Investigation of a Nonparametric Copula Approach to Conditional Value-at-Risk and Conditional Expected Shortfall

Hao Duan, MS candidate

Value-at-Risk, as well as its conditional variations, has been widely used in financial industry for decades. In this thesis, a novel nonparametric estimator for cVaR is investigated. Nonparametric methods are applied since some traditional parametric methods have been shown not robust enough for practical application. This nonparametric framework is based on a new estimator of the density of the copula which describes the dependence between previous observations. Also, an estimator for conditional expected shortfall is also investigated. Real-world data are used to assess the performance of one-step-ahead forecasting of the estimator.