



# Finanzas en R

## Visualization


Sebastián Egaña Santibáñez 


Nicolás Leiva Díaz 

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### Enlaces del profesor

 <https://semana.netlify.app>

 <https://github.com/sebaegana>

 <https://www.linkedin.com/in/sebastian-egana-santibanez/>

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### Análisis técnico en R

#### Sobre la teoría

#### Veamos un ejemplo aplicado

```
# Load required libraries  
library(quantmod)
```

Loading required package: xts

Loading required package: zoo

Attaching package: 'zoo'

The following objects are masked from 'package:base':

as.Date, as.Date.numeric

```
##### Warning from 'xts' package #####
#
# The dplyr lag() function breaks how base R's lag() function is supposed to #
# work, which breaks lag(my_xts). Calls to lag(my_xts) that you type or #
# source() into this session won't work correctly. #
#
# Use stats::lag() to make sure you're not using dplyr::lag(), or you can add #
# conflictRules('dplyr', exclude = 'lag') to your .Rprofile to stop #
# dplyr from breaking base R's lag() function. #
#
# Code in packages is not affected. It's protected by R's namespace mechanism #
# Set `options(xts.warn_dplyr_breaks_lag = FALSE)` to suppress this warning. #
#
#####
```

Attaching package: 'xts'

The following objects are masked from 'package:dplyr':

first, last

Loading required package: TTR

Registered S3 method overwritten by 'quantmod':

method from  
as.zoo.data.frame zoo

```

library(TTR)
library(ggplot2)

# Step 3: Data Retrieval and Preparation
# Define the stock symbol and date range
stock_symbol <- "AAPL"
start_date <- as.Date("2020-01-01")
end_date <- as.Date("2021-01-01")

# Import historical stock prices
stock_data <- getSymbols(stock_symbol, src = "yahoo", from = start_date, to = end_date, au

# Extract adjusted close prices
closing_prices <- Cl(stock_data)

# Step 4: Introduction to Technical Indicators
# Calculate moving averages
sma_50 <- SMA(closing_prices, n = 50)
sma_200 <- SMA(closing_prices, n = 200)

# Calculate RSI
rsi <- RSI(closing_prices)

# Step 5: Implementing Technical Indicators in R
# Plotting stock prices and technical indicators
ggplot() +
  geom_line(aes(x = index(closing_prices), y = closing_prices), color = "blue") +
  geom_line(aes(x = index(sma_50), y = sma_50), color = "red") +
  geom_line(aes(x = index(sma_200), y = sma_200), color = "green") +
  geom_line(aes(x = index(rsi), y = rsi), color = "orange") +
  labs(title = paste(stock_symbol, "Stock Prices and Technical Indicators"),
       x = "Date", y = "Price/Indicator") +
  theme_minimal()

```

Don't know how to automatically pick scale for object of type <xts/zoo>.  
Defaulting to continuous.

Warning: Removed 49 rows containing missing values or values outside the scale range  
(`geom\_line()`).

Warning: Removed 199 rows containing missing values or values outside the scale range  
(`geom\_line()`).

Warning: Removed 14 rows containing missing values or values outside the scale range (`geom\_line()`).

