Abstract:

Present work deals with the portfolio selection problem using mean-risk models where analysed risk measures include variance, VaR and CVaR. The main goal is to approximate solution of optimization problems using simulation techniques like Monte Carlo and Importance Sampling. For both simulation techniques we present a numerical study of their variance and efficiency with respect to optimal solution. For normal distribution with particular expected value and variance the values of parameters for sampling using Importance Sampling method are empirically deduced and they are consequently used for solving a practical problem of choice of optimal portfolio from ten stocks, when their weekly historical prices are available. All optimization problems are solved in Wolfram Mathematica program.