DEPARTMENT OF FINANCE AND STATISTICS

Portfolio Management Time: 4 h

Exam on March 7, 2009. Calculator allowed

The exam gives a maximum of 50 points (10 points for each question).

1. Describe the Markowitz Portfolio Selection Model.

2. The Treynor-Black model for security selection (Treynor-Black assumes the total portfolio is divided into an actively managed part as well as a passive indextracking part):
   a) Give an overview of the model.
   b) Suppose that the stock analysts at your banking firm have a tendency to provide too optimistic ex-ante alpha-estimates on the stocks they follow. How can you as the firm's portfolio-constructor correct for this bias?

3. Give an overview of the mutual fund market, i.e. which types of funds are available and in which different ways can the funds be classified.

4. You have the following information on five mutual funds:

Fund	Exp. Return.	Standard dev.	Beta
A	14%	6%	1.5
B	12%	4%	0.5
C	16%	8%	1.0
D	10%	6%	0.5
E	20%	10%	2.0

   Calculate the Sharpe-ratio, the Treynor measure and Jensen's alpha for the funds as well as for the market as a whole. The expected market return is 13%, the market standard deviation 5% and the risk free rate 3%. How does the various measures rank the funds. Do the measures rank the funds differently and in that case: why? Which fund would you pick if you would have to put your whole wealth in any combination of that single fund and a riskfree asset?

5. Assume that the following two-factor model describes stock returns:

$$R_i = a_i + b_{i1}F_1 + b_{i2}F_1 + e_i$$

   where F_1 = GDP-growth and F_2 = unexpected inflation. Consider the following fairly priced mutual funds:

Fund	Exp.return	b_{i1}	b_{i2}
QuiteSafe	8.5%	1.5	0
HighYield	16%	0.5	1.5
Securum	7.25%	0.5	0.25

TURN THE PAGE!

a) You own a portfolio with 40% invested in QuiteSafe, 25% in HighYield and 35% in Securum.

-What is the expected return on your portfolio?

-What is your portfolio's sensitivity to GDP-growth and unexpected inflation?

b) What is the equilibrium expected return on a stock with sensitivity $b_{i1} = 1$ for GDP-growth and $b_{i2} = 0$ for unexpected inflation? And for a stock with $b_{i1} = 0$ $b_{i2} = 1$?

c) Assume that the following not fairly priced fund exists:

Fund	Exp.return.	b_{i1}	b_{i2}
BearBuster	5%	1	-0.5

-Is BearBuster over or under priced?

-Show how you would take advantage of the situation by doing arbitrage. We assume that short selling of fund shares is possible without any transaction costs. The funds are well diversified and firm specific risk is therefore unessential.

GOOD LUCK !!!