Introduction to Financial Risk Management (with R)

Exercise 3 – Calculating Returns on Gold

Overview

The goal of this exercise is to use R to calculate returns on the price of Gold retrieved from FRED.

Returns of the Wilshire 5000 Index from FRED

In the lectures, we ran the following R script to create a data series called "wilsh":

```
library(quantmod)
getSymbols("WILL5000IND",src="FRED")
wilsh <- na.omit(WILL5000IND)
wilsh <- wilsh["1979-12-31/2017-12-31"]
names(wilsh) <- "TR"
```

We then ran the following sequence of R commands.

First, run the following R commands to see that the first observation is an "NA":

```
logret <- diff(log(wilsh))
head(logret,3)
```

Second, run the following R commend to see that the "NA" in the first observation is removed:

```
logret <- diff(log(wilsh))[-1]
round(head(logret,3),6)
```

Third, calculate the discrete returns using the log returns:

```
ret <- exp(logret) - 1
round(head(ret,3),6)
```

Returns of the Gold Prices from FRED

In Exercise 2, you retrieved the price of gold in the London Bullion Market at 3pm from FRED: "GOLDPMGBD228NLBM"
You also removed all "NA" observations from this series, and restricted the dates of the series from 1979-12-31 to 2017-12-31.

In Exercise 3, you will calculate the log returns of Gold, and then the discrete returns from the log returns.