

# Package ‘TSEtools’

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**Type** Package

**Title** Download and Manage Data from Tehran Stock Exchange

**Version** 0.1.4

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**Description** Tools for downloading and organizing data from Tehran Stock Exchange (TSE) <<http://new.tse.ir/en/>>. It also performs some descriptive data analysis for assets.

**License** BSD\_2\_clause + file LICENSE

**Encoding** UTF-8

**LazyData** true

**Imports** xts, quantmod

**NeedsCompilation** no

**Repository** CRAN

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getTSE	<i>Download Historical Dataset from Tehran Stock Exchange (TSE)</i>
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## Description

getTSE function is an easy way to download and organize the historical dataset from websites of [TSE](#) and [www.tsetmc.com](http://www.tsetmc.com). Since, the raw data are not recorded in a standard format, we provide the function for organize the data in user friendly way. Daily data updated after 13:30 UTC. The market is closed on Friday and Wednesday and national holidays.

## Usage

```
getTSE(file, symbols=NA)
```

## Arguments

file	the path and name of external file which include the name of symbol and company and a specific code. The sample file (sample.csv) is available on packages (see, example). Given that randomly selected the companies. To get main file, please contact with maintainer.
symbols	a vector of character given the name of assets to download. The name of assets has to be included in the first column of file. The default value is NA which consider all assets at source file to download.

## Details

The list of symbols or assets can be named, and the list names will be used as names for the variables. Component data is an array with **xts** time series object. The name for dimensions are: Open, High, Low, Close, Volume, Last. The value of symbols are appear in Global Environment.

## Value

The output is an object of the “assets” name which get all the name of assets list to download.

## Examples

```
fpath<-system.file("extdata", "sample.csv", package="TSEtools")
assets0<-getTSE(fpath)$assets
```

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mcPrt

*Matrix Conversion in Portfolio*

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## Description

mcPrt function compound the vector of assets in matrix form to using the multivariate data analysis. The assets must be included the items of Open, Close, High, Low and Volumn. The function also calculate the rate of return and Sharpe ratio for portfolio selection.

## Usage

```
mcPrt(asset, sub = ":", pstvRtn = FALSE, pr = "daily", Rf = 0.0)
```

### Arguments

asset	a character vector of symbols.
sub	The character string in the form of "start date :: end date". The date format is "%Y-%M-%D". Since, the data is time series format, the rules of <b>xts</b> satisfied.
pstvRtn	logical flag to determine, if the symbols with mean of return (see, details) should be positive/negative. Missing value is taken as false. By setting pstvRtn=TRUE, only a check the symbols that the mean of return is not negative and symbols with negative returns will be vanished from the list of calculation.
pr	a character specifying the desired period time of return. Default value is daily. The values get "daily", "weekly" and "monthly".
Rf	an integer value to give risk free.

### Details

The values of function contain Sharpe ratio and rate of return. Sharpe ratio is defined as:

$$SR = \frac{\bar{R} - R_f}{\sigma_R}$$

where  $\bar{R}$  is the mean asset return,  $R_f$  is the risk free rate of return and  $\sigma_R$  is the standard deviation (volatility) of the asset.

Let  $X_t$  is the closing price of the asset at time  $t$  and its value after a period of length  $\Delta t$ , say  $X_{t+\Delta t}$ . The return over that period is defined as:

$$R_t = \frac{X_{t+\Delta t}}{X_t} - 1$$

Note that the return equation is equivalent to log return asset when the ratio value of the asset is close to 1 (see, Carmona 2003). To check the goodness of fit test on return value, maximum and minimum of prices, suggested to use the package of **gnFit**.

### Value

The values of function involve close, return, max and min as a matrix and xts format. The columns are a value of assets which is ordered by date. The mean return, volatility and Sharpe ratio are assigned in the out. The plot of return vs volatility and also the graph of Sharpe ratio are outputs of function.

### References

Carmona (2003, ISBN:0387202862)

### Examples

```
fpath<-system.file("extdata", "sample.csv", package="TSEtools")
asset0<-getTSE(fpath)$assets
rtn<-mcPrt(asset0, sub="2016::", pstvRtn=TRUE, pr="weekly")$return
```

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