Name, Matriculation number _____

Examination:	20029 – Corporate Finance	**Summer Term 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 all of which are to be answered. Answers to all problems must be given in **English**. **Good luck!**

Write your solutions to the problems in the corresponding boxes. Writings, outside the presented boxes, will not be evaluated. Numbers must be rounded to 2 decimal places (the same holds for percentages). Multiple choice problems can have more than one correct answer.

Problem 1 (18 Points)

1. Given two assets with variance σ, which one has according to *CAPM* a smaller mean?

☐ Both have the same mean.

☐ The one with a smaller correlation with the market has a smaller mean.

☐ The one with a larger correlation with the market has a smaller mean.

2. What does the *Two-Fund Separation Theorem* say for mean-variance investors?

☐ All investors should hold the same ratio of risky and riskless assets.

☐ All investors should hold the same portfolio of assets.

☐ All investors should hold the same portfolio of risky assets.

☐ The market portfolio consists only of two funds.

3. A *mistakenly specified proxy* for the market portfolio can have which of the following effects?

☐ The beta computed for alternative portfolios would be wrong.

☐ The position and the slope of the SML derived would be wrong.

☐ The proxy would be mean-variance inefficient.

4. Which of the following statements about the *zero-beta CAPM* is ***False***?

☐ When a risk-free asset does not exist, the zero-beta CAPM is the equilibrium asset pricing model.

☐ In the zero-beta CAPM, the role of the risk-free asset is taken by a portfolio that is uncorrelated with the market and which thus has a beta of zero.

☐ If a risk-free asset does not exist, there is only one portfolio with a beta of zero.

5. What is *"Alpha"*?

☐ The difference between the actual mean of an asset and its mean according to the CML.

☐ The difference between the mean of an asset and the risk-free return.

☐ The difference between the actual mean of an asset and its mean according to the SML.

6. Which of the following performance measures directly consider a portfolio's manager ability to *diversify*?

☐ Sharpe's "Reward-to-Variability" ratio

☐ Treynor's "Reward-to-Volatility" ratio

☐ Jensen's Alpha

☐ The Appraisal ratio

☐ Fama's Selectivity measure

Problem 2 (16 Points)

ABC Company has free cash flows to entity (FCF) of €700 million. ABC's before-tax cost of debt is 5.7 %, and its required rate of return for equity is 11.8 %. The company expects a target capital structure consisting of 20 % debt financing. The marginal tax rate is 33.33 %, and FCF is expected to remain constant forever (a perpetuity). The company has outstanding debt with market value of €2.2 billion and 50 million outstanding common shares.

The cost of capital for the firm is:

☐

According to the ***Indirect*** valuation approach, the total value of the firm is:

The total market value of equity is:

The per - share value of equity is:

Problem 3 (16 Points)

An all equity-financed firm has a constant earnings flow of €1,000 per share in the foreseeable future. The risk-free rate of return is 2% and the average return of the market index is 8%. The firm has a beta of 1.2.

What is the stock price per share of ***unlevered*** equity?

Suppose Modigliani-Miller's Irrelevance Theorem of Capital Structure holds and there are no taxes. Suppose furthermore that the firm switches to a debt-equity ratio of 1, where the debt contract's beta equals 0.1.

What is the ***new beta*** of the equity? (Hint: Use the WACC formula and the CAPM to deduce the beta of the levered equity when a firm's debt is *not* risk-free! *Alternatively*, think of unlevered equity as equivalent to a portfolio of debt and levered equity.)

Problem 4 (10 Points)

The XYZ Co. is contemplating investing in project B. The company's management has estimated the project's annual cash flows in the next five years to be €7,000, €6,000, €5,000, €4,000, and €3,000, respectively. The certainty equivalent factors to be applied to the expected cash flows for the same periods are estimated as 95%, 80%, 70%, 60%, and 40%. The initial investment in the project is €11,000 and the risk-free rate is 10%. Use the ***certainty equivalent approach*** to decide whether project B should be undertaken.

The project's value is: