The American University of Beirut
The School of Business
Fina 210

Mid-term Exam

Fall 2002-2003
Time: 100 minutes

Problem 1: (20 points)

There are two stocks A and B. The returns of A and B next year are expected to change according to the economic conditions. The patterns are given in the following table:

Economy	Probability of this condition	Return of A	Return of B
Recession	0.1	10%	5%
Normal	0.8	25%	15%
Expansion	0.1	35%	30%

Other information about the market includes:

The risk-free rate is 6%,
The return on the market portfolio is 16%.

a. If you are a typical, risk-averse investor, which stock would you prefer? Show your calculations. (7 points)
b. What are the expected return and standard deviation of a portfolio of 70% of stock A and 30% of stock B? (7 points)
c. What is the beta of the portfolio in (b), given that the beta of stock A is equal to 0.9 and the beta of stock B is equal to1.2 ? (3 points)

d. What is the required return on the portfolio in (b)? (3 points)

Problem 2: (20 points)

Robertson Steel is forecasting the following numbers:

EBIT	$1,000,000
Interest Expense	300,000
ROE	20%

The company is in the 40% tax bracket. After putting together the forecast the company is considering a proposal from its CFO (Chief Financial Officer) which calls for an increase in the company's debt ratio. If the CFO's policy is adopted, the company will reduce the number of common shares by 25% and increase its interest expense by 20%.

a) What will be the company's forecasted ROE if the company adopts the CFO's recommendation? (Assume that the change in financing will have no impact on EBIT.) (12 points)

b) Are these changes expected to have a positive impact on the price per share of the company? Explain. (8 points)

Problem 3: (10 points)

Retailers Inc. and Computer Corp. each have assets of $10,000 and a return on common equity equal to 15 %. Retailers has twice as much debt and twice as much sales relative to computer Corp. Retailers' net income equals $750 and its total assets turnover is equal to 3. What is Computer Corp.'s profit margin?

Problem 4: (10 points)

You have just taken out an instalment loan for $100,000. Assume that The loan will be repaid in 12 equal monthly instalments of $9,456 and that the first payment will be due one month from today. How much of your third monthly payment will go toward the repayment of the principal?

Problem 5: (20 points)

John and Jessica are saving for their child's education. Their daughter is currently eight years old and will be entering college 10 years from now (t = 10). College costs are currently $15,000 a year and are expected to increase at a rate of 5 percent a year. They expect their daughter to graduate in four years, and

that all annual payments will be due at the beginning of each year (t = 10, 11, 12, and 13). Right now, John and Jessica have $5,000 in their college savings account. Starting today, they plan to contribute $3,000 a year at the beginning of each of the next five years (t = 0, 1, 2, 3, and 4). Then their plan is to make six equal annual contributions at the end of each of the following six years (t = 5, 6, 7, 8, 9, and 10). Their investment account is expected to have an annual return of 12 percent. How large of an annual payment do they have to make in the subsequent six years (t = 5, 6, 7, 8, 9, and 10) in order to meet their child's anticipated college costs?

Problem 6: (20 points)

You are offered two similar $1,000 par value bonds to invest in. The bonds are equally risky. The first bond has an annual coupon rate of 8 percent and matures 20 years from today. The second bond has a coupon rate of 8 percent, with interest paid semiannually, and it also matures in 20 years. If the nominal required rate of return, k_d, is 12 percent, semiannual basis, for both bonds,

a. What are the current market prices of each of the two bonds? (12 points)

b. Which bond is more attractive to buy? Explain. (8 points)

Problem 7: (20 points)

McGriffith Motors has bonds outstanding which will mature in 12 years. The bonds pay a 12% semi-annual coupon and have a face value of $1,000. The bonds currently have a yield to maturity of 10%. The bonds are callable in 8 years at a call price of $1,050.

a) What is the bond's nominal yield to call? (10 points)
b) Calculate the effective yield to call. (5 points)
c) If you were to purchase the bond today would you expect to earn the YTC or the YTM? Explain. (5 points)