AFRICAN ECONOMIC RESEARCH CONSORTIUM

Collaborative MA Programme in Economics for Anglophone Africa (Except Nigeria)

JOINT FACILITY FOR ELECTIVES (JFE) 2009

JUNE – OCTOBER

CORPORATE FINANCE AND INVESTMENT II

Second Semester: Final Examination

Duration: 3 Hours **Date: Wednesday, September 30, 2009**

INSTRUCTIONS:

1. There are **FIVE** questions in this examination. Answer **QUESTION 1** and **ANY OTHER THREE** questions.
2. Time allowed is **THREE** hours. Marks for each question and its parts are indicated to help you budget your time.
3. Be neat, clear and to the point. Importance will be attached to these in grading your work.

Question 1 (This Question is Compulsory) **(25 marks)**

(a) Explain the effects of each of the following on an investment's net present value:

(i) An increase in interest rates. **(2 marks)**

(ii) A decrease in the expected volatility of the investment's cash flows. **(2 marks)**

(iii) A decrease in the working capital required as part of making the investment. **(3 marks)**

(b) A firm has three investment alternatives – A, B, and C – each of which requires shs 300 million in initial outlay. Investment B and C are mutually exclusive. The firm's cost of capital is 8% and the cash inflows from the investments are as follows:

Year	Cash Inflows		
	A	B	C
1	120 million	350 million	-
2	120 million	-	-
3	120 million	-	458 million

AERC
CREA

(i) Using each of the following methods, evaluate the three investments and explain which investment(s) should the firm make: <u>the net present value</u>, <u>the discounted payback period</u>, and <u>the internal rate of return</u> *(The IRR for investment A is estimated at 9.7%)* **(7 marks)**

(ii) Between the mutually exclusive projects B and C, do the net present value and internal rate of return lead to the same accept/reject decision? If not which method will you use and which investment should the firm make? **(2 marks)**

(iii) List one strength and one weakness each for the discounted payback period and the internal rate of return methods considering the attributes of the investments being evaluated. **(4 marks)**

(iv) If the firm could reinvest the shs 350 million earned in year 1 from investment B at 12 percent, what effect would that information have on the choice between the mutually exclusive investments? **(2 marks)**

(v) Compare the net present value method and the internal rate of return in choosing between the mutually exclusive investments if the firm's cost of capital had been 15 percent. Explain why the outcome is similar or different from the one in (i). **(3 marks)**

Question 2 (25 marks)

(a) Citing examples, discuss any two advantages that can accrue from a merger. **(6 marks)**

(b) Suppose a company in which you own stock has attracted two takeover offers. Would it ever make sense for your company's management to favour the lower offer? Does the form of payment affect your answer at all? Discuss fully **(4 marks)**

(c) FoodServe Ltd is analyzing the possibility of acquiring Deli Place. The current market prices of the two firms' shares are shs 250 and shs 150 per share for FoodServe and Deli Place respectively while the numbers of outstanding shares are 10 million and 2.5 million respectively. Both firms have no debt and FoodServe believes that the acquisition will increase its total after tax annual cash flows by shs 8 million indefinitely. The appropriate discount rate for the incremental cash flow is 8 percent. FoodServe is contemplating a shs 170 per share cash offer or an offer of 0.64 shares of its own for every one Deli Place share (this is also equal to sixteen [16] shares of its own for every twenty five [25] Deli Place shares). FoodServe has ample cash to finance the acquisition in case of the cash offer being accepted. However, in the latter alternative FoodServe will issue new shares.

(i) Compute the synergistic benefit of the acquisition. **(2 marks)**

(ii) Compute the FoodServe's post-acquisition price per share and the NPV of the acquisition deal to FoodServe under each alternative. **(7 marks)**

(iii) Show how the synergistic benefit is shared, in absolute terms, between the original shareholders of FoodServe and Deli Place under each alternative. Which offer is better for Deli Place's shareholders? Is there any possible reason that Deli Place's shareholders may accept the form of payment that gives them lower synergistic benefit? **(4 marks)**

(iv) Explain why, in a typical merger or acquisition, the synergistic benefit is unlikely to be shared equally between the parties involved in the merger or acquisition. **(2 marks)**

Question 3 (25 marks)

Assume a market with two market factors F_1, and F_2 that have zero expectation and zero covariance between them. The return of an individual security, *i*, at any given point of time *t*, $R_{i,t}$, in this market is generated by a two-factor model. There are four securities in this market that have the following characteristics:

Security	β_1	β_2	$E(R_{i,t})$
A	1.0	1.5	20%
B	0.5	2.0	20%
C	1.0	0.5	10%
D	1.5	0.75	10%

Where β_1 and β_2 are the respective betas (risk indicators) for the two factors. Further, the market is assumed to be perfect with possibility of short sales and no transaction costs.

(a) Each of two Investors, X and Y, is interested in creating a portfolio containing (long or short) of two of these securities with a return that does not depend on the market factor, $F_{1,t}$, in any way – that is, factor $F_{1,t}$ has zero effect on the portfolio beta. Investor X is considering securities *A* and *B* while Investor Y is considering securities *C* and *D*.

(i) Construct the portfolio for investor X and compute the portfolio's expected return ($R_{p,t}$) and the beta coefficient (β_p) **(6 marks)**

(ii) Construct the portfolio for investor Y and compute the portfolio's expected return ($R_{p,t}$) and the beta coefficient (β_p) **(6 marks)**

(iii) Comment on the risk and return of the portfolio and if you find them consistent with the risk return trade-off notion. **(3 marks)**

(b) Suppose the risk-free asset in market has expected return equal to 5 percent, $\beta_1 = 0$ and $\beta_2 = 0$. Does the market present any arbitrage opportunity to any of the two investors? If yes, explain, in details, the strategy that the investor should implement to exploit the arbitrage opportunity. **(4 marks)**

(c) What effect would the existence of any arbitrage opportunities have on the capital markets for these securities in the short and long run? **(6 marks)**

Question 4 (25 marks)

(a) Explain, concisely, any two reasons as to why debt is often cheaper than equity. **(4 marks)**

(b) Analysis by a consultant hired by Talisman Ltd indicates that both the after-tax cost of debt and cost of equity for this firm change with the level of leverage. The consultant suggests that the most likely cost of each component for the different capital structure being contemplated is as follows:

Debt/Assets	After-tax Cost of Debt	Cost of Equity
0%	8%	12%
10%	8%	12%
20%	8%	12%
30%	9%	12%
40%	9%	13%
50%	10%	15%
60%	12%	17%

(i) Give two possible reasons for the increase in both the after-tax cost of debt and cost of equity as Talisman Ltd becomes more financially leveraged (assuming that the tax rate is constant) **(4 marks)**

(ii) Find the optimal capital structure (that is, optimal combination of debt and equity financing) for Talisman Ltd **(7 marks)**

(iii) Why does the overall cost of capital for Talisman Ltd initially decline as the firm substitutes debt for equity financing? **(2 marks)**

(iv) Why does the overall cost of capital for Talisman Ltd eventually rise as the firm becomes more financially leveraged? What is the theory that can be used to explain this? **(2 marks)**

(v) If Talisman Ltd were using 60 percent debt and 40 percent equity, what would that tell you about the firm's use of financial leverage? **(2 marks)**

(vi) If Talisman Ltd were using 30 percent debt and 70 percent equity and earned 11.8 percent on an investment, would this mean that stockholders receive less than their required return of 12 percent? What would the stockholders' rate of return be? **(4 marks)**

Question 5 (25 marks)

(a) Discuss the rationale for using the discounting concept in valuation of securities. **(5 marks)**

(b) Focusing on the certainty of the cash flows and the discount rate, explain the key differences between valuing a share and valuing a bond when using the discounting concept. **(8 marks)**