Package ‘uncorbets’

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Type Package

Title Uncorrelated Bets via Minimum Torsion Algorithm

Version 0.1.0


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URL https://github.com/Reckziegel/uncorbets

BugReports https://github.com/Reckziegel/uncorbets/issues

Imports stats

Suggests spelling, covr, testthat (>= 3.0.0)

Config/testthat/edition 3

Encoding UTF-8

RoxygenNote 7.1.1

Language en-US

Depends R (>= 2.10)

NeedsCompilation no

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**effective_bets**  
*Effective Number of Bets*

**Description**
Computes the diversification probability distribution and the effective number of bets of an allocation.

**Usage**

effective_bets(b, sigma, t)

**Arguments**
- **b**: A vector of exposures (allocations).
- **sigma**: A \( n \times n \) covariance matrix.
- **t**: A \( n \times n \) torsion matrix.

**Value**
A list of length 2 with:
- \( p \): the diversification probability distribution;
- \( enb \): the effective number of bets.

**Examples**

```r
# extract the invariants from the data
set.seed(123)
log_ret <- matrix(rnorm(400), ncol = 4) / 10

# compute the covariance matrix
sigma <- stats::cov(log_ret)

definition <- torsion Covariance

definition <- torsion Covariance

definition <- torsion Covariance

definition <- torsion Covariance

definition <- torsion Covariance

definition <- torsion Covariance

# ENB
effective_bets(b = b, sigma = sigma, t = torsion_cov)
```
Computation of the Minimum Torsion Matrix

Description

Computes the Principal Components Torsion and the Minimum Torsion for diversification analysis.

Usage

torsion(sigma, model = "minimum-torsion", method = "exact", max_niter = 10000L)

Arguments

- **sigma**: A n x n covariance matrix.
- **model**: One of: "pca" or "minimum-torsion".
- **method**: One of: "approximate" or "exact". Only used when model = "minimum-torsion".
- **max_niter**: An integer with the maximum number of iterations.

Value

A n x n torsion matrix.

Examples

```r
# extract the invariants from the data
set.seed(123)
log_ret <- matrix(rnorm(400), ncol = 4) / 10

# calculate the covariance matrix
sigma <- stats::cov(log_ret)

# torsion
torsion(sigma = sigma, model = 'minimum-torsion', method = 'exact')
```
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