

Homework 2

Read Chapter 2.6-2.9 and the section “Portmanteau Tests for Autocorrelation” at the end of Chapter 5.4.

Do problems 2.9, 2.10, Ski Trends, Stock Prices

Ski Trends

Get the ski trends data from our course web page. Make an autocorrelogram of the United States interest in skiing, and show up to lag 50. Interpret your results.

Stock Prices

Use the `quantmod` library’s `getSymbols` function to get one year worth of stock prices for GOOGL, GM, and one more stock of your choice.

The easiest way to avoid problems with time gaps (weekends) is to first convert to `ts` with `ts()` then use `as_tsibble()`.

For each stock:

- a. Plot the closing price y_t over time.
- b. Plot the ACF for the closing price.
- c. Compute a new variable which is the day-to-day change of the closing price as a multiple of its current value. That is, y_{t+1}/y_t .
- d. Plot the day-to-day change the closing price.
- e. Plot the ACF for day-to-day change of closing price.
- f. Perform a Ljung-Box test to determine if the day-to-day change is white noise.