R documentation

of '/Users/fabianarter/Library/Mobile' etc.

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R topics documented:

`CVaRPortfolioOptimizer` *CVaRPortfolioOptimizer*

Description

CVaR Portfolio Optimizer

Usage

```
CVaRPortfolioOptimizer(asset.names, daily.returns.data.wide, alpha)
```

Arguments

`asset.names`	Vector with names of the single assets in the portfolio to be optimized
`daily.returns.data.wide`	data.frame including the daily returns of the specific assets as well as a reference date
`alpha`	Alpha of the CVaR, this is the confidence level from which on the average of the tail risk is being calculated

Value

cvar CVaR of the specific portfolio or asset with the set alpha

`etlFinData` *etlFinData*

Description

etlFinData

Usage

```
etlFinData(start.date = as.Date("2019-01-01"),
  end.date = as.Date("2019-05-27"),
  input.tickers.df = data.frame(ticker = c("BA", "AIR.PA"), friendly.name
  = c("BOEING", "AIRBUS")))
```

Arguments

`start.date`	Start Date of the historical price data
`end.date`	End Date of the historical price data
`input.tickers.df`	Data Frame with the products we wish to have the prices, this includes the ticker symbol and a friendly name

Value

a list with two data frames: cumulated.returns.data.long and cumulated.returns.data.long

`generateOptimizationResultStats` *generateOptimizationResultStats*

Description

generate Optimization Result Stats

Usage

```
generateOptimizationResultStats(out.of.sample.period.months = 24,
  investment.period.months = 12, daily.returns.data.wide,
  pf.opt.type = "mpt.min.var", covar.type = "sample",
  correl.type = "sample", vola.type = "sample",
  exp.return = "sample", target.return = NA)
```

Arguments

`out.of.sample.period.months`	how many months are considered for the out of sample period
`investment.period.months`	number of months of the investment horizon before the next rebalancing happens
`daily.returns.data.wide`	data frame with returns with out of sample return data as well as data for the actual investment period
`pf.opt.type`	type of optimization, min.var,
`covar.type`	either sample of
`correl.type`	either sample of
`vola.type`	sample
`exp.return`	expected return of the assets, default is sample - meaning that we take historical asset return as a best predictor
`target.return`	default is NA

Value

list with result data.frames: weights.result.table,

`histCVaRcalc` *histCVaRcalc*

Description

calculates the historical Conditional VaR / Expected Shortfall of a portfolio or an asset

Usage

```
histCVaRcalc(daily.returns, alpha)
```

Arguments

`daily.returns`	Daily historical returns of a portfolio or single asset
`alpha`	Alpha of the CVaR, this is the confidence level from which on the average of the tail risk is being calculated

Value

cvar CVaR of the specific portfolio or asset with the set alpha

meanVariancePortfolioOptimizer *meanVariancePortfolioOptimizer*

Description

MPT mean Variance Portfolio Optimizer

Usage

```
meanVariancePortfolioOptimizer(asset.name, mu.vector, sigma.vector,
  correl.matrix, target.return, rf, print.out = FALSE,
  opt.focus.type = "return")
```

Arguments

asset.name	Name of assets available
mu.vector	vector with estimated returns of investment objects
sigma.vector	vector with the volatilities of the investment objects
correl.matrix	correlation matrix of the investment objects
target.return	which return level is seeked (for which the variance is minimized)
rf	risk free return

Value

weight.risky.assets a vector with the weights of the risky assets

Examples

```
weights.vector          <- c(0.7,0.3)
daily.returns.data.wide <- data.frame(ref.date=c(Sys.Date()-2:0), asset1.ret=c(-0.02,0.005,0.004), asset2.re
PFstats(weights.vector=weights.vector, daily.returns.data.wide=daily.returns.data.wide)
```

PFstats *PFstats*

Description

This function creates all important descriptive statistics such as VaR, ES, Return for a portfolio

Usage

```
PFstats(weights.vector, daily.returns.data.wide,
  num.trade.days.per.year = 250)
```

Arguments

`weights.vector` vector that contains the relative weights of the individual assets of the portfolio

`daily.returns.data.wide`
data.frame including the daily returns of the specific assets as well as a reference date

`num.trade.days.per.year`
Number of trading days per year, default set to 250

Value

a list with a data.frame PF.return.result.table that includes all statistics, as well as two graphs - histogram with returns and a correlation matrix

Examples

```
weights.vector          <- c(0.7,0.3)
daily.returns.data.wide <- data.frame(ref.date=c(Sys.Date()-2:0), asset1.ret=c(-0.02,0.005,0.004), asset2.re
PFstats(weights.vector=weights.vector, daily.returns.data.wide=daily.returns.data.wide)
```

SingleTitlestats *SingleTitlestats*

Description

This function creates Single Title stats

Usage

```
SingleTitlestats(daily.returns.data.wide, num.trade.days.per.year = 250)
```

Arguments

`daily.returns.data.wide`
data.frame including the daily returns of the specific assets as well as a reference date

`num.trade.days.per.year`
Number of trading days per year, default set to 250

Value

a list with a data.frame PF.return.result.table that includes all statistics, as well as two graphs - histogram with returns and a correlation matrix

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