



**UNIVERSITY EXAMINATIONS: 2013/2014**

**EXAMINATION FOR THE MASTERS OF SCIENCE (MSC) IN COMMERCE**

**MSF 507 ADVANCED CORPORATE FINANCE (EVENING)**

**DATE: APRIL, 2014**

**TIME: 3 HOURS**

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**INSTRUCTIONS: Answer Question One and Any Other Three Questions**

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**QUESTION ONE (31 MARKS)**

- a) The Pembe –Pembe company has an equity beta,  $\beta_L$ , of 0.5 and 50% debt in its capital structure . The company has risk free debt that costs 6% before taxes, and the expected rate of return on the market is 18%. The Pembe –Pembe Company is considering the acquisition of a new project in the peanut raising agribusiness that is expected to yield 25% on after tax operating cash flows. The Carter nut company which is in the same product line (and risk class) as the project being considered, has an equity beta ,  $\beta_L$ , of 2.0 and has 10% debt in its capital structure .If Pembe –Pembe company finances the new project with 50% debt ,should it be accepted or rejected ? Assume that the marginal tax rate,  $T_C$  for both companies is 50%
- [18 Marks]
- b) Compare and contrast the tradeoff theory and the pecking order theory of debt as presented by Frank & Goyal [2007]
- [8 Marks]
- c) Discuss MM proposition II and its implications on stock return as presented by Modigliani & Miller (1958).
- [5 Marks]

**QUESTION TWO (23 MARKS)**

- a) The Kamwendo company has a current market value of sh.1000,000, half of which is debt .Its weighted average cost of capital is 9%, and the corporate tax rate is 40%. The treasurer

proposes to undertake a new project ,which costs sh.500,000 and which can be financed completely with debt .The project is expected to have the same operating risk as the company and to earn 8.5% on its levered after tax marginal cost of the debt used to finance it. What do you think? [11 Marks]

- b) Modigliani & Miller [1961] Present a cogent argument for the fact that the value of the firm is unaffected by dividend policy in a world without taxes or transaction cost .In a world without taxes it makes no difference whether value is delivered via dividend payout or share repurchase so long as the investment decision is not influenced by dividend policy.

**Required**

Demonstrate mathematically that the above cogent argument is true. [12 Marks]

**QUESTION THREE (23 MARKS)**

- a) Empirical evidence supports the existence of a clientele effect. This implies that every time a company revises its dividend policy to pay out a greater or smaller percentage of earnings, the characteristics of its shareholders also change. For example, a firm with higher payout ratio may expect to have more shareholders in lower tax brackets .Suppose that lower income people are also more risk averse. Would this have an effect on the value of the firm? Explain?

[7 Marks]

- b) Miller and Scholes (1978) suggest that it is possible to shelter income from taxes in such a way that capital gains rates are paid on dividend income .Furthermore ,since capital gains need to be realized, the effective tax rate will become zero. Why would this scheme not be used to shelter income, instead of just dividend income? The implication would be that no one has to pay taxes-ever? Discuss. [6 Marks]

- c) The balance sheet of the Migori group as at 31<sup>st</sup> March 2014 s given below .Assume that all balance sheet items are expressed in terms of market values.

<b>Assets</b>		<b>Liabilities</b>	
Cash	2,000,000	Debt	5,000,000
Inventory	2,000,000	Equity	5,000,000
Property, Plant, & Equipment	6,000,000		
Total Assets	10,000,000	Total Liabilities	10,000,000

The company has decided to pay sh 2,000,000 dividend to shareholders .There are four ways to do it

1. Pay cash dividend
2. Issue 2,000,000 of new debt and equity in equal proportions (sh1, 000,000 each) and use the proceeds to pay the dividend.
3. Issue sh.2,000,000 of new equity and use the proceeds to pay dividend
4. Use the sh.2,000,000 cash to repurchase equity

**Required**

What impact will each of the four policies have on the following?

- (i) The systematic risk of the portfolio of assets held by the firm
- (ii) The market value of the original bondholder's wealth
- (iii) The market value of debt to equity
- (iv) The market value of the firm in a world without taxes. [10 Marks]

**QUESTION FOUR (23 MARKS)**

A company operates under a hard budget constraint and has WACC of 12%. In the current year it can spend a maximum of sh 80 million in a new investment. The management is considering two alternative projects. Project 1 and project 2. Each of the two projects would run for two years and be sold at a fair price. Both of the projects require an sh 80 million initial investment and have a present value without flexibility equal to sh.100 million. However, project 1 has an annual volatility of 40% and project 2 has an annual volatility of 20%. Both projects allow the management to contract operations by 40 % at any time during the two years .With project 1 the cash received from contracting would be sh33 million, and with project 2 it would be sh 42 million. The risk-free rate is 5%

**Required**

- a) Using a decision tree analysis (DTA), answer the following questions: which project should the company select? When and under what conditions would the options to contract be executed with each project? What is the value of the option to contract with project 1? What is the value of the project of the option to contract with project 2? [9 Marks]
- b) Using Real Option Analysis (ROA), answer the following questions: which project should the company select? When and under what conditions would the options to contract be executed with each project? What is the value of the option to contract with project 1? What is the value of the project of the option to contract with project 2? [11 Marks]
- c) Do the DTA and ROA valuation results suggest the same optimal execution for the options? Do the DTA and ROA valuations show the same value for each of the two projects? Do the DTA

and ROA valuations select the same project as a winner?

[3 Marks]

### QUESTION FIVE (23 MARKS)

- a) Discuss the determinants of capital structure .Include in your discussion both empirical and Theoretical evidence where possible. Extract a conceptual framework from your discussion [13 Marks]
- b) Provide a unified approach to the cost of capital by connecting the Capital Asset Pricing Model (CAPM) and cost of capital definitions derived by Modigliani and Miller (1958,1963) as generated by Hamada(1969) and synthesized by Rubinstein (1973) [10 Marks]

**Hints: The** table below provides a comparison of M-M and CAPM cost of capital equations for your derivations.

Type of capital	CAPM Definitions	M-M definitions
Debt	$k_b = R_f + [E(R_m) - R_f]\beta_b$	$K_b = R_f, \beta_b = 0$
Unlevered equity	$\rho = R_f + [E(R_m) - R_f]\beta_u$	$\rho = \rho$
Levered equity	$K_s = R_f + [E(R_m) - R_f]\beta_L$	$K_s = \rho + (\rho - K_b)(1 - t_c)\frac{B}{S}$
WACC for the firm	$WACC = K_b(1 - t_c)\frac{B}{B + S} + K_s\frac{S}{B + S}$	$WACC = \rho(1 - t_c\frac{B}{B + S})$

### QUESTION SIX (23 MARKS)

The waltro Personal computer Company is considering merger to achieve better growth and profitability .It has narrowed potential merger candidates to two firms. Alber Company a producer of PBXs, has a strong research department and good record of internal profitability. The Saben Company operates a chain of variety stores and has a very high expansion rate. Data on all the three firms are given below:

	Waltro	Alber	Saben
Book value per share	Sh.10	Sh10	Sh 10
Number of shares (millions)	5	2	2
Debt /Equity ratio	1	1	1
Internal profitability rate ,r (after tax)	.09	0.18	0.15
Investment rate ,K	1.0	1.0	1.5

Growth rate , $g=Kr$	0.09	0.18	0.225
WACC	9%	11%	12%

Each firm pays 15% interest on its debt and has a 40% tax rate. Ten years of supernormal growth are forecast, followed by growth.

- What are the total assets of each firm? [5 Marks]
- What is each company's NOI if it earns its before tax  $r$  on total assets? [6 Marks]
- What is the indicated market value of each firm? [6 Marks]
- Compare Waltro increase in values as a result of merger at market value with the cost of acquiring Alber or Saben if the combined firms have the following financial parameters:

	Watro-Alber	Watro- Saben
Net operating income	Sh.30 million	Sh.23 million
Internal profitability rate , $r$	20.09%	16%
WACC	11%	12%
Investment rate, $k$	1.1	1.0
Growth rate, $g=Kr$	0.221	0.16

[6 Marks]