Portfolio Management: Test I
Time: Thursday, 7 March 2013

Maximum points: 10
Calculator allowed.

ALL calculations and/or explanations in ALL questions must be shown! Just the final answer, even if it is correct, might yield zero points.

Question 1.1 [4 points.]

Suppose there are three possible future states of nature. The table below gives the probability of each state, and the returns of two securities in each state. Compute the expected return and volatility of the minimum variance portfolio of securities A and B.

Future state	Probability	R_A	R_B
Oh shit	20%	-50%	-8%
Neutral	70%	13%	10%
Champagne	10%	80%	-15%

Question 1.2 [3 points.]

Suppose the CAPM is true. You are given the following information on two securities, the market portfolio and the risk-free rate:

Security	Expected return (%)	Correlation with market portfolio	Standard deviation (%)
Security A		0.72	20.00
Security B		0.80	9.00
Market Portfolio	12.00	1.00	12.00
Risk-free rate	5.00	0.00	0.00

a) Compute the betas of the two securities.
b) Plot the SML. The graph should be big and clear, and include all securities.
c) Suppose we observe Security C with a beta of 0.90 and expected return 10.00 %. State whether this security is undervalued, overvalued or correctly valued.

Question 1.3 [3 points.]

Three shorter ones.

a) Warren Buffett is one of the most successful investor tycoons of our time. He began accumulating stocks in Berkshire Hathaway in the Autumn of 1962 at a price of 7.50 $ per share. Today, the price of one share is 152 955 $. The stock has not been split, nor has it paid any dividends. Compute the total rate of return, and also the internal rate of return.
b) The total risk in a well-diversified portfolio depends more on the average covariance between the securities in the portfolio rather than the average variance of the individual securities. True or false?
c) The beta of security A is 0.7 while it is 1.4 for security B. Statement: The expected return of security B is twice as high as the expected return on security A. True or false?

☺☺☺ *Dr Jan* says: Good luck! ☺☺☺

Please, do not cheat. The consequences of cheating are severe.