

Package ‘iClick’

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iClick-package

A Button-based GUI for Financial and Economic Data Analysis

Description

A Output GUI designed to simplify the use of R packages and functions by clicking.

Author(s)

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boxPlotX

Box-Whisker plot.

Description

This function generates plot by iClick.VisOneReturns.

Usage

```
boxPlotX(X, col = "indianred2", title = TRUE)
```

Arguments

X A timeSeries object, single time series returns.

col String for color.

title Whether to generate title of graph.

Details

This function is an internal function of iClick GUI, which is executed on iClick.VisOneReturns GUI.

Value

Plot a graph

Author(s)

Ho Tsung-wu <tsungwu@mail.shu.edu.tw>

See Also

Functions in fBasics.

| | |
|----------------|---------------------------------|
| cumulatedPlotX | <i>Cumulative returns plot.</i> |
|----------------|---------------------------------|

Description

This function generates plot by `iClick.VisOneReturns()`.

Usage

```
cumulatedPlotX(x, index = 100, labels = TRUE, type = "l",  
col = "indianred2", ylab = "Values", title = TRUE,  
grid = TRUE, box = TRUE, rug = TRUE)
```

Arguments

| | |
|---------------------|--|
| <code>x</code> | A timeSeries object, single time series returns. |
| <code>index</code> | Returns index. |
| <code>labels</code> | Whether to generate label for the graph. |
| <code>type</code> | Type of graph. |
| <code>col</code> | Options for color. |
| <code>ylab</code> | String label for Y axis. |
| <code>title</code> | Whether to generate title for the graph. |
| <code>grid</code> | Whether to use grid in plot. |
| <code>box</code> | Whether to put the plot into a box. |
| <code>rug</code> | Whether to add rug. |

Details

This function is an internal function of iClick GUI, which is executed on `iClick.VisOneReturns` GUI.

Value

Plot

Author(s)

Ho Tsung-wu <tsungwu@mail.shu.edu.tw>

`drawdownPlotX`*Drawup Returns Plots*

Description

This function is within the iClick GUI, is executed within `iClick.VisOneReturns(dat)`, the data frame `dat` has two columns, the first column is date index and the second one is numeric time series data.

Usage

```
drawdownPlotX(x, labels = TRUE, type = "l", col = "darkgreen",  
title = TRUE, ylab = "Down returns", grid = TRUE, box = TRUE,  
rug = TRUE)
```

Arguments

| | |
|---------------------|--|
| <code>x</code> | A timeSeries object, single time series returns. |
| <code>labels</code> | Whether to generate label for the graph. |
| <code>type</code> | Type of line. |
| <code>col</code> | Options for color. |
| <code>title</code> | Whether to generate title for the graph. |
| <code>ylab</code> | String for Y axis. |
| <code>grid</code> | Whether to use grid in plot. |
| <code>box</code> | Whether to put the plot into a box. |
| <code>rug</code> | Whether to add rug. |

Details

This function is an internal function of iClick GUI, which is executed on `iClick.VisOneReturns` GUI.

Value

Plot

Author(s)

Ho Tsung-wu <tsungwu@mail.shu.edu.tw>

See Also

Functions in `fBasics`.

`drawupPlotX`*Drawup Returns Plots*

Description

This function is within the iClick GUI, is executed within `iClick.VisOneReturns(dat)`, the data frame `dat` has two columns, the first column is date index and the second one is numeric time series data.

Usage

```
drawupPlotX(x, labels = TRUE, type = "l", col = "indianred2",  
title = TRUE, ylab = "Up Returns", grid = TRUE, box = TRUE,  
rug = TRUE)
```

Arguments

| | |
|---------------------|--|
| <code>x</code> | A timeSeries object, single time series returns. |
| <code>labels</code> | Whether to generate label for the graph. |
| <code>type</code> | Type of line. |
| <code>col</code> | Options for color. |
| <code>title</code> | Whether to generate title for the graph. |
| <code>ylab</code> | String for Y axis. |
| <code>grid</code> | Whether to use grid in plot. |
| <code>box</code> | Whether to put the plot into a box. |
| <code>rug</code> | Whether to add rug. |

Details

This function is an internal function of iClick GUI, which is executed on `iClick.VisOneReturns` GUI.

Value

Plot

Author(s)

Ho Tsung-wu <tsungwu@mail.shu.edu.tw>

See Also

Functions in `fBasic` and `fAssets`.

drawups

Calculate Drawup Returns for Drawup Plot

Description

This function calculates drawup returns for plotting.

Usage

drawups(x)

Arguments

x A timeSeries object, single time series returns.

Details

This function is an internal function for drawplot of iClick GUI, which is executed on iClick.VisOneReturns GUI.

Value

Returns of draw up periods.

Author(s)

Ho Tsung-wu <tsungwu@mail.shu.edu.tw>

IBM

Daily Price Data of IBM

Description

Daily price data of IBM, 2007/1/3~2015/10/29

Usage

data("IBM")

Format

A data frame with 2223 observations on the following 6 variables.

Date a date string

IBM.OPEN a numeric vector

IBM.HIGH a numeric vector

IBM.LOW a numeric vector

IBM.CLOSE a numeric vector

IBM.VOLUME a numeric vector

IBM.ADJ.CLOSE a numeric vector

Details

Daily stock price data of IBM.

Source

Yahoo finance.

iClick.ARIMA

iClick GUI for ARIMA

Description

This GUI estimates ARIMA both with automatic lag selection and fixed lag length. The GUI is only only a GUI, but also a output format.

Usage

```
iClick.ARIMA(dat, AR = 1, MA = 1, n.ahead = 24, ic = "aic")
```

Arguments

| | |
|----------------------|--|
| <code>dat</code> | Time series data frame, with the first column is the date string. |
| <code>AR</code> | Pre-specified fixed AR order. |
| <code>MA</code> | Pre-specified fixed MA order. |
| <code>n.ahead</code> | Periods of out-of-sample forecast. |
| <code>ic</code> | Information criteria for lag selection, <code>ic=c("aicc", "aic", "bic")</code> . See <code>auto.arima()</code> of package <code>forecast</code> . |

Details

This GUI fits two ARMA, fixed orders and automatically fitted orders, and returns a two-part GUI with output on it. The outputs can be saved as .RData file for later use, the last row is the save button.

The saved filename is automatically generated by selections and results; for example, .aicOrderARIMA_102.RData represents the automatically fits ARIMA(p,d,q) orders are ARIMA(1,0,2) by AIC.

Using `load(".aicOrderARIMA_102.RData")` to retrieve the file and `ls()` to list objects, and use `names()` to show details of objects.

The input returns data must be in percentage form; namely, `dlog()*100`

Value

Fitted ARMA regression output.

Author(s)

Ho Tsung-wu <tsungwu@mail.shu.edu.tw>

See Also

`arima()` and `auto.arima()` of package `forecast`.

Examples

```
#data("returnsDaily24")
#temp=timeSeries::as.timeSeries(returnsDaily24)
#y=temp[,5]

dat=rnorm(200,5,1)
y=ts(dat, start = c(1990, 1), frequency = 12)

iClick.ARIMA(y)

#More
#iClick.ARIMA(y,AR = 2, MA = 1, n.ahead = 4, ic = "bic")
```

`iClick.GARCH`

iClick Output GUI for Univariate GARCH Models

Description

This GUI makes GARCH estimation of comparison easy. With a pre-selected GARCH type, it automatically fits eight probability distributions and conducts all diagnostic tests with a Click.

Usage

```
iClick.GARCH(dat, meanEQ = meanEQ, garchEQ = garchEQ, n.ahead = 15)
```

Arguments

| | |
|---------|---|
| dat | Time series data frame, which must be a time series object of timeSeries. |
| meanEQ | Specification of mean equation. |
| garchEQ | Specification of variance equation. |
| n.ahead | Number of out-of-sample forecasting period. |

Details

This GUI fits 8 distributions for univariate GARCH with pre-selected GARCH types, and returns a 54-button GUI output. The outputs can be individually saved as .RData file for later use, the last row is the save button. The saved filename is automatically generated once clicked, in addition, corresponding .csv files will be generated also.

The 54-button GUI is divided into 9 panes, and the last pane collects coefficient outputs and diagnostic tests together, which aims to make estimation comparison easy.

Value

Fitted GARCH regression output.

Author(s)

Ho Tsung-wu <tsungwu@mail.shu.edu.tw>

See Also

library(rugarch)

Examples

```
#data("returnsDaily24")
#temp=timeSeries::as.timeSeries(returnsDaily24)
#y=temp[,5]

dat=rnorm(300,5,1)
y=ts(dat, start = c(1990, 1), frequency = 12)

meanEQ=list(AR=1,MA=0,Exo=NULL, autoFitArma=FALSE,arfimaDiff=FALSE,archM=FALSE)
# If there are external regressors X, put them as Exo=X
# autoFitArma=TRUE, If you want to fit arma automatically.
# arfimaDiff=TRUE,to take ARFIMA difference
# archM=TRUE, to estimate GARCH-in-mean

garchEQ=list(Type="sGARCH",P=1,Q=1, exo=NULL)
# Type: "sGARCH","eGARCH","gjrGARCH","iGARCH","apGARCH"
# please check rugarch for details.
```

```

# P is the ARCH order
# Q is the GARCH order

#Unmark the comments below to execute iClick.GARCH()
##iClick.GARCH(y,meanEQ, garchEQ, n.ahead=10)

```

`iClick.VisOneReturns` *Visualize Daily Asset Returns*

Description

This GUI conducts plots of daily asset returns, including ACF, PACF, drawdowns, and Talyor effects. The input returns data must be in percentage form; namely, $\text{dlog()} * 100$

Usage

```
iClick.VisOneReturns(dat)
```

Arguments

`dat` Time series data frame, with 1 first column is the date string.

Details

This GUI is designed for financial time series, mainly daily stock returns. Other time series data works also, as long as it has a date column.

Value

Output GUI

Author(s)

Ho Tsung-wu <tsungwu@mail.shu.edu.tw>

Examples

```

##== External data
#data("returnsDaily24")
#dat=timeSeries::as.timeSeries(returnsDaily24)
#y=dat[,5] #Select the fifth variable

##== Simulation data
dat=rnorm(500,5,1)
y=ts(dat, start = c(1970, 1), frequency = 12)
iClick.VisOneReturns(y)

```

`qqnormPlotX`*QQ Plot*

Description

This function is within the iClick GUI, is executed within `iClick.VisOneReturns(dat)`, the data frame `dat` has two columns, the first column is date index and the second one is numeric time series data.

Usage

```
qqnormPlotX(X, labels = TRUE, col = "indianred2", pch = 19,  
title = TRUE, mtext = TRUE, grid = FALSE, rug = TRUE,  
scale = TRUE)
```

Arguments

| | |
|---------------------|--|
| <code>X</code> | A timeSeries object, single time series returns. |
| <code>labels</code> | Whether to generate label for the graph. |
| <code>col</code> | String for color. |
| <code>pch</code> | Line options. |
| <code>title</code> | Whether to generate title for the graph. |
| <code>mtext</code> | Whether to generate main text for the graph. |
| <code>grid</code> | Whether to use grid in plot. |
| <code>rug</code> | Whether to add rug. |
| <code>scale</code> | Whether to scale the data. |

Details

This function is an internal function of iClick GUI, which is executed on `iClick.VisOneReturns` GUI.

Value

Plot

Author(s)

Ho Tsung-wu <tsungwu@mail.shu.edu.tw>

See Also

Functions in `fBasics`.

returnsDaily24 *Daily Returns Data of 24 Markets*

Description

Daily returns data of 24 world national market index, 2001/1/03~2013/9/24

Usage

```
data("returnsDaily24")
```

Format

A data frame with 3320 observations on the following 24 variables.

Dates Time string

AEX a numeric vector of national market

AORD a numeric vector of national market

ATX a numeric vector of national market

BFX a numeric vector of national market

BVSP a numeric vector of national market

FCHI a numeric vector of national market

FTSE a numeric vector of national market

FTSEMIB.MI a numeric vector of national market

GD.AT a numeric vector of national market

GDAXI a numeric vector of national market

GSPC a numeric vector of national market

GSPTSE a numeric vector of national market

HSI a numeric vector of national market

JKSE a numeric vector of national market

KLSE a numeric vector of national market

KS11 a numeric vector of national market

MERV a numeric vector of national market

MXX a numeric vector of national market

N225 a numeric vector of national market

OMX a numeric vector of national market

SSEC a numeric vector of national market

SSMI a numeric vector of national market

STI a numeric vector of national market

TWII a numeric vector of national market

Details

Daily stock returns of 24 world national markets.

Source

Yahoo finance.

seriesPlotX

Plot Time Series Data

Description

This function is within the iClick GUI, is executed within iClick.VisOneReturns(dat), the data frame dat has two columns, the first column is date index and the second one is numeric time series data.

Usage

```
seriesPlotX(x, labels=TRUE, type="l", col="indianred2",
           ylab="Value", title=TRUE, grid=TRUE, box=TRUE, rug=TRUE)
```

Arguments

| | |
|--------|--|
| x | A timeSeries object, single time series returns. |
| labels | Whether to generate label for the graph. |
| type | Type of graph. |
| col | Options for color. |
| ylab | String label for Y axis. |
| title | Whether to generate title for the graph. |
| grid | Whether to generate grid for the graph. |
| box | Whether to put the plot into a box. |
| rug | Whether to add rug. |

Details

This function is an internal function of iClick GUI, which is executed on iClick.VisOneReturns GUI.

Value

Plot

Author(s)

Ho Tsung-wu <tsungwu@mail.shu.edu.tw>

See Also

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