Package: WaveletGARCH (via r-universe)

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Type Package

Title Fit the Wavelet-GARCH Model to Volatile Time Series Data

Version 0.1.1

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Description Fits the combination of Wavelet-GARCH model for time series forecasting using algorithm by Paul (2015) <doi:10.3233/MAS-150328>.

License GPL

Imports stats, wavelets, FinTS, forecast, parallel, rugarch, fracdiff, methods

LazyData TRUE

NeedsCompilation no

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Repository https://ranjitstat.r-universe.dev

RemoteUrl https://github.com/cran/WaveletGARCH

RemoteRef HEAD

RemoteSha ed45a6557def61ec1b1ba38ac3b853611f26c6e7

Contents

autoarima-class *class:autoarima-result-class*

Description

class to store results of auto.arima

Examples

```
showClass("autoarima")
```

WaveletGARCHFit *Fitting of Wavelet-GARCH model*

Description

Fitting of Wavelet-GARCH model based on ARCH LM test.

Usage

```
WaveletGARCHFit(series,filtern,level)
## S3 method for class 'WaveletGARCHFit'
print(x,...)
```

Arguments

series	univariate time series
filtern	The name of wavelet filter
level	The level of wavelet decomposition
x	An object of WaveletGARCHFit
...	Additional arguments if any

Value

fittedobject	The fitted value of the series by Waveetl-GARCH model

References

Percival D. B. and Walden A. T. 2000. Wavelet Methods for Time-Series Analysis. Cambridge Univ. Press, U.K.

Paul R. K., Prajneshu and Ghosh H. 2013. Wavelet Frequency Domain Approach for Modelling and Forecasting of Indian Monsoon Rainfall Time-Series Data. Journal of the Indian society of agricultural statistics, 67, 319 to 327.

Paul, R.K. and Birthal, P.S. 2015. Investigating rainfall trend over India using wavelet technique. Journal of Water and Climate Change, 7, 365 to 378.

Paul, R. K. 2015. ARIMAX-GARCH-WAVELET Model for forecasting volatile data. Model Assisted Statistics and Application, 10, 243 to252.

Examples

```
data(mtcars)
ab<-mtcars$qsec

objfit<-WaveletGARCHFit(ab,"d4",4)
```

`WaveletGARCHFore` *Forecasting by Wavelet-GARCH model*

Description

Forecasting of Wavelet-GARCH model based on ARCH LM test.

Usage

```
WaveletGARCHFore(series,filtern,level,nofore)
## S3 method for class 'WaveletGARCHFore'
print(x,...)
```

Arguments

`series`	univariate time series
`filtern`	The name of wavelet filter
`level`	The level of wavelet decomposition
`nofore`	The lead period of forecast
`x`	An object of WaveletGARCHFore
`...`	Additional arguments if any

Value

`forecastobject`	The forecasted values of the series by Waveetl-GARCH model

References

Percival D. B. and Walden A. T. 2000. Wavelet Methods for Time-Series Analysis. Cambridge Univ. Press, U.K.

Paul R. K., Prajneshu and Ghosh H. 2013. Wavelet Frequency Domain Approach for Modelling and Forecasting of Indian Monsoon Rainfall Time-Series Data. Journal of the Indian society of agricultural statistics, 67, 319 to 327.

Paul, R.K. and Birthal, P.S. 2015. Investigating rainfall trend over India using wavelet technique. Journal of Water and Climate Change, 7, 365 to 378.

Paul, R. K. 2015. ARIMAX-GARCH-WAVELET Model for forecasting volatile data. Model Assisted Statistics and Application, 10, 243 to252.

Examples

```
data(mtcars)
ab<-mtcars$qsec

objfore<-WaveletGARCHFore(ab,"d4",4,10)
```

Index