Financial Data Analysis Group Project

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Abstract

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1 Introduction

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2.1 Data Source

2.2 Data Description

We first use monthly USD/CNY exchange rate data from 1981-01-01 to 2017-06-01 to plot a trend figure shown as figure 1. According with the news, China used to set fixed exchange rate mechanism before 2015-07-21, the volatility of exchange rate was small. After that date, China started exchange rate regime reforming: announced a move away from the US dollar peg and used a floating exchange rate. Thus in this paper we will mainly focus on analysing exchange rate after the reform.

We collected the daily USD/CNY exchange rate as our data set. The data we found are already wipe out the seasonal effect so we use them directly in examining the model and further doing forecast. We divided the data into two parts one until July 21st,2016 for examine the model and the data after that date until June 9th,2017 for checking the

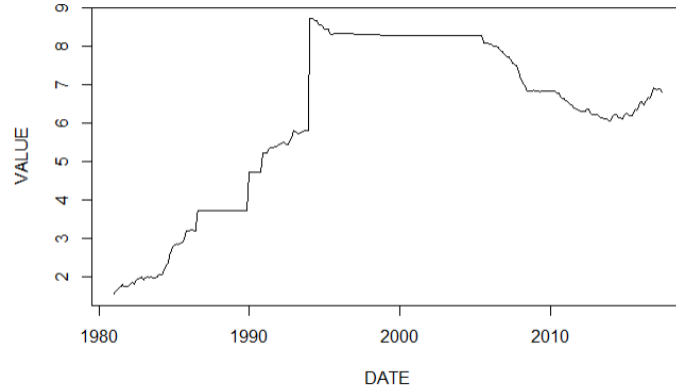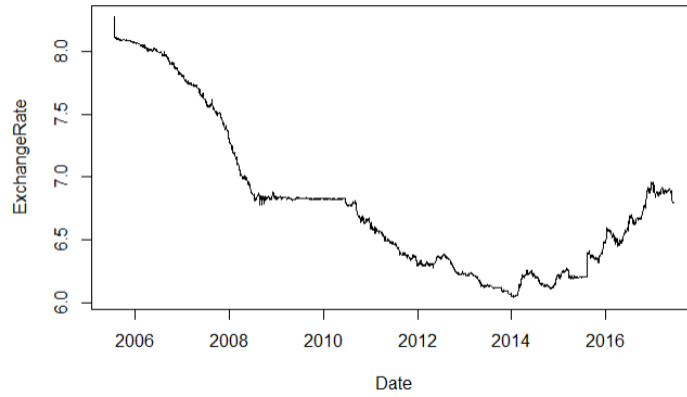Figure 1: CNY/ USD Exchange Rate using monthly data

Figure 2: CNY/ USD Exchange Rate using monthly data

evaluation of the models. The trend figure is shown in figure 2.

3   Model Specification

There are usually two ways in analysing the exchange rate in time series: ARIMA model and GARCH model since they are the more general form of an ARMA model and an ARCH model.

3.1 ARIMA

An ARIMA model is ARMA .

We first do an ADF test to check whether there exists an unit root in the serial.

```
# ADF Test
origin=da$ExchangeRate
ex=origin[1:2766] # 2005-07-21 To 2016-07-21
dex=diff(ex)
m1=ar(dex,method = 'mle')
m1$order
adfTest(ex,lags=12,type=c("c"))

# Take difference
acf(dex)
pacf(dex)
```

3.2 GARCH

4 Estimation and Result Analysis

5 Conclusions

There is no longer LaTeX example which was written by [Doe].

6 Reference

References

[Doe] *First and last LaTeX example.*, John Doe 50 B.C.

7 Appendix

7.1 Additional R code

```
library(readxl)
library(timeDate)
library(timeSeries)
library(TSA)
```

```r
library(fUnitRoots)
library(forecast)

data <- read_excel("D:/Junior/GitHub/FDA_project_LYF/Data/MonthlyData.xl

head(data)
dim(data)

plot(data,type="l")
```