

Time Series Analysis

Lecture 5

Vector Autoregressive (VAR) Models

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Spurious Correlation: Another Example

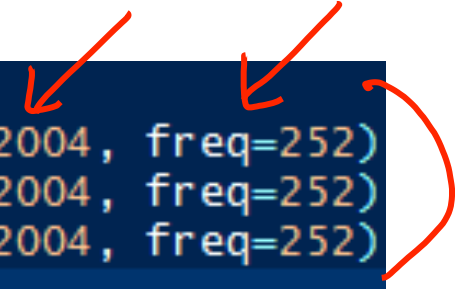
An Example From Three Currency Exchange Rates Series

- This is a dataset we have used before, but we used only one of the three series.
- In this example, we will use all three series.

```
# First, we use the cleaned data set provided in CM2009
us_xrates <- read.table("C:/Users/K/z_Teach/MIDS_AdvStat/data/us_xrates.txt",
  str(us_xrates) # check the structure of the data
                # 1003 observations and 3 variables
us_xrates[1:5,]
```

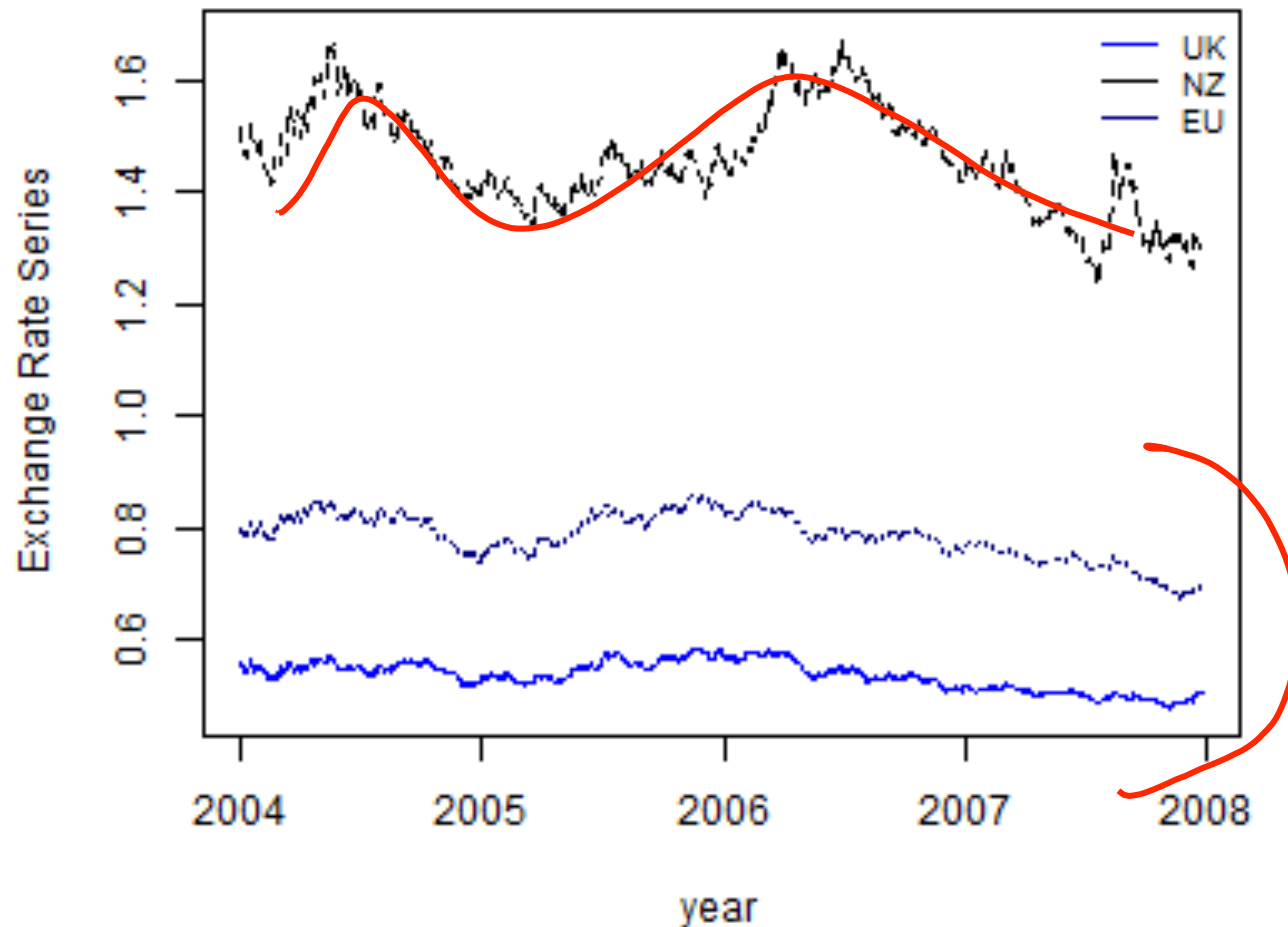
```
# Extract the currency series
UK.ts <- ts(us_xrates[,1], start=2004, freq=252)
NZ.ts <- ts(us_xrates[,2], start=2004, freq=252)
EU.ts <- ts(us_xrates[,3], start=2004, freq=252)

length(UK.ts); length(NZ.ts); length(EU.ts)
t=c(1:length(UK.ts))
```



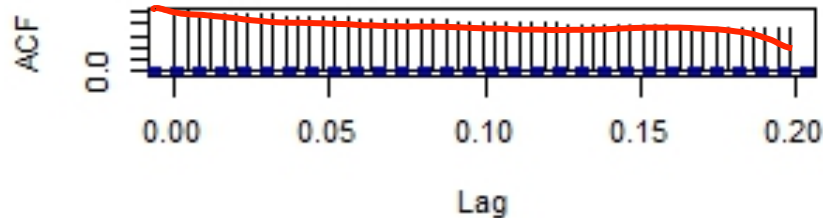
Currency Exchange Rates Series: T-Plots

British Pound, New Zealand Dollar, and Euro Currency Se

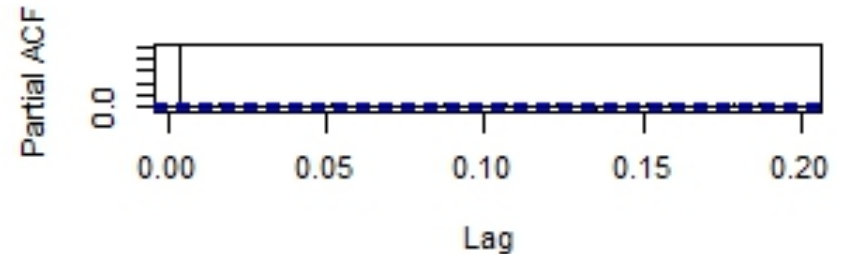


Currency Exchange Rates Series: ACF

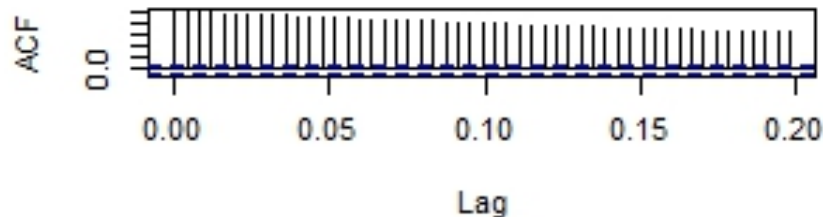
ACF of British Pound



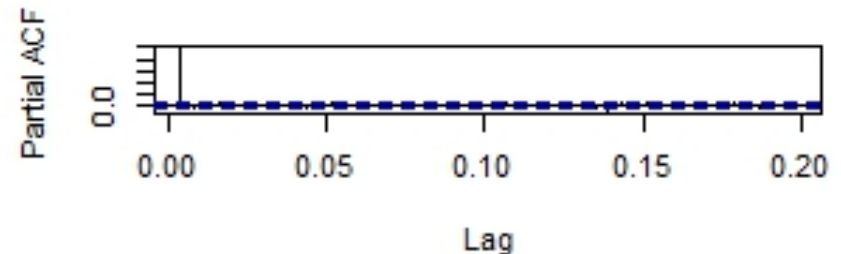
PACF of British Pound



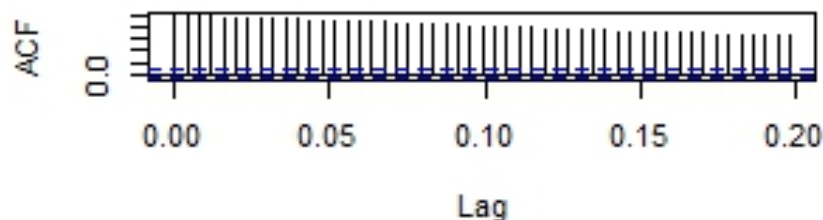
ACF of New Zealand Dollar



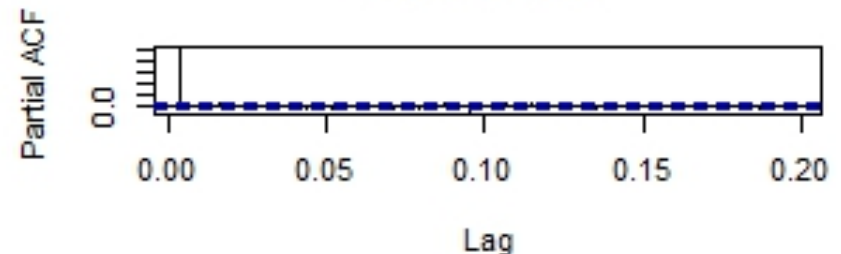
PACF of New Zealand Dollar



ACF of Euro



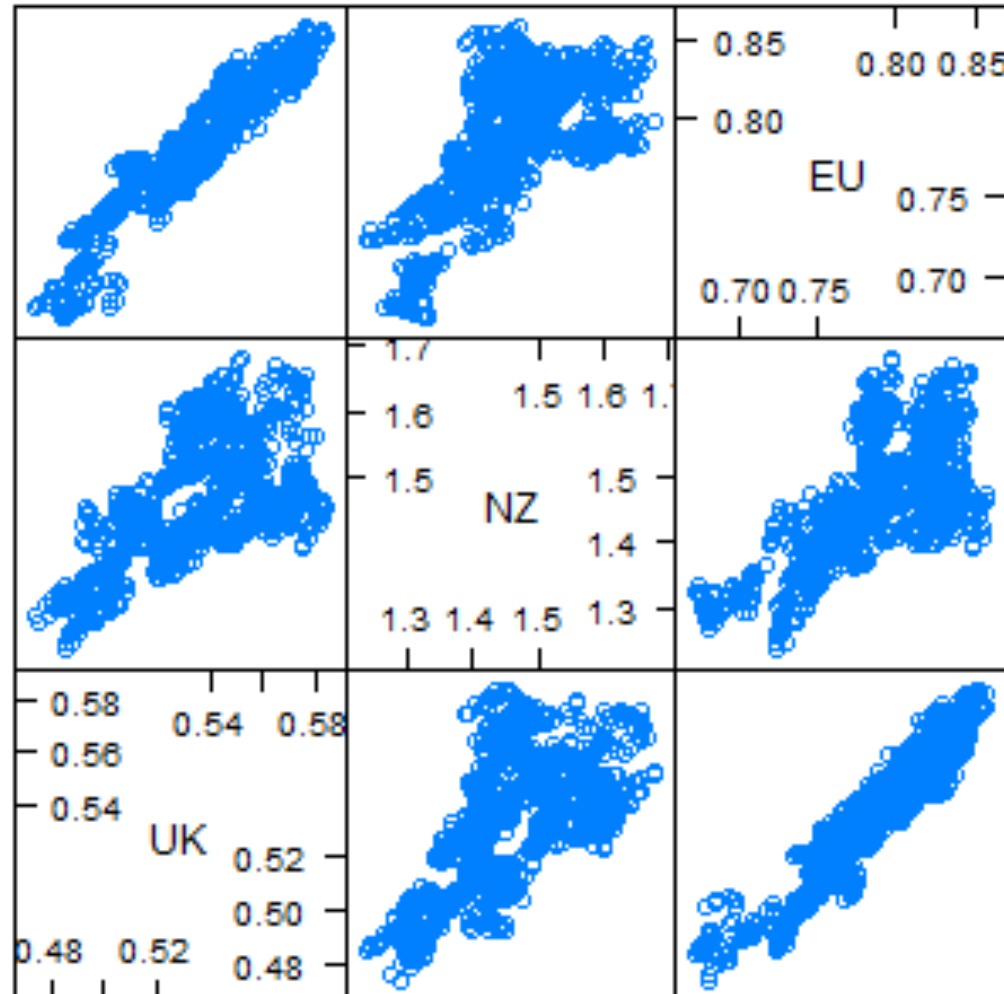
PACF of Euro



Currency Exchange Rates Series: Scatter Plot Matrix

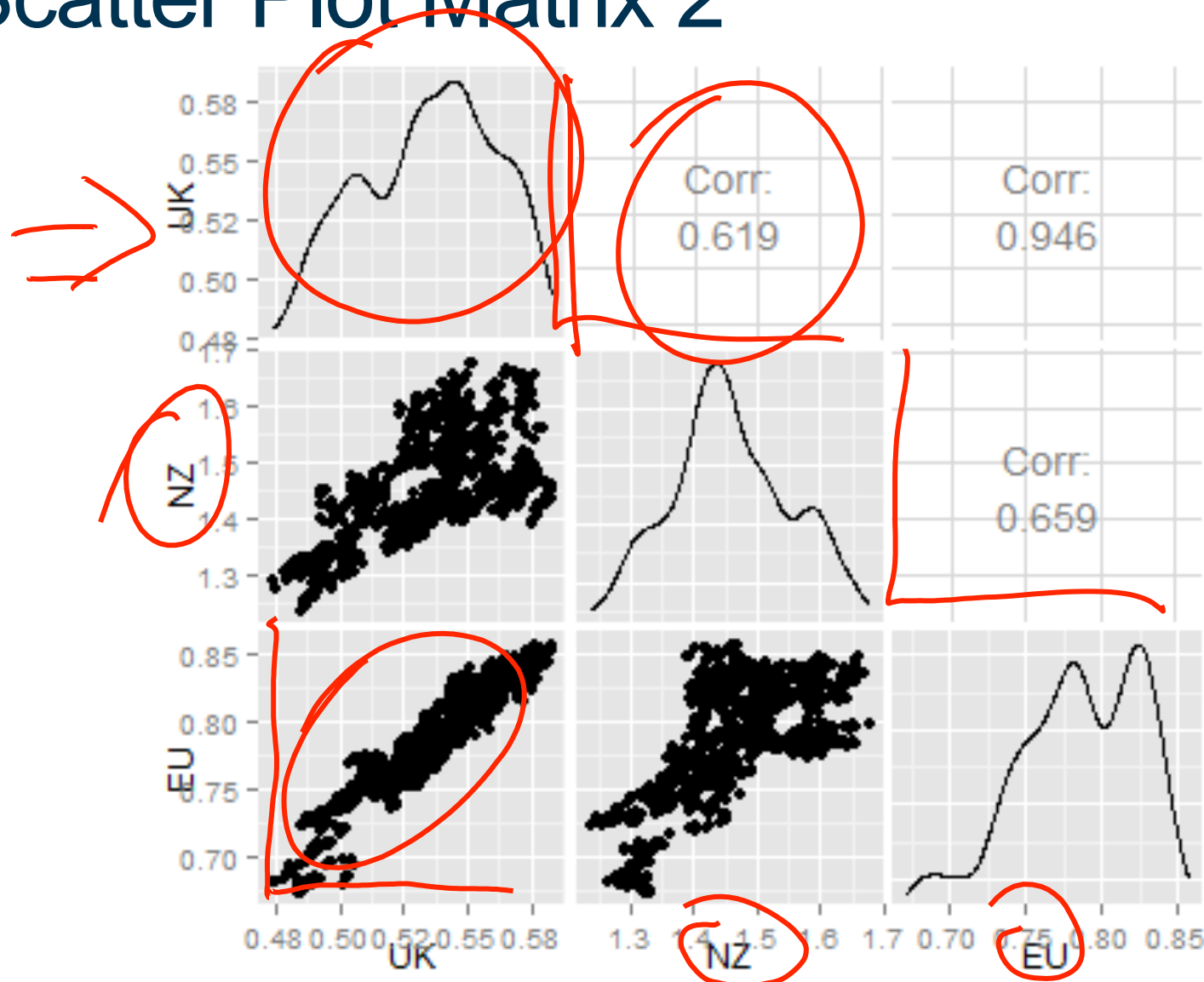
Pairwise Scatterplot of British Pounds, NZ Dollar, and Euro

	UK	NZ	EU
UK	1.00	0.62	0.95
NZ	0.62	1.00	0.66
EU	0.95	0.66	1.00



Scatter Plot Matrix

Currency Exchange Rates Series: Scatter Plot Matrix 2



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