Title: Optimization and stress tests

Author: Diana Fašungová

Department: Department of Probability and Mathematical Statistics

Supervisor: Prof. RNDr. Jitka Dupačová, DrSc., Department of Probability and Mathematical Statistics

Abstract: In the thesis we apply contamination technique on a portfolio optimization problem using minimization of risk measure CVaR. The problem is considered from a risk manager point of view. We stress correlation structure of data and of revenues using appropriately chosen data for this kind of problem and for generated stress scenarios. From behaviour of CVaR with regard to contamination bounds, we formulate recommendations for the risk manager optimizing his portfolio. The recommendations are interpreted for both types of stress scenarios. In the end, limitations of the model and possible ways of improvement are discussed.

Keywords: contamination bounds, stress tests, portfolio optimization, risk management