

The Goal of the Fed

The Federal Reserve's Board of Governors is required by Congress to implement policy that allows for maximum employment and low, stable prices. These requirements are often referred to as the dual mandate of the central bank.

Labor Market

The labor market is one half of the Federal Reserve's dual mandate. Labor market conditions are a vital part of how the Fed determines to move forward with monetary policy. The main tool used by the Fed to assess the health of the labor market is the **U3 headline rate** (supplied by the Bureau of Labor Statistics (BLS) www.bls.gov). U3 measures the number of unemployed workers in the economy who are actively seeking employment. Other measures used by the Fed include the **U6** unemployment rate, which includes U3 plus marginally attached workers and workers working part-time for economic reasons. Analyzing the gap between U6 and U3 can be important as well when determining the health of labor market. Another helpful tool is the **Beveridge Curve**. The Beveridge Curve is a visual representation of the relationship between unemployment and the job vacancy rate. This graph can help to indicate the current state of the economy in the business cycle. Although these tools are vital in determining the health of the labor market, they are not exhaustive. Using the BLS website, you can find other labor statistics that measure certain industries that could be impacting the broader economy. However, it is important to remember that the Fed does not typically focus on one sector of the labor market to make decisions about monetary policy.

Inflation

Inflation is the other half of the Fed's dual mandate. The Fed's current target for inflation is 2%. **Inflation** is the situation where the price of most goods and services are increasing over time. There are several other terms that are important here as well: disinflation and deflation. **Disinflation** is a fall in the rate of inflation – for example, the Q2 inflation rate is 2.0%, and the Q3 inflation rate is 1.5%. Although the inflation rate has fallen, the prices of goods and services are still increasing over time. **Deflation** is a situation in which the prices of most goods and services are decreasing over time – that is that the inflation rate is negative. Two main indexes are used by the Fed to measure inflation: Consumer Price Index (CPI) and Personal Consumption Expenditures Index (PCE). It is also helpful to be aware of Core PCE, which is PCE less food and energy prices. There are many factors that affect inflation: Wages/Input Costs, Oil/Energy Prices, Inflation Expectations, etc. Understanding **Inflation Expectations** can be somewhat difficult, but it is an important part of formulating policy. When analyzing inflation expectations, researching market-based and survey-based measures are important. Market-based measures are based off investors' hedging inflation risk. Important tools to measure expectations are the five and ten year breakeven rates. This information can easily be found on the St. Louis FRED website. When researching survey-based measures, analyzing the Survey of Professional Forecasters (SPF) and the University of Michigan's Consumer Sentiment Survey is useful. The SPF data is available from the Philadelphia Fed, and the UMich data can be found at www.sca.isr.umich.edu.

Gross Domestic Product (GDP)

Gross Domestic Product (GDP) is the market value of final goods and services newly produced within a nation's borders during a fixed period of time. GDP is an important measure that helps policy makers determine the health of the overall economy. Most of the data used by the Fed can be found on the Bureau of Economic Analysis's (BEA) website www.bea.gov. It is usually helpful to analyze the components of GDP, which can all be found on the website. From your macroeconomic courses, you know that $GDP = C + I + G + NX$, where C is consumption, I is investment, G is government expenditures and NX is net exports. Changes in consumption are measured by changes in Real Personal Consumption Expenditures (PCE). Important indicators of the trajectory of PCE include changes in durable goods and changes in consumer credit. When dealing with investment, it is important to note Residential and Non-Residential Fixed Investments. The trend of these figures over a fixed period of time typically helps to indicate both deficiencies and recovery in the economy. It is also important to understand the impact of inventories on investment. The Fed also monitors housing market and manufacturing sectors to determine the health of the economy. Changes in housing starts and manufacturing output data is typically a good place to start when looking at specific sectors.

Financial Markets

The conditions in financial markets can be important leading indicators of the overall health of the economy. The financial markets hold a large share of consumer wealth. Changes in the market can influence future decisions made by households and firms, which can impact the Fed's dual mandate. The following are just a selected list of items to take into account:

- Interest Rates, both real and nominal
- Current and past yield curves
- Stock Market Indices
- Schiller P/E Ratio and other stock multiples in relation to historical levels
- Volatility in Markets
- Cleveland Fed Financial Stress Index
- Banking Health Indicators (Monetary Policy Report, Stress Testing Reports, FDIC, etc.)
- Market Expectations of interest rates and stock prices

Foreign Exchange Rate

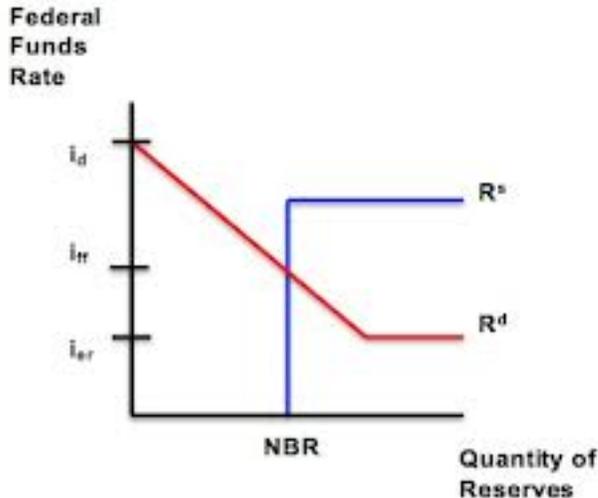
Through Monetary Policy Mechanisms, the Fed can indirectly affect the Foreign Exchange Rate. The reverse is true as well. Changes in the Forex Rate can impact the Fed's dual mandate.

Easy monetary policy is typically associated with a relative decline in the value of the currency against other currencies, whereas tightening of Monetary Policy is associated with a relative rise in the value of currency against other currencies. For example, if the interest rates are increasing in "Country A" relative to "Country B", the demand for "Country A's" currency will increase, other things equal, and will cause an appreciation of "Country A's" currency relative to "Country B's". When currencies appreciate, the exports from the country tend to be more expensive for importers in other countries, which can cause a drag on the output of the exporting country. Further, imports from abroad become cheaper causing consumers to substitute away to the imported good, reducing the demand for domestic goods. So, monitoring exchange rates is important for the Fed to implement policy that furthers its compliance with its dual mandate.

Conventional Monetary Tools

Federal Funds Rate (FFR) – The overnight rate banks charge one another to borrow funds.

Traditionally the Federal Reserve has used open market operations to affect the level of the monetary base and consequently the money supply in order to manage the economy. By open market operations, it is meant that the desk at the New York Fed buys and sells short-term securities to change the level of reserves in the market. The intersection of the demand and supply of reserves determines the FFR. It is also important to note that a change in the FFR impacts longer-term rates such as Corporate Bond Rates, 30 Year Mortgage Rates, etc.



Quantitative Easing

In response to the financial crisis of 2008, the Fed adopted Quantitative Easing (QE). QE is the buying and selling of longer-term securities to stimulate aggregate demand. By increasing the demand for longer-term securities, the price of these securities increased pushing the interest rates lower. QE can potentially work through various “channels”.

Forward Guidance

Forward Guidance is the use of implicit and explicit language to signal what it expects the future stance of monetary policy will be, especially in regards to the trajectory of the Federal Funds Target Rate. The goals of Forward Guidance are to increase certainty for businesses and investors and to influence long-term interest rates. Forward Guidance can work through various channels. Its most prominent channel is the signaling channel. For example, if the Fed were to state that it expects to maintain the Federal Funds Target Rate (or range) at a low level for a significant period of time, this can put downward pressure on long-term interest rates, allowing households and businesses to have increased access to credit and borrowing (as long-term rates are thought to be the aggregate of short-term rates).

New Monetary Policy Tools

The **Interest on Excess Reserves (IOER)** acts as the floor of the FFR. IOER is the interest paid to banks that hold reserves in excess of the required reserve ratio at the central bank. In response to the large amount of reserves in the system, the Fed instituted the IOER to prop up the FFR. To illustrate this, if the FFR is at .10% and the IOER is at .25%, banks will be unwilling to lend in the FFR market. This will cause the FFR to be bid up to the IOER rate. In order to incentivize other banks to lend, banks that need to borrow in the market will have to be willing to at least pay the IOER rate.

The **Reverse Repurchase Agreement (Reverse Repos)** are essentially short-term collateralized loans that function very similarly to that of the traditional FFR market, but it is collateralized and thus will have a lower interest rate charged on the loan. Because Repos can be given to institutions that cannot earn IOER, this helps support the “floor” the IOER is theorized to create on short-term market interest rates.

The **Term Deposit Facility (TDF)** is a longer-term draining of reserves by the Fed to further control interest rates. TDFs work as supplementary draining tool to Reverse Repos. The Fed will hold an auction for eligible institutions to be able to deposit their funds in the TDF for a longer period of time in return for a slightly higher interest rate. It will serve two purposes: to get reserve levels back to historically more “normal” levels, and to reign in the lending of excess reserves.

Monetary Policy Channels

By increasing/decreasing the supply of reserves (Open Market Operations), the Fed impacts aggregate demand. The **Interest Rate Channel** is affected by the change in the FFR and its expected path. For example, in theory, increasing the FFR will decrease aggregate demand, because higher short-term interest rates will translate into higher long-term rates decreasing investment and consumer expenditures. The expected path of short-term nominal interest rates affects the **Exchange Rate Channel**. If nominal interest rates increase due to tightening of monetary policy, the demand for the country’s currency will increase. This increase in demand will cause an appreciation of the currency relative to others, which impacts the aggregate demand of the country. In this situation, net exports will decrease. The **Wealth Channel (or Equity Price Channel)** is the theory that as interest rates change, the demand for equities increase and decrease. For example, if the money supply increases (a FFR decrease), then real interest rates fall and investors look for vehicles that have higher returns. The increase in returns increases the wealth of consumers causing an increase in aggregate demand. The **Private Nonfinancial Balance Sheets Channel (or Credit Channel)** is affected in the following way: money supply increases causing an interest rate decrease leading to an increase in equity prices which in turn leads to an increase of a firm’s cash flow. This increase leads to price level increases where the net worth of firms increase and the banks willingness to lend to firms increase. Through the **Bank Lending Channel** as the money supply increases, bank deposits/reserves increase allowing for an increase in bank loans and consumptions and investment increases.

Taylor Rule

The Taylor Rule is a monetary policy guideline developed by economist John Taylor for determining the target of the Federal Funds Rate.

$$FFR\ Target = \pi + ffr^* + \frac{1}{2}(\pi - \pi^*) + \frac{1}{2}\left(\frac{y - y^*}{y^*}\right)$$

Where,

- π = inflation
- π^* = inflation target
- ffr^* = equilibrium real federal funds rate
- y = actual output
- y^* = potential output

Phillips Curve

The theory of the Phillips Curve is that there is an inverse relationship between the inflation and the unemployment rates. For example, as inflation increases, unemployment will decrease. After 1960s, the Phillips Curve no longer held, and what was introduced after was the **Augmented Phillips Curve**. Its relationship is between unanticipated inflation and the cyclical unemployment.

$$\pi - \pi^* = -h(u - \bar{u})$$

Where,

- $\pi - \pi^*$ = unanticipated inflation (difference between actual inflation and the inflation target).
- $u - \bar{u}$ = cyclical unemployment (difference between actual unemployment and the natural rate of unemployment).
- h = a positive number that measures the slope of the relationship between unanticipated inflation and cyclical unemployment

Employment

Natural Rate of Unemployment is the rate of unemployment that prevails when output and employment are at the full-employment level.

Cyclical Unemployment is the difference between the actual unemployment rate and the natural rate of unemployment ($u - \bar{u}$). Cyclical unemployment is the unemployment the Fed aims its policy at.

$$\text{Unemployment: } u = \frac{\text{number of unemployed}}{\text{number of people in the labor force (unemployed+employed)}}$$

$$\text{Labor Force Participation Rate (LFPR): } LFPR = \frac{\text{Labor Force (unemployed+employed)}}{\text{Civilian Population Age 16+}}$$

$$\text{Employment Ratio: } E = \frac{\text{number of employed workers}}{\text{Civilian Population Age 16+}}$$