

Rob J Hyndman
George Athanasopoulos

FORECASTING PRINCIPLES AND PRACTICE

A comprehensive introduction to the latest forecasting methods using R. Learn to improve your forecast accuracy using dozens of real data examples.



1. Getting started

1.1 What can we forecast?

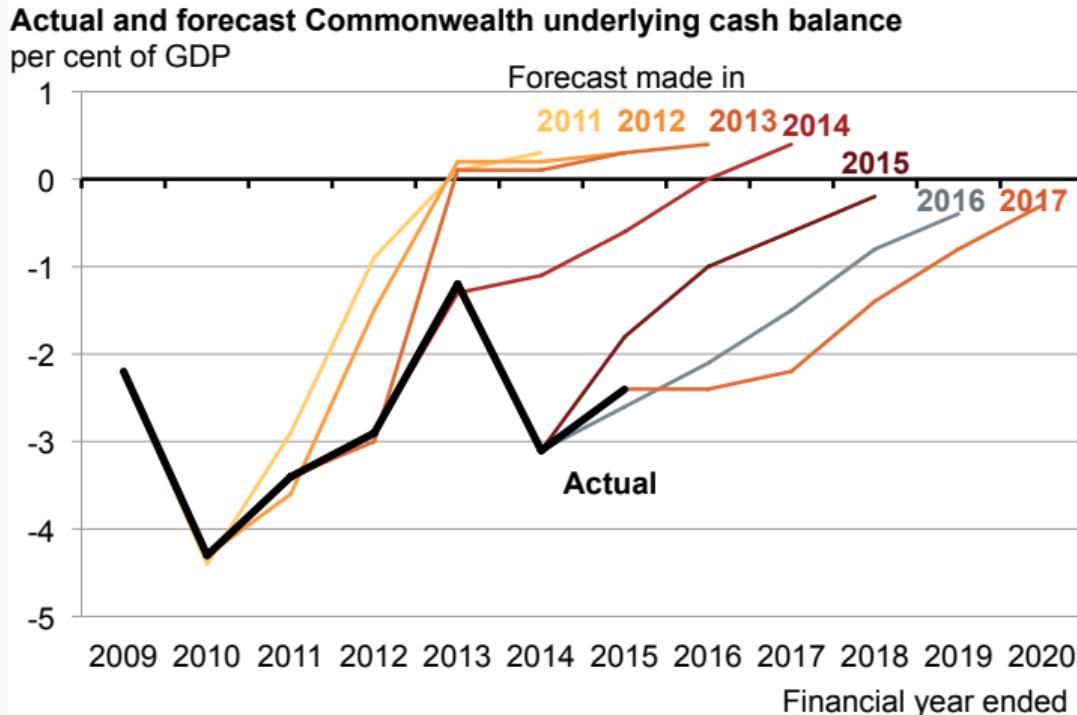
OTexts.org/fpp3/

3RD EDITION

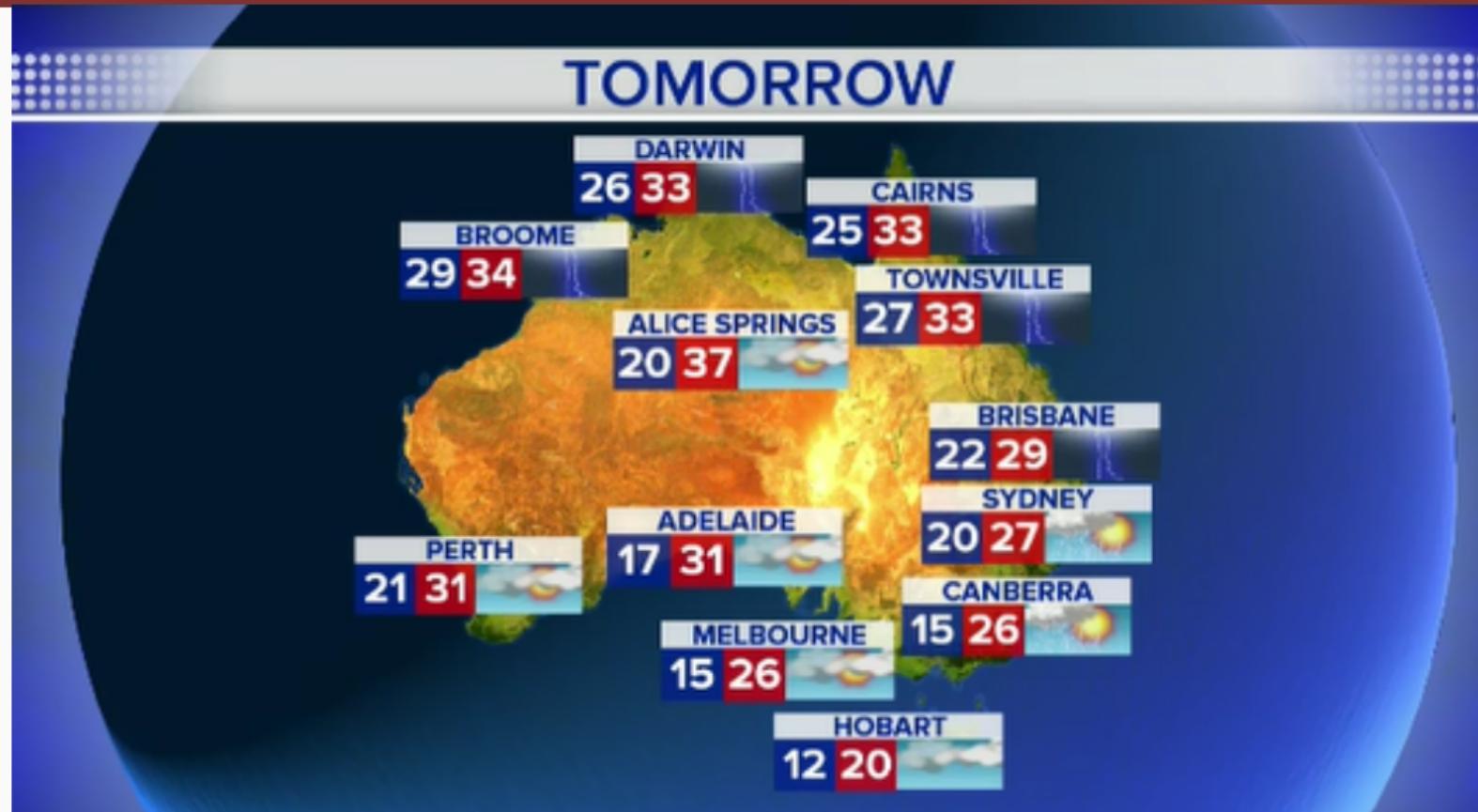
OTexts
ONLINE OPEN-ACCESS TEXTBOOKS

Forecasts that aren't forecasts

Commonwealth plans to drift back to surplus **GRATTAN** Institute
show the triumph of experience over hope



What can we forecast?



What can we forecast?



What can we forecast?



What can we forecast?



What can we forecast?



...

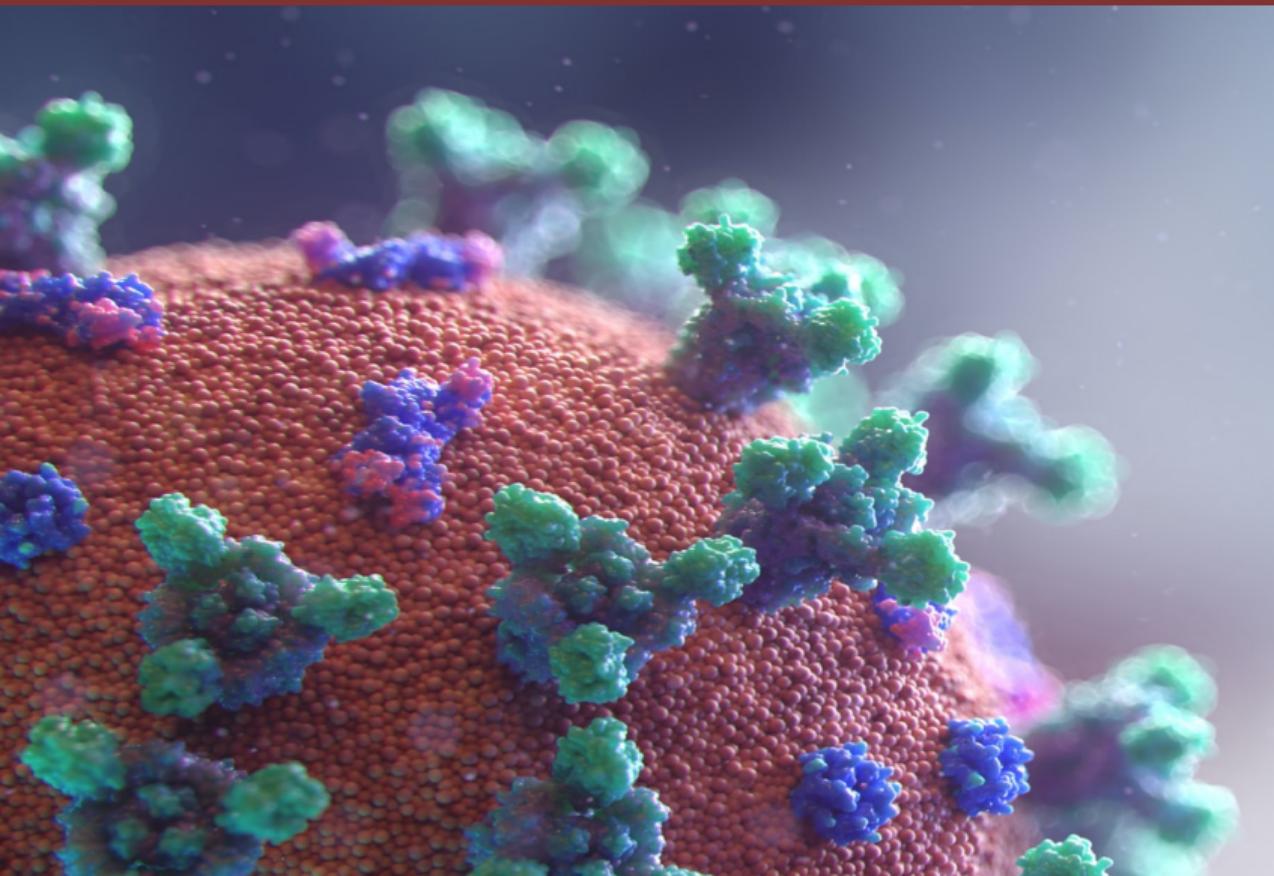
What can we forecast?



What can we forecast?



What can we forecast?



What can we forecast?



Which is easiest to forecast?

- daily electricity demand in 3 days time
- time of sunrise this day next year
- Google stock price tomorrow
- Google stock price in 6 months time
- maximum temperature tomorrow
- exchange rate of \$US/AUS next week
- total sales of drugs in Australian pharmacies next month
- timing of next Halley's comet appearance

Which is easiest to forecast?

- daily electricity demand in 3 days time
- time of sunrise this day next year
- Google stock price tomorrow
- Google stock price in 6 months time
- maximum temperature tomorrow
- exchange rate of \$US/AUS next week
- total sales of drugs in Australian pharmacies next month
- timing of next Halley's comet appearance

pollev.com/robjhyndman

Which is easiest to forecast?

- 1 time of sunrise this day next year
- 2 timing of next Halley's comet appearance
- 3 maximum temperature tomorrow
- 4 daily electricity demand in 3 days time
- 5 total sales of drugs in Australian pharmacies next month
- 6 Google stock price tomorrow
- 7 exchange rate of \$US/AUS next week
- 8 Google stock price in 6 months time

Which is easiest to forecast?

- 1 time of sunrise this day next year
 - 2 timing of next Halley's comet appearance
 - 3 maximum temperature tomorrow
 - 4 daily electricity demand in 3 days time
 - 5 total sales of drugs in Australian pharmacies next month
 - 6 Google stock price tomorrow
 - 7 exchange rate of \$US/AUS next week
 - 8 Google stock price in 6 months time
- how do we measure “easiest”?
 - what makes something easy/difficult to forecast?

Forecastability factors

Something is easier to forecast if:

- 1 we have a good understanding of the factors that contribute to it
- 2 there is lots of data available;
- 3 the future is somewhat similar to the past
- 4 the forecasts cannot affect the thing we are trying to forecast.