Package 'VIRF'

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Type Package

Title Computation of Volatility Impulse Response Function of Multivariate Time Series

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Description Computation of volatility impulse response function for multivariate time series model using algorithm by Jin, Lin and Tamvakis (2012) <doi:10.1016/j.eneco.2012.03.003>.

License GPL

Imports stats, rmgarch, mgarchBEKK, gnm, expm, BigVAR, ks, matrixcalc, matlib

NeedsCompilation no

Repository CRAN

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Contents

`VIRF` *Volatility Impulse Response Function*

Description

Provide information about the impact of independent shocks on volatility.

Usage

```
VIRF(data, shock)
```

Arguments

data	log return multivariate time series
shock	shock time point from time series

Value

virfresult	List containing variance and covariance values

References

Anthony, N.R. and Ahammad, S.M. 2016. Investigating the interdependency of agricultural production volatility spillovers between Bangladesh, India, and Pakistan. Review of Urban and Regional Development Studies, 28, 32 to 54 Jin, X., Lin, S.X. and Tamvakis, M. 2012. Volatility transmission and volatility impulse response functions in crude oil markets.Energy Economics, 34, 2125 to 2134

Examples

```
k=3 #number of series
p=6 # maximum lag order
ns=100 #number of simulations
B=matrix(0,nrow=k,ncol=p*k)
A1<- matrix(c(.4,-.02,.01,-.02,.3,.02,.01,.04,.3),ncol=3,nrow=3)
A2 <- matrix(c(.2,0,0,0,.3,0,0,0,.13),ncol=3,nrow=3)
B[,1:k]=A1
B[,(4*k+1):(5*k)]=A2
A <- BigVAR::VarptoVar1MC(B,p,k)
Y <-BigVAR::MultVarSim(k,A,p,.1*diag(k),ns)
lr<-VIRF(Y,40) # Y: multivariate time series data, shock time point: 40
print(lr)
```

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