Using the Markets to Forecast Future Interest Rates

In December 2015, the Federal Reserve Board (the Fed) began to tighten short-term interest rates, announcing a quarter percentage point increase in the target range for the Federal Funds rate from 0.00%-0.25% to 0.25%-0.50%.

This change is noteworthy. The Federal Funds rate can be viewed as the base rate that determines the level of all other interest rates in the U.S. economy. For instance, the prime rate (i.e. the interest rate that banks charge their preferred customers, or those with the highest credit ratings) is generally 300 basis points, or 3 percent, higher than the Federal Funds rate. Banks use the prime rate to set interest rates on numerous short-term loan products. These include adjustable-rate mortgages, auto loans, credit cards and home equity loans. The terms of such loans typically are expressed as prime plus a certain percentage, depending on the borrower's credit rating and other factors. For example, someone considered a good credit risk may qualify for "prime plus 1 percent."

More broadly, changes in interest rates cause a ripple effect throughout the entire economy. For example, the lower the interest rate, the more willing people are to borrow money to make big purchases, such as houses or cars. Businesses also benefit from lower interest rates, as it encourages them to make large property and equipment purchases due to the low cost of borrowing. Conversely, higher interest rates mean that consumers don't have as much disposable income and must cut back on spending. Businesses withhold major investments due to increased borrowing costs.

Changing interest rates is also a tool that impacts inflation. If inflation (the rise in the price of goods and services) is high, raising interest rates tends to decrease the rate of inflation. This is because as the cost of borrowing rises, consumers and business begin to spend less thereby decreasing the demand for goods and services and causing prices to drop. On the other hand, falling interest stimulates spending.

The U.S. Stock Market and especially Bond Markets are also impacted by the Federal Funds Rate. Over the past 35 years, interest rates are inversely related to the Dow. There is also an inverse relationship between interest rates and bond prices. For example, consider an investor who buys a new bond for $1,000 that has a 5% interest payment earning $50 in interest each year. If interest rates increase by 1%, new bonds will provide a 6% interest payment, paying investors $60 annually. Because investors will now be able to buy a bond with a higher interest payment, not as many people will want to buy the 5% bonds. This decline in demand will cause the value of the 5% bond to fall.

Given the impact of changes in the Federal Funds rate, accurately forecasting the timing and degree of changes in the Federal Funds rate can be a valuable tool.

The article will explain how the Federal Funds rate is determined. It will then show how the Federal Funds Futures market offers useful, unbiased information about the future movement of the Federal Funds interest rate.

What Is the Federal Funds Rate and How is it Determined?

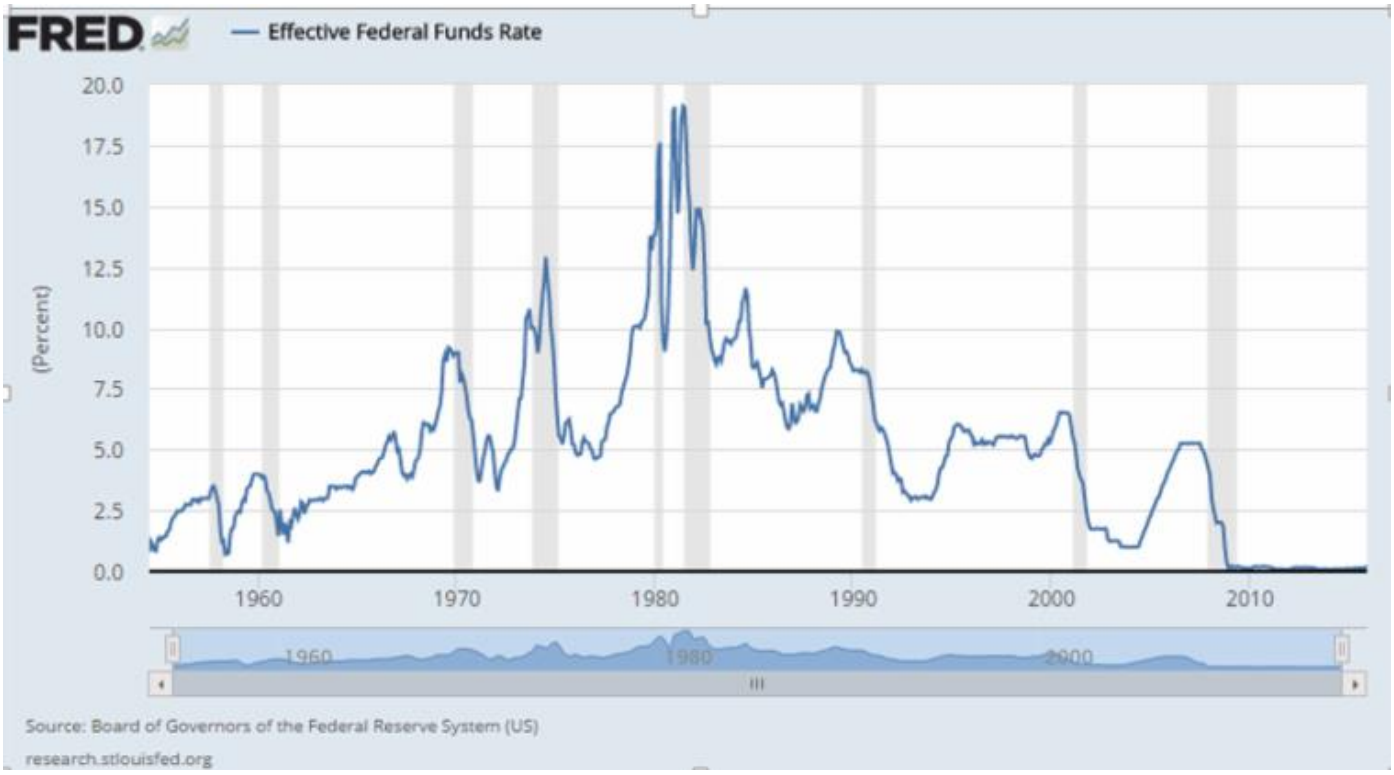
The Federal Funds rate is "the interest rate" at which depository institutions (banks and credit unions) actively trade balances held at the Federal Reserve, called Federal Funds, with each other. Banks and other depository institutions maintain accounts at the Federal Reserve to make payments for themselves or on behalf of their customers. The end-of-the-day balances in these accounts are used to meet the

reserve requirements mandated by the Federal Reserve. If a depository institution expects to have a larger end-of-day balance than it needs, it will lend the excess amount to an institution that expects to have a shortfall in its own balance. The Federal Funds rate thus represents the interest rate charged by the lending institution.

Note that the Fed sets the *target* Federal Funds rate, but the Federal Funds rate is the actual rate which depository institutions trade. But the Fed does play a key role in influencing the Federal Funds rate.

Specifically, the Fed primarily influences the Federal Funds rate by buying and selling United States Treasury securities, which are government debt instruments issued by the United States Department of the Treasury to finance the national debt of the United States. When the Fed buys treasury bonds, this "new" money increases the supply of money available for financial activity, which makes borrowing less costly (meaning interest rates go down). When the Fed sells Treasuries, the buyer is giving the Fed cash and getting a Treasury Bond. The cash which would normally be placed at a bank and loaned out is now out of circulation, reducing the supply of money, which makes borrowing money more costly (meaning interest rates go up).

As of 1/22/2016, this Fed Funds rate was 0.38%, which is within the Federal Reserve's target range of 0.25%-0.5%. Historically, this is very, very low. The chart below shows the historical Fed Funds rate from 1954-2015:



The Federal Funds Futures Markets

But how could a public market reflect the market's expectation of changes in the Federal Funds Rate?

The answer is via futures contracts.

Futures contracts are contracts in which the parties initially agree to buy and sell an asset for a price agreed upon today with delivery and payment occurring at a future point.

Futures contracts are a valuable tool to hedge against risk. For example, a farmer might agree to sell his crop of corn today for a certain price at a future date. In this way, the Farmer can guaranty a certain price, making it easier for him to plan. On the other side of the transaction, a corn purchaser could lock in a price to make it easier for him to plan. Or a speculator, who thinks the price of corn will rise, could buy a futures contract in the hopes of profiting on the spread between the corn futures contract's price and the market price at a later date.

Due to its highly competitive nature, publicly traded futures markets are important economic tools to forecast the prices of a given product or commodity at a future date. For example, if a drought in Iowa is making growing corn more difficult during growing season, one would expect the supply of corn to be down during harvesting season. This would in turn drive the price of a corn futures contract dated for harvesting season up. This is because there would be anticipated lower supply of corn at harvest, thus increasing corn prices at the harvest date.

And futures contracts are not just made for commodities like corn, but also for financial products, including the Fed Funds rate.

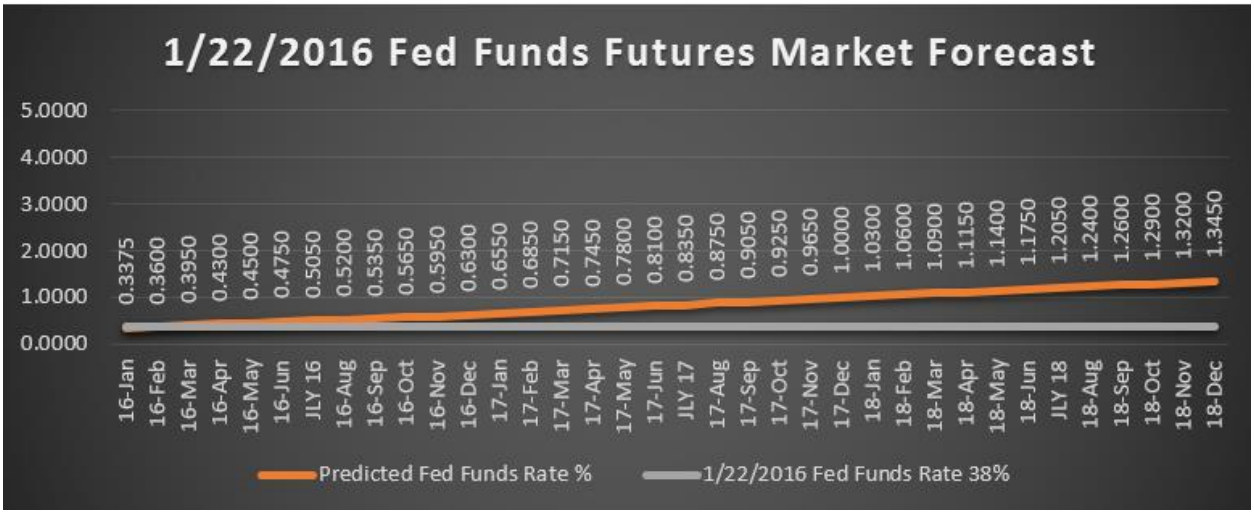
Specifically, the Chicago Board of Trade (CBOT) was established in 1848 and is the world's oldest futures exchange. The CBOT trades 30-day Federal Funds futures contracts for every month for 3 years in the future.

Similarly to the corn example, this market can be used by banks and credit unions to plan or hedge against the risk of rising interest rates. For example, if a bank wanted certainty in the rate, it could trade Federal Funds with another bank 6 months in the future, it could buy a Federal Funds futures contract today and lock in that rate. If the Federal Funds rate ended up exceeding the futures contract rate in 6 months, the bank would still only need to pay the futures contract price.

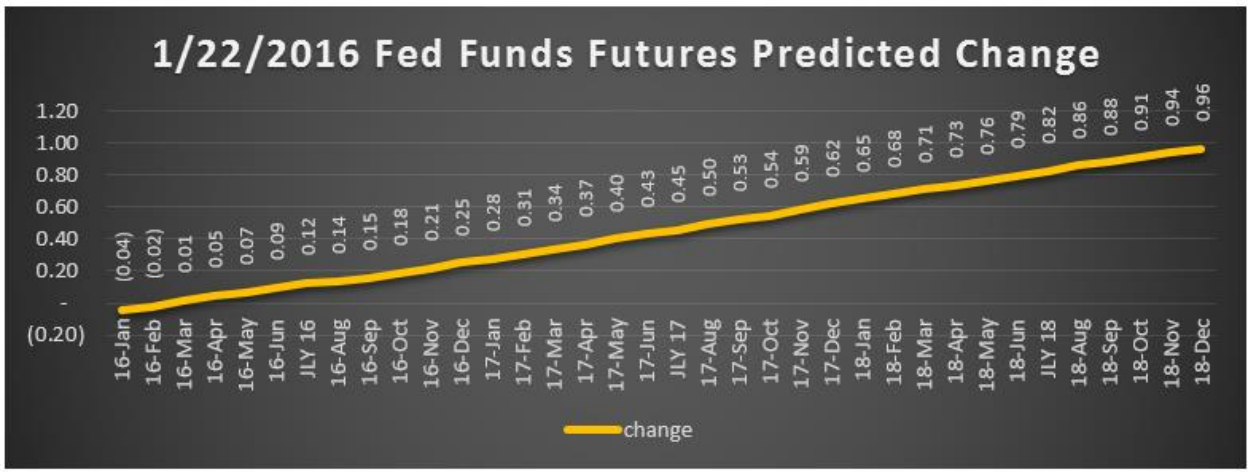
Accordingly, the price of Federal Funds futures contracts is based on the Federal funds rate and expectations for changes in that rate at a certain date in the future. It is the market's collective opinion today of what the Federal Funds rate will be in the future. Unlike pundits, this market reflects the opinions of real traders with real money at risk. Therefore, it is widely considered one of the best indicators of Fed moves and the Federal Funds rate.

So what is this market forecasting?

Using the Federal Funds Futures market's prices from Friday January 22, 2016, the chart below shows the market's expectation of future Federal Funds rates through December 2018:



The chart below shows the amount of change over the current rate of .38%:



As the charts show, the market is predicting a rise in the Fed Funds rate but not dramatically. For example, in January 2017, the market is predicting a Federal Funds rate of .655%, which is only a .28% increase over the current Federal Funds Rate of .38%. In fact, in December of 2018, the market is forecasting a rise to only 1.3450%, which is only about 1% higher than the current Federal Funds rate.

Conclusion

The Federal Funds Futures Market reflects this market's collective expectation of both the timing and degree of future Federal Funds rate hikes. The market could be wrong or could change as new information becomes available to the public. Nevertheless, the useful, timely, and unbiased information available from this market is a valuable tool, especially in times of changing interest rates.

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