Management V/Financial Management

Winter Term 2011/12
Retake Exam – (11065)

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Solve the 2 problems below. Each problem is worth up to 30 points.

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.

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1. Suppose there are three equally likely scenarios for the economy: a recession, normal growth, and a boom. Consider the two following investment opportunities (net returns):

	Recession	*Normal*	*Boom*
Automobile	*-10%*	*5%*	*20%*
Gold	*20%*	*2%*	*-20%*

Assume a rational and risk-averse investor.

a) Which one of the two stocks is pro-cyclical? Why? **(2)**
b) Compare both investments in terms of average return and risk! **(8)**
c) Is one of the stocks dominating the other? Why? **(2)**
d) Suppose for now the probability of the recession or boom is 0.2, while the probability of a normal period is 0.6. Compute the variance of the returns of stock A and interpret the result. **(4)**

Assume equal probabilities again. Suppose you invest 75% of your portfolio in automobiles and 25% in gold.

e) Compute the expected portfolio return. **(2)**
f) Calculate the covariance and the correlation coefficient of the two assets **(4)**
g) What is the variance of this partially diversified portfolio? Compare your results to b)! **(4)**
h) Assume the possibility to include a third stock into your portfolio. Which action would probably do the most to reduce portfolio risk: diversification into silver mining stocks, into car glass manufacturing stocks, or into pharmaceutical stocks? Why? **(4)**

2. Consider the following two scenarios for the economy and the returns in each scenario for the market portfolio (S&P 500), stock A and stock B. The rate on treasury bills is 4 percent.

	Rate of Return		
Scenario	**Market**	**Stock A**	**Stock B**
Slump	-8%	-10%	-6%
Boom	32%	38%	24%

a) If each scenario is equally likely, find the expected rate of return on the market portfolio and on each stock! **(4)**
b) What is the individual risk of each stock? What is the market risk? **(4)**
c) What does the beta tell you about a stock? **(2)**
d) Utilize your answer to a) and b) to find the beta of each stock! **(4)**
e) Which stock could be tagged "aggressive", which "defensive"? Why? **(4)**
f) What is the required rate of return on the two stocks according to the CAPM? **(6)**
g) Which stock seems to be a better buy? Explain your answer on the basis of your previous answers. **(2)**
h) Assume you estimate that a new Stock C has a market beta of 1.3. Evaluate the stock compared to the market portfolio and calculate the required rate of return. **(4)**