Abstract

In this final project, we discussed the application of SQP (Sequential Quadratic Programming) method to find efficient frontier of mean-semivariance portfolio. The mean-semivariance portfolio represents an improvement over the mean-variance portfolio because the mean-variance portfolio only measures risk by its variance. This means that the average deviation of the return value from the reference value (expectation return) can be worth bigger or even smaller. Efficient frontier formed in this final task using shares - shares that are incorporated in LQ45 by taking stock price data per week for ten years from November 2007 - December 2017. Then from the stock price data is obtained value of stock return in time series as basic information for further calculation process. Then the SQP (Sequential Quadratic Programming) method is used to solve the optimization problem with constraints. The results of experiments on this final task show that the efficient frontier formed from the mean-semivariance portfolio is slightly different from the efficient frontier portfolio mean-variance, in which the semivariance value of the efficient frontier portfolio mean-semivariance falls below the efficient frontier portfolio mean-variance.

Keywords: efficient frontier, SQP, semivariance, mean – variance, mean – semivariance