

## **Abstract**

In this thesis we focus on modelling correlation between selected stock markets using high-frequency data. We use time-series of returns of following indices: FTSE, DAX PX and S&P, and Gold and Oil commodity futures. In the first part of our empirical work we compute daily realized correlations between returns of subject instruments and discuss the dynamics of it. We then compute unconditional correlations based on average daily realized correlations and using feedforward neural network (FFNN) to assess how well the FFNN approximates realized correlations. We also forecast daily realized correlations of FTSE:DAX and S&P:Oil pairs using heterogeneous autoregressive model (HAR), autoregressive model of order  $p$  (AR( $p$ )) and nonlinear autoregressive neural network (NARNET) and compare performance of these models.