

# Fed Challenge Brief:

## *Interest Rates*

### The Concept of Interest Rates

An **interest rate** is the price of current consumption in terms of future consumption. Interest rates indicate **time preference**. At a given rate, borrowers prefer to consume goods now and incur interest costs later; lenders prefer to defer consumption in exchange for future purchasing power (from interest received).

Thus, it is more correct to say that the interest rate is the **price of current consumption**, rather than the price of money. An interest rate is the price of impatience or reward for patience.

**Real** interest rates are adjusted for inflation; **nominal** rates are not. As prices rise (inflation), money loses its value. The real interest rate captures the tradeoff between current and future real consumption (i.e., in terms of goods and services). The nominal interest rate captures the tradeoff between current and future nominal consumption (i.e., in terms of dollars).

**The Fisher Effect** (named for Irving Fisher) states that the real interest rate (approximately) equals the nominal interest rate minus the inflation rate (actually, expected inflation, since we don't know the future inflation rate beforehand).

**Example:** Invest \$100 at a nominal rate of 10% when inflation is 5%. One year later, the investment yields \$110, with which the investor can purchase goods costing around \$105 today. Deferring consumption for a year, the investor's assets grow by 10% in nominal terms, 5% in real terms.

### Basic Definitions

**Asset Demand:** A functional relationship showing the amount of a particular class of security people demand at a range of interest rates. The determinants of asset demand include expected return, risk, liquidity, and wealth.

**Basis point:** 1/100 of a percentage point. (ex: "The federal funds rate dropped 50 basis points," means, "The rate dropped by 0.50%.")

**Interest rate risk:** The risk associated with volatility in asset returns, based on interest-rate changes.

**Maturities (for Treasury notes, bonds and bills):** bill: 1-12 months; note: 1-10 years; bond: 10-30 years.

**Security:** A financial instrument representing a lender's claim on a borrower's future assets (ex: a bond).

**Term to maturity:** The duration of a bond; the time until a bond is to be redeemed.

### Introduction to the Yield Curve

The **yield curve** is a graphic representation of the **term structure of interest rates** —the relationship between maturity and interest rates for a single class of assets at a given moment. Usually, long-term debt carries higher interest rates than short-term debt. (With an **inverted yield curve**, short-term rates are higher than long-term rates.) Three broad theories purport to explain the yield curve's shape: **expectation theory** (Investors' expectations of future rates determine the curve's shape.); **segmented markets theory** (Separate supply and demand curves exist for assets of different maturities, which are not perfect substitutes.); **liquidity premium theory** (Investors demand a premium for holding longer-term assets.) The yield curve's shape at a given moment gives analysts information on the future course of inflation and real output and on the future course of monetary policy.

### The Federal Funds Rate and the Federal Reserve

**How?** The Federal Reserve's Federal Open Market Committee (FOMC) serves a vital role in determining nominal interest rates across the economy. The FOMC meets approximately every six weeks to assess the economic outlook. Based on this assessment, the FOMC votes to raise, lower, or maintain the target federal funds interest rate – the rate on overnight loans among Federal Reserve member banks. To lower the fed funds rate, the Fed purchases Treasury securities, thereby increasing the quantity of money in circulation. Conversely, to raise the fed funds rate, the Fed sells Treasury securities, thereby reducing the quantity of money in circulation. Movements of the fed funds rate tend to induce parallel movements by other interest rates. Other short-term rates are strongly influenced by the fed funds rate; long-term rates are more loosely related to the fed funds rate.

**Why?** The Fed targets the fed funds rate in order to stabilize the general price level (i.e., to minimize inflation or deflation) and to create the best possible environment for maximize sustainable real economic growth.

**Who?** The FOMC is composed of 12 members: the Federal Reserve chairman, the six other members of the Fed's Board of Governors in Washington, and five of twelve Federal Reserve Bank presidents. The Federal Reserve Bank of New York undertakes these purchases and sales of securities in accordance with the instructions of the FOMC.

## Common Interest Rates

Name	Description	Borrowers / Lenders	Where to find current data
Federal Funds Rate	Applies to overnight interbank loans on deposits at the Federal Reserve. The Fed maintains a target via open market operations	Institutions subject to reserve requirements (e.g. banks) / the same institutions; occasionally U.S. government agencies and non-bank securities dealers	Current and historical data are available from the Board of Governors of the Fed: <a href="http://www.federalreserve.gov/releases/H15/update/">www.federalreserve.gov/releases/H15/update/</a>
Discount Rate	Rates at which banks may borrow from Federal Reserve banks	Institutions subject to reserve requirements (e.g. banks) / Federal Reserve Banks	Board of Governors: See above
Prime Rate	Benchmark lending rate on which a bank bases rates for different classes of customers.	Bank customers / banks	Board of Governors: See above
LIBOR Rate	The lowest rate for international loans between banking institutions	International banks / international banks	Spot rates are available free of charge: <a href="http://www.bloomberg.com/markets/rates/index.html">http://www.bloomberg.com/markets/rates/index.html</a>
Certificate of Deposit (CD) Rate	A debt instrument sold to depositors; pays annual interest and, at maturity, repays the original principal	Bank customers / banks	Board of Governors: See above
Mortgage Rates	Rates for households or firms who use a building or land as collateral	Individual borrowers / banks	Available from Bloomberg: <a href="http://www.bloomberg.com/markets/rates/index.html">http://www.bloomberg.com/markets/rates/index.html</a>
Commercial Paper	Short-term debt instruments not backed by banks	Well-known corporations / miscellaneous investors	Board of Governors: See above
Repurchase Agreements	Contracts to repurchase a specific asset at a specified date for a price, which yields a preset return	Banks and other corporate borrowers / other banks and corporate borrowers	????
Bankers' Acceptances	Promissory notes that firms can issue which, in effect, substitute a bank's credit for their own	Firms / banks and other lenders	Board of Governors: See above
Treasury Securities	Long-term debt instruments issued to finance the debt of the federal government	U.S. government / individual securities purchasers	Available from Bloomberg: <a href="http://www.bloomberg.com/markets/rates/index.html">http://www.bloomberg.com/markets/rates/index.html</a>
Municipal Bond Rates	Funding government projects, their earnings are exempt from federal income tax and sometimes state and local taxes as well	Federal, state, and local governments / Individuals	Available from Bloomberg: <a href="http://www.bloomberg.com/markets/rates/index.html">http://www.bloomberg.com/markets/rates/index.html</a>
Corporate Bond Rates	Long-term bonds. Aaa is the highest rating, with Baa following and so on.	Corporations / individuals	Board of Governors: See above

## Additional Resources

### ***The Economics of Money, Banking, and Financial Markets***

by Frederic C. Mishkin. [http://www.aw-  
bc.com/catalog/academic/product/0.4096.0321200497.00.html](http://www.aw-bc.com/catalog/academic/product/0.4096.0321200497.00.html)

A leading textbook for undergraduate money and banking courses. The online resources supplement the textbook and a good starting place for reviewing key concepts.

### ***Financial Institutions, Markets, and Money***

by David S. Kidwell, Richard L. Peterson, and David W. Black.

### **Chicago Board of Trade [www.cbot.com](http://www.cbot.com)**

Timely information on a wide range of markets.

### **Bloomberg Financial News [www.bloomberg.com](http://www.bloomberg.com)**

Timely information on a wide range of markets

### **Smartmoney.com Bond Calculator**

[www.smartmoney.com/onebond/index.cfm?story=bondcalculator](http://www.smartmoney.com/onebond/index.cfm?story=bondcalculator)

Users can calculate the interest rate on coupon bonds.

### **Simple Loan Payment Calculator**

[www.interest.com/hugh/calc/simple.cgi](http://www.interest.com/hugh/calc/simple.cgi)

Users can calculate a fixed payment loan.

### **The Investment FAQ**

[invest-faq.com/articles/index.html](http://invest-faq.com/articles/index.html)

Information on bonds and other financial instruments

### **CNN Markets: Bonds and Rates**

[cnnfn.cnn.com/markets/bondcenter/](http://cnnfn.cnn.com/markets/bondcenter/)

Offers yields on a range of securities, plus up-to-date financial news and information

### **FRED: Federal Reserve Economic and Financial Database**

[www.stls.frb.org/fred](http://www.stls.frb.org/fred)

Provides economic time series data on a range of indicators including many different financial instruments