# Package 'jvnVaR'

October 13, 2022

Type Package
Title Value at Risk

Version 1.0	
<b>Date</b> 2015-11-17	
Author Hung Vu	
Maintainer Hung Vu <viet-hung.vu@jvn.edu.vn></viet-hung.vu@jvn.edu.vn>	
<b>Description</b> Many method to compute, predict and backtest VaR. For more detail, see the report: Value at Risk <researchgate.net>.</researchgate.net>	
License GPL-3	
<b>Depends</b> $R(>=2.10.0)$ , stats, utils	
Repository CRAN	
NeedsCompilation no	
<b>Date/Publication</b> 2015-11-18 15:48:49	
jMCPri jMCPriLim jPrice jReturn jStockList jTestVaR jVaR	2 27 28 29 30 31 32 32 34 35 36
Index	<b>37</b>

jvnVaR-package

Value at risk package.

# Description

Provide many method to compute, predict and back-test VaR.

More about what it does, see the report: Value at Risk.<researchgate.net>

#### **Details**

Package: jvnVaR Type: Package Version: 1.0

Date: 2015-08-10 License: GPL-3

Using command 'jListFunctions()' to know its useful functions.

# Author(s)

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#### References

See the report: Value at Risk.<Researchgate.net>

## See Also

https://www.researchgate.net/profile/Vu\_Hung4

dataSelected

Price table.

## **Description**

A set of stock price on Vietnam Security Market.

# Usage

data("dataSelected")

#### **Format**

A data frame with 1827 observations on the following 687 variables.

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dateList a factor with levels 2009-01-01 2009-01-02 2009-01-03 2009-01-04 2009-01-05
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AAA a numeric vector

AAM a numeric vector

ABT a numeric vector

ACB a numeric vector

ACC a numeric vector

ACL a numeric vector

ADC a numeric vector

AGF a numeric vector

AGM a numeric vector

AGR a numeric vector

ALP a numeric vector

ALT a numeric vector

ALV a numeric vector

AMC a numeric vector

AME a numeric vector

AMV a numeric vector

ANV a numeric vector

APC a numeric vector

- APG a numeric vector
- API a numeric vector
- APP a numeric vector
- APS a numeric vector
- ARM a numeric vector
- ASA a numeric vector
- ASIAGF a numeric vector
- ASM a numeric vector
- ASP a numeric vector
- ATA a numeric vector
- AVF a numeric vector
- B82 a numeric vector
- BBC a numeric vector
- BBS a numeric vector
- BCC a numeric vector
- BCE a numeric vector
- BCI a numeric vector
- BDB a numeric vector
- BED a numeric vector
- BGM a numeric vector
- BHC a numeric vector
- BHS a numeric vector
- BHT a numeric vector
- BHV a numeric vector
- BIC a numeric vector
- BKC a numeric vector
- BLF a numeric vector
- BMC a numeric vector
- BMI a numeric vector
- BMP a numeric vector
- BPC a numeric vector
- BRC a numeric vector
- BSC a numeric vector
- BSI a numeric vector
- BST a numeric vector
- BT6 a numeric vector
- BTH a numeric vector

- BTP a numeric vector
- BTS a numeric vector
- BTT a numeric vector
- BVG a numeric vector
- BVH a numeric vector
- BVS a numeric vector
- BXH a numeric vector
- C21 a numeric vector
- C32 a numeric vector
- C47 a numeric vector
- C92 a numeric vector
- CAN a numeric vector
- CAP a numeric vector
- CCI a numeric vector
- CCL a numeric vector
- CCM a numeric vector
- CDC a numeric vector
- CIC a numeric vector
- CID a numeric vector
- CIG a numeric vector
- CII a numeric vector
  CJC a numeric vector
- CKV a numeric vector
- CLC a numeric vector
- CLG a numeric vector
- CLP a numeric vector
- CLW a numeric vector
- CMC a numeric vector
- CMG a numeric vector
- CMI a numeric vector
- CMS a numeric vector
- CMT a numeric vector
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- CMV a numeric vector
- CMX a numeric vector
- CNG a numeric vector
- CNT a numeric vector
- COM a numeric vector

- CPC a numeric vector
- CSC a numeric vector
- CSM a numeric vector
- CT6 a numeric vector
- CTA a numeric vector
- CTB a numeric vector
- CTC a numeric vector
- CTG a numeric vector
- CTI a numeric vector
- CTM a numeric vector
- CTN a numeric vector
- CTS a numeric vector
- CTV a numeric vector
- CTX a numeric vector
- CVN a numeric vector
- CVT a numeric vector
- CX8 a numeric vector
- CYC a numeric vector
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- D11 a numeric vector
- D2D a numeric vector
- DAC a numeric vector
- DAD a numeric vector
- DAE a numeric vector
- DAG a numeric vector
- DBC a numeric vector
- DBT a numeric vector
- DC2 a numeric vector
- DC4 a numeric vector
- DCL a numeric vector
- DCS a numeric vector
- DCT a numeric vector
- DHA a numeric vector
- DHC a numeric vector
- DHG a numeric vector
- DHI a numeric vector
- DHM a numeric vector
- DHP a numeric vector

- DHT a numeric vector
- DIC a numeric vector
- DID a numeric vector
- DIG a numeric vector
- DIH a numeric vector
- DL1 a numeric vector
- DLG a numeric vector
- DLR a numeric vector
- DMC a numeric vector
- DNC a numeric vector
- DNM a numeric vector
- DNP a numeric vector
- DNY a numeric vector
- DPC a numeric vector
- DPM a numeric vector
- DPR a numeric vector
- DQC a numeric vector
- DQC a manneric vector
- DRC a numeric vector
- DRH a numeric vector
- DRL a numeric vector
- DSN a numeric vector
- DST a numeric vector
- DTA a numeric vector
- DTL a numeric vector
- DTT a numeric vector
- DVP a numeric vector
- DXG a numeric vector
- DXP a numeric vector
- DXV a numeric vector
- DZM a numeric vector
- EBS a numeric vector
- ECI a numeric vector
- EFI a numeric vector
- EIB a numeric vector
- EID a numeric vector
- ELC a numeric vector
- EMC a numeric vector

- EVE a numeric vector
- FCM a numeric vector
- FCN a numeric vector
- FDC a numeric vector
- FDG a numeric vector
- FDT a numeric vector
- FIT a numeric vector
- FLC a numeric vector
- FMC a numeric vector
- FPT a numeric vector
- GAS a numeric vector
- GDT a numeric vector
- GGG a numeric vector
- GIL a numeric vector
- GLT a numeric vector
- GMC a numeric vector
- GMD a numeric vector
- GMX a numeric vector
- GSP a numeric vector
- GTA a numeric vector
- GTT a numeric vector
- HAD a numeric vector
- HAG a numeric vector
- HAI a numeric vector
- HAP a numeric vector
- HAR a numeric vector
- HAS a numeric vector
- HAT a numeric vector
- HAX a numeric vector
- HBC a numeric vector
- HBE a numeric vector
- HBS a numeric vector
- HCM a numeric vector
- HCT a numeric vector
- HDA a numeric vector
- HDC a numeric vector
- HDG a numeric vector

HEV	a numeric vector
HGM	a numeric vector
HHC	a numeric vector
HHG	a numeric vector
HHL	a numeric vector
HHS	a numeric vector
HJS	a numeric vector
HLA	a numeric vector
HLC	a numeric vector
HLD	a numeric vector
HLG	a numeric vector
HLY	a numeric vector
HMC	a numeric vector
HMH	a numeric vector
HNM	a numeric vector
HOM	a numeric vector
НОТ	a numeric vector
HPB	a numeric vector
HPC	a numeric vector
HPG	a numeric vector
HPS	a numeric vector
HQC	a numeric vector
HRC	a numeric vector
HSG	a numeric vector
HSI	a numeric vector
HST	a numeric vector
HT1	a numeric vector
HTB	a numeric vector
HTC	a numeric vector
HTI	a numeric vector
HTL	a numeric vector

HTP a numeric vector
HTV a numeric vector
HU1 a numeric vector
HU3 a numeric vector
HUT a numeric vector

HDO a numeric vector

- HVG a numeric vector
- HVT a numeric vector
- HVX a numeric vector
- ICF a numeric vector
- ICG a numeric vector
- IDI a numeric vector
- IDJ a numeric vector
- IDV a numeric vector
- IJC a numeric vector
- ILC a numeric vector
- IMP a numeric vector
- INC a numeric vector
- INN a numeric vector
- ITA a numeric vector
- ITC a numeric vector
- ITD a numeric vector
- ITQ a numeric vector
- IVS a numeric vector
- JVC a numeric vector
- KAC a numeric vector
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- KBT a numeric vector
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- KHA a numeric vector
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- KHB a numeric vector
- KHL a numeric vector
- KHP a numeric vector
- KKC a numeric vector
- KLF a numeric vector
- KLS a numeric vector
- KMR a numeric vector
- KMT a numeric vector
- KSA a numeric vector
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- KSD a numeric vector
- KSH a numeric vector

- KSQ a numeric vector
- KSS a numeric vector
- KST a numeric vector
- KTB a numeric vector
- KTS a numeric vector
- KTT a numeric vector
- L10 a numeric vector
- L14 a numeric vector
- L18 a numeric vector
- L35 a numeric vector
- L43 a numeric vector
- L44 a numeric vector
- L61 a numeric vector
- L62 a numeric vector
- LAF a numeric vector
- LAS a numeric vector
- LBE a numeric vector
- LBM a numeric vector
- LCD a numeric vector
- LCG a numeric vector
- LCM a numeric vector
- LCS a numeric vector
- LDP a numeric vector
- LGC a numeric vector
- LGL a numeric vector
- LHC a numeric vector
- LHG a numeric vector
- LIG a numeric vector
- LIX a numeric vector
- LM3 a numeric vector
- LM7 a numeric vector
- LM8 a numeric vector
- L05 a numeric vector
- LSS a numeric vector
- LTC a numeric vector
- LUT a numeric vector
- MAC a numeric vector

- MAFPF1 a numeric vector
- MAX a numeric vector
- MBB a numeric vector
- MCC a numeric vector
- MCF a numeric vector
- MCG a numeric vector
- MCL a numeric vector
- MCO a numeric vector
- MCP a numeric vector
- MDC a numeric vector
- MDG a numeric vector
- MEC a numeric vector
- MHC a numeric vector
- MHL a numeric vector
- MIC a numeric vector
- MIH a numeric vector
- MIM a numeric vector
- MKV a numeric vector
- MMC a numeric vector
- MNC a numeric vector
- MPC a numeric vector
- MSN a numeric vector
- MTG a numeric vector
- NAG a numeric vector
- NAV a numeric vector
- NBB a numeric vector
- NBC a numeric vector
- NBP a numeric vector
- NDN a numeric vector
- NDX a numeric vector
- NET a numeric vector
- NGC a numeric vector
- NHA a numeric vector
- NHC a numeric vector
- NHS a numeric vector
- NHW a numeric vector
- NIS a numeric vector

- NKG a numeric vector
- NLC a numeric vector
- NLG a numeric vector
- NNC a numeric vector
- NPS a numeric vector
- NSC a numeric vector
- NSN a numeric vector
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- NTL a numeric vector
- NTP a numeric vector
- NVB a numeric vector
- NVC a numeric vector
- NVN a numeric vector
- NVT a numeric vector
- OCH a numeric vector
- OGC a numeric vector
- ONE a numeric vector
- OPC a numeric vector
- ORS a numeric vector
- PAC a numeric vector
- PAN a numeric vector
- PCG a numeric vector
- PCT a numeric vector
- PDC a numeric vector
- PDN a numeric vector
- PDR a numeric vector
- PET a numeric vector
- PFL a numeric vector
- PGC a numeric vector
- PGD a numeric vector
- PGI a numeric vector
- PGS a numeric vector
- PGT a numeric vector
- PHC a numeric vector
- PHH a numeric vector
- PHR a numeric vector
- PHS a numeric vector

- PID a numeric vector
- PIT a numeric vector
- PIV a numeric vector
- PJC a numeric vector
- PJT a numeric vector
- PLC a numeric vector
- PMC a numeric vector
- PMS a numeric vector
- PNC a numeric vector
- POM a numeric vector
- POT a numeric vector
- PPC a numeric vector
- PPE a numeric vector
- PPG a numeric vector
- PPI a numeric vector
- PPP a numeric vector
- PPS a numeric vector
- PRC a numeric vector
- PSC a numeric vector
- r sc a numeric vector
- PSD a numeric vector
- PSG a numeric vector
- PSI a numeric vector
- PTB a numeric vector
- PTC a numeric vector
- PTI a numeric vector
- PTK a numeric vector
- PTL a numeric vector
- PTM a numeric vector
- PTS a numeric vector
- PV2 a numeric vector
- PVA a numeric vector
- PVC a numeric vector
- PVD a numeric vector
- PVE a numeric vector
- PVG a numeric vector
- PVI a numeric vector
- PVL a numeric vector

- PVR a numeric vector
- PVS a numeric vector
- PVT a numeric vector
- PVV a numeric vector
- PVX a numeric vector
- PXA a numeric vector
- PXI a numeric vector
- PXL a numeric vector
- PXM a numeric vector
- PXS a numeric vector
- PXT a numeric vector
- QCC a numeric vector
- QCG a numeric vector
- QHD a numeric vector
- QNC a numeric vector
- QST a numeric vector
- QTC a numeric vector
- RAL a numeric vector
- RCL a numeric vector
- RDP a numeric vector
- REE a numeric vector
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- RHC a numeric vector
- RIC a numeric vector
- S12 a numeric vectorS55 a numeric vector
- S74 a numeric vector
- 374 a numeric vector
- S91 a numeric vector
- S96 a numeric vector
- S99 a numeric vector
- SAF a numeric vector
- SAM a numeric vector
- SAP a numeric vector
- SAV a numeric vector
- SBA a numeric vector
- SBC a numeric vector
- SBT a numeric vector
- SC5 a numeric vector

- SCD a numeric vector
- SCJ a numeric vector
- SCL a numeric vector
- SCR a numeric vector
- SD1 a numeric vector
- SD2 a numeric vector
- SD4 a numeric vector
- SD5 a numeric vector
- SD6 a numeric vector
- SD7 a numeric vector
- SD9 a numeric vector
- SDA a numeric vector
- SDB a numeric vector
- SDC a numeric vector
- SDD a numeric vector
- SDE a numeric vector
- SDG a numeric vector
- SDH a numeric vector
- SDN a numeric vector
- SDP a numeric vector
- SDT a numeric vector
- SDU a numeric vector
- SDY a numeric vector
- SEB a numeric vector
- SEC a numeric vector
- SED a numeric vector
- SEL a numeric vector
- SFC a numeric vector
- SFI a numeric vector
- SFN a numeric vector
- SGC a numeric vector
- SGD a numeric vector
- SGH a numeric vector
- SGT a numeric vector
- SHB a numeric vector
- SHI a numeric vector
- SHN a numeric vector

- SHS a numeric vector
- SIC a numeric vector
- SII a numeric vector
- SJ1 a numeric vector
- SJC a numeric vector
- SJD a numeric vector
- SJE a numeric vector
- SJM a numeric vector
- SJS a numeric vector
- SKS a numeric vector
- SLS a numeric vector
- SMA a numeric vector
- SMC a numeric vector
- SMT a numeric vector
- SNG a numeric vector
- SPI a numeric vector
- SPM a numeric vector
- SPP a numeric vector
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- SQC a numeric vector
- SRA a numeric vector
- SRB a numeric vector
- SRC a numeric vector
- SRF a numeric vector
- SSC a numeric vector
- SSG a numeric vector
- SSI a numeric vector
- SSM a numeric vector
- ST8 a numeric vector
- STB a numeric vector
- STC a numeric vector
- STG a numeric vector
- STL a numeric vector
- STP a numeric vector
- STT a numeric vector
- SVC a numeric vector
- SVI a numeric vector
- SVN a numeric vector

- SVT a numeric vector
- SZL a numeric vector
- TAC a numeric vector
- TAG a numeric vector
- TAS a numeric vector
- TBC a numeric vector
- TBX a numeric vector
- TC6 a numeric vector
- TCL a numeric vector
- TCM a numeric vector
- TCO a numeric vector
- TCR a numeric vector
- TCS a numeric vector
- TCT a numeric vector
- TDC a numeric vector
- TDH a numeric vector
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- TLG a numeric vector
  TLH a numeric vector
- TEIT a numeric vector
- TMC a numeric vector
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- TMS a numeric vector
- TMT a numeric vector
- TMX a numeric vector

- TNA a numeric vector
- TNC a numeric vector
- TNG a numeric vector
- TNT a numeric vector
- TPC a numeric vector
- TPH a numeric vector
- TPP a numeric vector
- TRA a numeric vector
- TRC a numeric vector
- TS4 a numeric vector
- TSB a numeric vector
- TSC a numeric vector
- TSM a numeric vector
- TST a numeric vector
- TTC a numeric vector
- TTF a numeric vector
- TTP a numeric vector
- TTZ a numeric vector
- TV1 a numeric vector
- TV2 a numeric vector
- TV3 a numeric vector
- TV4 a numeric vector
- TVD a numeric vector
- TXM a numeric vector
- TYA a numeric vector
- UDC a numeric vector
- UIC a numeric vector
- UNI a numeric vector
- V12 a numeric vector
- V15 a numeric vector
- V21 a numeric vector
- VAT a numeric vector
- VBC a numeric vector
- VBH a numeric vector
- VC1 a numeric vector
- VC2 a numeric vector
- VC3 a numeric vector

- VC5 a numeric vector
- VC6 a numeric vector
- VC7 a numeric vector
- VC9 a numeric vector
- VCB a numeric vector
- VCC a numeric vector
- VCF a numeric vector
- VCG a numeric vector
- VCM a numeric vector
- VCR a numeric vector
- VCS a numeric vector
- VCV a numeric vector
- VDL a numeric vector
- VDS a numeric vector
- VE1 a numeric vector
- VE2 a numeric vector
- VE3 a numeric vector
- VE4 a numeric vector
- VE8 a numeric vector
- VE9 a numeric vector
- VFG a numeric vector
- VFMVF4 a numeric vector
- VFR a numeric vector
- VGP a numeric vector
- VGS a numeric vector
- VHC a numeric vector
- VHG a numeric vector
- VHH a numeric vector
- VHL a numeric vector
- VIC a numeric vector
- VID a numeric vector
- VIE a numeric vector
- VIG a numeric vector
- VIP a numeric vector
- VIS a numeric vector
- VIT a numeric vector
- VIX a numeric vector

- VKC a numeric vector
- VLA a numeric vector
- VLF a numeric vector
- VMC a numeric vector
- VMD a numeric vector
- VNA a numeric vector
- VNC a numeric vector
- VND a numeric vector
- VNE a numeric vector
- VNF a numeric vector
- VNG a numeric vector
- VNH a numeric vector
- VNI a numeric vector
- VNL a numeric vector
- VNM a numeric vector
- VNN a numeric vector
- VNR a numeric vector
- viii a numerie vector
- VNS a numeric vector
- VNT a numeric vector
- VOS a numeric vector
- VPC a numeric vector
- VPH a numeric vector
- VPK a numeric vector
- VRC a numeric vector
- VSC a numeric vector
- VSH a numeric vector
- VSI a numeric vector
- VST a numeric vector
- VTB a numeric vector
- VTC a numeric vector
- VTF a numeric vector
- VTL a numeric vector
- VTO a numeric vector
- .
- VTS a numeric vector
- VTV a numeric vector
- VXB a numeric vector
- WCS a numeric vector
- XMC a numeric vector
- YBC a numeric vector

dateList 27

# **Details**

There are 687 stock codes. Some examples: AAA, AAM, ABT,...

#### **Source**

 $http://www.cophieu68.vn/export.php\ https://www.vndirect.com.vn/portal/thong-ke-thi-truong-chung-khoan/lich-su-gia.shtml$ 

# **Examples**

```
data(dataSelected)
```

dateList

Date list.

# Description

Date list.

# Usage

```
data("dateList")
```

# **Format**

The format is: chr [1:1827] "2009-01-01" "2009-01-02" "2009-01-03" "2009-01-04" ...

#### **Source**

Vietnam stock market.

## References

See the report.

# **Examples**

```
data(dateList)
```

jMCPri

jMCPri

Monte-Carlo Price Simulation

# Description

Using when you need a series of price to do back-testing.

This function using normal return model to simulate price.

Related report: Value at Risk.<researchgate.net>

#### Usage

```
jMCPri(s0, mu, sigma, m)
```

#### **Arguments**

The initial price or the price at the first day.

mu Expected (or drift) of return.

sigma Standard deviation (or volatility) of return.

m Number of observations.

#### Value

An array of price.

#### Note

viet-hung.vu@jvn.edu.vn

## Author(s)

Hung Vu

## References

Value at Risk.(reserchgate.net)

## See Also

https://www.researchgate.net/profile/Vu\_Hung4

## **Examples**

```
s0 <- 100
mu <- 0.02
sigma <- 0.1
m <- 1000
jMCPri (s0, mu, sigma, m)
```

jMCPriLim 29

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Monte-Carlo Price Simulation (under price limit condition)

# Description

Using when you need a series of price to do back-testing.

This function using normal return model to simulate price under price limit condition.

Price limit condition require that the return on price is limited.

Related report: Value at Risk.<researchgate.net>

## Usage

```
jMCPriLim(s0, L, U, mu, sigma,m)
```

## **Arguments**

s0	The initial	price or the	price at th	e first day.

L Lower limit of return.
U Upper limit of return.

mu Expected (or mean) of return.

sigma Standard deviation (or volatility) of return.

m Number of observations.

# Value

An array of price.

## Note

viet-hung.vu@jvn.edu.vn

#### Author(s)

Hung Vu

## References

Value at Risk.(reserchgate.net)

#### See Also

https://www.researchgate.net/profile/Vu\_Hung4

jPrice

# **Examples**

```
s0 <- 100

mu <- 0.02

sigma <- 0.1

m <- 1000

L <- -0.07

U <- 0.07

jMCPriLim (s0, L, U, mu, sigma, m)
```

**jPrice** 

Historical Price Function

# Description

Take out a price series from database.

See the report: Value at Risk.<researchgate.net>

# Usage

```
jPrice(name)
```

## **Arguments**

name

Name of a stock. See list of stocks using jStockList()

## Value

A price series.

## Note

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## Author(s)

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## See Also

https://www.researchgate.net/profile/Vu\_Hung4

# **Examples**

```
jStockList()
jPrice('AAA')
```

jReturn 31

jReturn

Return Function

# Description

Compute returns from a price series of an asset.

Return is gain (or loss) rate from an investment to the asset in a time interval.

See the report: Value at Risk.<researchgate.net>

# Usage

```
jReturn(s)
```

## **Arguments**

s

A price series.

## Value

A return series.

## Note

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# Author(s)

Hung Vu

# See Also

 $https://www.researchgate.net/profile/Vu\_Hung4$ 

# **Examples**

```
y <- c(11, 12, 10, 13, 12, 14, 13, 15, 13, 14, 12)
s <- jReturn(y)
```

jTestVaR

jStockList

Stocks List in Vietnam stock market.

## **Description**

Provide a list of Vietnamese stocks.

See the report: Value at Risk.<researchgate.net>

## Usage

```
jStockList()
```

#### Value

A list of Vietnamese stocks

#### Note

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# Author(s)

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## See Also

https://www.researchgate.net/profile/Vu\_Hung4

## **Examples**

```
jStockList()
```

jTestVaR

VaR Back-testing

# Description

Provide some kinds of test for Value at risk.

The null hypothesis is the equation of the probability of loss cross over VaR and the given ruin level. It will show how the calculated VaR can be accepted.

See the report: Value at Risk.<researchgate.net>

## Usage

```
jTestVaR(Ret, VaR, p, test_significant, type)
```

jTestVaR 33

## **Arguments**

Ret Return series use to back-test.

VaR Value at Risk that has been calculated.

p Given probability used to calculate VaR

test\_significant

Significant level of the test.

type Kinds of test.

. p\_value
. pof
. tuff
. mixkup

# **Details**

See the report.

#### Value

Statistic, Quantile and test result.

## Note

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## Author(s)

Hung Vu

## See Also

 $https://www.researchgate.net/profile/Vu\_Hung4$ 

# **Examples**

```
y <- c(11, 12, 10, 13, 12, 14, 13, 15, 13, 14, 12)
s <- jReturn(y)
alpha <- 0.2
h <- 0
v <- jVaR('non_adjust_hist',s,alpha,h)
jTestVaR(s, v, alpha, 0.05, 'p_value')</pre>
```

jVaR

jVaR

Value at Risk Function

#### **Description**

Compute VaR by many methods.

See the report: Value at Risk.<researchgate.net>

## Usage

```
jVaR(type, Return, Alpha, N_th_day)
```

#### **Arguments**

type Computing method.

. 'non\_adjust\_hist': Historical method without any adjustment.

. 'grch11\_hist': Historical method with adjustment by Garch(1,1) method.

. 'ewhv\_hist': Exponential Weighted method.

. 'ewma\_hist': Historical method with adjustment by EWMA method.

. 'kernel\_hist': Estimating density function using kernel fitting method.

. 'grch11\_kernel\_hist': Kernel fitting method apply on return adjusted by Garch(1,1).

. 'ewma\_kernel\_hist': Kernel fitting method apply on return adjusted by EWMA.

. 'garch11': Garch(1,1) method.

. 'normal': Normal return method.

. 'mle\_normal': Normal return method (Estimating by maximum likelihood

method).

. 'monte\_carlo': Simulation method.

Return A return series that computed from price series.

Alpha Given probability of the event that loss exceeds VaR.

N\_th\_day Time point of VaR computing (...,-1,0,1,...)

. -1: previous day

. 0 : present

#### Value

Value at Risk at the time point.

#### Note

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#### Author(s)

Hung Vu

jVaRLim 35

#### References

Value at Risk.(reserchgate.net)

#### See Also

https://www.researchgate.net/profile/Vu\_Hung4

## **Examples**

```
y <- c(11, 12, 10, 13, 12, 14, 13, 15, 13, 14, 12)
s <- jReturn(y)
alpha <- 0.2
h <- 0
v <- jVaR('non_adjust_hist',s,alpha,h)</pre>
```

jVaRLim

Value at Risk Function(under price limit condition)

## **Description**

Compute VaR under price limit condition.

See the report: Value at Risk.<researchgate.net>

## Usage

```
jVaRLim(Ret, L, U, alpha, type, h)
```

# **Arguments**

Ret A return series that computed from price series.

L Lower limit.
U Upper limit.

alpha Given probability of the event that loss exceeds VaR.

type Computing method.

'model': Garch(1,1) method.

'histl': Historical method with return series adjusted by Garch(1,1) method.

'simul': Simulation method.

h Time point of VaR computing (...,-1,0,1,...)

. -1 : previous day. 0 : present. 1 : next day

#### Value

Value at Risk at the time point.

36 stockList

## Note

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#### Author(s)

Hung Vu

#### References

Value at Risk.(reserchgate.net)

#### See Also

https://www.researchgate.net/profile/Vu\_Hung4

# **Examples**

```
y <- c(11, 12, 10, 13, 12, 14, 13, 15, 13, 14, 12)
s <- jReturn(y)
alpha <- 0.2
h <- 0
L <- -0.13
U <- 0.16
v <- jVaRLim(s,L,U,alpha,'model',h)</pre>
```

stockList

Stock List.

# Description

Stock List.

#### Usage

```
data("stockList")
```

#### **Format**

The format is: chr [1:691] "AAA" "AAM" "ABT" "ACB" "ACC" "ACL" "ADC" ...

#### **Source**

 $http://www.cophieu68.vn/export.php\ https://www.vndirect.com.vn/portal/thong-ke-thi-truong-chung-khoan/lich-su-gia.shtml$ 

# **Examples**

```
data(stockList)
```

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