Package 'BayesBEKK'

Type Package

Title Bayesian Estimation of Bivariate Volatility Model

Version 0.1.1

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Description The Multivariate Generalized Autoregressive Conditional Heteroskedasticity (MGARCH) models are used for modelling the volatile multivariate data sets. In this package a variant of MGARCH called BEKK (Baba, Engle, Kraft, Kroner) proposed by Engle and Kroner (1995) <http://www.jstor.org/stable/3532933> has been used to estimate the bivariate time series data using Bayesian technique.

Encoding UTF-8

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Imports MTS,coda,mvtnorm

NeedsCompilation no

Repository CRAN

Date/Publication 2022-12-05 14:12:37 UTC

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BayesianBEKK *Bayesian Estimation of Bivariate Volatility Model*

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Usage

```
BayesianBEKK(X,sd,iter,burnIn)
```

Arguments

X	a bivarite time series data
sd	sd is the standard deviation of the Normal priors assigned to each parameter. Default value is taken as 10.
iter	iter is the number of iterations for the Markov chain Monte Carlo (MCMC) chain. Default value is 100.
burnIn	burnIn is the number of iterations to be excluded from the estimate of the chain. Default value is 40.

Details

Engle and Kroner (1995) introduced the BEKK model which is the direct generalization of the univariate Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model. The resulting variance is dependent on the amount of currently available information.In this package we have estimated this model using Bayesian technique. Metropilis-Hasting algorithm is used to generate the posterior density of the model parametrs. Normal distribution is used as priors for each parameter of the model following Fioruci et al., (2014).

Value

It returns the Bayesian estimates of the BEKK model.

Note

This package cab be used to analyse bivariate series only

Author(s)

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References

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Bauwens et al.(2006)<https://doi.org/10.1002/jae.842>

Bauwens, L. and Rombouts, J.V.K.(2007)<https://doi.org/10.1080/07474930701220576>

Engle, R.F. and Kroner, K.F.(1995)<http://www.jstor.org/stable/3532933>

Fioruci et al.(2014)<https://doi.org/10.1080/02664763.2013.839635>

Metropolis et al.(1953)<https://doi.org/10.1063/1.1699114>

See Also

BEKK11

Examples

```
set.seed(6)
rt1=rnorm(20,30,5)
rt2=rnorm(20,20,1)
data_trial=cbind(rt1,rt2)
BayesianBEKK(data_trial)
```

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