



# **AFRICAN ECONOMIC RESEARCH CONSORTIUM**

**Collaborative Masters Programme in Economics for Anglophone Africa  
(Except Nigeria)**

**JOINT FACILITY FOR ELECTIVES (JFE) 2013**

**JUNE – SEPTEMBER**

**CORPORATE FINANCE AND INVESTMENT I**

**First Semester: Final Examination**

**Duration: 3 Hours**

**Date: Thursday, August 1, 2013**

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## **INSTRUCTIONS:**

1. Answer **ANY FOUR (4)** questions.
  2. All questions carry equal marks.
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### **Question 1**

- (a) An investor bought on margin 100 shares of Copier Corp. for \$85 a share. The firm paid an annual dividend of \$4 a share; the margin requirement was 60 percent with an interest rate of 8 percent on borrowed funds, and commissions on the purchase and sale were \$75. The price of the stock rose to \$120 in one year.
- (i) What is the percentage earned on the investment if the stock is bought for cash (i.e., the investor did not use margin)? **(5 marks)**
  - (ii) What is the percentage earned on the investment if the stock is bought on margin? **(5 marks)**
- (b) What do you consider to be the goal of the firm? What are the alternative goals? Discuss the shortcomings of these alternative goals. **(5 marks)**
- (c) Using examples from Malawi and Ethiopia, what are the contributions of formal (or semi-formal) and informal financial institutions to African economies? **(5 marks)**
- (d) Jane purchased Nakumatt Ukay Mall 8% coupon bonds about this time last year. The bond which has 10 years until maturity is currently selling on the Nairobi Stock Exchange at (equivalent of) \$1,232. What is Jane's capital gains yield on the bond if she decides to sell it today? At what price did Jane purchase the bond last year? **(5 marks)**

### **Question 2**

- (a) AIR National's capacity is 120 passengers per flight. It currently carries 74 passengers per flight. Growth in passengers is expected to be 6 percent annually. New plans will have to be ordered when the company is carrying 90 percent of capacity. How long will it be before the firm must order new planes? **(7 marks)**



**Use the following financial reports to answer questions (b) and (c)**

The balance sheet for December 31, 2010, December 31, 2009, and the income statement for the year ended December 31, 2010, for Serena Company are as follows:

Serena Company  
Balance Sheet  
December 31, 2010 and 2009

	<u>2010</u>	<u>2009</u>
<u>Assets</u>		
Cash	\$ 25,000	\$20,000
Accounts receivable, net	60,000	70,000
Inventory	80,000	100,000
Land	50,000	50,000
Building and equipment	130,000*	115,000
Accumulated depreciation	<u>(85,000)</u>	<u>(70,000)</u>
Total assets	<u>\$ 260,000</u>	<u>\$285,000</u>
 <u>Liabilities and Stockholders' Equity</u>		
Accounts payable	\$ 30,000	\$ 35,000
Income taxes payable	4,000	3,000
Wages payable	5,000	3,000
Current notes payable	50,000**	60,000
Common stock	110,000***	100,000
Retained earnings	<u>61,000</u>	<u>84,000</u>
Total liabilities and stockholders' equity	<u>\$260,000</u>	<u>\$285,000</u>

\* During 2010 cash payments for building and equipment \$15,000.

\*\* During 2010 cash paid for retirement of notes payable \$10,000.

\*\*\* During 2010 cash received from issuance of stock.

Serena Company  
Income Statement  
For the Year Ended December 31, 2010

Sales		\$500,000
Less expenses:		
Cost of goods sold	\$330,000	
Selling and administrative expenses (includes depreciation of \$15,000)	90,000	
Interest expense	<u>5,000</u>	
Total expenses		<u>425,000</u>
Income before taxes		\$ 75,000
Income tax expense		<u>30,000</u>
Net income		<u>\$ 45,000</u>

Note: Cash dividends of \$68,000 were paid during 2010.

(b) Prepare the statement of cash flows for 2010. **(12 marks)**

(c) Comment on Serena Company's liquidity position from 2009 through 2010. **(6 marks)**



### Question 3

- (a) Your brother, who is prone to bearing substantial risk, suggests that you buy a security for \$10,000 that promises to pay you \$100,000 at the end of 15 years. What is the implied annual return or yield on this investment? **(6 marks)**
- (b) 2011 annual report claimed that Pagoda, Inc. had a successful year, stating that as in the year before, sales, assets and operating income all continued to grow at 20%. The following table contains some key information about Pagoda. Is the report correct? Why or why not? Support your answer with facts. **(13 marks)**

PAGODA, INC.									
Year	ROE	NP/PP	PP/EBIT	EBIT/Sales	Sales/TA	TA/EQ	ROA	P/E	P/B
2009	7.51%	0.6	0.650	30%	0.303	2.117	9.09%	8	0.58
2010	6.08	0.6	0.470	30	0.303	2.375	9.09	6	0.35
2011	3.03	0.6	0.204	30	0.303	2.723	9.09	4	0.12
Industry Average	8.64	0.6	0.800	30	0.400	1.500	12.0	8	0.69

- (c) An increase in expected inflation, combined with a constant real risk-free rate and a constant market risk premium, would lead to identical increases in the required return on a riskless asset and on an average stock, other things held constant. Is this a correct assertion? Why or why not? **(6 marks)**

### Question 4

- (a) Mihov Inc. hired you as a consultant to help estimate its cost of capital. You have been provided with the following data. (1):  $r_d$  = yield on the firm's bonds = 7.00% and the risk premium over its own debt cost = 4.00%. (2)  $r_{RF}$  = 5.00%,  $RP_M$  = 6.00%, and  $b$  = 1.25. (3)  $D_1$  = \$1.20;  $P_0$  = \$35.00 and  $g$  = 8.00% (constant). You were asked to estimate the cost of equity based on the three most commonly used methods and then to indicate the difference between the highest and lowest of these estimates. What is that difference? **(13 marks)**
- (b) The following incomplete table is expected to show the effect of return on equity (ROE) and plowback/retention ratio (b) on the Price-to-Book Value ratio for the stock of a firm whose expected earnings per share ( $EPS_1$ ) is \$1.00 and Book Value per share is \$8.33. Assume a required rate of return (k) is 12%. Complete the table by calculating the Price-to-Book-Value ratio for each combination of ROE and b. Comment on the trend shown in the completed table. What implication can you draw for economic value added? **(12 marks)**

ROE	PLOWBACK/RETENTION RATIO (b)			
	0%	25%	50%	75%
10%				
12%				
14%				



### Question 5

- (a) A firm is considering Projects S and L, whose cash flows are shown below. These projects are mutually exclusive, equally risky, and not repeatable. The CEO wants to use the IRR criterion, while the CFO favors the NPV method, and you were hired to advise the firm on the best procedure. If the CEO's preferred criterion is used, how much value will the firm lose as a result of this decision? **(15 marks)**

WACC:	13.00%				
	0	1	2	3	4
CF <sub>S</sub>	-\$1,025	\$375	\$380	\$385	\$390
CF <sub>L</sub>	-\$2,150	\$750	\$759	\$768	\$777

- (b) The SML relates required returns to firms' systematic (or market) risk. Can the slope and intercept of this line be influenced by managerial actions? Why or why not? **(5 marks)**
- (c) Why are debt and equity referred to as contingent claims? **(5 marks)**

### Question 6

- (a) Party Place is considering a new investment whose data are shown below. The equipment that would be used would be depreciated on a straight-line basis over the project's 3-year life, would have zero salvage value, and would require some additional working capital that would be recovered at the end of the project's life. Revenues and other operating costs are expected to be constant over the project's 3-year life. What is the project's NPV? (Hint: Cash flows are constant in Years 1 to 3.)

WACC	10.0%
Net investment in fixed assets (basis)	\$65,000
Required new working capital	\$10,000
Straight line depr'n rate	33.333%
Sales revenues, each year	\$70,000
Operating costs excl. depr'n, each year	\$25,000
Tax rate	35.0%

**(10 marks)**



- (b) Oklahoma Instruments (OI) is considering a project called F-200 that has an up-front cost of \$250,000. The project's subsequent cash flows are critically dependent on whether another of its products, F-100, becomes an industry standard. There is a 50% chance that the F-100 will become the industry standard, in which case the F-200's expected cash flows will be \$110,000 at the end of each of the next 5 years. There is a 50% chance that the F-100 will not become the industry standard, in which case the F-200's expected cash flows will be \$25,000 at the end of each of the next 5 years. Assume that the cost of capital is 12%.
- (i) Based on the above information, what is the F-200's expected net present value?  
**(5 marks)**
- (ii) Now assume that one year from now OI will know if the F-100 has become the industry standard. Also assume that after receiving the cash flows at  $t = 1$ , OI has the option to abandon the project, in which case it will receive an additional \$100,000 at  $t = 1$  but no cash flows after  $t = 1$ . Assuming that the cost of capital remains at 12%, what is the estimated value of the abandonment option?  
**(10 marks)**