

# Package ‘stressr’

February 20, 2015

**Title** Fetch and plot financial stress index and component data.

**Version** 1.0.0

**Date** 2014-06-29

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**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.

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**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

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getComponentSummary	<i>Get stress components summary</i>
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## 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	<i>Get credit markets stress components</i>
------------------	---

---

### 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	<i>Get equity markets stress components</i>
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---

### 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

- commercial 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](http://www.clevelandfed.org/research/data/financial_stress_index/index.cfm)

**See Also**

getStressIndex

**Examples**

```
## Not run:  
getStressComponents()  
  
## End(Not run)
```

---

getStressIndex	<i>Get financial stress index data.</i>
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---

### 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](http://www.clevelandfed.org/research/data/financial_stress_index/index.cfm)

### See Also

getStressComponents

### Examples

```
## Not run:  
getStressIndex()  
  
## End(Not run)
```

---

stressAreaChart	<i>Financial stress component data as a stacked area chart.</i>
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---

### Description

Provides a convenience function for passing a `stress` object to `xyp1ot` to render a sand (stacked area) chart.

### Usage

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

### Arguments

<code>e</code>	an object of class <code>stress</code> as returned by <a href="#">getStressComponents</a> and its many offspring.
<code>range</code>	a range string as used by <code>xts</code> to subset time series dates, e.g. "1996/1997". Defaults to <code>NA</code> 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

`xyp1ot.stress` `stressLineChart` `getStressComponents` `getComponentSummary` `getEquityMarkets` `getFundingMarkets` `getCreditMarkets` `getForeignExchangeMarkets` `getRealEstateMarkets` `getSecuritizationMarkets`

### Examples

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

---

stressIndexChart	<i>Financial stress index data line chart with regions.</i>
------------------	---

---

### 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

<code>e</code>	an object of class <code>cfsi</code> as returned by <a href="#">getStressIndex</a> .
<code>range</code>	a range string as used by <code>xts</code> to subset time series dates, e.g. "1996/1997". Defaults to <code>NA</code> for full range.
<code>showGradeRegions</code>	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	<i>Financial stress component data as an unstacked line chart.</i>
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---

**Description**

Provides a convenience function for passing a stress object to xypilot.

**Usage**

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

**Arguments**

e	an object of class stress as returned by <a href="#">getStressComponents</a> 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**

xypilot.stress stressAreaChart getStressComponents GetComponentSummary getEquityMarkets getFundingMarkets getCreditMarkets getForeignExchangeMarkets getRealEstateMarkets getSecuritizationMarkets

**Examples**

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

## End(Not run)
```

---

stressr	<i>Financial stress index component data.</i>
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**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](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	<i>Financial stress index component data xyplot</i>
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---

**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 <a href="#">getStressComponents</a> and its many offspring.
...	other parameters passed to <a href="#">xyplot</a> .

**See Also**

[stressLineChart](#) [stressAreaChart](#) [getStressComponents](#) [xyplot.cfsi](#)

**Examples**

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

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