Package ‘stressr’

October 14, 2022

Title Fetch and plot financial stress index and component data.

Version 1.0.0

Date 2014-06-29

Author Matt Barry <mrb@softisms.com>

Maintainer Matt Barry <mrb@softisms.com>

Description Forms queries to submit to the Cleveland Federal Reserve Bank web site's financial stress index data site. Provides query functions for both the composite stress index and the components data. By default the download includes daily time series data starting September 25, 1991. The functions return a class of either type easing or cfsi which contain a list of items related to the query and its graphical presentation. The list includes the time series data as an xts object. The package provides four lattice time series plots to render the time series data in a manner similar to the bank's own presentation.

License MIT + file LICENSE

URL https://github.com/mrbcuda/stressr

BugReports https://github.com/mrbcuda/stressr/issues

Imports xts, XML, lattice, latticeExtra

Suggests testthat

NeedsCompilation no

Repository CRAN

Date/Publication 2014-06-30 10:59:21

R topics documented:

getComponentSummary 2
getCreditMarkets 3
getEquityMarkets 4
getForeignExchangeMarkets 5
getFundingMarkets 6
getRealEstateMarkets 7

getSecuritizationMarkets 8
getStressComponents 9
getStressIndex 10
stressAreaChart 11
stressIndexChart 12
stressLineChart 13
stressr 13
xyplot.cfsi 14
xyplot.stress 15

Index **16**

`getComponentSummary` *Get stress components summary*

Description

Downloads FRB financial stress index component data.

Usage

```
getComponentSummary(s = NULL)
```

Arguments

`s`	the list of class `stress` from previous queries, or NULL to perform new query

Details

Downloads the Cleveland FRB data products for financial stress index components daily time series. Component values include

- foreign exchange markets
- credit markets
- interbank markets
- equity markets
- real estate market
- securitization market

Value

A list of class `stress`

See Also

getStressData getEquityMarkets getFundingMarkets getCreditMarkets getForeignExchangeMarkets getRealEstateMarkets getSecuritizationMarkets

Examples

```
## Not run:
getEquityMarkets()

## End(Not run)
```

`getCreditMarkets` *Get credit markets stress components*

Description

Downloads FRB financial stress index component data.

Usage

```
getCreditMarkets(s = NULL)
```

Arguments

`s`	the list of class `stress` from previous queries, or NULL to perform new query

Details

Downloads the Cleveland FRB data products for financial stress index components daily time series. Component values include

- liquidity spread
- covered interest spread
- commercial paper - t-bill spread
- treasury yield curve spread
- coporate bond spread

Value

A list of class `stress`

See Also

getStressData getEquityMarkets getFundingMarkets getForeignExchangeMarkets getRealEstateMarkets getSecuritizationMarkets

Examples

```
## Not run:
getCreditMarkets()

## End(Not run)
```

`getEquityMarkets` *Get equity markets stress components*

Description

Downloads FRB financial stress index component data.

Usage

```
getEquityMarkets(s = NULL)
```

Arguments

`s`	the list of class `stress` from previous queries, or NULL to perform new query

Details

Downloads the Cleveland FRB data products for financial stress index components daily time series. Component values include

- stock market crashes

Value

A list of class `stress`

See Also

getStressData getEquityMarkets getFundingMarkets getCreditMarkets getForeignExchangeMarkets getRealEstateMarkets getSecuritizationMarkets

Examples

```
## Not run:
getEquityMarkets()

## End(Not run)
```

`getForeignExchangeMarkets` *Get foreign exchange markets stress components*

Description

Downloads FRB financial stress index component data.

Usage

```
getForeignExchangeMarkets(s = NULL)
```

Arguments

`s`	the list of class `stress` from previous queries, or NULL to perform new query

Details

Downloads the Cleveland FRB data products for financial stress index components daily time series. Component values include

- weighted dollar crashes

Value

A list of class `stress`

See Also

getStressData getEquityMarkets getCreditMarkets getFundingMarkets getRealEstateMarkets getSecuritizationMarkets

Examples

```
## Not run:
getForeignExchangeMarkets()

## End(Not run)
```

`getFundingMarkets` *Get funding markets stress components*

Description

Downloads FRB financial stress index component data.

Usage

```
getFundingMarkets(s = NULL)
```

Arguments

`s`	the list of class `stress` from previous queries, or NULL to perform new query

Details

Downloads the Cleveland FRB data products for financial stress index components daily time series. Component values include

- financial beta
- interbank cost of borrowing
- bank bond spread
- interbank liquidity spread

Value

A list of class `stress`

See Also

getStressData getEquityMarkets getCreditMarkets getForeignExchangeMarkets getRealEstateMarkets getSecuritizationMarkets

Examples

```
## Not run:
getFundingMarkets()

## End(Not run)
```

`getRealEstateMarkets` *Get foreign exchange markets stress components*

Description

Downloads FRB financial stress index component data.

Usage

```
getRealEstateMarkets(s = NULL)
```

Arguments

`s`	the list of class `stress` from previous queries, or NULL to perform new query

Details

Downloads the Cleveland FRB data products for financial stress index components daily time series. Component values include

- commecial real estate spread
- residential real estate spread

Value

A list of class `stress`

See Also

getStressData getEquityMarkets getCreditMarkets getFundingMarkets getForeignExchangeMarkets getSecuritizationMarkets

Examples

```
## Not run:
getRealEstateMarkets()

## End(Not run)
```

`getSecuritizationMarkets` *Get securitization markets stress components*

Description

Downloads FRB financial stress index component data.

Usage

```
getSecuritizationMarkets(s = NULL)
```

Arguments

`s`	the list of class `stress` from previous queries, or NULL to perform new query

Details

Downloads the Cleveland FRB data products for financial stress index components daily time series. Component values include

- residential MBS spread
- commercial MBS spread
- asset-backed security spread

Value

A list of class `stress`

See Also

getStressData getEquityMarkets getCreditMarkets getFundingMarkets getForeignExchangeMarkets getRealEstateMarkets

Examples

```
## Not run:
getSecuritizationMarkets()

## End(Not run)
```

getStressComponents — *Get financial stress index component data.*

Description

Downloads Cleveland FRB financial stress index data.

Usage

```
getStressComponents(verbose = FALSE)
```

Arguments

`verbose`	whether to print progress messages, default FALSE

Details

Transforms the HTML into a data frame, transforms the character date into `Date` objects, and then an `xts` object.

Value

List of class type `stress` containing `xts` time history object `df`, plot colors array `colors`, default plot main title `main`, and default plot y-axis label `ylab`.

Note

Meant for internal use by the other, more specific, query functions.

References

http://www.clevelandfed.org/research/data/financial_stress_index/index.cfm

See Also

getStressIndex

Examples

```
## Not run:
getStressComponents()

## End(Not run)
```

`getStressIndex` *Get financial stress index data.*

Description

Downloads Cleveland FRB financial stress index data.

Usage

```
getStressIndex(verbose = FALSE)
```

Arguments

`verbose`	whether to print progress messages, default FALSE

Details

Transforms the HTML into a data frame, transforms the character date into `Date` objects, and then an `xts` object.

Value

List of class type `cfsi` containing `xts` time history object `df`, plot colors array `colors`, default plot main title `main`, and default plot y-axis label `ylab`.

References

http://www.clevelandfed.org/research/data/financial_stress_index/index.cfm

See Also

getStressComponents

Examples

```
## Not run:
getStressIndex()

## End(Not run)
```

stressAreaChart *Financial stress component data as a stacked area chart.*

Description

Provides a convenience function for passing a `stress` object to `xyplot` to render a sand (stacked area) chart.

Usage

```
stressAreaChart(e, range = NA)
```

Arguments

`e`	an object of class `stress` as returned by `getStressComponents` and its many offspring.
`range`	a range string as used by `xts` to subset time series dates, e.g. "1996/1997". Defaults to NA for full range.

Details

Provides several assumptions about the display of the `stress` data to correspond to similar presentations at the Cleveland Fed's data site. To implement the stacked area chart the function first computes the column-wise value accumulations, then passes these values to the `latticeExtra` `xyarea` polygon rendering tools. Plots the columns in reverse stacking order to show the desired overlaps.

See Also

xyplot.stress stressLineChart getStressComponents getComponentSummary getEquityMarkets getFundingMarkets getCreditMarkets getForeignExchangeMarkets getRealEstateMarkets getSecuritizationMarkets

Examples

```
## Not run:
es <- getEquityStress()
stressAreaChart(es)

## End(Not run)
```

`stressIndexChart` *Financial stress index data line chart with regions.*

Description

Provides a convenience function for passing a `cfsi` object to `xyplot` with attributes as presented by the source.

Usage

```
stressIndexChart(e, range = NA, showGradeRegions = TRUE)
```

Arguments

`e`	an object of class `cfsi` as returned by `getStressIndex`.
`range`	a range string as used by `xts` to subset time series dates, e.g. "1996/1997". Defaults to NA for full range.
`showGradeRegions`	whether to show the stress grade regions and labels

Details

Provides several assumptions about the display of the `cfsi` data to correspond to similar presentations at the Cleveland Fed's data site.

See Also

xyplot.cfsi getStressIndex

Examples

```
## Not run:
idx <- getStressIndex()
stressIndexChart(idx)

## End(Not run)
```

`stressLineChart` *Financial stress component data as an unstacked line chart.*

Description

Provides a convenience function for passing a `stress` object to `xyplot`.

Usage

```
stressLineChart(e, range = NA)
```

Arguments

`e`	an object of class `stress` as returned by `getStressComponents` and its many offspring.
`range`	a range string as used by `xts` to subset time series dates, e.g. "1996/1997". Defaults to NA for full range.

Details

Provides several assumptions about the display of the `stress` data to correspond to similar presentations at the Cleveland Fed's data site.

See Also

xyplot.stress stressAreaChart getStressComponents getComponentSummary getEquityMarkets getFundingMarkets getCreditMarkets getForeignExchangeMarkets getRealEstateMarkets getSecuritizationMarkets

Examples

```
## Not run:
es <- getEqityStress()
stressLineChart(es,"2007/2009)

## End(Not run)
```

`stressr` *Financial stress index component data.*

Description

Fetches financial stress index component data as time series and provides plots.

Details

Downloads the financial stress index component daily data in its original XLS format from the Federal Reserve Bank of Cleveland's web site, and then translates that data into an `xts` time series object with stress component value histories as columns. Provides custom `lattice` line and area plot functions for data presentation.

Author(s)

Matt Barry <mrb@softisms.com>

References

Federal Reserve Bank of Cleveland research data site http://www.clevelandfed.org/research/data/financial_stress_index/index.cfm

---

`xyplot.cfsi` *Financial stress index component data xyplot*

Description

Provides a convenience function for passing an `cfsi` object to `xyplot`.

Usage

```
## S3 method for class 'cfsi'
xyplot(x, ...)
```

Arguments

`x`	an object of class `stress` as returned by `getStressIndex`.
`...`	other parameters passed to `xyplot`.

See Also

stressLineChart stressAreaChart getStressIndex xyplot.stress

Examples

```
## Not run:
ci = getStressIndex()
xyplot(ci)

## End(Not run)
```

`xyplot.stress` *Financial stress index component data xyplot*

Description

Provides a convenience function for passing an `stress` object to `xyplot`.

Usage

```
## S3 method for class 'stress'
xyplot(x, ...)
```

Arguments

`x`	an object of class `stress` as returned by `getStressComponents` and its many offspring.
`...`	other parameters passed to `xyplot`.

See Also

stressLineChart stressAreaChart getStressComponents xyplot.cfsi

Examples

```
## Not run:
require(lattice)
fs <- getFundingStress()
xyplot(fs)

## End(Not run)
```

Index

∗ **FRB**
    stressr, 13
∗ **component**
    stressr, 13
∗ **financial**
    stressr, 13
∗ **index**
    stressr, 13
∗ **stress**
    stressr, 13

getComponentSummary, 2
getCreditMarkets, 3
getEquityMarkets, 4
getForeignExchangeMarkets, 5
getFundingMarkets, 6
getRealEstateMarkets, 7
getSecuritizationMarkets, 8
getStressComponents, 9, *11*, *13*, *15*
getStressIndex, 10, *12*, *14*

stressAreaChart, 11
stressIndexChart, 12
stressLineChart, 13
stressr, 13
stressr-package *(*stressr*)*, 13

xyplot, *14, 15*
xyplot.cfsi, 14
xyplot.stress, 15