DEPARTMENT OF FINANCE AND STATISTICS
Portfolio Management, Periods 3-4, 2012

Time 2 h
Calculator allowed
Max. points: 10

Test 2, 2.3.2012

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1. You have decided to invest 40% of your money in a portfolio with Finnish stocks, 35% in a Swedish stock portfolio and the rest in a Norwegian portfolio. The table below is the variance-covariance matrix for the portfolios.

	Finnish portf.	Swed. portf	Norw. portf
Finnish portf.	0.04	0.0204	0.018
Swedish portf.	0.0204	0.0289	0.0255
Norw. portf.	0.018	0.0255	0.09

The matrix consists of variances and covariances based on returns measured in the domestic currencies. As a Finnish investor you are however also exposed to currency risk. The return standard deviations of the currency rates EUR/SEK and EUR/NOK are 0.12 and 0.16, respectively.

a) Assuming that the currency rates are uncorrelated with each other and that the currency rates are uncorrelated with all your stock portfolios, what is the standard deviation of your portfolio?

b) Otherwise as in Question a), except that the correlation between the EUR/NOK rate and the Norwegian portfolio (i.e. its return measured in NOK) is 0.25, not zero. How does your portfolio standard deviation change from the answer in question a)?

(6 p)

2. A fund manager knows that her fund currently is well diversified and that it has a CAPM beta of 1.0. The risk-free rate is 8 percent and the CAPM risk premium is 6.2 percent. She has been learning about APT measures of risk and knows that there are (at least) two factors: changes in the industrial production index, δ_1, and unexpected inflation, δ_2. The APT equation is

$$E(Ri) = 0.08 + 0.05bi1 + 0.11bi2.$$

a) If her portfolio currently has a sensitivity to the first factor of $b_{p1} = -0.5$, what is its sensitivity to unexpected inflation?

b) If the fund manager rebalances her portfolio to keep the same expected return but to reduce the exposure to inflation to zero, what would the portfolio's sensitivity to the first factor be?

(4 p)

GOOD LUCK !!!