

In this thesis we study models, which search for an optimal portfolio from a set of stocks. On the contrary to the classical approach focusing only on expected return and variance, we examine models where an additional criterion of skewness is included. Furthermore we formulate a model for measuring performance of a portfolio defined as the distance from the Pareto efficient frontier. In numerical experiments we apply the models on historical prices and stock data from the electronic stock market NASDAQ. We analyze the stock data from companies listed in the index NASDAQ-100. We conclude by comparing of optimal portfolios created using different models among each other, with trivial single-stock portfolios and the with NASDAQ-100 index itself.