

Abstract

This project is concerned with Bayesian financial models for equities data. A series of computational methods are adopted to fit the models to real data. In this project, discretely and regularly observed share index values are considered.

For the purpose of this project, a Bayesian approach is adopted. Under this approach, inferences are focused on posterior distribution. To be specific, inferences on parameters is proceed via posterior expectation while predictions is obtained from predictive density functions.

To compute the posterior distributions exactly and thereby obtain posterior expectations and predictions, Monte Carlo methods are adopted in this project.

Furthermore, Markov Chain Monte Carlo (MCMC) method is utilized to obtain independent and identically distributed samples in this project.

Three different models are considered in this project. Comparisons between theoretical predictive densities and histograms from observed data are conducted in this project to explore the sensitivity of posterior generations to changes in values for unknown parameters. The consistency of interested model with observed data is also examined through numerical implementations in this project.