Package ‘rrv’

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Title Random Return Variables

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Description This package is partly based on Markowitz (1952), however considers empirical distributions. There’s a strong emphasis on modelling conditional portfolio returns as functions of weight. Various ‘‘conditional parameters’’ are considered, including expected returns and quantile returns.

Depends s3x (>= 0.3.0), mecdf (>= 0.6.0)

Repository CRAN

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R topics documented:

cpr — *portfolio functions*

Description

As of rrv 0.4.0, cpr (conditional portfolio return) objects are created directly from an rrv object or a matrix and represent functions of weight. cpr_rrv objects return rprv objects, while cppr objects (e.g. cpr_expected) return numerics.

Usage

```
cpr_expected (x)
cpr_variance (x)
cpr_quantile (p, x)
cpr_median (x)
cpr_sd (x)
cpr_rrv (x)
portfolio.names (f)
## S3 method for class 'cppr'
plot(f, ...)
```

Arguments

`f`	A cppr object.
`x`	An rrv object or a matrix.
`p`	Quantile as a probability, between 0 and 1.
`...`	.

markowitz — *markowitz 1959 data*

Description

A copy of the securities data, used in Markowitz's 1959 book, more specifically a multivariate timeseries, representing returns on nine securities over 18 years.

Format

A table with 18 realisations of 10 variables (1 time variable and 9 response variables).

rrv — *random return variables*

Description

Random return variables, rrv objects, are (extended) matrices of realised returns, which in principle, represent a random variable with an empirical distribution. Standard rrv objects are potentially multivariate, and represent returns over one or more investments. Random portfolio return variables, rprv objects, are always univariate, and represent the weighted sum (generally weighted average) of one or more investment returns. rrv objects are created from a matrix or any object that can be converted to a matrix.

Usage

```
rrv (x)
rprv (x, w=rep (1, ncol (x) ) )
## S3 method for class 'rrv'
print(x, ...)
## S3 method for class 'rrv'
plot(x, ...)
## S3 method for class 'rrv'
sample(x, n=3, m=n, ...)
```

Arguments

`x`	.
`w`	.
`n`	.
`m`	.
`...`	.

tcp — *triangular heatmaps and triangular contour plots*

Description

The thm function is an early prototype for triangular heat maps (using vectorised graphics). The tcp function is intended to produce triangular contour plots, however currently just calls thm.

Usage

```
thm (f, n=25, ...)
tcp (f, ...)
```

Arguments

`f`	A pr object.
`n`	Resolution of the heatmap (n points per side).
`...`	.

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