

The recent worldwide Financial Crisis has increased the need for reliable financial risk measurement and management. In this thesis we evaluate and compare the accuracy of one-day-ahead out-of-sample forecasts of various Value-at-Risk models through a comprehensive assessment framework using crisis data of three CEE stock market indices (PX, WIG20 and BUX) and two benchmark stock indices (S&P 500, DAX). For building the VaR specifications we employ several GARCH extensions allowing either for asymmetry in volatility such as EGARCH, TGARCH and APARCH or long memory like FIGARCH and HYGARCH. Apart from conditional heteroscedasticity models, we also utilize realized volatility estimated by long memory ARFIMA and HAR. Individual volatility models are combined with full parametric approach, filtered historical simulation or filtered extreme value theory. This thesis shows that while VaR specifications based on logarithmic realized volatility, TGARCH and APARCH perform best overall, the benchmark - RiskMetrics model - is not significantly outperformed. The best performing model proves to be the TGARCH-t FHS, which is a combination of asymmetric and heavy-tailed GARCH filter with a historical simulation based approach.