

Name, matriculation number _____

Examination: 20029 – Corporate Finance

Winter Term 2011/2012

Examiner: Prof. Dr. Peter Reichling

Time available: 60 minutes

Aids permitted: non-programmable pocket calculators;
English dictionaries without any markings.

The examination comprises **four** problems. Answer to these problems must be given in **English. Good luck!**

Problem 1 (30 Points):

Write your solutions to the problems in the corresponding boxes. Any writings, not presented in the boxes, will not be evaluated. The numbers must be rounded to 2 decimal places.

For each right answer you get 5 points.

In the current year, the EBITDA of a company ABC is 500 million euro. The EBIT of this company is 300 million euro. Interest expenses and interest income amount to 70 and 50 million euro, respectively. The company is taxed at 30 % rate.

Using only this given information:

a) The operating cash flow of the company in the current year amounts to:

million euro

b) The tax shield amounts to:

million euro

The book value of current assets was 300 million euro in previous year and is 400 million euro in this year. The book value of current liabilities amounts to 200 and 400 million euro in the previous and in the current year, respectively. The value of fixed assets has decreased by 50 million euro during this year.

c) The value of investments of the company in the current year amounts to:

million euro

d) The value of the free cash flow of the company in the current year amounts to:

million euro

e) Weighted average cost of capital of the company ABC is 5 %. Assuming constant free cash flow development during the life time of the company, the total market value of this company amounts to:

million euro

f) Assuming that interest rate on debt of the company is 2 %, the market value of equity of the company amounts to:

million euro

Problem 2 (10 Points):

Derive the formula for the required rate of return on debt under credit risk by combining Merton's model and the capital asset pricing model.

Problem 3 (10 Points):

State the optimization program constructing an efficient frontier (of stocks). Present the objective function and corresponding constraints with and without short selling restrictions.

Problem 4 (10 Points):

Consider the market situation, where a risk-free asset exists that allows lending and borrowing at the same interest rate r_f . Show mathematically that in this situation, portfolios of the risk-free asset and the tangency portfolio T can be positioned on a straight line in (μ, σ) -space.