

The thesis deals with possible generalization of widely used risk measures, Value-at-Risk and Conditional Value-at-Risk, to the multivariate case. First, the theory of p -efficient points, possible generalization of a quantile, is presented. The Prékopa-Vizvári-Badics algorithm for finding p -efficient points in case of random vectors with finite support is presented and a generalization of the algorithm in special case is proposed. Multivariate Value-at-Risk and Multivariate Conditional Value-at-Risk are defined and some of the properties are discussed. A lot-sizing problem for different time horizons is solved.