

MFE 409: Financial Risk Management

Problem set 4

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due 5/6 before midnight

You should work with your assigned group but should write up your answer individually (except for question 2). Give the name of your group members in your writeup and post it on CCLE before Monday May 6 at midnight.

1 Revisiting problem 1 from homework 3

We will consider three additional variations on how to compute VaR for the return series.

1. Compute volatility using the EWMA with $\lambda = 0.995$. Compute the corresponding measure of VaR.
2. Use maximum likelihood estimation to estimate a GARCH model for volatility. Compute the corresponding measure of VaR.
3. Go back to the normalized returns from question 3 of the previous homework. Assess whether the left tail of these normalized returns follows a power law. Estimate the corresponding generalized Pareto distribution, and use these estimates to compute an estimate of the VaR for the last date in the sample.
4. Revisit your answer to question 5 last week in light of these new results.

2 LTCM

Please read in details the paper “Risk Management Lessons from Long-Term Capital Management” by Philippe Jorion (on CCLE). Write short essays answering the following questions.

1. What was the broad trading strategy of LTCM?
2. Why did they need so much leverage?
3. How did their demise happen?

4. What were the most important issues with their risk management approach?
5. How would you manage risk for a fund trying to trade similar strategies?