

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.



**Microsoft Office
Professional 2021 for
Windows: Lifetime License**

★★★★★ 46 Reviews

Sold Out

\$49.99 ~~\$349.00~~

You save 85%

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:

	Week	U.S. 30 yr FRM	30 yr fees & points	U.S. 15 yr FRM	15 yr fees & points	U.S. 5/1 ARM	5/1 ARM fees & points	5/1 ARM margin	U.S. 30 yr FRM/5/1 ARM spread
2631	7/8/2021	2.90	0.6	2.20	0.7	2.52	0.2	2.8	0.38
2632	7/15/2021	2.88	0.7	2.22	0.6	2.47	0.3	2.8	0.41
2633	7/22/2021	2.78	0.7	2.12	0.7	2.49	0.4	2.8	0.29
2634	7/29/2021	2.80	0.7	2.10	0.7	2.45	0.3	2.8	0.35
2635	8/5/2021	2.77	0.6	2.10	0.6	2.40	0.4	2.8	0.37
2636	8/12/2021	2.87	0.7	2.15	0.7	2.44	0.3	2.8	0.43
2637	8/19/2021	2.86	0.7	2.16	0.6	2.43	0.3	2.8	0.43

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.

	date	frm
2	4/2/1971	7.33
3	4/9/1971	7.31
4	4/16/1971	7.31
5	4/23/1971	7.31
6	4/30/1971	7.29
7	5/7/1971	7.38
8	5/14/1971	7.42

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 ...

	A	B	C
1	date	frm_percent	frm
2	4/2/1971	0.0733	7.33
3	4/9/1971	0.0731	7.31
4	4/16/1971	0.0731	7.31
5	4/23/1971	0.0731	7.31
6	4/30/1971	0.0729	7.29
7	5/7/1971	0.0738	7.38

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

	A	B	C	D	E
1	date	frm_percent	frm		
2	4/2/1971	7.33%	7.33		
3	4/9/1971	7.31%	7.31		
4	4/16/1971	7.31%	7.31		
5	4/23/1971	7.31%	7.31		
6	4/30/1971	7.29%	7.29		
7	5/7/1971	7.38%	7.38		
8	5/14/1971	7.42%	7.42		
9	5/21/1971	7.44%	7.44		
10	5/28/1971	7.46%	7.46		
11	6/4/1971	7.52%	7.52		
12	6/11/1971	7.52%	7.52		
13	6/18/1971	7.54%	7.54		
14	6/25/1971	7.54%	7.54		
15	7/2/1971	7.54%	7.54		
16	7/9/1971	7.54%	7.54		
17	7/16/1971	7.60%	7.60		
18	7/23/1971	7.65%	7.65		

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.

File Home **Insert** Page Layout Formulas Data Review View Help

PivotTable Recommended Table Illustrations Add-ins Recommended Charts

2-D Line

Line

Use this chart type to:

- Show trends over time (years, months, and days) or categories.

Use it when:

- The order of categories is important.
- There are many data points.

2-D Area

3-D Area

More Line Charts...

	A	B	C	D
1	date	frm_percent	frm	
2	4/2/1971	7.33%	7.33	
3	4/9/1971	7.31%	7.31	
4	4/16/1971	7.31%	7.31	
5	4/23/1971	7.31%	7.31	
6	4/30/1971	7.29%	7.29	
7	5/7/1971	7.38%	7.38	
8	5/14/1971	7.42%	7.42	
9	5/21/1971	7.44%	7.44	
10	5/28/1971	7.46%	7.46	
11	6/4/1971	7.52%	7.52	
12	6/11/1971	7.52%	7.52	
13	6/18/1971	7.54%	7.54	
14	6/25/1971	7.54%	7.54	
15	7/2/1971	7.54%	7.54	
16	7/9/1971	7.54%	7.54	
17	7/16/1971	7.60%	7.60	

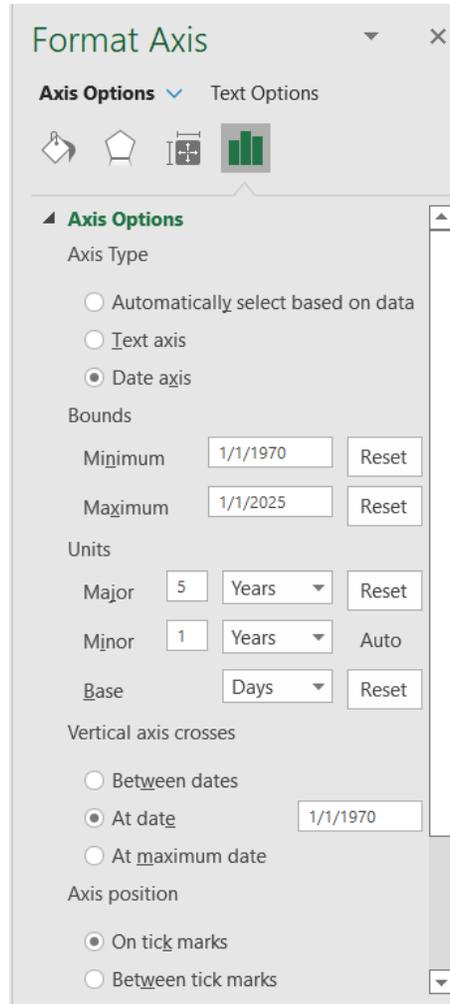
That creates the following default graph:



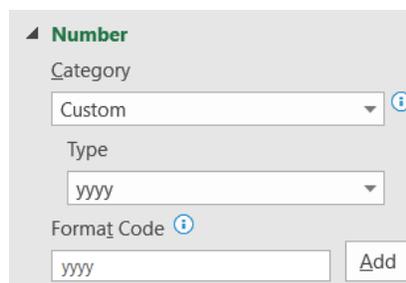
Customizing the Date Axis

The axes are a little crowded, therefore I customize them a bit to create a cleaner graph.

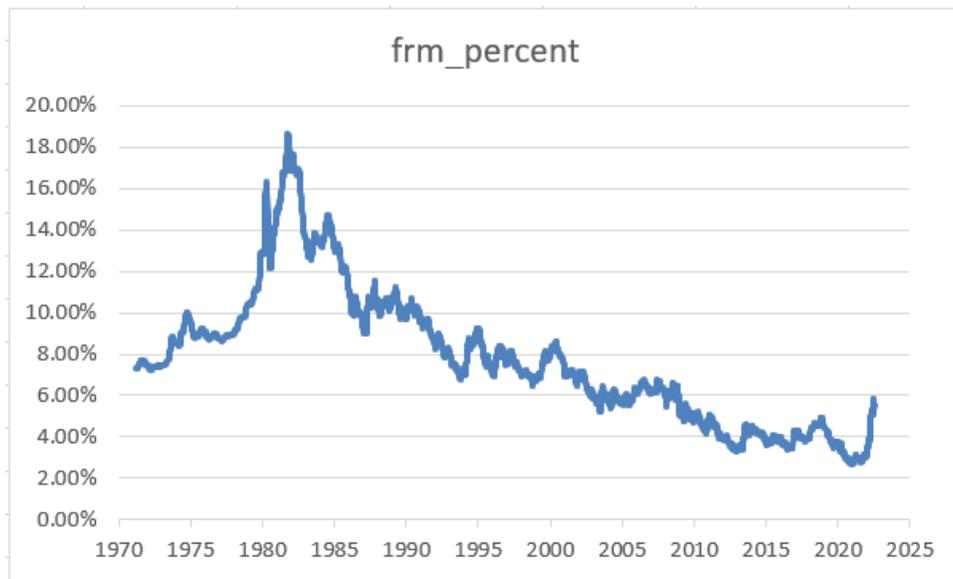
I right-click the date axis, and select “Format Axis...” which brings up a Format Axis pane along the right-hand edge of Excel. I make several modifications to get the axis to show tick marks every 5 years.



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).

Axis Options

Bounds

Minimum: 0.0 Auto

Maximum: 0.2 Auto

Units

Major: 0.05 Reset

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

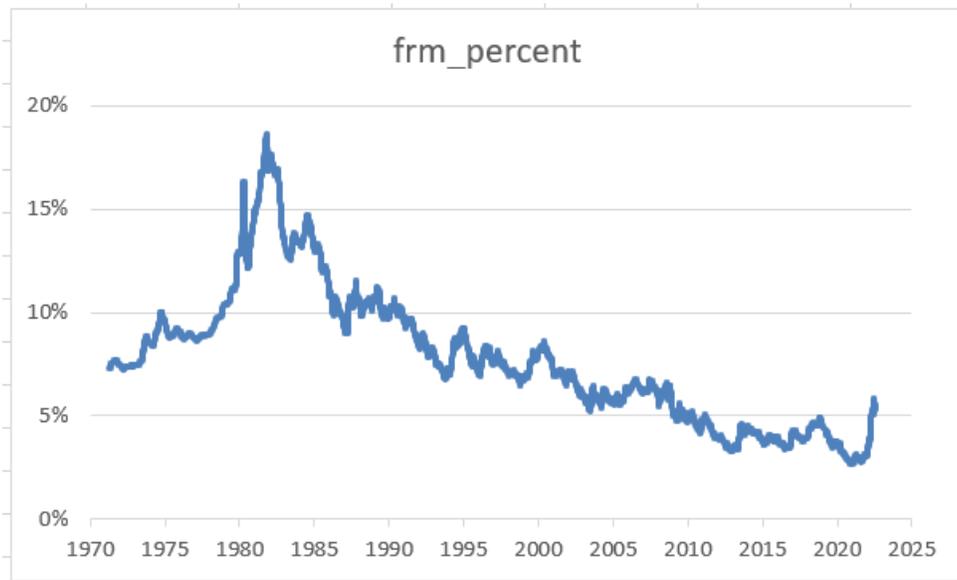
Number

Category: Percentage ⓘ

Decimal places: 0

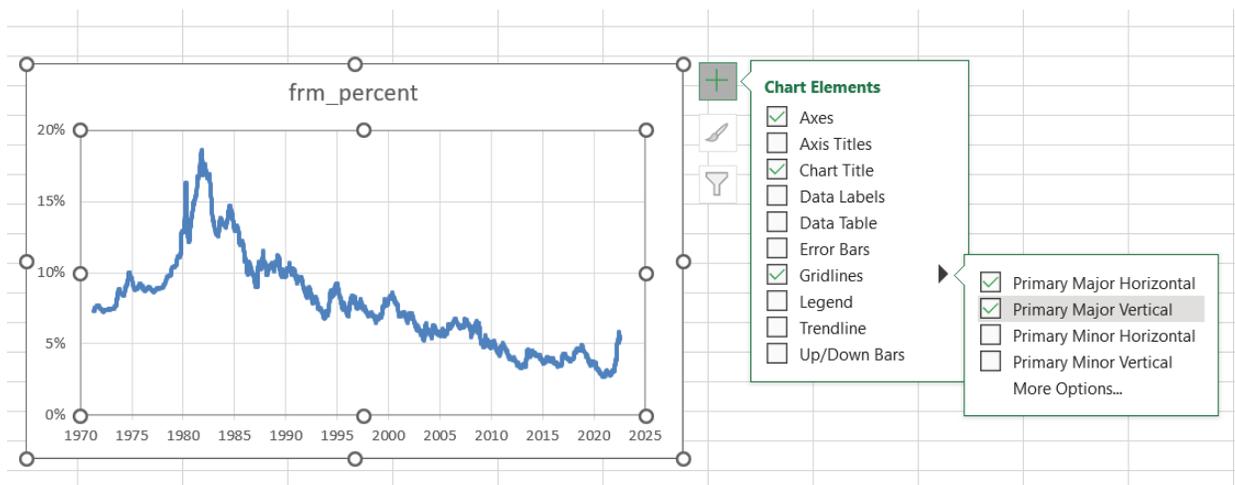
Format Code ⓘ: 0% Add

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



Adding Vertical Gridlines

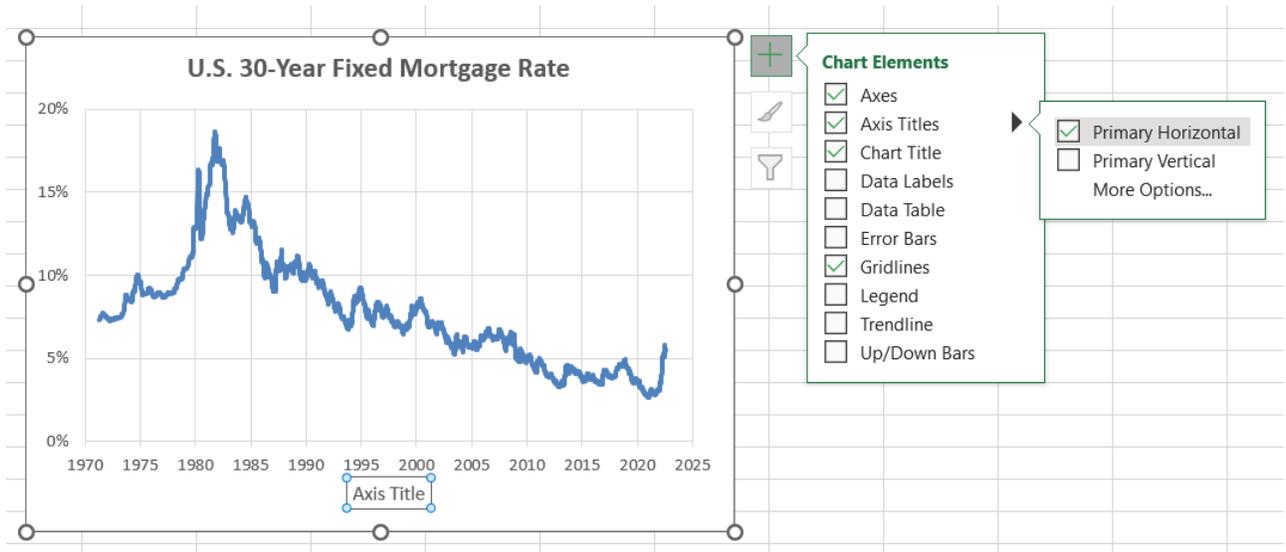
Excel gave me horizontal gridlines by default, but no vertical grid lines. To add vertical gridlines, I click the '+' beside the graph, and click the right-arrow beside Gridlines, and then select "Primary Major Vertical".



Titles and Footnotes

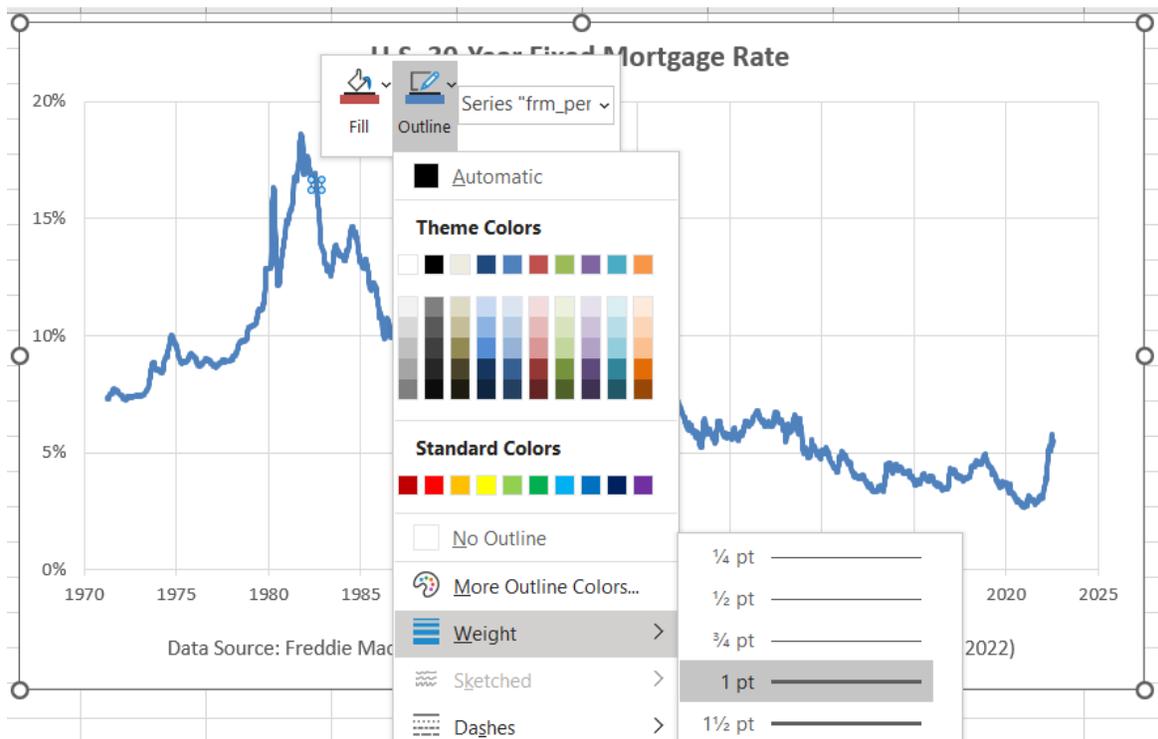
Excel uses the column header as the title of the graph by default, but we want something a little more descriptive. To change the title, simply select the title area, delete the text that's there, and add the text you want (I used "U.S. 30-Year Fixed Mortgage Rate"). I then click the 'B' button to make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



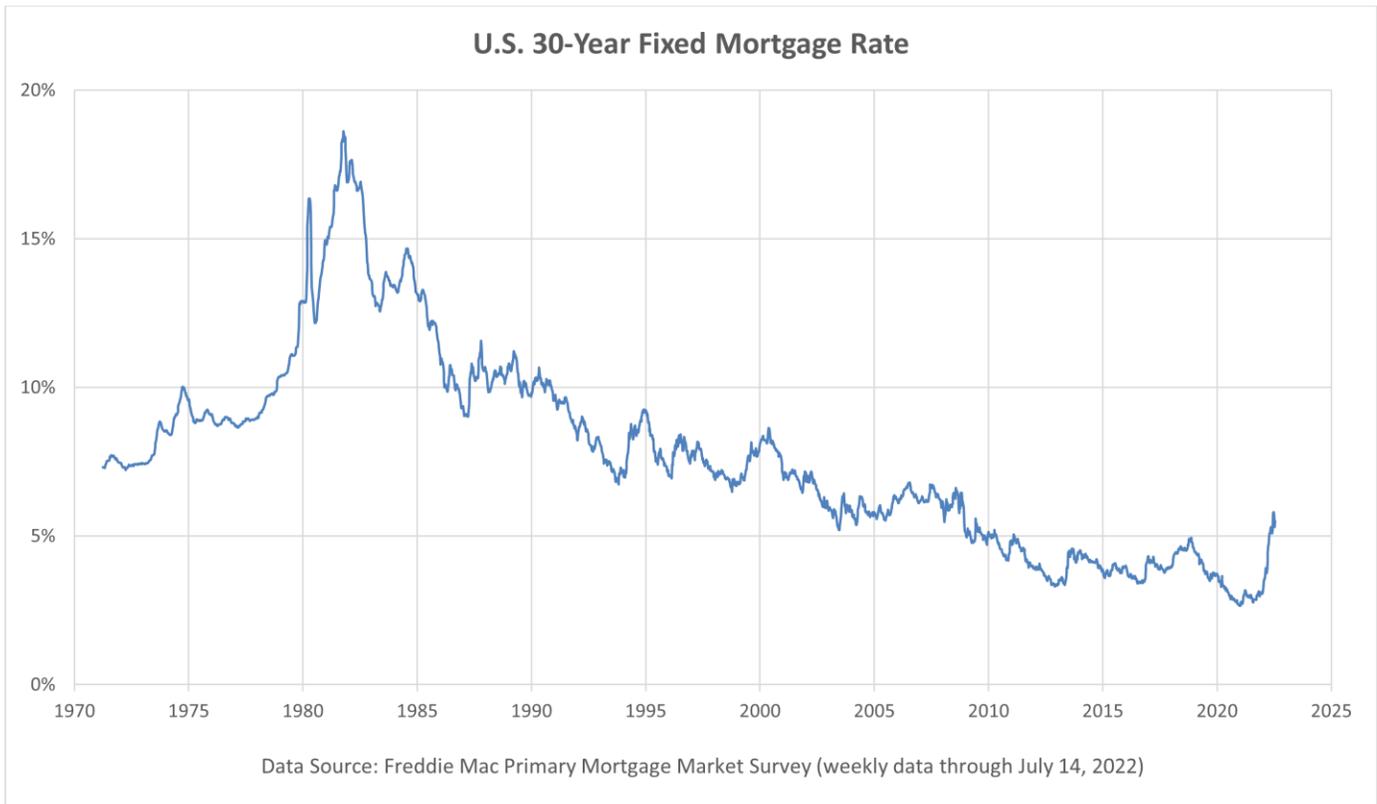
Line Thickness

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 😊

