

Housing

The final financial market that we will study is housing. When GDP is reported, new housing is counted as investment (used capital, like all used goods, is not included). Housing is, however, more complicated. Consider the roles that it plays in the economy.

1. Residential real estate may be owner occupied or rented. In both cases, it provides utility to its occupants. In this way, it is like a consumption good.

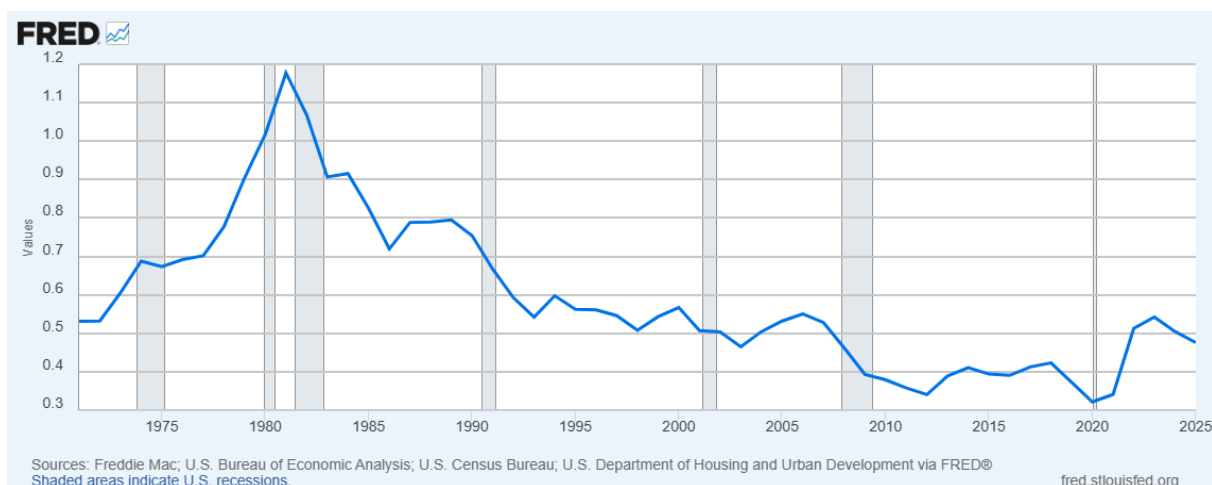
2. For most homeowners, their home is their most valuable asset, especially if we exclude retirement accounts. As a result, buying a home is the most significant financial decision that many households make and their decisions can tell us a lot about how they feel about upcoming economic conditions. For many households, it is also their most significant exposure to large financial markets.

3. Commercial real estate, which includes office space, dorms, etc. are an input in firms' production functions. In this manner, housing is more like an investment good.⁴ Most home purchases are financed through a mortgage loan. These tend to be long-term loans of 15-30 years. As a result, the mortgage rate has a large effect on the monthly payment associated with a loan. Consider the example of a \$300,000 home loan with a 2.375% mortgage rate, which briefly existed during the covid-19 pandemic. The monthly payment would be \$1166. Now suppose that mortgage rates are 7%, as they have been at times in 2026. The monthly payment is now \$1996. This is independent of the price of the house.

Since the pandemic, both housing prices and mortgage rates have risen significantly. As a result, the monthly payment on a given home has risen dramatically (see the graph below). Most mortgages are fixed-rate, meaning that the mortgage rate is locked in through the life of the loan. As a result, the changes to the housing market represent a huge transfer of wealth to homeowners who owned a home when mortgage rates were lower. These homeowners tend to be wealthier and older. Renters, who tend younger and poorer, have suffered from reduced affordability. The following

graph shows the share of disposable income needed to make a monthly payment on the median new home, assuming no downpayment.

Figure 1: Mortgage Affordability



Why has the monthly payment on a given home risen so much since 2020. There are many factors, but a big one is the rise in inflation that followed the pandemic. This required higher interest rates. As we saw earlier, inflation acts to transfer wealth, creating winners and losers, In this case, existing homeowners were the winners. Expansionary monetary and fiscal policy during and after the pandemic may also have significantly boosted housing prices. Because monthly payments are very sensitive to mortgage rates, new housing is especially sensitive to changes in interest rates. This is one reason why, despite only being a small part of GDP, economists watch this sector very closely.

Modelling Housing

When we discussed, stocks, we modelled the fundamental value using the stream of discounted dividends. We can use this exact same model for housing. The only tricky part is figuring out what the fundamental for housing is. What do households obtain from owning housing? You might be

tempted to say utility. This is reasonable. Utility, however, is practically impossible to measure. Many economists thus like to use rents as a measure of housing's fundamental. This may include actual rents on rental housing. It can also include owner equivalent rents, a hypothetical rent that owners of owner-occupied housing would obtain were they to rent their housing. The BLS calculates both each month when it reports the Consumer Price Index. Unfortunately, measuring rents is hard. Many economists consider the owner-equivalent rents survey to be dogshit.

Defining Q_t as the average rent, the model is then:

$$s_t = E[Q_{26} + \frac{Q_{27}}{(1 + i_{26})} + \frac{Q_{28}}{(1 + i_{26})(1 + i_{27})} + \frac{Q_{29}}{(1 + i_{26})(1 + i_{27})(1 + i_{28})} + \dots] \quad (1)$$

As with stocks, this equation gives us housing's fundamental value, which is not always its actual price. When the actual price is far away from fundamentals, then housing is in a speculative bubble. The most famous housing bubble in the United States was prior to the Global Financial Crisis in 2008. Its bursting was the biggest cause of the Great Recession that followed.

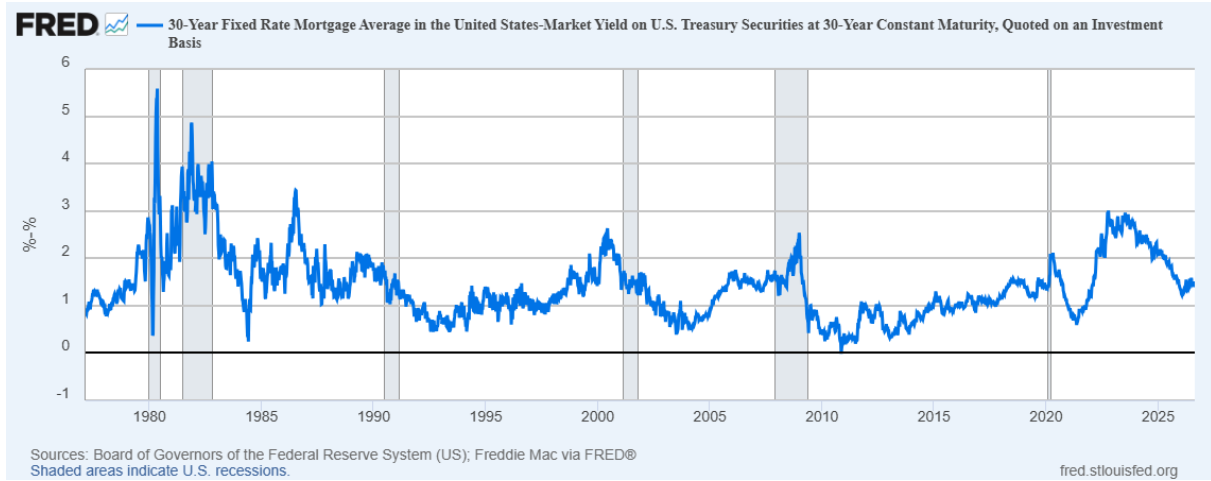
This simple model also illustrates why housing is so sensitive to interest rates. We have already seen that higher mortgage rates cause higher monthly payments. This can reduce demand. We also see that higher interest rates reduce the fundamental value of housing.

So what determines mortgage rates? A simple answer is to start with a Treasury yield and add a risk premium that compensates lenders for the probability and cost of default. The following figure shows the spread between the average 30-year fixed rate mortgage and the 30-year Treasury yield.

The price to rent ratio

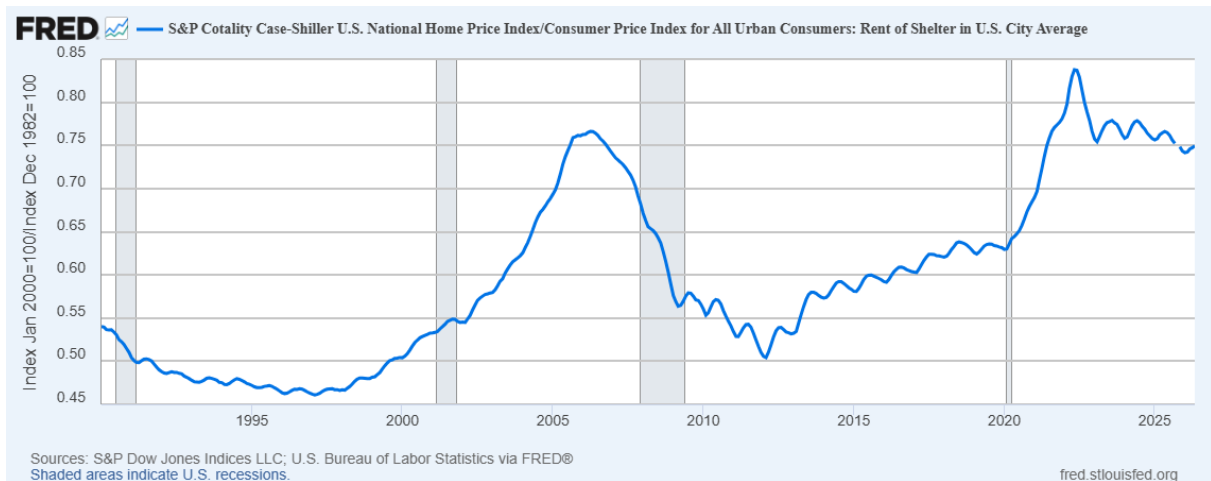
It is far easier to detect a speculative bubble in hindsight than in real-time. If you could do the latter reliably, it would be easy to get very wealthy by betting on assets to revert to their fundamental values in the long-term. For housing, we could estimate rents and interest rates, develop forecasts for future rents and interest rates, plug these into our model, and finally compare

Figure 2: Spread Between 30 Year Mortgage and 30 Year Treasury



the predicted price to the current price. Because these forecasts are highly uncertain, however, this is not as easy as it seems. A simple first pass is the price to rent ratio. This is not complete as it ignores the role of interest rates and does not account for changes to future rents. Below, we look at this ratio using the Case-Shiller housing price index and the CPI for all rents.

Figure 3: Housing Price to Rent Ratio



Again, this chart is far from definitive, Higher values may, however, be somewhat suggestive of a

housing bubble. Notice its elevated level prior to 2008. It is again elevated as of 2026. Is housing in a bubble? If I knew for sure, I would be sipping 30-year old Lagavulin in my solid gold house on a South Pacific beach rather than teaching this class. But it at least suggests that the risk of a housing bubble is higher than usual.

Leading Economic Indicators

It is easy to find lagging economic indicators. These are variables that reliably move after overall economic conditions change. Unemployment is a classic example. It tends to rise soon after economic conditions worsen. It is thus not too useful in predicting what is going to happen to an economy over the next 6-18 months. It is also easy to find coincident indicators, variables that move at the same time. It is much harder to find leading economic indicators, variables that reliably tend to move before economic conditions change.¹ For obvious reasons, participants in financial markets are especially interested in leading economic indicators. None are perfect, but we will consider three from our discussion of financial markets.

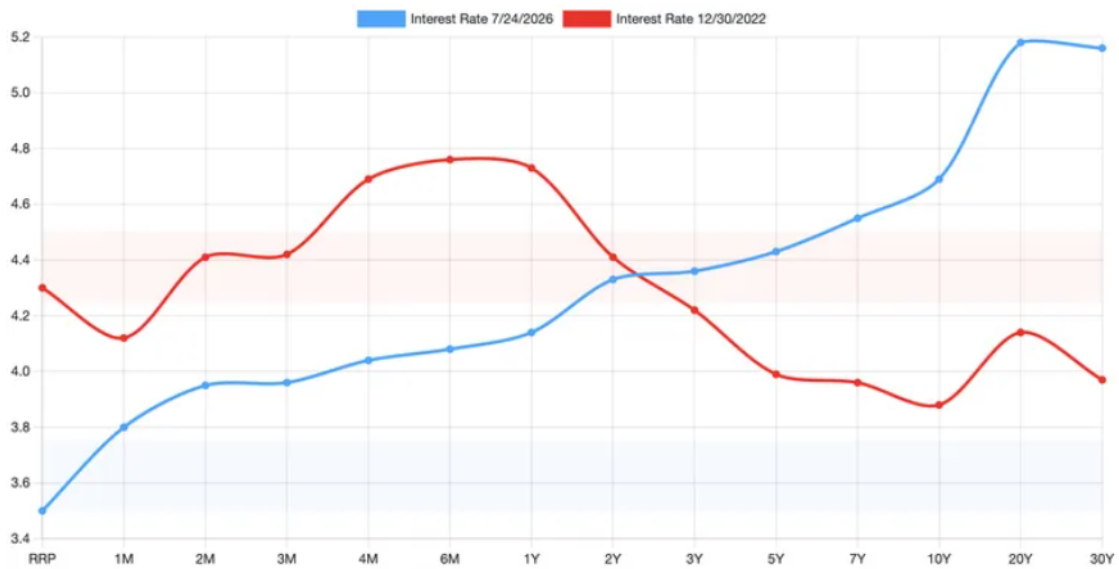
1. An inverted yield curve. The yield curve is simply a graph showing different yields, often for Treasuries, for different maturities. Here is an example:

The yield curve is usually upward sloping because longer-term bonds usually require term premiums which make their yields higher. Occasionally, however, parts of the yield curve are downward sloping. A common way to see this is to plot the 10-2 year term spread, which is simply the difference between the yield on these two bonds. Many analysts believe that an inverted yield curve (when this spread is negative) is the best predictor of a recession.

There are a few reasons why an inverted yield curve might predict a recession. We will focus on one. Suppose that the Federal Reserve is likely to lower interest rates in 2-4 years. This will have no effect on two-year yields. It will, however, lower 10-year yields, possibly inverting the yield

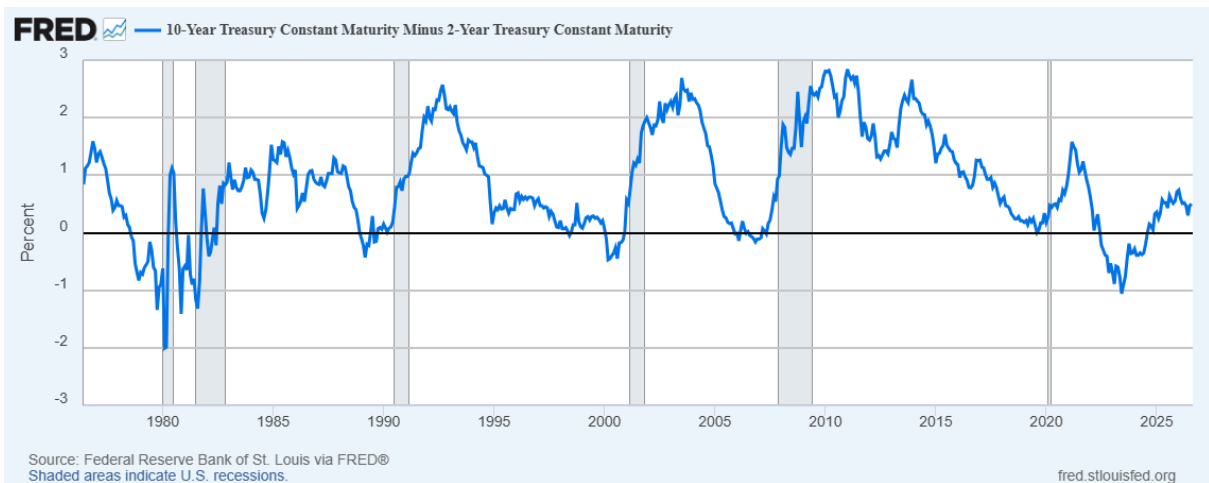
¹“Leading” does not mean best. It refers to the timing with “leading” indicating that the variable moves before the rest of the economy.

Figure 4: U.S. Treasury Yield Curve



Source: <https://www.ustreasuryyieldcurve.com/>

Figure 5: Ten -Two Year Treasury Term Spread



curve. Why has the Fed lowered interest rates in the past? Often because of a recession. So an inverted yield curve may be signaling that the Fed will have to lower rates to combat a recession. This relationship is not perfect. In 2022, the yield curve inverted leading to predictions of the Recession of 2023. This never happened.

2. There is some evidence that higher stock prices may be a weak leading economic indicator. We have already discussed how higher stock prices may boost economic performance through the wealth effect. It may take some time, however, for this effect to be felt. As a result, stocks may be a leading indicator.³ Housing. As we discussed, housing is the biggest economic decision that

many ordinary households make. A strong housing market may thus signal economic optimism among ordinary households (as opposed to bond traders) that good times are ahead. It can be hard to detect this optimism in other financial data. Likewise, a weak housing market may signal pessimism. As a result, housing starts has a very good record as a leading economic indicator.

Figure 6: U.S. Housing Starts

