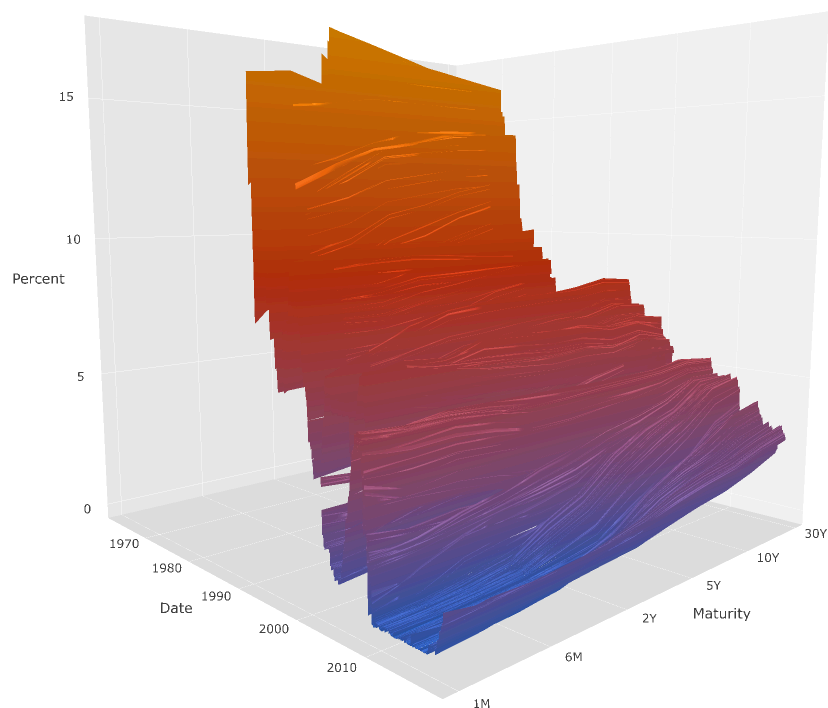


A 3D view of the US Treasury yield curve

4. August 2017

Bond market returns are typically analysed as time series data (where changes in yield are tracked over time) or across maturities (where interest rates on different contract lengths are chained together to produce the [yield curve](#) for any given date). For the US government bond market, the [St. Louis Fed's FRED database](#) provides data for a whole range of [US Treasury Bonds](#) and [US Treasury Bills](#), allowing you to do either of these exercises. Sometimes, however, it can be useful to get a sense of how the shape of the yield curve evolves over time in a 3D graph. Here is how to create one using [plotly](#) in [R](#).

I get data for [US Treasury Bond yields from 1 month to 30 years maturity](#) from the [St. Louis Fed's FRED database](#) and first [plot them in 2D](#) using [ggplot2](#) to see where things stand. I then use [plotly](#) to produce a “surface plot”, which is plotly's name for a 3D graph. The result is a dynamic 3D graph which can be rotated, panned, and zoomed right within your browser thanks to [WebGL](#). Click [here](#) to give it a try (try different browsers if the graph is not shown).



To see how all of this works in detail, get the script to generate the plots [here](#). Also, have a look at [this page](#) at the [New York Times](#) to get a sense of what a 3D graph of the yield curve can tell you.

[Get the R script here](#)

Links

- [St. Louis Fed FRED database](#)
- [ggplot2 reference](#)
- [plotly R reference](#)