OTTO VON GUERICKE UNIVERSITÄT MAGDEBURG

FAKULTÄT FÜR WIRTSCHAFTSWISSENSCHAFT

Management V/Financial Management (11065)
Retake Summer Term 2011

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Solve the 3 problems below. The bold figures (in parentheses) indicate the maximum points per question.

The usage of textbooks, lecture notes, dictionaries, or programmable pocket calculators is not permitted. Notes on this exercise sheet will be disregarded during the grading. Give answers exclusively in your working sheets; leave a margin of 3cm.

Undecipherable scribbling will not be graded. Use the terminology and the mathematical tools presented in the lecture and the tutorial; make clear how you derive your results.

Problem 1 (24 points):

Suppose you retire in 40 years from now. From there on, you expect to live exactly 20 more years and to spend exactly €55,000 per year during your retirement. Assume an interest rate of 7 percent.

a) *How much money do you need to have saved by your retirement day to support this consumption plan? **(6)***

b) *If you intend to accumulate that sum by means of an immediate one-shot investment, how much money do you need to invest today? **(4)***

c) *Unfortunately, inflation will successively reduce your annual retirement income so that the last payment's real value will only amount to €26,105 (at the day of your retirement). Compute the inflation rate! **(4)***

d) *Work out a spending program for your retirement that will allow you to maintain a constant expenditure in real terms (starting from the second payment)! **(10)***

Problem 2 (24 points):

Smoke & Mirrors currently is all-equity-financed. The firm has 10,000 shares of equity outstanding, selling at €12 a share. Earnings before interest and taxes (EBIT) amount to €25,000. EBIT is expected to stay at this level indefinitely. The firm pays corporate taxes equal to 35 percent of taxable income. The discount rate for the firm's projects is 10 percent.

a) *What is Smoke & Mirrors's market value? (5)*

Now assume the firm intends to issue €50,000 of debt paying interest of 6 percent per year, using the proceeds to retire stock. The debt is expected to be permanent.

b) *What would be the debt-to-equity ratio after this intended restructuring? (5)*

c) *What would happen to the total value of the firm? (5)*

d) *Recompute your answer to c) under the following assumptions: Taking on the debt implies that, by the end of the next three years, the firm might be bankrupt with a probability of 30 percent. If it does go bankrupt, the investors have to incur bankruptcy costs of €200,000. The discount rate is 10 percent. Should the firm raise the debt? Why? (9)*

Problem 3 (12 points):

A project under consideration has an internal rate of return of 14 percent and a beta of 0.6. The risk-free rate is 4 percent, and the expected rate of return on the market portfolio is 14 percent.

a) *Should the project be accepted? (4)*

b) *Should the project be accepted if its beta is 1.6? (4)*

c) *Why does the answer change? (4)*