

Abstract

The literature related to Value at Risk estimation is rich in general. However, majority of papers written on this subject concentrates on the unconditional non-parametric or parametric approach to VaR modelling. This thesis focuses on direct conditional VaR estimation using quantile regression. Thereby imposing no restrictions on the return distribution. We use daily volatility measurements for individual stocks in S&P 500 index and quantile regress them on one-day ahead returns of the entire index. Depending on the quantile selected this estimation produces different confidence levels of Value at Risk. In order to minimize complexity of the final model, regularization methods are applied. To the author's knowledge this specific methodology has not yet been applied in any paper. The main objective is to investigate whether this approach is able to produce sound VaR estimates comparable with different methods usually applied. Our result suggests that quantile regression extended with lasso regularization can be used to produce sound one-day-ahead Value at Risk estimates.

JEL Classification C22, C58, G15

Keywords volatility, quantile regression, VaR, GARCH

Title Conditional quantile models for asset returns

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