ZCAS University

BAC4301 CORPORATE FINANCE

FINAL EXAMINATION

WEDNESDAY 29 MAY 2024

16:30 TO 19:30

TIME ALLOWED: THREE HOURS

(5 minutes to read through the paper)

INSTRUCTIONS:

1. Section A: This question is **compulsory** and must be attempted.

2. Sections B: **Answer THREE (3)** questions from this section.

3. This examination paper carries a total of **100 marks**.

4. Candidates must **not turn this page** until the invigilator tells them to do so.

QUESTION ONE:

Mino C plc is a Zambian business evaluating a five -year foreign project with cashflows denominated in Australian dollars (AUD $). The cost of the equipment will be AUD$ 200,000 at the start of the project with an initial working capital of AUD$18,000. Working capital will be recovered at the end of the investment period. This project will have a nil scrap value at the end of 5 years. The before tax cash inflows and cash outflows over the 5 years are as follows.

Year	1	2	3	4	5
	AUD $	AUD $	AUD $	AUD $	AUD $
Cash inflows	200,000	250,000	220,000	160,000	180,000
Cash outflows	(120,000)	(140,000)	(145,000)	(115,000)	(153,000)

The cost of the equipment will be financed 70% by a 12% bank loan while the balance will be raised through issuance of shares with the issue cost of equity of AUD$2,150. The bank loan will be repaid in 5 equal instalments. Interest rate will be charged on a declining balance basis. The ungeared cost of equity is 9% while the after-tax issue cost of debt is equivalent to 1.5% of the cost of equipment. The company pays tax at a rate of 25% per year. There are no capital allowances claimable on this project. The spot exchange rate between the Australian dollar and the kwacha is K16.84 per one Australian dollar.

REQUIRED:

a) Calculate the base case NPV in both Australian dollars (AUD$) and in kwacha (ZMW) and comment on the viability of this project if it is all-equity financed. [11 marks]

b) Determine the adjusted present value (APV) of the above project in both Australian dollars (AUD$) and in kwacha values and comment on your findings. [12 marks]

c) Using the after-tax net cash flows of the project, calculate the Modified Internal Rate of Return (MIRR) assuming that the overall cost of capital is 10.5% and the re-investment rate is 14%. [6 marks]

d) Briefly discuss capital rationing in reference to resource constraints caused by budgetary restrictions. [3 marks]

e) Briefly discuss the advantages of the Modified Internal Rate of Return (MIRR) over the Internal Rate of Return (IRR).

[3 marks]

f) Briefly discuss the arguments supporting the use of the APV as a project appraisal method.

[5 marks]

[TOTAL: 40 MARKS]

SECTION B: ATTEMPT ANY *THREE (3)* QUESTIONS IN THIS SECTION.

QUESTION TWO

ERS plc is considering bidding for 100% of MBS plc shares, a company operating in the same sector. The nominal values for the shares are K0.5 per share for ERS while the MBS shares have a par value of K0.4 per share. ERS shares are quoted at K3.0 per share and MBS shares are quoted at K2.0 per share in the market. The proposed acquisition will be financed by a share-for-share exchange with shareholders in MBS plc given one share for every five existing shares. The proposed acquisition will increase the earnings by K13million post-acquisition.

	Price earnings ratio (# of times)	Share capital K'million	Total earnings K'million
ERS plc	15	300	120.0
MBS plc	10	100	42.5
Sector average	12		

The directors of ERS plc, the bidder, prefer to use the industry average P/E ratio in valuing share.

REQUIRED:

a) Using the price earnings ratio basis, calculate the post-acquisition company value and the share value considering the expected synergy.

[10 marks]

b) Determine the percentage change in share value post-acquisition for the bidding company's shareholders.

[4 marks]

c) Briefly discuss any possible advantages of financing an acquisition using the share-for-share compared to other options.

[6 marks]

[Total 20 marks]

QUESTION THREE

The capital structure for KT plc a A-rated firm is as follows:

	K'm
Ordinary share capital (K0.4)	160
Retained earnings	10
9% K100 bonds (3-year maturity)	80
10% Bank loan (2035)	40
Total equity and liabilities	**290**

The ordinary shares are quoted at 90 ngwee ex-div per share and have a beta value of 1.10. Th bank loan is expected to be amortised until 2035. The 9% bonds are currently trading at K105 pc K100 nominal. The yield on a 3-year government bonds is 6.4% while the market risk premiun return is 8%. The company pays tax at 25% per year.

REQUIRED:

a) Calculate KT Co.'s overall cost of capital (WACC).   [10 marks]

b) Calculate KT company's gearing ratio based on the debt-to-equity ratio and comment on the company's capacity to raise additional debt finance.   [4 marks]

c) Briefly discuss the difference between operating gearing and financing gearing.   [6 marks]

[Total: 20 Marks]

QUESTION FOUR

JM, a Zambian company, is contracted to receive R250,000 from a South African customer in four months' time. The company's treasury department has provided the following:

The current spot rate is	K1.3924 – K1.3980 = R1
The four-month forward rate is	K1.4015 – K1.4051 = R1

Interest rate:	Zambia	South Africa
Annual borrowing rate	18%	12%
Annual deposit rate	9%	6%

REQUIRED:

a) Determine how much JM would receive in kwacha in four months' time if they invoiced in rands and used a money market hedge?

[10 marks]

b) Calculate (**to the nearest K**) the kwacha receipt for JM if they invoiced in rands and used a forward exchange contract cover.

[4 marks]

c) Explain how JM can use forward rate agreement to hedge against interest rate risk associated with short-term borrowing aimed at supporting working capital needs.

[6 marks]

[Total 20 marks]

QUESTION FIVE

MBS Co will shortly be making a short-term investment and wants to borrow K8m for 3 months, starting in 3 months' time. However, interest rates are currently volatile, and the firm is worried about adverse movements in these rates before it takes out the loan. LIBOR (the base rate) is currently 3.5% and MBS has been offered a 3 v 6 FRA for 3.75%. MBS can currently borrow at approximately 1% above the base rate.

REQUIRED:

a) Advise MBS of the likely outcome of the FRA if the base rate in 3 months' time is 4%.
[6 marks]

b) Briefly explain the importance of using FRA in the case of MBS. [4 marks]

c) Using the interest rates for different term-to-maturity given below, **plot (draw) the yield curve** in **your** answer booklet and comment on the shape of the curve (**no need for a graph paper**).

Term to maturity	1	2	3	4	5	6
Interest rate	5.0%	6.5%	7.5%	8.5%	8.7%	8.9%

[10 marks]

[Total 20 marks]

END OF EXAMINATION

Credit Spread by type of bond and maturity
Corporate spreads for Industries (in basis points)
1 basis point = 0.01%

Rating	1 year	2 year	3 year	5 year	7 year	10 year	30 year
AAA	5	10	15	20	25	33	60
AA	15	25	30	35	44	52	71
A	35	44	55	60	65	73	90
BBB	60	75	100	105	112	122	143
BB	140	180	210	205	210	250	300
B	215	220	260	300	315	350	450
CCC	1,125	1,225	1,250	1,200	1,200	1,275	1,400

1. Discount factor $= \dfrac{1}{(1+r)^n}$

2. Annuity factor $= \dfrac{1-(1+r)^{-n}}{r}$

3. IRR (YTM) $= A + \left[\dfrac{a}{a-b} \times (B - A) \right]$

4. MIRR $= \left[\sqrt[N]{\dfrac{FVCF(inflows)}{PVCF\ (Outflows)}} \right] - 1$

5. CAPM: $r_i = r_f + \beta_i \{r_m - r_f\}$

6. $. g = \sqrt[n]{\left(\dfrac{Latest\ dividend}{Earliest\ dividend} \right)} - 1$

7. WACC $= re \left(\dfrac{Ve}{Ve+Vd} \right) + rd(1 - t)\left(\dfrac{Ve}{Ve+Vd} \right)$

8. Corporate yield = risk free rate + credit spread

9. $B_J = \dfrac{Correlation_{Jm} * SD_J}{SD_m}$

10. $K_e = \dfrac{do\ (1 + g)}{P_o} + g$

11. Beta x $= \dfrac{Correlation\ x\ with\ market * Std\ dev\ of\ return\ x}{std\ dev\ of\ market\ return}$