

CHAPTER 4

DOWLOADING NSE DEBT SERIES

```
> library(fBasics)
> library(fImport)
```

4.1 THE DOWNLOAD URL

Historical Data on the debt market can be accessed following the menu Link: DEBT on NSE's home page. Three segments of the debt market data are available

LISTING 4.1: NSE DEBT SEGMENTS

Corporate Bonds
Wholesale Debt Market
Retail Debt Market

The Wholesale Debt Market

The *Wholesale Debt Market*, WDM, segment deals in fixed income securities and is rapidly gaining ground in an environment that has largely focussed on equities. The WDM segment of NSE started operations in June 1994. For more information we refer to

http://www.nseindia.com/content/debt/debt_introduction.htm

The MIBID and MIBOR Download URL

The historical time series files for the MIBIB and MIBOR rates can be downloaded as zipped .csv files from the following web page

```
http://www.nseindia.com/marketinfo/eod_information/bidbor.jsp
```

The files for the different maturities, overnight, two weeks, one month, and one quarter are

```
http://www.nseindia.com/content/debt/Overnight.zip
http://www.nseindia.com/content/debt/14day.zip
http://www.nseindia.com/content/debt/1month.zip
http://www.nseindia.com/content/debt/3month.zip
```

You have to download these files, to unzip them, and finally to clean the .csv

4.2 DOWNLOAD DEBT TIME SERIES

Example: Load the Overnight Rates

Compose the download URL for the overnight rates

```
> DEBT <- "Overnight"
> URL <- composeURL("www.nseindia.com/content/debt/", DEBT, ".zip")
> URL
[1] "http://www.nseindia.com/content/debt/Overnight.zip"
```

Download the zip file and unzip it

```
> download.file(URL, paste(DEBT, "zip", sep = "."))
> unzip(paste(DEBT, "zip", sep = "."))
```

Then convert the first spread sheet of the file into a .csv file

```
> sheet = 1
> package.dir <- .path.package("fImport")
> perl.dir <- file.path(package.dir, "perl")
> xls2csv <- file.path(perl.dir, "xls2csv.pl")
> xls <- paste(DEBT, "xls", sep = ".")
> csv <- paste(DEBT, "csv", sep = ".")
> cmd <- paste("perl", xls2csv, xls, csv, sheet, sep = " ")
> system(cmd, intern = TRUE)
[1] "Loading Overnight.xls ..."
[2] ""
[3] "Original Filename :Overnight.xls"
[4] "Number of Sheets :1"
[5] "Author          :agodkar"
[6] ""
[7] "Writing Sheet number 1 ('Overnight') to file 'Overnight.csv'"
[8] "Minrow=0 Maxrow=3714 Mincol=0 Maxcol=255"
[9] " (Ignored 1 blank lines.)"
[10] ""
```

Load the .csv file, clean it up

```
> Download = read.lynx("Overnight.csv")
> download = gsub("[\\\" ]", "", Download)
> download = indexGrep("^[0-9]", download)
> download = download[-grep("[A-Z]", download)]
```

and convert it into a timeSeries object

```
> ON <- timeSeries(data = dataSplit(download, split = ",", col = 2:5),
  charvec = charvecSplit(download, split = ",", format = "%d-%b-%y"),
  units = paste("ON", c("MIBID", "MIBID.SD", "MIBOR", "MIBOR.SD"),
  sep = "-")
> start(ON)
GMT
[1] [1998-06-15]
> tail(ON)
GMT
      ON-MIBID ON-MIBID.SD ON-MIBOR ON-MIBOR.SD
2010-05-22    3.83      0.0113    3.90      0.0088
2010-05-24    4.08      0.0216    4.21      0.0128
2010-05-25    4.03      0.0156    4.14      0.0166
2010-05-26    4.00      0.0036    4.11      0.0101
2010-05-28    4.60      0.0580    4.72      0.0665
2010-04-01      NA          NA          NA          NA
```

The first column is the overnight MIBID and the third the overnight MIBOR rate. The second and third columns are their standard deviations. Now let us plot the time series

```
> plot(ON, main = "MIBID and MIBOR Overnight Rates")
```

4.3 THE FUNCTION `nseDebtDownload()`

We can put together the code snippets from the previous section and write a download function for the debt instruments.

Exercise: Write a Download Function

Hint: Have a look how we have written the functions `nseIndexDownload()` and `nseEquityDownload()`.

4.4 NSE CLOSING DATES

Note, the download files of the overnight rates also contain all NSE holidays and closing days of the exchange, i. e. the dates of missing data records. We can use this information to build a BSE closing calendar.

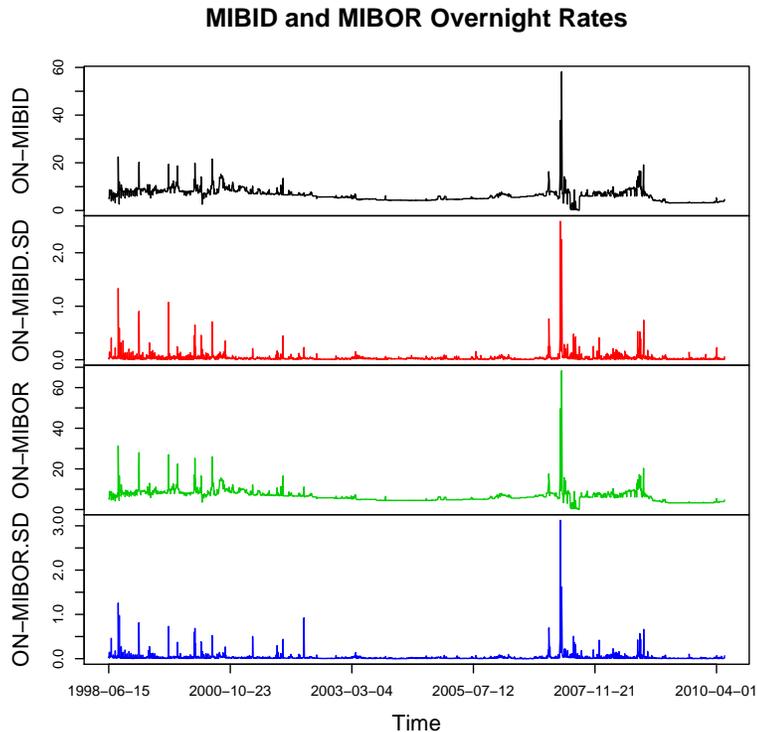


FIGURE 4.1: Overnight Interest Rates

Example: Holiday Calendar 2005

```

> download = gsub("\\", "", Download)
> download = gsub(" ", "", download)
> download = gsub(" ", " ", download)
> download = gsub(",,", " ", download)
> download = indexGrep("[A-Z]", download)
> download = download[-c(1, grep("MIBID/MIBOR", download))]

```

After we have extracted the closing days we can compose the calendar starting January 2000.

```

> charvec <- charvecSplit(download, split = ",", format = "%d-%b-%y")
> holidays <- tableSplit(download, split = ",", col = 2)
> holidays <- gsub(" ", "", holidays)
> holidayListing <- indexGrep("^2", paste(charvec, holidays))

```

Let us print the Calendar for the year 2005

```

> holidays2005 <- indexGrep("^2005", holidayListing)

```

```
> holidays2005
```

```
[1] "2005-01-21 Bakri ID"  
[2] "2005-01-26 Republic Day"  
[3] "2005-03-08 Mahashivratri"  
[4] "2005-03-25 Good Friday"  
[5] "2005-03-26 Holi (2nd day)"  
[6] "2005-04-09 Gudhi Padva"  
[7] "2005-04-14 Dr. Babasaheb Ambedkar Jayanti"  
[8] "2005-04-18 Ram Navami"  
[9] "2005-04-22 Mahavir Jayanti"  
[10] "2005-05-23 Buddha Pournima"  
[11] "2005-08-15 Independence Day"  
[12] "2005-08-20 Parsi New Year"  
[13] "2005-09-07 Ganesh Chaturthi"  
[14] "2005-10-12 Dasara "  
[15] "2005-11-01 Diwali Amavasya (Laxmi Pujan)"  
[16] "2005-11-05 Ramzan-Id (ID-Ul-Fitar)"  
[17] "2005-11-15 Guru Nanak Jayanti"
```