WESTMINSTER
INTERNATIONAL UNIVERSITY IN TASHKENT
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Lecture 10.
Money Markets

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Lecture Outline

- The Money Markets Defined
- The Purpose of Money Markets
- Who Participates in Money Markets?
- Money Market Instruments
- Comparing Money Market Securities

The Money Markets Defined

- The term "money market" is a misnomer. Money (currency) is not actually traded in the money markets.
- The securities in the money market are short term with high liquidity; therefore, they are close to being money.
- Money Markets Defined

1. Usually sold in large denominations ($1,000,000 or more)
2. Low default risk
3. Mature in one year or less from their issue date, although most mature in less than 120 days

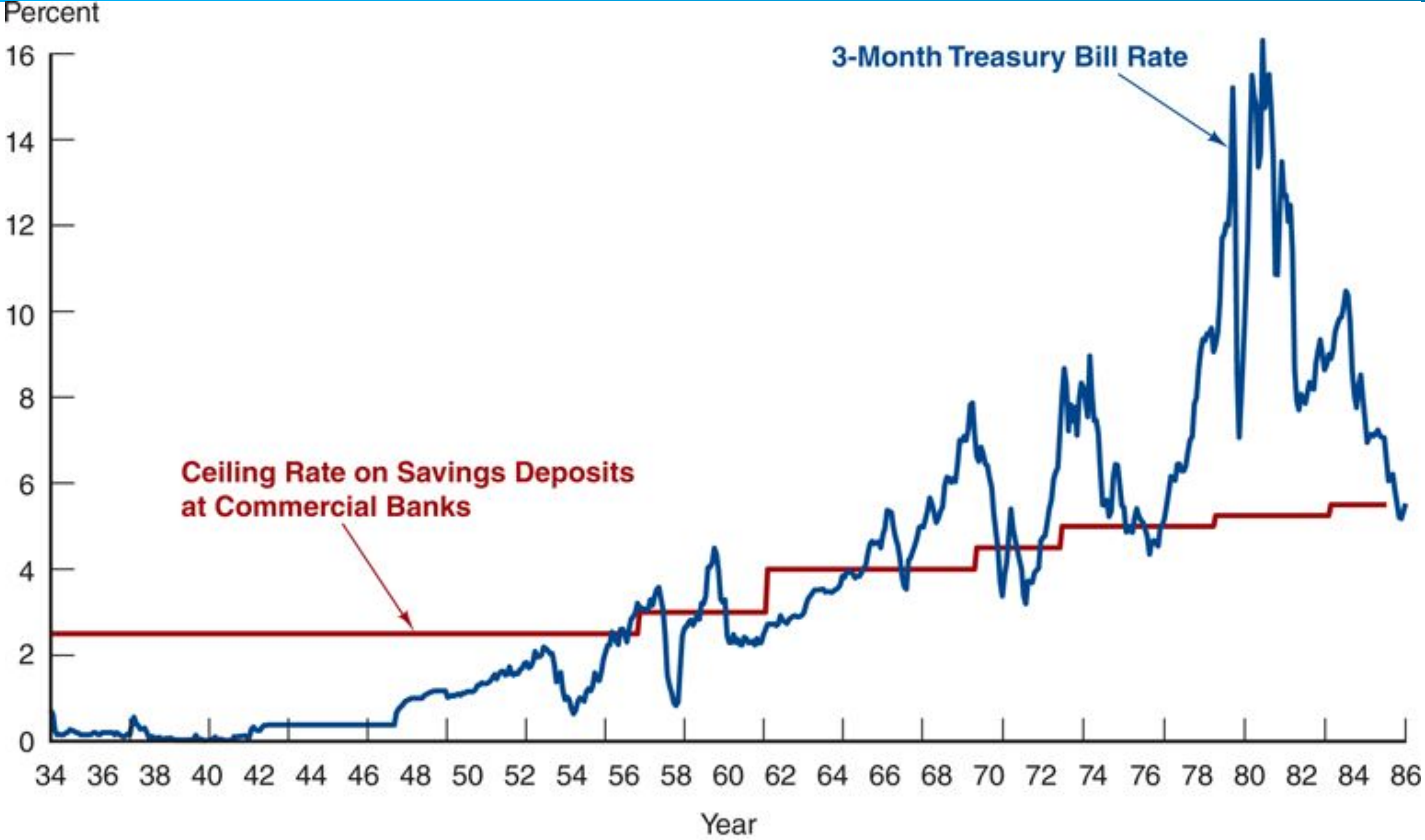
Why Do We Need Money Markets?

- The banking industry should handle the needs for short-term funding
- Banks have an information advantage.
- Banks, however, are heavily regulated, which creates a distinct cost advantage for money markets over banks.

Cost Advantages of Money Markets

- Reserve requirements create additional expense for banks that money markets do not have
- Regulations on the level of interest banks could offer depositors lead to a significant growth in money markets, especially in the 1970s and 1980s.
- When interest rates rose, depositors moved their money from banks to money markets.
- The cost structure of banks limits their competitiveness to situations where their informational advantages outweighs their regulatory costs.
- Limits on interest banks could offer was not relevant until the 1950s. In the decades that followed, the problem became apparent.

3-month T-bill rates and Interest Rate Ceilings



Source: http://www.stlouisfed.org/default.cfm.

The Purpose of Money Markets

- Investors in Money Market: Provides a place for warehousing surplus funds for short periods of time
- Borrowers from money market provide low-cost source of temporary funds
- Corporations and U.S. government use these markets because the timing of cash inflows and outflows are not well synchronized.
- Money markets provide a way to solve these cash-timing problems.

Sample rates from the Federal Reserve

Sample Money Market Rates, May 15, 2013

Instrument	Interest Rate (%)
Prime rate	3.25
Federal funds	0.12
Commercial paper	0.15
1-month CDs (secondary market)	0.17
London interbank offer rate	0.20
Eurodollar	0.23
Treasury bills (4 week)	0.01

Source: Federal Reserve Statistical Bulletin, http://www.federalreserve.gov/releases/h15/data.htm and Libor: http://www.fedprimerate.com/libor/libor_rates_history.htm.

Who Participates in the Money Markets?

Participant	Role
U.S. Treasury Department	Sells U.S. Treasury securities to fund the national debt
Federal Reserve System	Buys and sells U.S. Treasury securities as its primary method of controlling the money supply
Commercial banks	Buy U.S. Treasury securities; sell certificates of deposit and make short-term loans; offer individual investors accounts that invest in money market securities
Businesses	Buy and sell various short-term securities as a regular part of their cash management
Investment companies (brokerage firms)	Trade on behalf of commercial accounts
Finance companies (commercial leasing companies)	Lend funds to individuals
Insurance companies (property and casualty insurance companies)	Maintain liquidity needed to meet unexpected demands
Pension funds	Maintain funds in money market instruments in readiness for investment in stocks and bonds
Individuals	Buy money market mutual funds
Money market mutual funds	Allow small investors to participate in the money market by aggregating their funds to invest in large-denomination money market securities

Money Market Instruments

- Treasury Bills
- Federal Funds
- Repurchase Agreements
- Negotiable Certificates of Deposit
- Commercial Paper
- Banker's Acceptance
- Eurodollars

Money Market Instruments: Treasury Bills

- T-bills have 28-day maturities through 12- month maturities.
- **Discounting**: When an investor pays less for the security than it will be worth when it matures, and the increase in price provides a return. This is common to short-term securities because they often mature before the issuer can mail out interest checks
- You pay $996.73 for a 28-day T-bill. It is worth $1,000 at maturity. What is its discount rate?

$$i_{discount} = \frac{F - P}{F} \times \frac{360}{n} \qquad i_{discount} = \frac{1{,}000 - 996.73}{1{,}000} \times \frac{360}{28} = 4.665\%$$

- What is its annualized yield?

$$i_{yt} = \frac{F - P}{P} \times \frac{365}{n} \qquad i_{yt} = \frac{1{,}000 - 996.73}{996.73} \times \frac{366}{28} = 4.76\%$$

Money Market Instruments: Treasury Bills

- T-bills are auctioned to the dealers every Thursday.
- The Treasury may accept both *competitive* and *noncompetitive* bids, and the price everyone pays is the highest yield paid to any accepted bid.
- The Treasury auctioned $2.5 billion par value 91-day T-bills, the following bids were received:

Bidder	Bid Amount	Bid Price
1	$500 million	$0.9940
2	$750 million	$0.9901
3	$1.5 billion	$0.9925
4	$1 billion	$0.9936
5	$600 million	$0.9939

- The Treasury also received $750 million in noncompetitive bids. Who will receive T-bills, what quantity, and at what price?

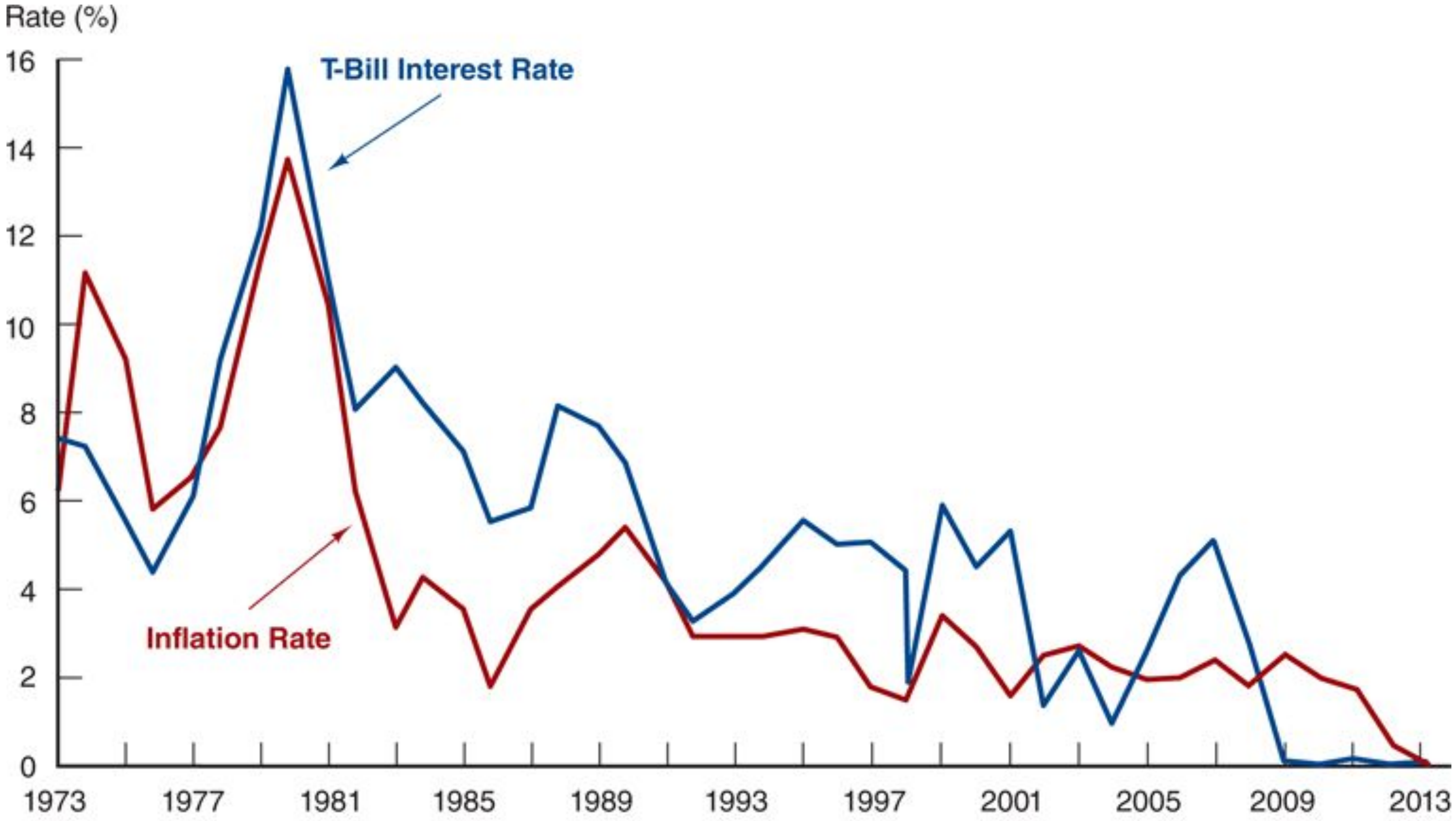
Money Market Instruments: Treasury Bills

- The Treasury accepts the following bids:

Bidder	Bid Amount	Bid Price
1	$500 million	$0.9940
5	$600 million	$0.9939
4	$650 million	$0.9936

- Both the competitive and noncompetitive bidders pay the highest yield—based on the price of 0.9936:

Money Market Instruments: Treasury Bills



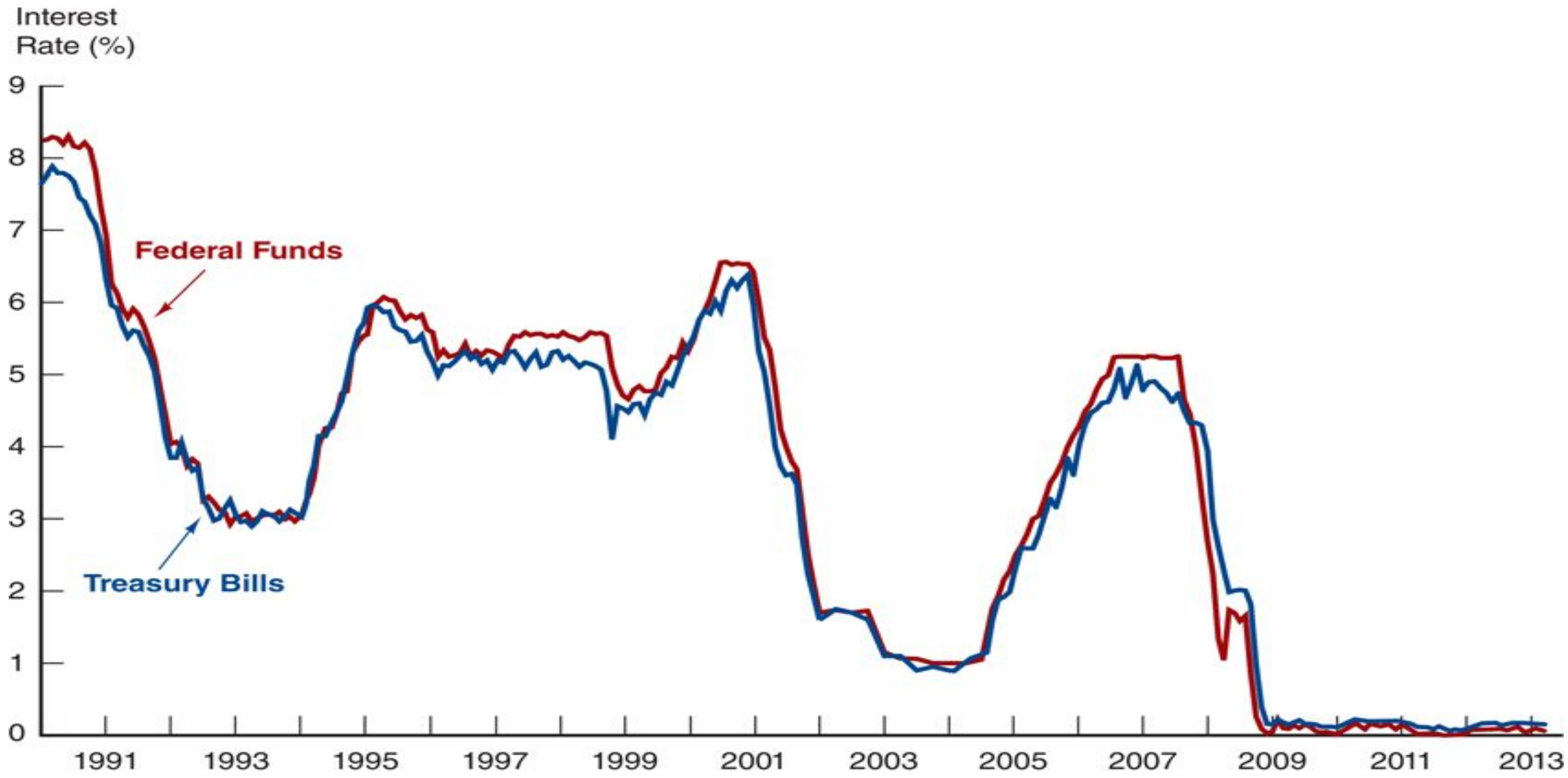
Source: http://www.federalreserve.gov/releases and CPI: ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt.

Money Market Instruments: Fed Funds

- Short-term funds transferred (loaned or borrowed) between financial institutions, usually for a period of one day.
- Used by banks to meet short-term needs to meet reserve requirements.

Money Market Instruments: Fed Funds

Federal Funds and Treasury Bill Interest Rates, January 1990–January 2013



Source: http://www.federalreserve.gov/.

Money Market Instruments: Repurchase Agreements

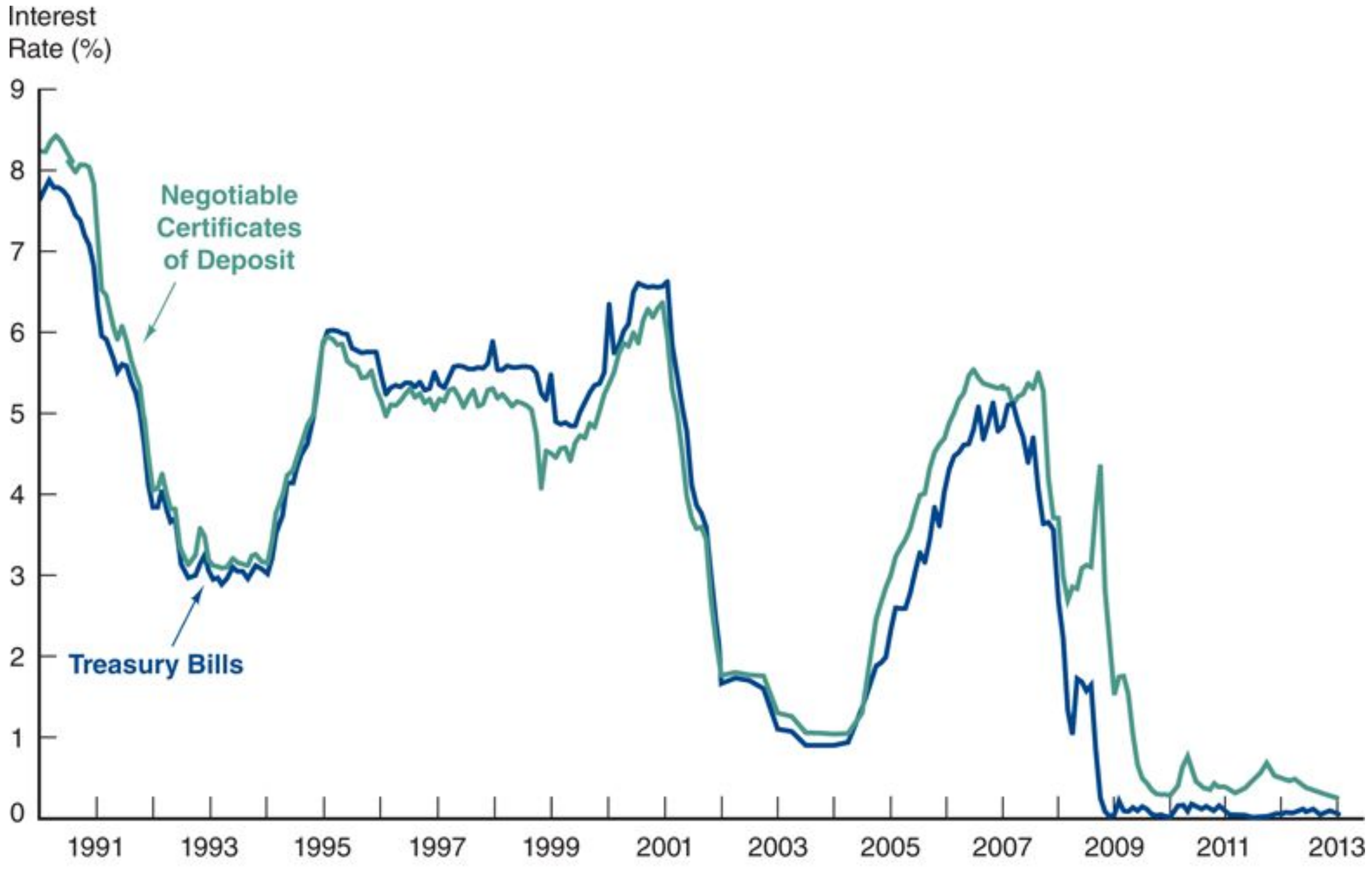
- These work similar to the market for fed funds, but nonbanks can participate.
- A firm sells Treasury securities, but agrees to buy them back at a certain date (usually 3–14 days later) for a certain price.
- This set-up makes a repo agreements essentially a short-term collateralized loan.
- This is one market the Fed may use to conduct its monetary policy, whereby the Fed purchases/sells Treasury securities in the repo market.

Money Market Instruments: Negotiable Certificates of Deposit

- A bank-issued security that documents a deposit and specifies the interest rate and the maturity date
- Denominations range from $100,000 to $10 million

Money Market Instruments: Negotiable Certificates of Deposit Rates

Interest Rates on Negotiable Certificates of Deposit and on Treasury Bills, January 1990–January 2013



Source: http://www.federalreserve.gov/releases/h15/data.htm.

Money Market Instruments: Commercial Paper

- Unsecured promissory notes, issued by corporations, that mature in no more than 270 days.
- The use of commercial paper increased significantly in the early 1980s because of the rising cost of bank loans.

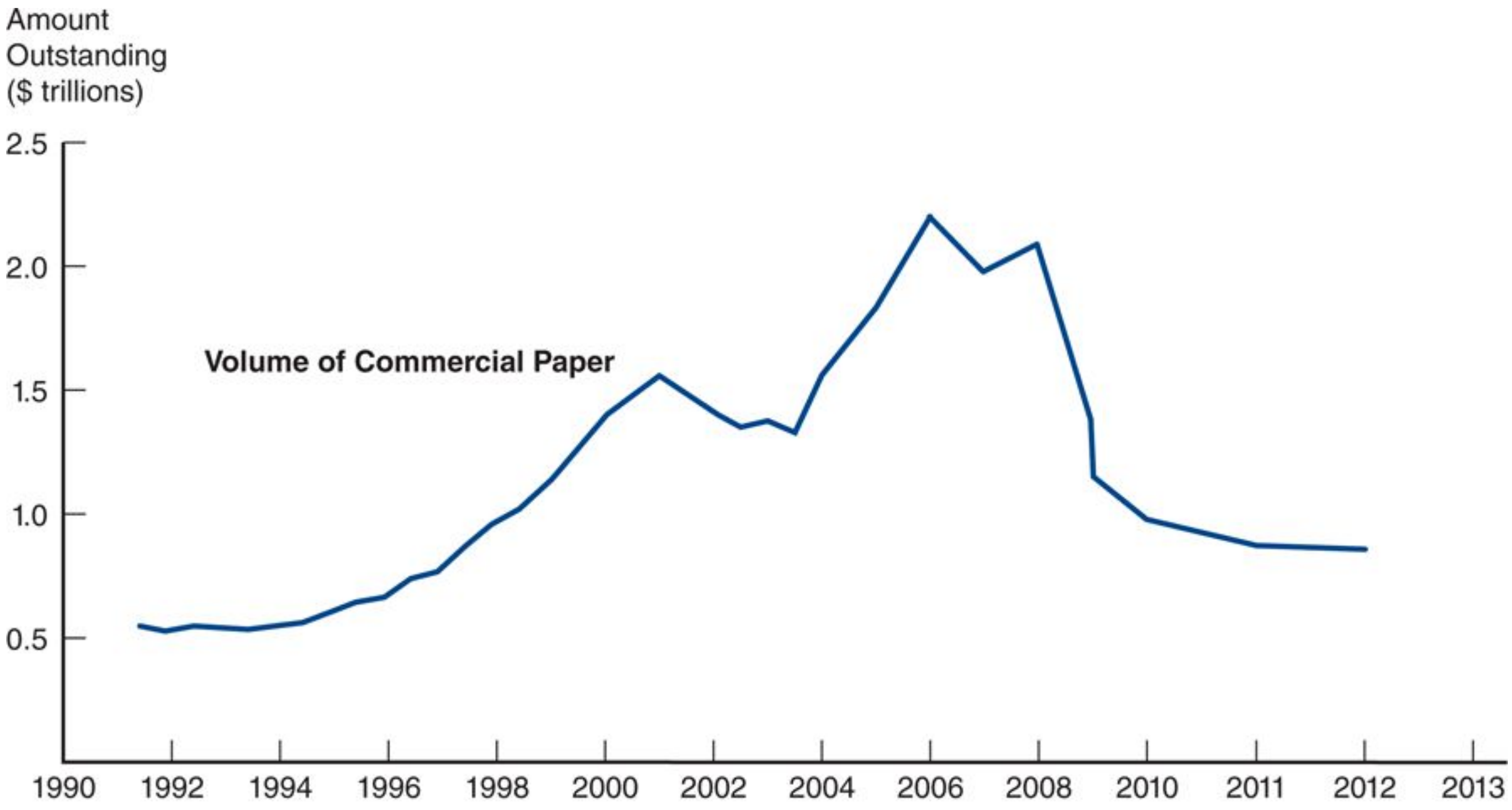
Money Market Instruments: Commercial Paper Rates

Return on Commercial Paper and the Prime Rate, 1990–2013

Source: http://www.federalreserve.gov/releases/h15/current/default.htm.

Money Market Instruments: Commercial Paper Volume

Volume of Commercial Paper Outstanding



Source: http://www.federalreserve.gov/releases/cp/yrend.htm.

Money Market Instruments: Banker’s Acceptances

- An order to pay a specified amount to the bearer on a given date if specified conditions have been met, usually delivery of promised goods. These are often used when buyers / sellers of expensive goods live in different countries.
- Advantages:

1. Exporter paid immediately
2. Exporter shielded from foreign exchange risk
3. Exporter does not have to assess the financial security of the importer
4. Importer’s bank guarantees payment
5. Crucial to international trade

Money Market Instruments: Eurodollars

- Eurodollars represent Dollar denominated deposits held in foreign banks.
- The market is essential since many foreign contracts call for payment is U.S. dollars due to the stability of the dollar, relative to other currencies.
- The Eurodollar market has continued to grow rapidly because depositors receive a higher rate of return on a dollar deposit in the Eurodollar market than in the domestic market.

Money Market Instruments: Eurodollars Rates

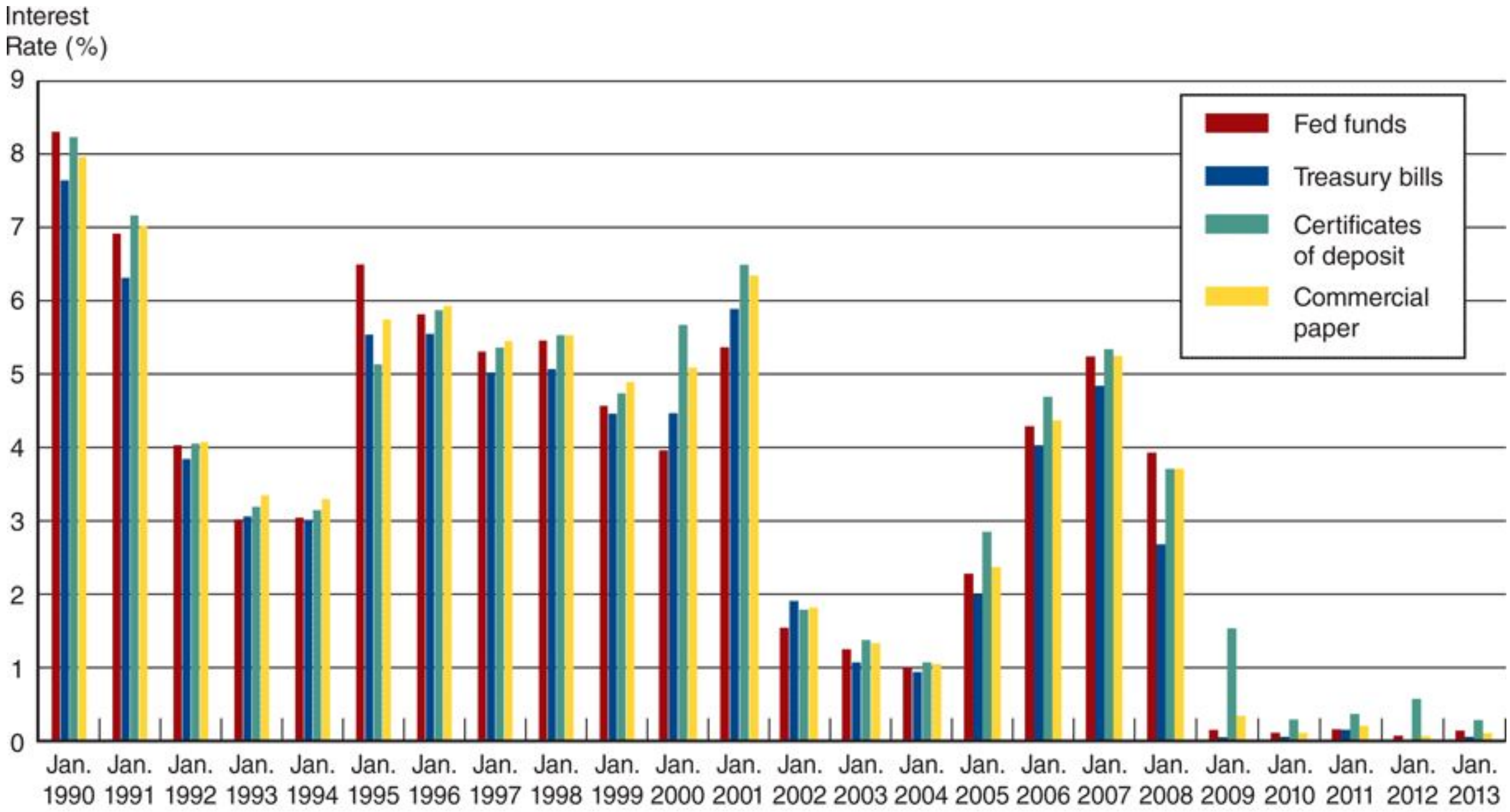
- London interbank bid rate (LIBID)
  - The rate paid by banks buying funds
- London interbank offer rate (LIBOR)
  - The rate offered for sale of the funds
- Time deposits with fixed maturities
  - Largest short term security in the world

Global: Birth of the Eurodollar

- The Eurodollar market is one of the most important financial markets, but oddly enough, it was fathered by the Soviet Union.

- In the 1950s, the USSR had accumulated large dollar deposits, but all were in US banks. They feared the US might seize them, but still wanted dollars. So, the USSR transferred the dollars to European banks, creating the Eurodollar market.

Comparing Money Market Securities : a comparison of rates (1990-2013)



Source: http://www.federalreserve.gov/releases/h15/data.htm.

Comparing Money Market Securities: Money Market Securities and Their Depth

Money Market Security	Issuer	Buyer	Usual Maturity	Secondary Market
Treasury bills	U.S. government	Consumers and companies	4, 13, and 26 weeks	Excellent
Federal funds	Banks	Banks	1 to 7 days	None
Repurchase agreements	Businesses and banks	Businesses and banks	1 to 15 days	Good
Negotiable certificates of deposit	Large money center banks	Businesses	14 to 120 days	Good
Commercial paper	Finance companies and businesses	Businesses	1 to 270 days	Poor
Banker's acceptance	Banks	Businesses	30 to 180 days	Good
Eurodollar deposits	Non-U.S. banks	Businesses, governments, and banks	1 day to 1 year	Poor

Readings

- Mishkin & Eakins "Financial Markets and Institutions, (2015) Pearson, 8th Edition (Chapter 11)
- Mishkin & Eakins "Financial Markets and Institutions, (2012) Pearson, 7th Edition (Chapter 11)