

This thesis builds upon the standard stochastic programming model and introduces an extension for endogenous randomness, which can be more suitable in certain situations. The classical stochastic programming model assumes, that the distribution of the underlying random element is independent of the decision makers actions. This assumption is not always reasonable and practical problems often include situations, where the decisions maker can alter the distribution in various ways. Models with endogenous randomness often exhibit high complexity and computational expense. This thesis summarizes several tractable modelling techniques with motivational examples demonstrating their possible use. The derived principles are then demonstrated by providing extensions of the classical newsvendor problem and the CVaR portfolio optimization problem, where we assume, that a large enough investment can alter the assets loss distribution.