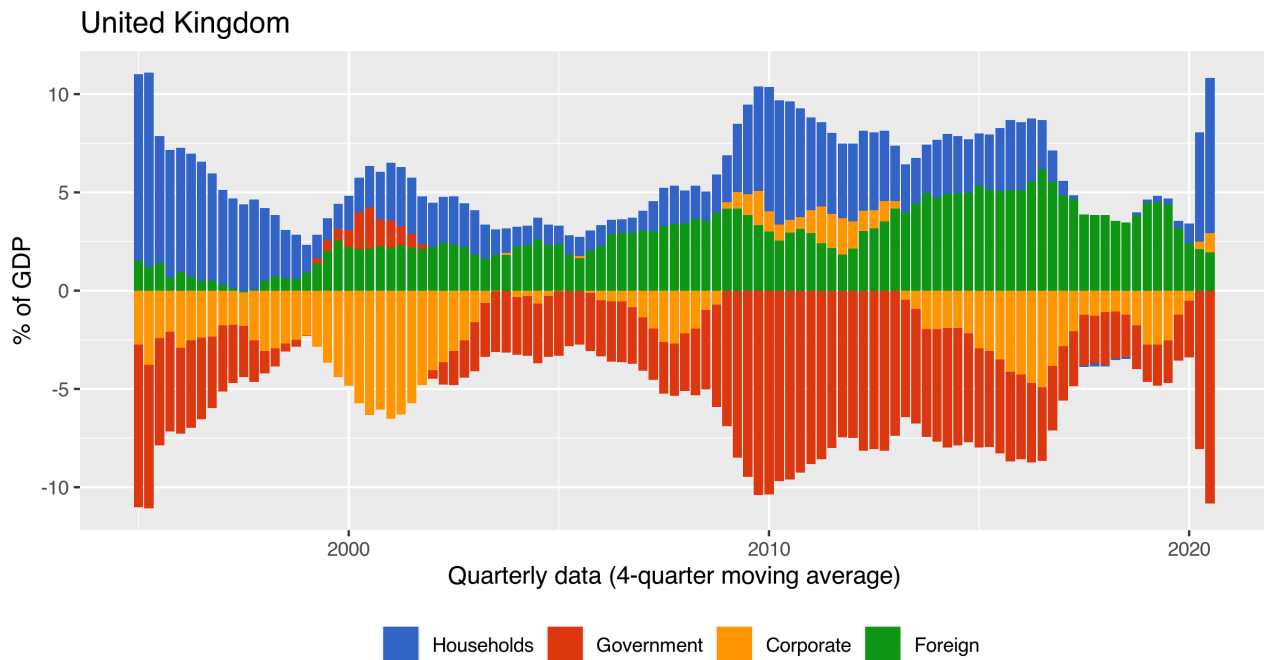


Visualise macroeconomic sectoral balances using R

31. Dezember 2018

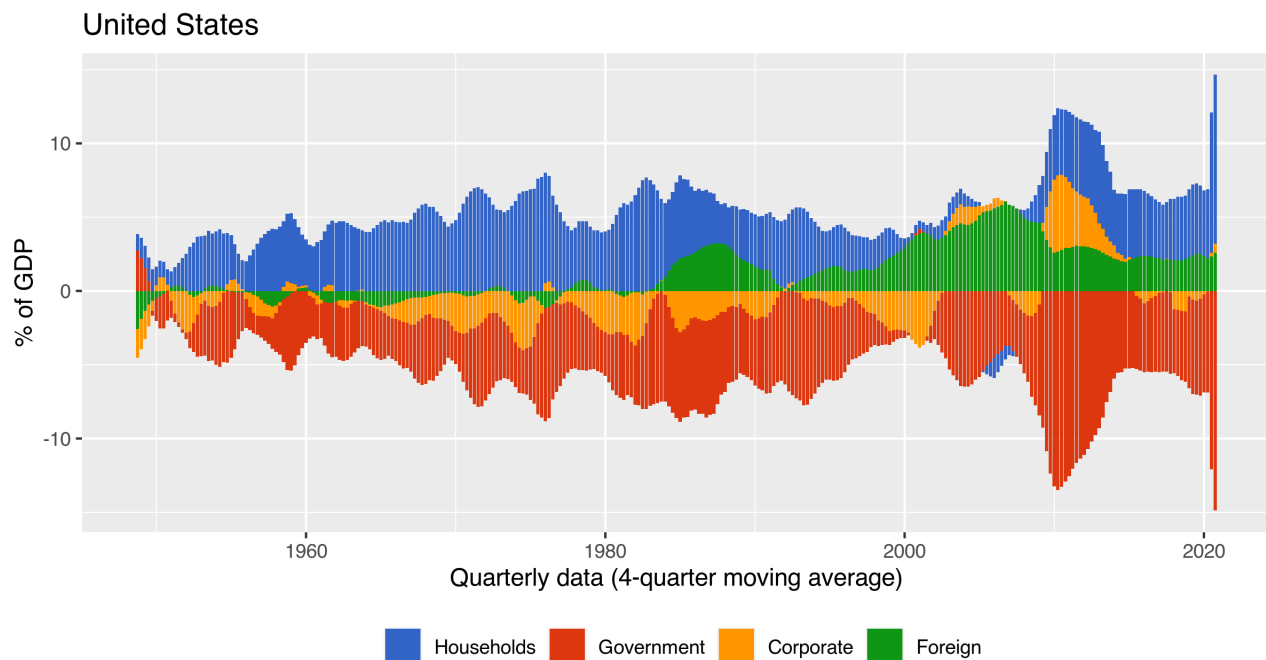
When the [European Central Bank](#) held its annual [Forum on Central Banking](#) in [Sintra, Portugal](#), [earlier this year](#), one contribution to the [Young Economists' Session](#) caught my eye: [Cían Allen's research on current accounts and sectoral balances](#). His paper prompted me to dig up some code I wrote during [my own dissertation](#) to compile sectoral balances data for a number of economies and update it with some additional data for the US and Japan.

I've always been a fan of sectoral balances after being introduced to the approach by [Michael Pettis](#) and [Martin Wolf](#). In a nutshell, sectoral balances capture net saving in each sector of the economy, i.e. the government, the private sector (which itself is made up of households and corporations) and the rest of the world. If a sector saves more than it spends, its balance is positive (net saver); if it spends more than it saves, its balance is negative (net borrower). By definition all sectors must sum to zero.



Source: Eurostat

While the framework itself is straightforward, getting actual data on sectoral balances can be difficult. Statistical authorities have [different ways](#) of capturing sectoral data and finding cross-country statistics can be tricky. The [OECD's National Accounts at a Glance](#) are a good place to start, but their data often trail official sources. [Eurostat](#) is usually more up to date and covers most European countries, but [here too](#) different methodologies complicate matters. National sources are typically best, providing the longest possible coverage and highest possible frequency.



Source: FRED

So I wrote an [R script](#) to follow this process: Get data from [OECD](#) and [Eurostat](#), then add [data for the US](#) from the [St. Louis Fed](#), and data for Japan from the [Bank of Japan](#) and the [Cabinet Office](#). In the case of Eurostat, I opted for [non-financial transaction data](#); in case of the US, I went with [capital account data](#); and in case of Japan I used [Flow of Funds](#) data. I stick to the OECD's four sector aggregates (unlike [Allen](#) who separates financial and non-financial corporations), but users can easily modify the code to split out different sectors if the base data allows. The advantage of putting all of this in an R script (aside from being able to draw on R's amazing data handling features) is that the charts can be easily refreshed.

[View sectoral balances charts](#) · [Download sectoral balances data](#)

[Download R script](#) · [R markdown document](#)

(Updated 2020/02/14 to replace deprecated indicators, streamline code)

Instructions for running the R script

1. To use the [R script](#), first make sure you have all necessary libraries are installed, especially the [OECD](#), [eurostat](#), [pdfetch](#), and [estatapi](#)

packages, in addition to the usual plotting and helper libraries.

- Getting the data for Japan requires a bit more legwork. Head over to the [BoJ's Statistics Download page](#), scroll down to [Search by exact series code](#) and search for the below codes. Set 1945 as the starting year and download the data in CSV format (simple headers are okay). Drop the file (the name will be of the format `nme_*.csv`) in the same folder as the [R script](#).

```
FF'FFFA260L390
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FF'FFFA270L390
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FF'FOF_93FFAF410L700
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FF'FOF_FFAF420L700
FF'FOF_FFAF430L700
FF'FOF_FFAF440L700
FF'FOF_FFAF500L700
FF'FOF_FFAF100L700
```

- To use [Hiroaki Yutani's](#) excellent [estatapi](#) package to download data by API from the Japanese government's [e-Stat portal](#), you first need to register on [e-Stat's Japanese-language website](#) to obtain an [appId](#) which you then set up in our [R script](#) using `appId <- "xxxxx"`. To avoid this, set `use.estat <- FALSE` in the header section to simply grab the [latest GDP data](#) from the Japanese Cabinet Office. In this case, the path to the corresponding CSV file will need to be changed manually later on to update the data.

4. Once all of this is complete, let the [R script](#) run through. It will create a subfolder `/charts` within the current working directory where it will store all sectoral balances charts as PNG and PDF files. The script will also create interactive [plotly](#) charts and store them in a list. Download and run this [R markdown code](#) to put the charts on a [HTML page](#) to view in your browser.

Further reading

- Poster accompanying [Cían Allen's ECB paper](#)
- Bank of England paper by Barwell and Burrows showing how financial balances can help understand the Global Financial Crisis: [Growing Fragilities? Balance Sheets in the Great Moderation](#) (*Bank of England Financial Stability Paper No. 10 – April 2011*)
- Bank of England paper by Burgess, Burrows, Godin, Kinsella, and Millard which uses financial balances in an empirical model of the UK economy: [A dynamic model of financial balances for the United Kingdom](#) (*Bank of England Staff Working Paper No. 614 – September 2016*)
- ECB paper by Bê Duc and Le Breton demonstrating some of the useful features of Flow of Funds data more broadly: [Flow-of-funds analysis at the ECB](#) (*European Central Bank Occasional Paper No. 105 – August 2009*)