

Package ‘VIRF’

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Type Package

Title Computation of Volatility Impulse Response Function of Multivariate Time Series

Version 0.1.0

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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.org/10.1016/j.eneco.2012.03.003>.

License GPL

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

LazyData TRUE

NeedsCompilation no

Repository CRAN

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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
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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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