

Nowadays, there is a wide range of forecasting methods and forecasters encounter several challenges during selection of an optimal method for volatility forecasting. In order to make use of wide selection of forecasts, this thesis tests multiple forecast combination methods. Notwithstanding, there exists a plethora of forecast combination literature, combination of traditional methods with machine learning methods is relatively rare. We implement the following combination techniques: (1) simple mean forecast combination, (2) OLS combination, (3) ARIMA on OLS combined fit, (4) NNAR on OLS combined fit and (5) KNN regression on OLS combined fit. To our best knowledge, the latter two combination techniques are not yet researched in academic literature. Additionally, this thesis should help a forecaster with three choice complication causes: (1) choice of volatility proxy, (2) choice of forecast accuracy measure and (3) choice of training sample length. We found that squared and absolute return volatility proxies are much less efficient than Parkinson and Garman-Klass volatility proxies. Likewise, we show that forecast accuracy measure (RMSE, MAE or MAPE) influences optimal forecasts ranking. Finally, we found that though forecast quality does not depend on training sample length, we see that forecast combination methods outperform standalone methods on a longer training sample. Finally, we found that KNN regression on OLS combined fit on medium training sample outperforms other methods for Garman-Klass volatility estimate.