Tsay, Ruey S.(University of Chicago, USA)

Multivariate Volatility Models

Abstract: In recent years, there is substantial interest in studying multivariate volatility models in general and the multivariate generalized autoregressive conditional heteroscedastic (MGARCH) models in particular. This is partly motivated by the need to study time-varying correlations between asset returns for portfolio and risk managements. However, the dimension of a multivariate volatility model grows quadratically with the number of assets under consideration and the positive-definite covariance matrix constraint makes the modeling of multivariate volatility difficult. Several attempts have been made in the literature to overcome the difficulty. In this paper, we briefly review some of the approaches available in the literature and propose a simple approach to building MGARCH model that is feasible in practice and satisfies the positive-definite constraint.