

This thesis deals with multi-stage stochastic programming in the context of random process representation. Basic structure for random process is a scenario tree. The thesis introduces general and stage-independent scenario tree and their properties. Scenario trees combined with Markov chains are also introduced. Markov chains states determine if there is a crisis period or not. Information about historical number of crises helps us to construct a scenario lattice. Scenario generation is performed using moment method. Scenario trees are used as an input to the investment problem.