Sheet - 2

Asset and Liability Management

4. Consider daily returns of the S&P500 (symbol on Yahoo Finance: GSPC) from January, 1 2005 to January 1, 2007. Historical prices can be downloaded from `http://finance.yahoo.com`.

    - Estimate the AVaR by using historical method, therefore without assuming any distributional assumption.

5. Consider daily returns of the Exxon Mobil Corp., General Electric, AMD (Ticker symbols on Yahoo Finance: XOM, GE, AMD) from January, 1 2005 to January 1, 2007 (the same data of the Sheet - 1). Historical prices can be downloaded from `http://finance.yahoo.com`. Assume the following vector of weights $w = (0.25, 0.5, 0.25)$.

    - Evaluate the 95%AVaR by using the the multivariate normal assumption.

6. Consider the same data of the previous exercise and assume the normal distributional assumption.

    - Evaluate the 95%AVaR by using the Monte Carlo method. In order to investigate how the fluctuations of the 95%AVaR change, consider samples of different sizes: 500, 1000, 5000, 10000, 20000 scenarios.

Remark See Chapter 7 of the book *Advanced Stochastic Models, Risk Assessment and Portfolio Optimization* by Svetlozar T. Rachev, Stoyan V. Stoyanov, Frank J. Fabozzi, Wiley, 2008.

For any problem or remark, do not hesitate to contact me,

`bianchi@statistik.uni-karlsruhe.de`