IF Medium-term Exchange Rate Prediction

Sitian Huang 31984541

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```
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.1 --
```

```
## v ggplot2 3.3.3     v purrr   0.3.4
## v tibble  3.1.1     v dplyr   1.0.5
## v tidyr   1.1.3     v stringr 1.4.0
## v readr   1.4.0     v forcats 0.5.1
```

```
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

Data Cleaning

```
com<-function(name){
  df <- read.csv(name,header = FALSE)
  df<-df[-1,]
  df <- df %>% mutate_if(is.character,as.numeric)%>%
    dplyr::select(rate=V2)

  #write.csv(df,n,row.names=FALSE,col.names=FALSE)
  return(df)}

# 2018.10.15-2021.10.15
df<-com('AUD_CNY.csv')

d21<-com('AUD_CNY2021.csv')
d20<-com('AUD_CNY2020.csv')
d19<-com('AUD_CNY2019.csv')

r21<-mean(d21$rate)
r20<-mean(d20$rate)
r19<-mean(d19$rate)

rate<-cbind(r21,r20,r19)
rate
```

```
##           r21      r20      r19
## [1,] 4.886703 4.755047 4.833942
```

Bulid Linear Models

```
library(tidymodels)
```

```
## -- Attaching packages -------------------------------------- tidymodels 0.1.3 --
```

```
## v broom        0.7.6      v rsample      0.0.9
## v dials        0.0.9      v tune         0.1.5
## v infer        0.5.4      v workflows    0.2.2
## v modeldata    0.1.0      v workflowsets 0.0.2
## v parsnip      0.1.5      v yardstick    0.0.8
## v recipes      0.1.16
```

```
## -- Conflicts ----------------------------------------- tidymodels_conflicts() --
## x scales::discard() masks purrr::discard()
## x dplyr::filter()   masks stats::filter()
## x recipes::fixed()  masks stringr::fixed()
## x dplyr::lag()      masks stats::lag()
## x yardstick::spec() masks readr::spec()
## x recipes::step()   masks stats::step()
## * Use tidymodels_prefer() to resolve common conflicts.
```

```
lm_mod<-linear_reg()%>%
  set_engine('lm')

fit_df<-lm_mod%>%
  fit(rate~lag(rate,1) + lag(rate,2) +lag(rate,3)+ 0,data=df)

library(kableExtra)
```

```
##
## Attaching package: 'kableExtra'
```

```
## The following object is masked from 'package:dplyr':
##
##     group_rows
```

```
tidy(fit_df)%>%kable()%>%kable_styling()
```

term	estimate	std.error	statistic	p.value
lag(rate, 1)	1.0556102	0.0357244	29.5486823	0.0000000
lag(rate, 2)	0.0066648	0.0520071	0.1281519	0.8980619
lag(rate, 3)	-0.0622457	0.0357297	-1.7421283	0.0818807

Rough Verification

```
ggplot(df,aes(rate))+geom_histogram(binwidth = 0.02)
```