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FINAL EXAMINATION

NOVEMBER 2023

MATRIC	_____
SECTION	_____
SEATING NO	_____
COURSE TITLE	**PRINCIPLES OF FINANCE**
COURSE CODE	**RFIN2213**
DATE/DAY	**20 FEBRUARY 2024 / TUESDAY**
TIME/DURATION	**09:00 AM - 11:00 AM / 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*****

ATTENDANCE SLIP

NAME _____ DATE _____

MATRIC NO _____ SECTION _____

PROGRAMME _____

COURSE TITLE _____

COURSE CODE _____ SEATING NO _____ SIGNATURE _____

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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. A negative coefficient correlation implies that

   A. on average, the returns to such assets are negative.
   B. assets return tends to move in opposite directions.
   C. assets return tends to move in the same directions.
   D. None of the above because the coefficient of correlation cannot be negative.

2. Changes in the general economy, such as changes in interest rates or tax laws, represent what type of risk?

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

3. Which of the following statements is **TRUE**?

   A. Systematic, or market, risk can be reduced through diversification.
   B. Unsystematic, or company, risk can be reduced through diversification.
   C. Both systematic and unsystematic risk can be reduced through diversification.
   D. Neither systematic nor unsystematic risk can be reduced through diversification

4. Which of the following features allows a borrower to redeem or repurchase a bond issue before its maturity date?

   A. convertibility
   B. the call provision
   C. floating rate
   D. the priority of claims

5. All of the following affect the value of a bond **EXCEPT**

   A. investors' required rate of return.
   B. the recorded value of the firm's assets.
   C. the coupon rate of interest.
   D. the maturity date of the bond.

6. As interest rates, and consequently investors' required rates of return, change over time, the _____ of outstanding bonds will also change.

   A. price
   B. maturity date
   C. coupon interest payment
   D. par value

7. Common shareholders have a claim on the company's assets

   A. only after the claims of debtholders and preferred shareholders have been satisfied.
   B. at any time, equal to the value of their shares.
   C. after the claims of the preferred shareholders have been satisfied, but before the debt holders.
   D. never. Common shareholders have no claim on the company's assets.

8. Which investor incurs the greatest risk?

   A. Common stockholder
   B. Mortgage bondholder
   C. Preferred stockholder
   D. Debenture bondholder

9. Common stockholders expect greater returns than bondholders because

   A. they have no legal right to receive dividends.
   B. they bear greater risk.
   C. in the event of liquidation, they are only entitled to receive any cash that is left after all creditors are paid.
   D. All of the above.

10. Which of the following factors is **least important** to capital budgeting decisions?

    A. The time value of money
    B. The risk-return tradeoff
    C. Cash flows directly resulting from the decision
    D. Net income based on accrual accounting principles

SECTION B **(40 Marks)**

There are THREE (3) questions in this part. Answer ALL questions in the question paper.

QUESTION 1 **(10 Marks)**

Axe Capital Berhad's capital are as follows:

Bonds: The company's callable bond was sold for RM874 and will be redeemed at RM1250 per unit. The bond has a maturity of 22 years with semi-annual coupon of 5.5% per annum.

Preferred stocks: The dividend rate is 12% on a par value of RM100, and the interest rate is 6.75%.

Common stocks: The company paid dividend for financial year ending 2022 for RM0.038 per unit. The current rate of return is 6.18% and the constant growth dividend is 4%.

New bonds: As part of the company's expansion, new bonds issuance is planned at the end of 2024. The bond maturity is 15 years, quarterly coupon at a rate of 8%, and floatation cost of 1.75%. The current interest rate is 6.75% p.a.

Required:

a) Calculate the bond's yield to maturity. (3 marks)

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

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

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

QUESTION 2 **(10 Marks)**

Your analysis of Axe Capital Berhad's indicated that the beta is 2.1. The risk-free rate instrument return is 3.85% and the current market return is 7.55%. The following is the capital structure of Axe Capital Berhad:

Capital	Details	Cost of Capital
Bonds	RM800 per unit and total outstanding bond issue is 3,000 units	7.89%
Preferred stocks	Total valuation is RM2.5 million	10.12%
Common stocks	Total value of outstanding common stock is RM10 million	5.34%

Table 1: Axe Capital's Capital Structure

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 (%)	Weighage	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)**

Axe Capital Berhad plans to invest in a project in Indonesia. The project's cost is RM5 million, with an additional working capital requirement of RM1.2 million at the beginning of the project. Part of the project cost is RM1 million spending on fixed assets, which at the end of the project 50% can be recovered. The working capital will also be recovered at the termination.

The operating cash flows for the five years are as follows: (in million RM)

Year	1	2	3	4	5	6
OCF	1.34	2.75	2.95	1.88	1.50	1.0

Table 2: Axe Capital's Operating Cash Flows

The company's weighted average cost of capital is 7.13%.

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			
6			
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) Should you accept the project based on the return criteria? Explain. (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 = annual interest payment / 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} = annual dividend / required rate of return = $\frac{D}{k_{ps}}$ 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 $IRR = A + \{\frac{a}{a-b} \times (B - A)\}$ 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.