

XFG – Assignment 1

Sophie Stadlinger, Matrikelnr.: 564416

The first assignment involves the estimation of the VaR with one GARCH model as well as the backtesting of the results afterwards. For this purpose, I use a portfolio consisting of the following ten assets:

- Adidas AG
- Allianz AG
- BASF SE
- Commerzbank AG
- Daimler AG
- Deutsche Bank AG
- Deutsche Boerse AG
- E.ON SE
- Siemens AG
- Volkswagen AG

All companies are listed in the DAX. The data contains historical prices over a time interval of four years (from 2012/05/23 to 2016/05/23). Due to that amount of data it is reasonable to set the moving window to a size of 150 for estimating the VaR. Having estimated the VaR via the DCC-GARCH model I can compare it against the actual P/L. Based on that, I am able to calculate how often the estimation fails. Using the above described data set it turns out that the VaR estimation performs well. The Violation Rate equals 0.9% at the 1%-level and 4.93% at the 5%-level. This result reveals only a slight overestimation when the VaR is calculated by the DCC-GARCH.