# Homework Metrics 2b: Federal Reserve's interest rates and global outstanding credit. A univariate and multivariates analysis

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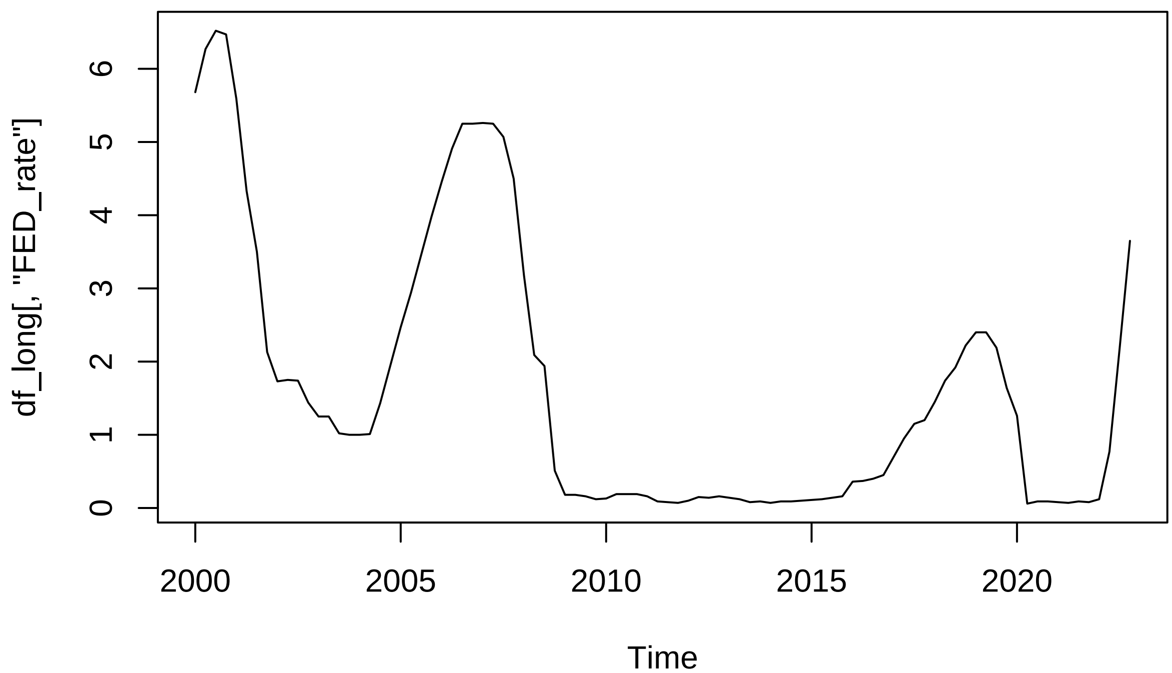
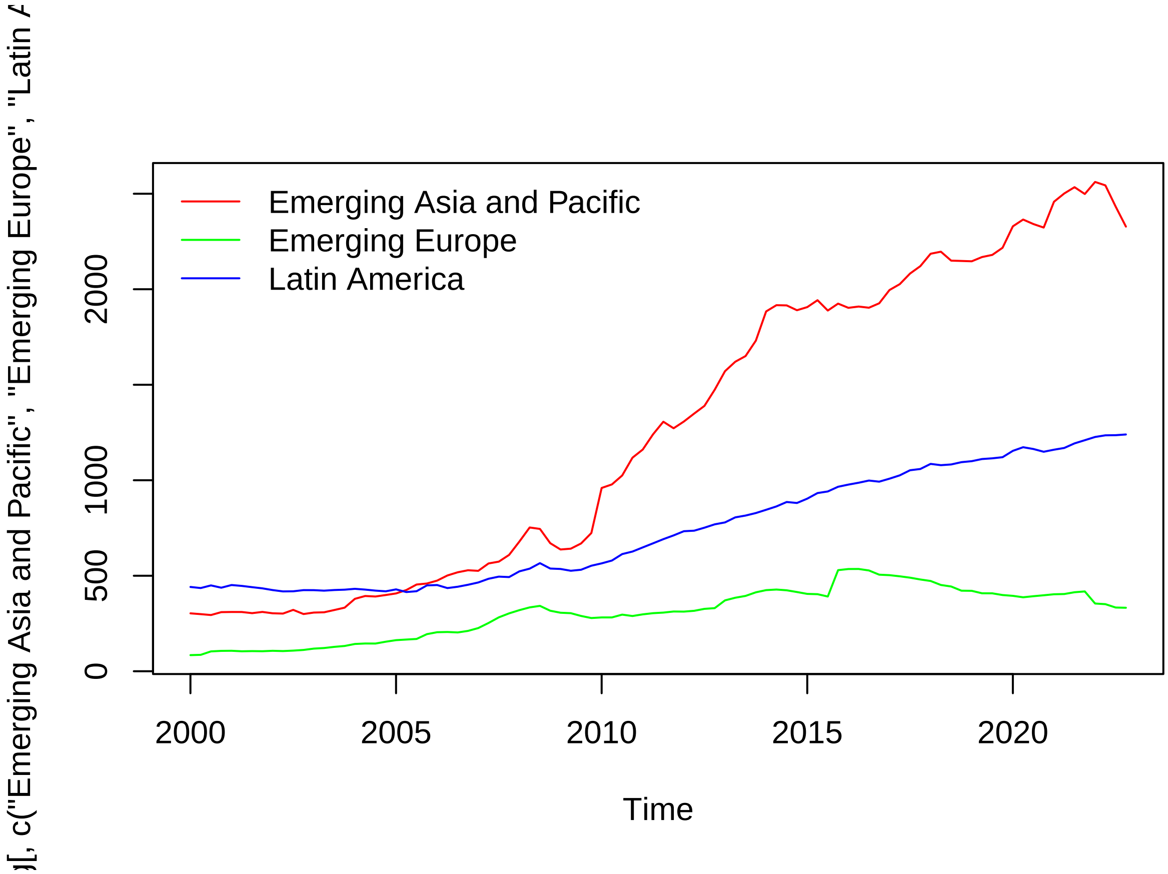
```
knitr::opts_chunk$set(
  echo = TRUE,
  warning = FALSE,
  message = FALSE
)
```






```r
library(urca)
library(zoo)
library(forecast)
df_long <- ts(df_long, start=c(2000, 1), frequency=4)
# 2.1 ADF Test (Augmented Dickey-Fuller)
#adf_test <- ur.df(df_long, type = "trend", lags = 4)  # Try "drift" or "none" too
#summary(adf_test)

# 2.2 PP Test (Phillips-Perron)
#pp_test <- ur.pp(df_long, type = "Z-tau", model = "trend", lags = "short")
#summary(pp_test)

# 2.3 KPSS Test (Stationarity)
#kpss_test <- ur.kpss(df_long, type = "tau", lags = "short")
#summary(kpss_test)
```