

The main objective of the thesis is to analyse impact of wavelet covariance estimation in the context of Markowitz mean-variance portfolio selection. We use a rolling window to apply maximum overlap discrete wavelet transform to daily returns of 28 companies from DJIA 30 index. In each step, we compute portfolio weights of global minimum variance portfolio and use those weights in the out-of-sample forecasts of portfolio returns. We let rebalancing period to vary in order to test influence of long-term and short-term traders. Moreover, we test impact of different wavelet filters including Haar, D4 and LA8. Results reveal that only portfolios based on the first scale wavelet covariance produce significantly higher returns than portfolios based on the whole sample covariance. The disadvantage of those portfolios is higher riskiness of returns represented by higher Value at Risk and Expected Shortfall, as well as higher instability of portfolio weights represented by shorter period that is required for portfolio weights to significantly differ. The impact of different wavelet filters is rather minor. The results suggest that all relevant information about the financial market is contained in the first wavelet scale and that the dynamics of this scale is more intense than the dynamics of the whole market.