US Mortgage Rate Graph in Excel

By Robert Allison

The first in my series showing how to create graphs "on the cheap" – this time I'll be using Microsoft Excel to create a graph of the US mortgage rate data for the past several decades.

Getting Excel Software

Perhaps your computer already has a recent version of Microsoft Office (which contains Excel, along with several other tools such as Word and PowerPoint) – in which case you're ready to go! But if you're like me (my computer had a very old 2013 version), you might want to get a more recent version.

You could buy a copy of Microsoft Office Professional 2021 from Microsoft for $440 … or you could look around for a reseller selling it cheaper. Some claim these cheaper licenses are in a bit of a "gray" area … but hey, gray is a color too! I found several people selling the Professional and Home versions on slickdeals.com for $30-$50. I opted for buying the Professional version from the Sean Hannity website for $50. I'm not recommending or endorsing buying the software from any particular reseller – check around and pick one you feel like you can trust! The Sean Hannity page I bought it from is now sold out, by the way.

Getting the Data

For the data, I went to the FreddieMac web page, and downloaded the Current Mortgage Rates Data since 1971 (this downloaded the file historicalweeklydata.xls). Since their data is already in the Excel format, I simply double-clicked the file, to bring it up in Excel already nicely formatted. Here's what the data looks like:

Preparing the Data

One caveat – the data on the 'Full History' sheet only goes through the end of the previous year, and the current year's data (in this case, year 2022) is stored in a separate sheet. Since I want to plot all the data, I created a third sheet (which I called 'Modified') and copy-n-pasted the Full History and current year's data into that sheet. Since I'm only wanting to plot the 30 Year Fixed Rate Mortgage (frm) values, I only copied the date and frm columns.

I want the values to show up in my graph as percentages (for example, 7.33% rather than 7.33), therefore I add an extra column (frm_percent) where I divide the values by 100, using an equation like =c2/100 …

And then I apply the percentage format to the new column.

Creating the Graph

To create the graph, I select the **date** and **frm_percent** columns, go to the **Insert** tab, and select the **2-D Line** chart.
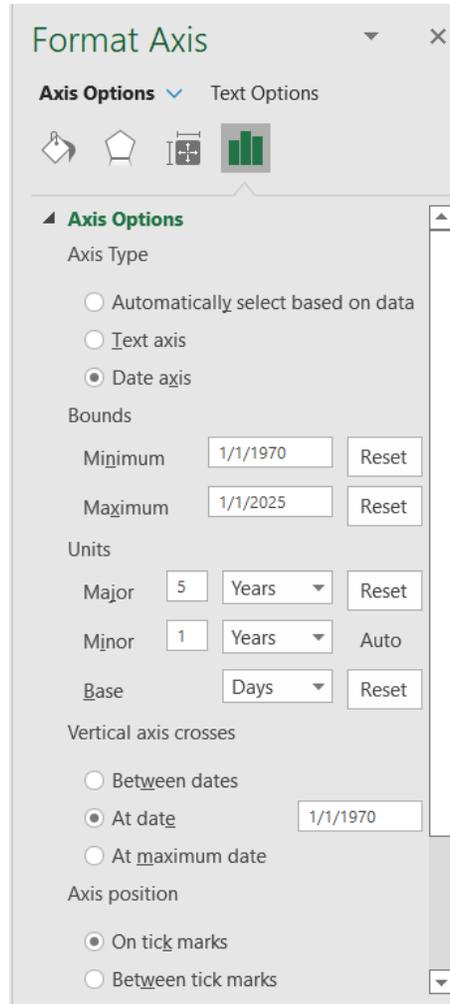
That creates the following default graph:

Customizing the Date Axis

The axes are a little crowded, therefore I customize them a bit to create a cleaner graph.
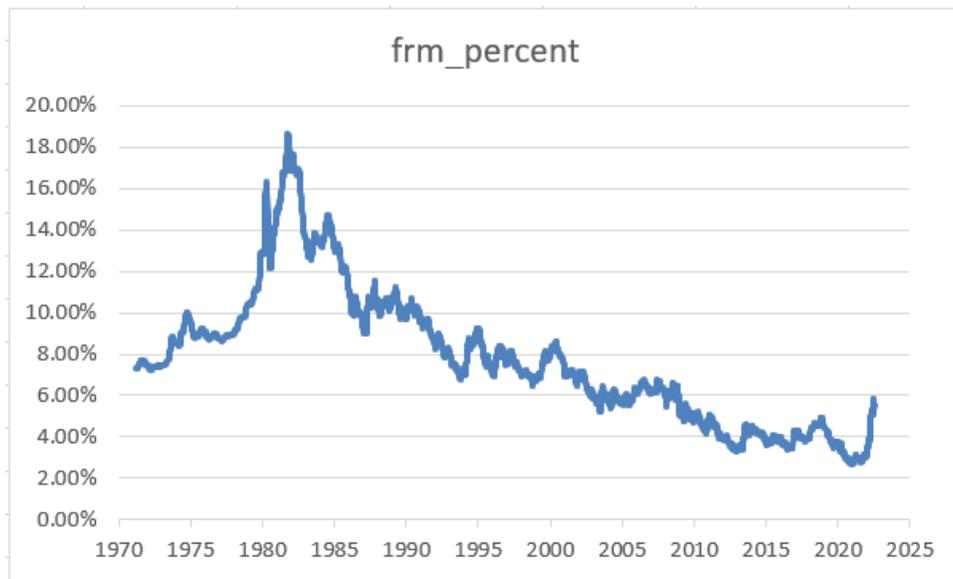
I right-click the date axis, and select "Format Axis…" which brings up a Format Axis pane along the right-hand edge of Excel. I make several modifications to get the axis to show tick marks every 5 years.

And then create a custom 'yyyy' format for the date values, so they only show the 4-digit year.
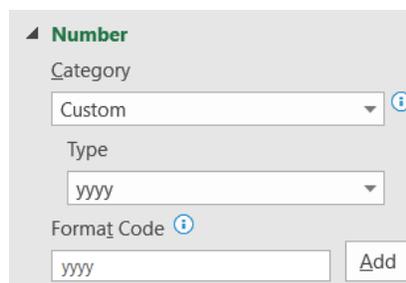
Now the date axis is a lot easier to read and make sense of.

Customizing the Percent Axis

Similarly, I clean up the y-axis (which shows the percent values). First, I set the major tick marks to be every 5 percent (0.05), rather than every 2 percent (0.02).

Then I change it to show 0 decimal places in the percent values (rather than 2 decimal places).

The y-axis is much cleaner and easier to read now.
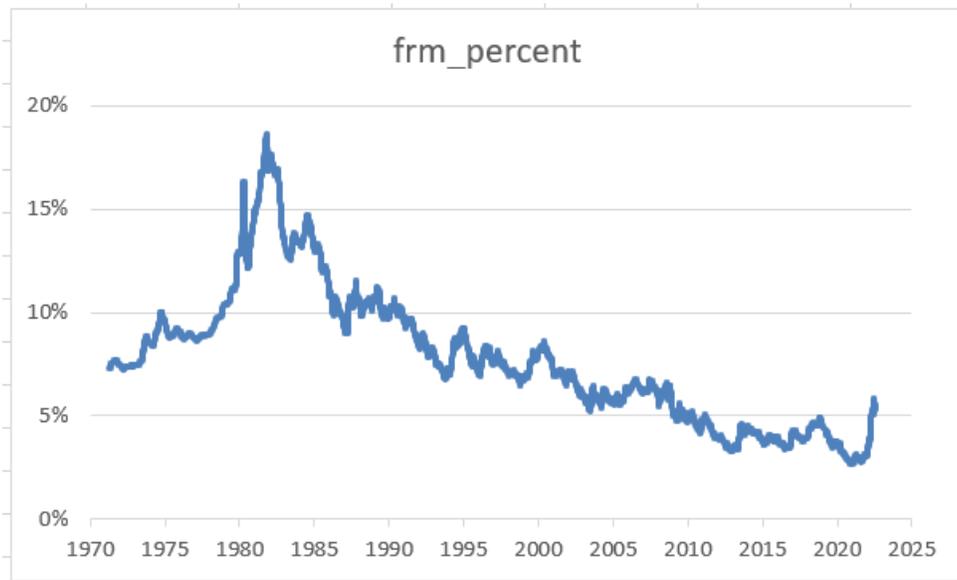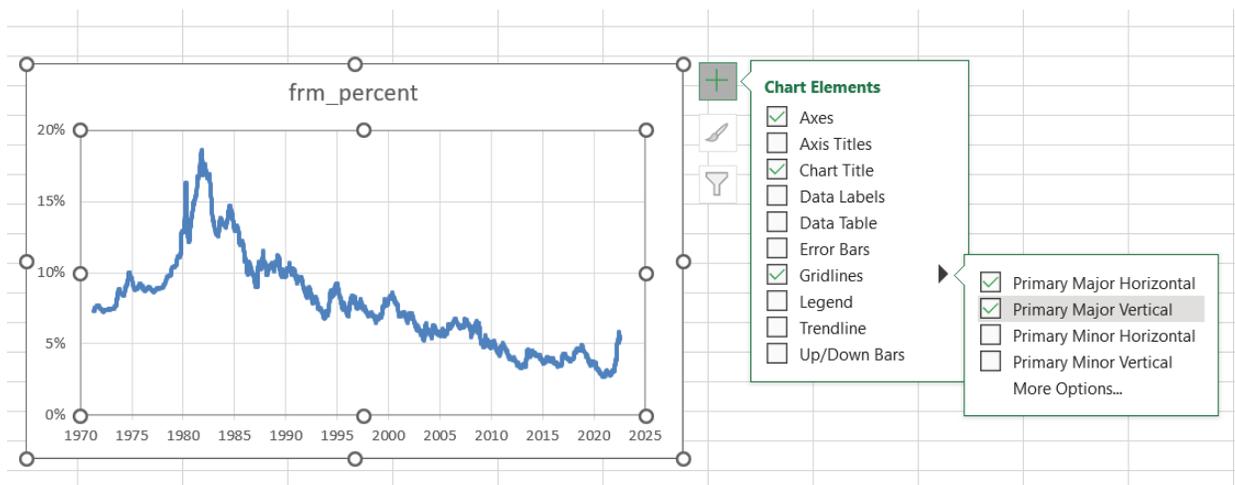

Adding Vertical Gridlines

Excel gave me horizontal gridlines by default, but no vertical grid lines. To add vertical gridlines, I click the '+' beside the graph, and click the right-arrow beside Gridlines, and then select "Primary Major Vertical".


Titles and Footnotes

Excel uses the column header as the title of the graph by default, but we want something a little more descriptive. To change the title, simply select the title area, delete the text that's there, and add the text you want (I used "U.S. 30-Year Fixed Mortgage Rate"). I then click the 'B' button to make it bold.

I also want a footnote at the bottom of the graph. Excel doesn't support footnotes in graphs, but you can use the horizontal axis title to look like a footnote. I add it as shown below, and then changed the text to "Data Source: Freddie Mac Primary Mortgage Market Survey (weekly data through July 14, 2022)".
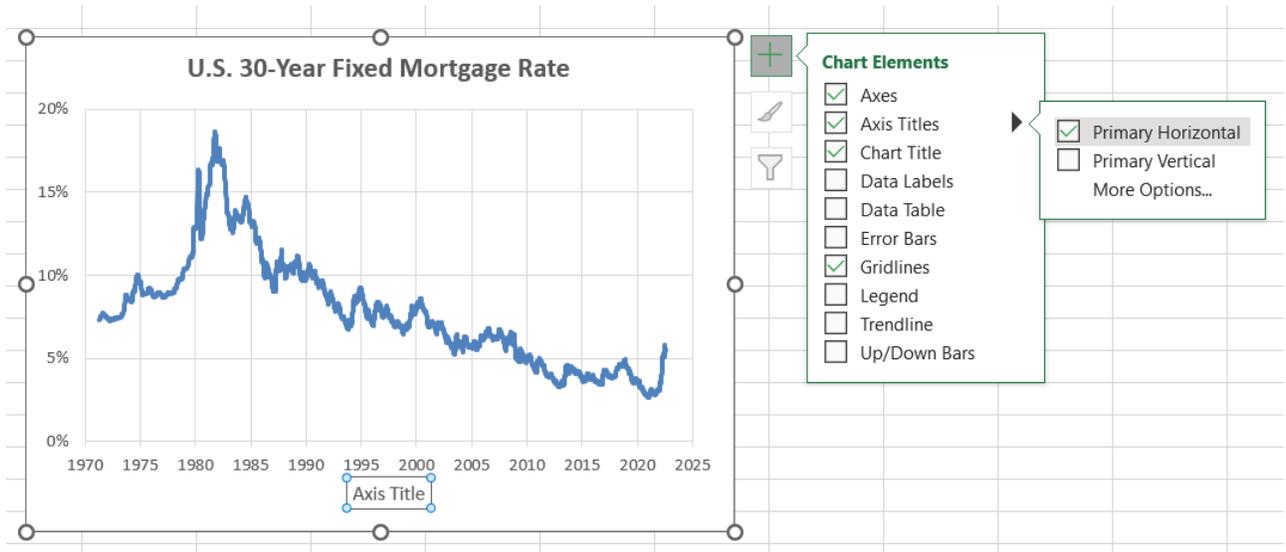

Line Thickness

The default blue line in the graph is a little 'thick' and you can't quite see all the detail of the data movement. To change the line thickness, select the line, right-click, and select Outline->Weight. I set the thickness to 1 pt.
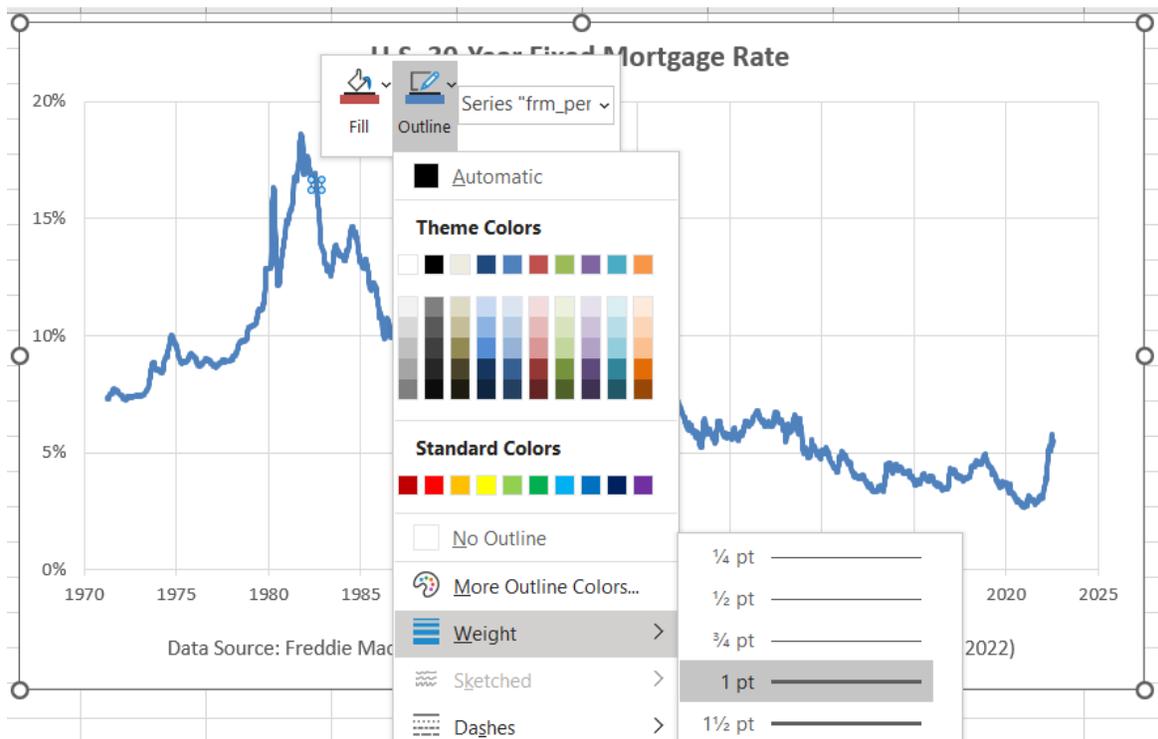
Final Graph

And below is the final graph. I saved it as a png by right-clicking in the top area of the graph, and running "Save as Picture…" - Looks pretty good for something created with $50 software, eh?!?
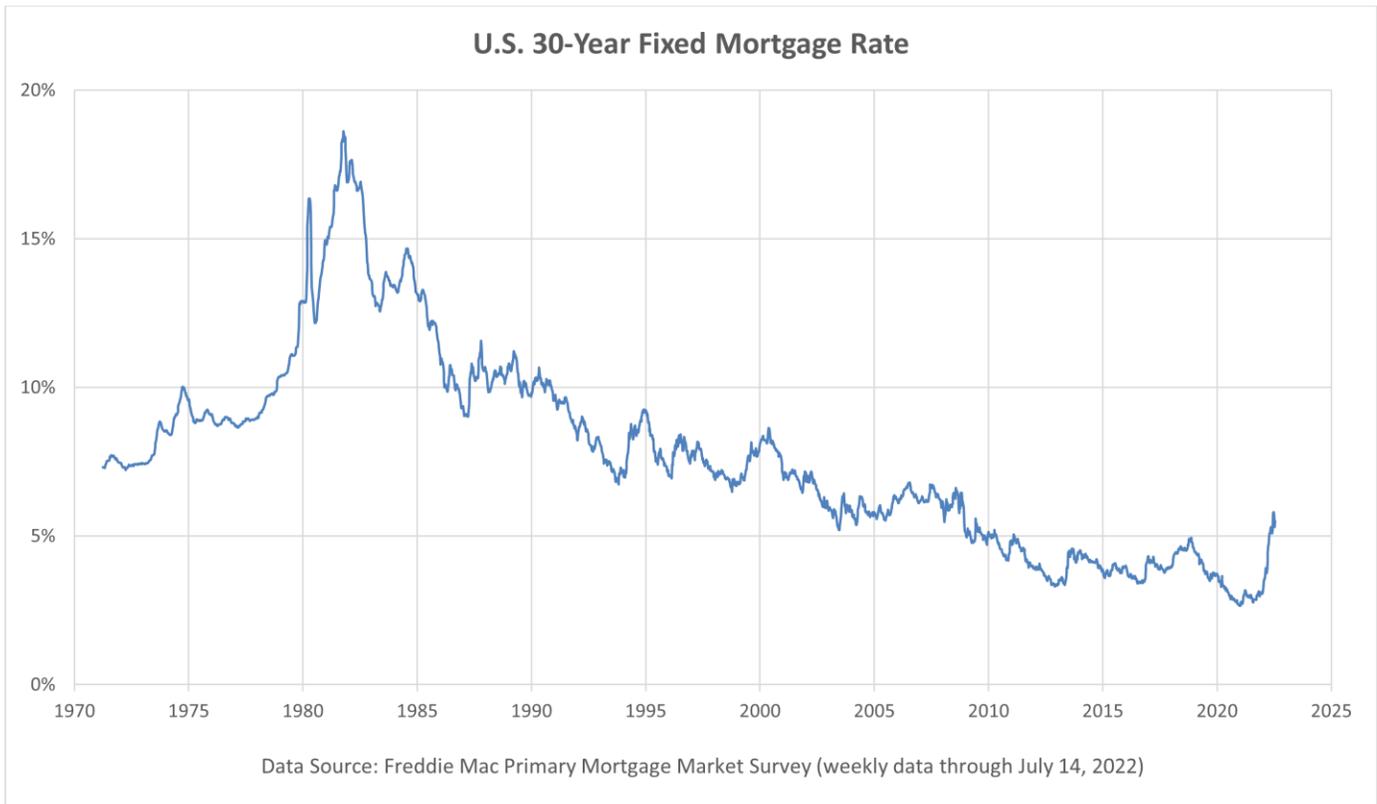
I think it even looks better than the below version I created using very expensive SAS Software 😊