

Quantitative Portfolio Selection for Management

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Let us consider a market with four assets whose vector of expected returns μ and covariance matrix of returns C are given by

$$\mu = \begin{pmatrix} 23,37\% \\ 16,94\% \\ 13,26\% \\ 9,65\% \end{pmatrix}, \quad C = \begin{pmatrix} 0,03 & -0,02 & 0 & 0 \\ -0,02 & 0,05 & 0 & 0 \\ 0 & 0 & 0,07 & 0 \\ 0 & 0 & 0 & 0,04 \end{pmatrix}$$

respectively.

1. Exercise 1

Consider the global minimum variance portfolio. In case short selling is allowed, compute:

(a) the portfolio's weight composition

- ☐ (39.25% , 19.71% , 23.47% , 17.57%)
- ☐ (31.64% , 35.26% , 14.61% , 18.49)
- ☐ (29.52% , 25.97% , 16.05% , 28.46%)
- ☐ (42.89% , 30.63% , 9.63% , 16.85%)

(b) the portfolio's expected return

- ☐ 18,12%
- ☐ 17,83%
- ☐ 18,26%
- ☐ 17,69%

(c) the portfolio's standard deviation of returns

- ☐ 8,05%
- ☐ 8.43%
- ☐ 8,21%
- ☐ 7,96%

2. Exercise 2

Consider a portfolio whose required level of expected return is $\mu = 12,5\%$. In case short selling is allowed, compute:

(a) the portfolio's weight composition

- ☐ (4.68% , 19.48% , 21.81% , 54.02%)
- ☐ (7.29% , 18.72% , 49.61% , 24.38%)
- ☐ (11.07% , 21.57% , 22.83% , 44.53%)
- ☐ (5.81% , 22.93% , 34.17% , 37.09%)

(b) the portfolio's expected return

- ☐ 12,5%
- ☐ 13,4%
- ☐ 9,7%
- ☐ 11,6%

(c) the portfolio's standard deviation of returns

- ☐ 12,77%
- ☐ 12,71%
- ☐ 13,04%
- ☐ 12,89%