



Bayesian Estimation of the Global Minimum Variance Portfolio

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Abstract

In this paper we consider the estimation of the weights of optimal portfolios from the Bayesian point of view under the assumption that the conditional distribution of the logarithmic returns is normal. Using the standard priors for the mean vector and the covariance matrix, we derive the posterior distributions for the weights of the global minimum variance portfolio. Moreover, we reparameterize the model to allow informative and non-informative priors directly for the weights of the global minimum variance portfolio. The posterior distributions of the portfolio weights are derived in explicit form for almost all models. The models are compared by using the coverage probabilities of credible intervals. In an empirical study we analyze the posterior densities of the weights of an international portfolio.

Keywords: global minimum variance portfolio; posterior distribution; credible interval; Wishart distribution.