}$ Common Stock : Multiple Holding Periods $V_s = \frac{D_0(1+g)^t}{k_s - g}$

Cost of Capital	Cost of Common Equity DCF Approach: $k_s = \frac{D_1}{P_0} + g$ The CAPM Approach: $k_s = k_{rf} + (k_m - k_{rf})\beta$ The Risk-Premium Approach: $k_s = k_{rf} + (RP_M)\beta$ After-tax cost of debt = k_d(1-Tax rate). Cost of New Common Equity $k_s = \frac{D_1}{P_0(1-fc)} + g$ Cost of Retained Earning, $k_s = (D_1 / P_0) + g$ Weighted Average Cost of Capital (WACC) $k_{wacc} = w_d k_d (1 - T_c) + w_{ps} k_{ps} + w_{cs} k_{cs} + w_{ncs} k_{ncs}$
Capital Budgeting	Payback Period = BY + $\frac{UC}{CF}$ BY = the year before full recovery UC = the unrecovered cost at start of year CF = the cash flow during the year Net Present Value NPV = $\frac{\Sigma \text{ Annual Cash Flow}}{(1+k)^t}$ - Initial Investment Internal Rate of Return: IRR IRR = A + { $\frac{a}{a-b}$ x (B – A)} A = one of the discounting rate B = the other discounting rate a = the NPV at discounting rate A b = the NPV at discounting rate B Profitability Index (PI) PI = $\frac{\text{Present value of Future Net Cash Inflows}}{\text{Initial Outlays}}$

Common Financial Ratios:

Current Ratio	Current Assets / Current Liabilities	Inventory Turnover	Cost of Goods Sold / Inventory
Quick Ratio	Current Assets – Inventory / Current Liabilities	Receivables Turnover	Sales / Accounts receivables
Total Debt Ratio	Total Debts x 100% / Total Assets	Average Collection Period	Receivables / (Annual Credit Sales/ 360)
Times Interest Earned Ratio	EBIT / Interest Expense	Fixed Assets Turnover	Sales / Fixed Assets
Net Profit Margin	Net Income x 100% / Sales	Return on Assets	Net Income x 100% / Total Assets
Return on Equity	Net Income x 100% / Total Equity	Total Assets Turnover	Sales / Total Assets
Operating Profit Margin	Operating profit x 100% / Sales	Earning Per Share	Net income / Number of common share outstanding

Time Value of Money Formula

TABLE 5-13 Summary of Time Value of Money Equations[a]

CALCULATION	EQUATION
Future value of a single payment	$FV_n = PV(1+i)^n = PV(FVIF_{i,n})$
Present value of a single payment	$PV = FV_n\left[\frac{1}{(1+i)^n}\right] = FV_n(PVIF_{i,n})$
Future value of an annuity	$FV \text{ of an annuity} = PMT\left[\frac{FVIF_{i,n}-1}{i}\right] = PMT\left[\frac{(1+i)^n-1}{i}\right] = PMT(FVIFA_{i,n})$
Present value of an annuity	$PV \text{ of an annuity} = PMT\left[\frac{1-PVIF_{i,n}}{i}\right] = PMT\left[\frac{1-(1+i)^{-n}}{i}\right] = PMT(PVIFA_{i,n}$
Future value of an annuity due	$FV_n(\text{annuity due}) = PMT(FVIFA_{i,n})(1+i)$
Present value of an annuity due	$PV(\text{annuity due}) = PMT(PVIFA_{i,n})(1+i)$
Future value of a single payment with nonannual compounding	$FV_n = PV\left(1+\frac{i}{m}\right)^{mn}$
Present value of a perpetuity	$PV = \frac{PP}{i}$

Notations:
FV_n = the future value of the investment at the end of n years
n = the number of years until payment will be received or during which compounding occurs
i = the annual interest or discount rate
PV = the present value of the future sum of money
m = the number of times compounding occurs during the year
PMT = the annuity payment deposited or received at the end of each year
PP = the constant dollar amount provided by the perpetuity

[a] Related tables appear in Appendixes B through E at the end of the book.