

## Abstract

Correctly specified models to forecast returns of indices are important for investors to minimize risk on financial markets. This thesis focuses on conditional Value at Risk modeling, employing flexible quantile regression framework and hence avoiding the assumption on the return distribution. We apply semi-parametric linear quantile regression (LQR) models with realized variance and also models with positive and negative semivariance which allows for direct modelling of the quantiles. Four European stock price indices are taken into account: Czech PX, Hungarian BUX, German DAX and London FTSE 100. The objective is to investigate how the use of realized variance influence the VaR accuracy and the correlation between the Central & Eastern and Western European indices. The main contribution is application of the LQR models for modelling of conditional quantiles and comparison of the correlation between European indices with use of the realized measures. Our results show that linear quantile regression models on one-step-ahead forecast provide better fit and more accurate modelling than classical VaR model with assumption of normally distributed returns. Therefore LQR models with realized variance can be used as accurate tool for investors. Moreover we show that diversification benefits are decreasing over time.

**JEL Classification** C52, C53, G10, G15, G17,

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