The Markowitz solution

Background The Markowitz optimal portfolio theory goes back to the 1950's and earned the inventor the Nobel some four decades later. While the result tells us something about the efficency of risk diversification, there is a serious problem of errors in the parameters that go into it.

Objective: You are to present and analyse the Markowitz optimal portfolio.

Material: Section 5.3.

Main points: The presentation (45 minutes) should cover

- Outline of the solution
- How well it diversifies risk
- The LTCM debacle
- Behaviour under estimated parameters, for example:

  Use 25 years of simulated monthly equity data, estimate means, variances and covariances and Markowitz weights, repeat and plot the weights.

  Parameters for simulation: 2 assets with means 0.8%, volatilities 7% and correlation 0.5.