Q5. ESTIMATING THE PROBABILITY OF LOOSING

Consider the portfolio in Question 1.

1. Explain how to use bootstrap simulation to estimate the probability of losing more than 5% at different horizons (eg. from 1 to 50 days).
2. Implement a Matlab code and provide a plot of the estimated probability at different horizons.
3. Now assume that portfolio log-returns have a Gaussian distribution. Estimate their mean and standard deviation and compute the theoretical probability of loosing more than 5% at different horizons. Overimpose the plot of the theoretical probability to the one you have generated via Monte Carlo simulation.
4. Comment your findings.

Q6. POWER OF THE KUPIEC TEST

Explain how to estimate the power of the Kupiec test assuming that under H_0 the true generating process that underlies market returns is Gaussian with zero mean and constant volatility and under H_1 the true generating process is the GARCH(1,1) model. Explain carefully your procedure and your results. Both models can be fitted to the return series of Question 1.