Accessing Financial Data with R

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Abstract

Financial data analysis with R requires access to financial data. This document will demonstrate a variety of ways to to access free financial data from the internet. We will also discuss accessing financial data downloaded from some commercial financial databases.

1 The `getSymbols` function from the `quantmod` package

Probably the most useful function for retrieving financial data from the internet is the `getSymbols` function from the `quantmod` package. The function `getSymbols` can download data from Yahoo Finance, Google Finance, the Federal Reserve's FRED database, and Oanada. The function can also read data from MySQL databases, `.csv` files, and `.RData` files.

The following code chuck shows the arguments of the function.

```
library(quantmod)
args(getSymbols)

## function (Symbols = NULL, env = parent.frame(), reload.Symbols = FALSE,
##     verbose = FALSE, warnings = TRUE, src = "yahoo", symbol.lookup = TRUE,
##     auto.assign = getOption("getSymbols.auto.assign", TRUE),
##     ...)
## NULL
```

The key arguments are summarized as follows:

Symbols character vector of ticker systems to download (this is the only required argument)

src data source: yahoo (default), google, MySQL, FRED, csv, RData, and oanda

1.1 Downloading data from Yahoo Finance

The following code chunk demonstrates how to download the S&P 500 index data from Yahoo Finance, the default data source.

```
getSymbols("^GSPC")
chart_Series(GSPC)
```

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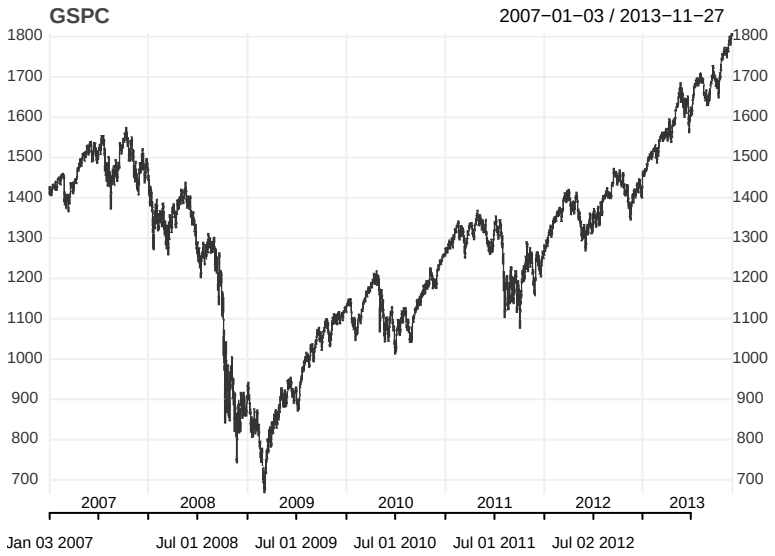

1.2 Downloading data from the Federal Reserve's FRED database

The Federal Reserve's FRED database (http://research.stlouisfed.org/) contains more than 150,000 US and international financial and economic time series.

The following code chunk demonstrates how to download the 3-month Treasury Bill rate from FRED.

```
getSymbols("DGS3MO", src = "FRED")

## [1] "DGS3MO"

plot(DGS3MO, main = "3-Month Treasury Constant Maturity Rate", cex.main = 0.75)
```