

Abstract: In this thesis, a portfolio optimization with integer variables which influence optimal assets allocation, is studied. Measures of risk are defined and the corresponding mean-risk models are derived. Two methods are used to develop robust models involving uncertainty in probability distribution: the worst-case analyses and contamination. The uncertainty in values of scenarios and in their probabilities of the discrete probability distribution is assumed separately followed by their combination. These models are applied to stock market data with using optimization software GAMS.