

# title

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```
# Load necessary libraries
```

```
#Install and import libraries.
```

```
if (!require("tidyverse")) install.packages("tidyverse")
```

```
## Loading required package: tidyverse
```

```
## -- Attaching core tidyverse packages ----- tidyverse 2.0.0 --
```

```
## v dplyr      1.1.4      v readr      2.1.5
```

```
## v forcats   1.0.0      v stringr   1.5.1
```

```
## v ggplot2    3.5.1      v tibble    3.2.1
```

```
## v lubridate  1.9.3      v tidyr     1.3.1
```

```
## v purrr      1.0.2
```

```
## -- Conflicts ----- tidyverse_conflicts() --
```

```
## x dplyr::filter() masks stats::filter()
```

```
## x dplyr::lag()     masks stats::lag()
```

```
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```
if (!require("lubridate")) install.packages("lubridate")
```

```
if (!require("vars")) install.packages("vars")
```

```
## Loading required package: vars
```

```
## Loading required package: MASS
```

```
##
```

```
## Attaching package: 'MASS'
```

```
##
```

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

```
##
```

```
##      select
```

```
##
```

```
## Loading required package: strucchange
```

```
## Warning: package 'strucchange' was built under R version 4.3.3
```

```
## Loading required package: zoo
```

```
##
```

```

## Attaching package: 'zoo'
##
## The following objects are masked from 'package:base':
##
##   as.Date, as.Date.numeric
##
## Loading required package: sandwich

## Warning: package 'sandwich' was built under R version 4.3.3

##
## Attaching package: 'strucchange'
##
## The following object is masked from 'package:stringr':
##
##   boundary
##
## Loading required package: urca

## Warning: package 'urca' was built under R version 4.3.3

## Loading required package: lmtest

if (!require("forecast")) install.packages("forecast")

## Loading required package: forecast

## Warning: package 'forecast' was built under R version 4.3.3

## Registered S3 method overwritten by 'quantmod':
##   method      from
##   as.zoo.data.frame zoo

if (!require("rugarch")) install.packages("rugarch")

## Loading required package: rugarch

## Warning: package 'rugarch' was built under R version 4.3.3

## Loading required package: parallel
##
## Attaching package: 'rugarch'
##
## The following object is masked from 'package:purrr':
##
##   reduce
##
## The following object is masked from 'package:stats':
##
##   sigma

```

```
if (!require("dplyr")) install.packages("dplyr")
if (!require("purrr")) install.packages("purrr")
if (!require("readxl")) install.packages("readxl")
```

```
## Loading required package: readxl
```

```
if (!require("janitor")) install.packages("janitor")
```

```
## Loading required package: janitor
##
## Attaching package: 'janitor'
##
## The following objects are masked from 'package:stats':
##
##   chisq.test, fisher.test
```

```
library(tidyverse)
library(dplyr)
library(lubridate)
library(vars)
library(forecast)
library(rugarch)
library(purrr)
library(readxl)
library(janitor) # For cleaning column names
```

## Title

### Loading data

```
## [1] 0
```

```
## [1] 0
```

```
## [1] 0
```