The Money Markets

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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.

The 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

The Money Markets Defined: Why Do We Need Money Markets?

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

The Money Markets Defined: Cost Advantages

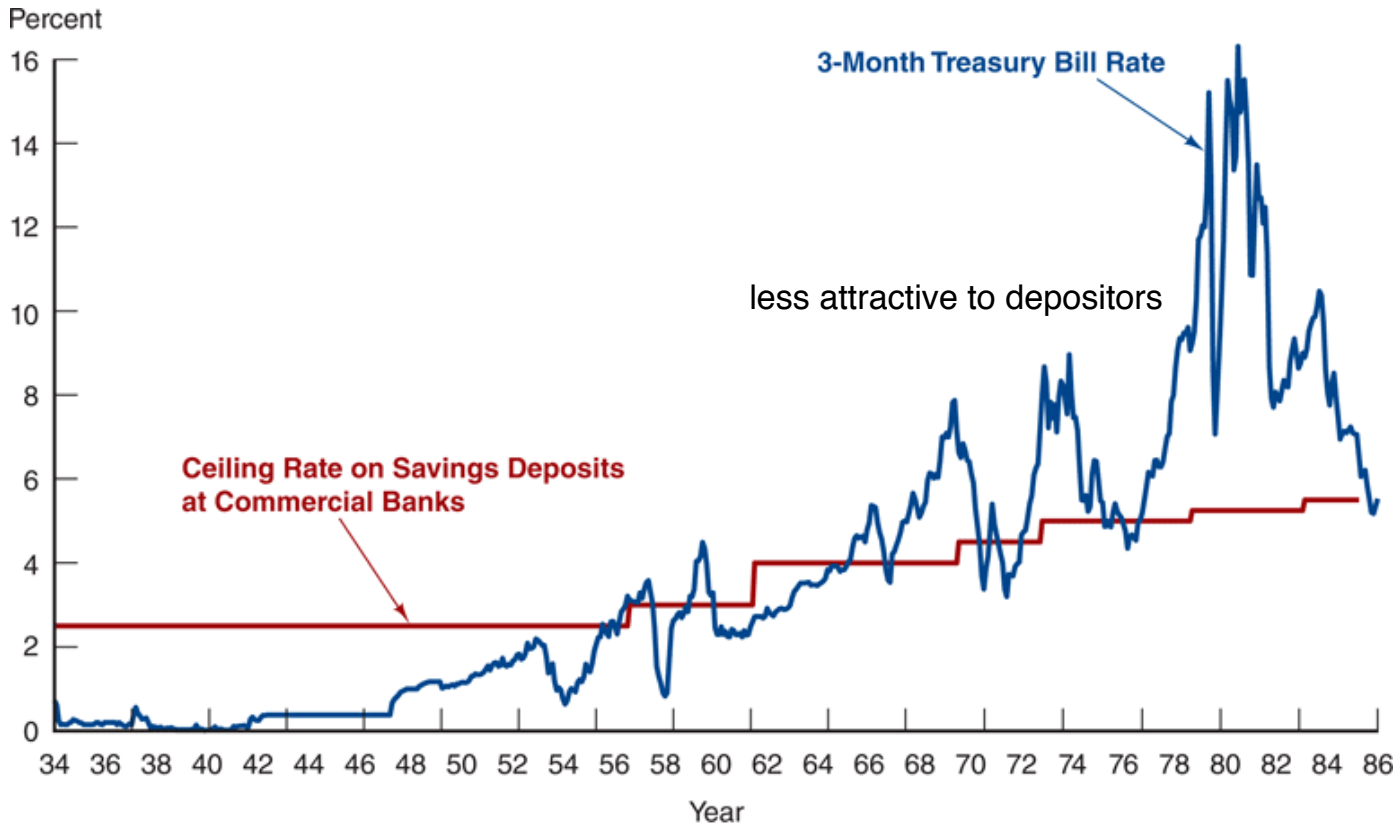
- Reserve requirements create additional expense for banks that money markets do not have
- Regulations on the level of interest banks could offer depositors lead to a significant growth in money markets, especially in the 1970s and 1980s.
- When interest rates rise, depositors move their money from banks to money markets.

The Money Markets Defined: Cost Advantages

- 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

Figure 11.1 Three-Month Treasury Bill Rate and Ceiling Rate on Savings Deposits at Commercial Banks, 1933 to 1986



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 (e.g. Apple, Alphabet, Amazon)
- Borrowers from money market are provided with a 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.

The Purpose of Money Markets: Sample rates from the Federal Reserve

Table 11.1 Sample Money Market Rates, May 15, 2013

Instrument	Interest Rate (%)
Prime rate on largest and most established institutions	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?

- We will discuss, in turn, each of the major borrowers and lenders in the money market.
- First, let's examine some of the current rates offered in the U.S. money markets.

https://www.federalreserve.gov/releases/h15/

Who Participates in the Money Markets?

Table 11.2 Money Market Participants

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

We will examine each of these instruments:

- Treasury Bills
- Federal Funds
- Repurchase Agreements
- Negotiable Certificates of Deposit
- Commercial Paper

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.

Money Market Instruments: Treasury Bills Discounting Example

You pay $996.73 for a 28-day T-bill. It is worth $1,000 at maturity. What is its discount rate?

It is a norm to use 360 days to calculate the discount rate

F = face value
P = market price

$$i_{discount} = \frac{F - P}{F} \times \frac{360}{n}$$

$$i_{discount} = \frac{1{,}000 - 996.73}{1{,}000} \times \frac{360}{28} = 4.204\%$$

Money Market Instruments: Treasury Bills Discounting Example

You pay $996.73 for a 28-day T-bill. It is worth $1,000 at maturity. What is its annualized yield?

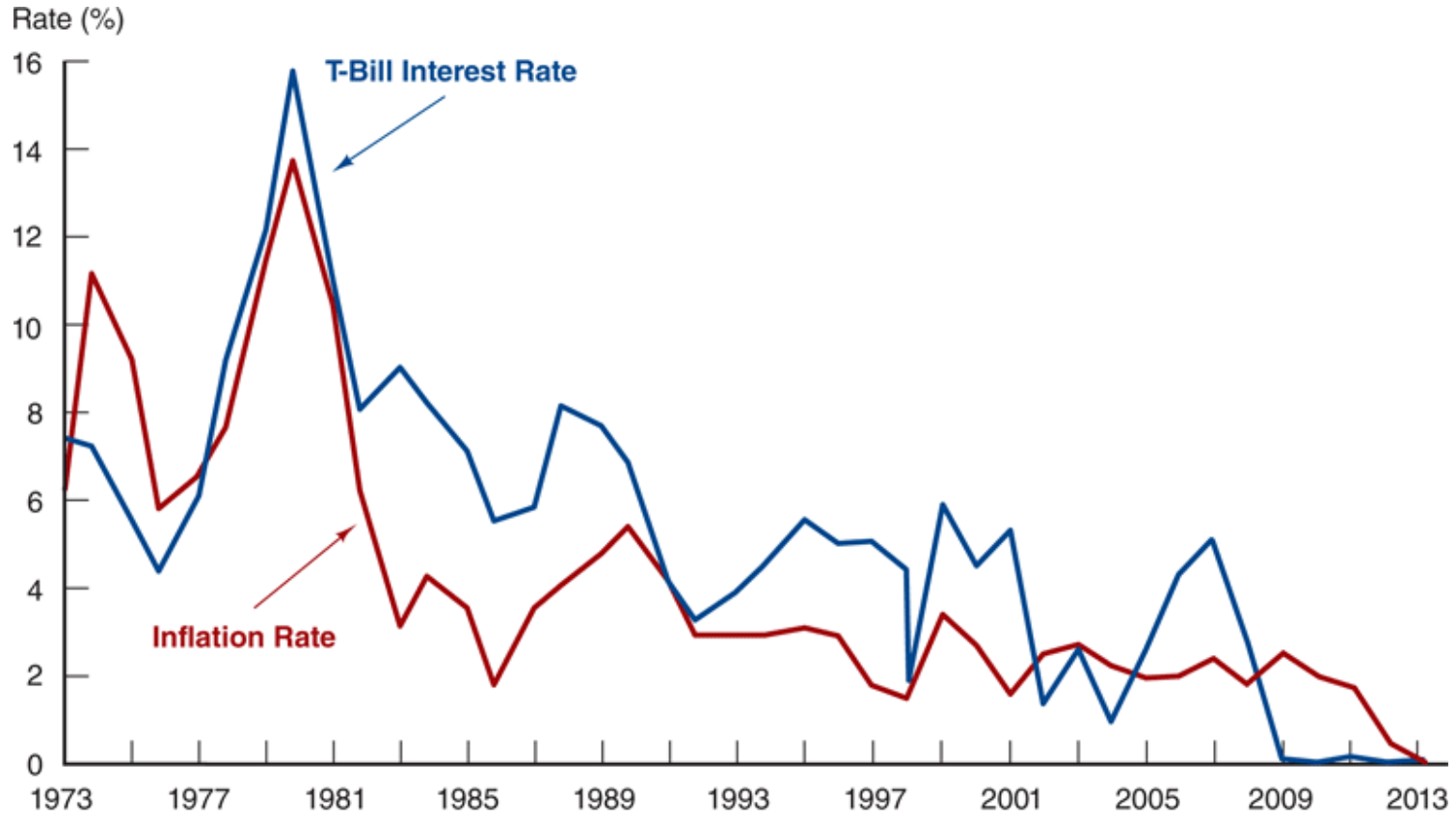
$$i_{yt} = \frac{F - P}{P} \times \frac{365}{n}$$

We need to use the precise number of days (e.g. in a leap year)

$$i_{yt} = \frac{1{,}000 - 996.73}{996.73} \times \frac{366}{28} = 4.288\%$$

Money Market Instruments: Treasury Bills

Figure 11.2 Treasury Bill Interest Rate and the Inflation Rate, January 1973–January 2013



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.

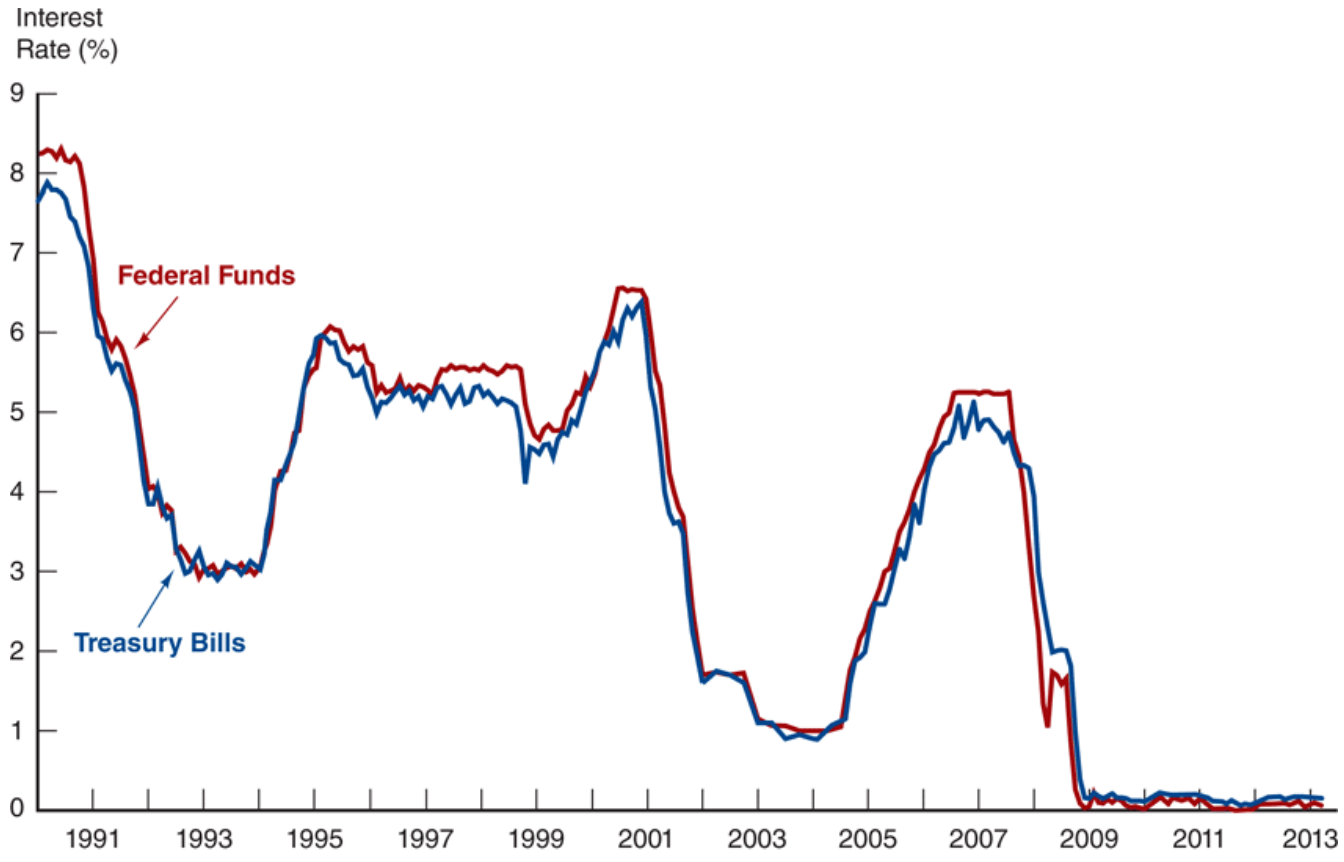
Money Market Instruments: Fed Funds Rates

The next slide shows actual fed funds rates and T-bill rates 1990 through 2013.

Notice that the two rates track fairly closely. What does this suggest about the market for T-bills and the market for fed funds?

Money Market Instruments: Fed Funds Rates

Figure 11.3 Federal Funds and Treasury Bill Interest Rates, January 1990–January 2013



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

They are both driven by the open market operations of the fed

Money Market Instruments: Repurchase Agreements

Repurchase Agreements (Repo) 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.

Money Market Instruments: Repurchase Agreements

This set-up makes a repo agreements essentially a short-term collateralized loan.

This is also one market where 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

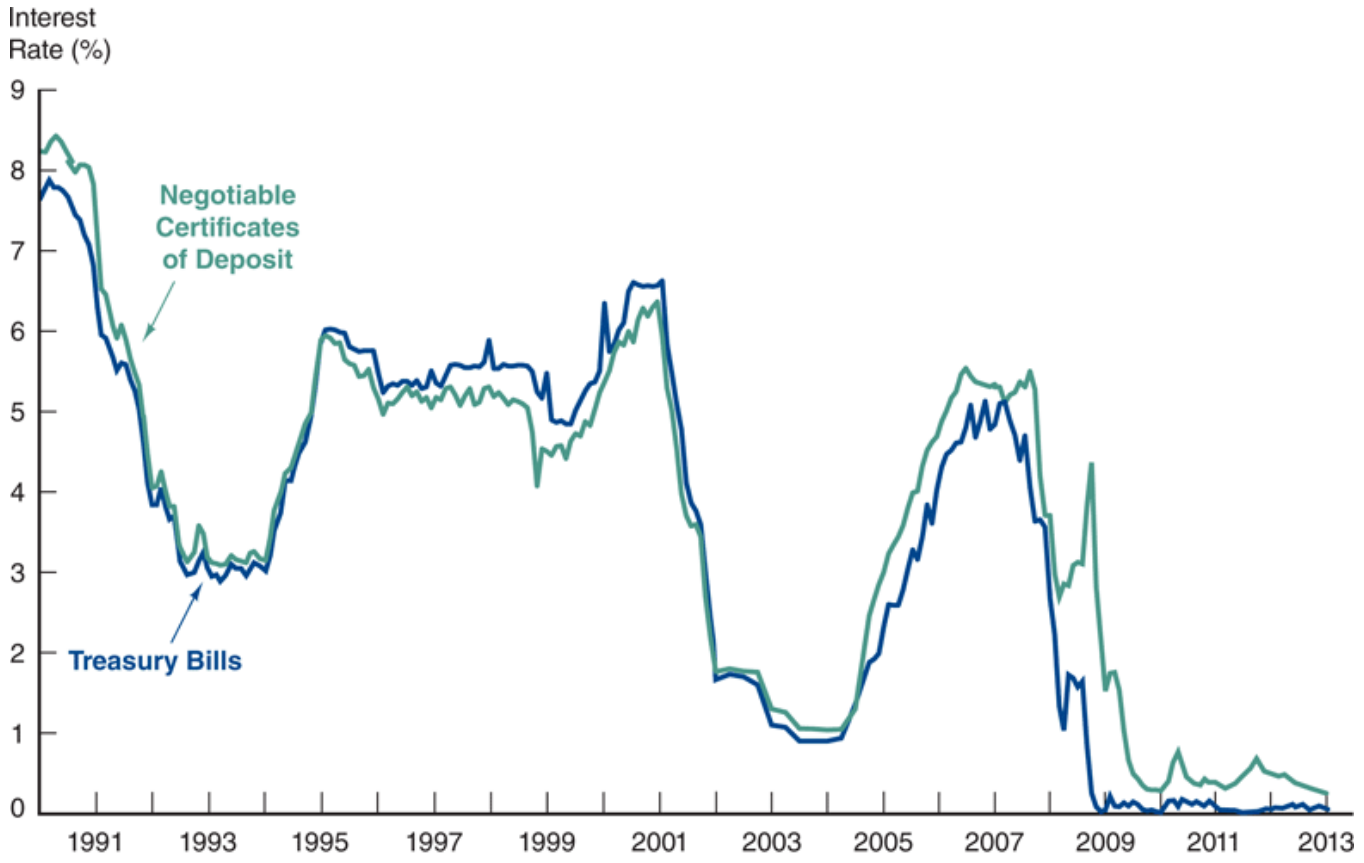
Money Market Instruments: Negotiable Certificates of Deposit

The next slide shows actual CD rates and T-bill rates 1990 through 2013.

Again, notice that the two rates track fairly closely. What does this suggest about the market for T-bills and the market for CDs?

Money Market Instruments: Negotiable CD Rates

Figure 11.4 Interest Rates on Negotiable Certificates of Deposit and on Treasury Bills, January 1990–January 2013



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

2 sorts of fundings provided to banks, so banks can substitute one by another

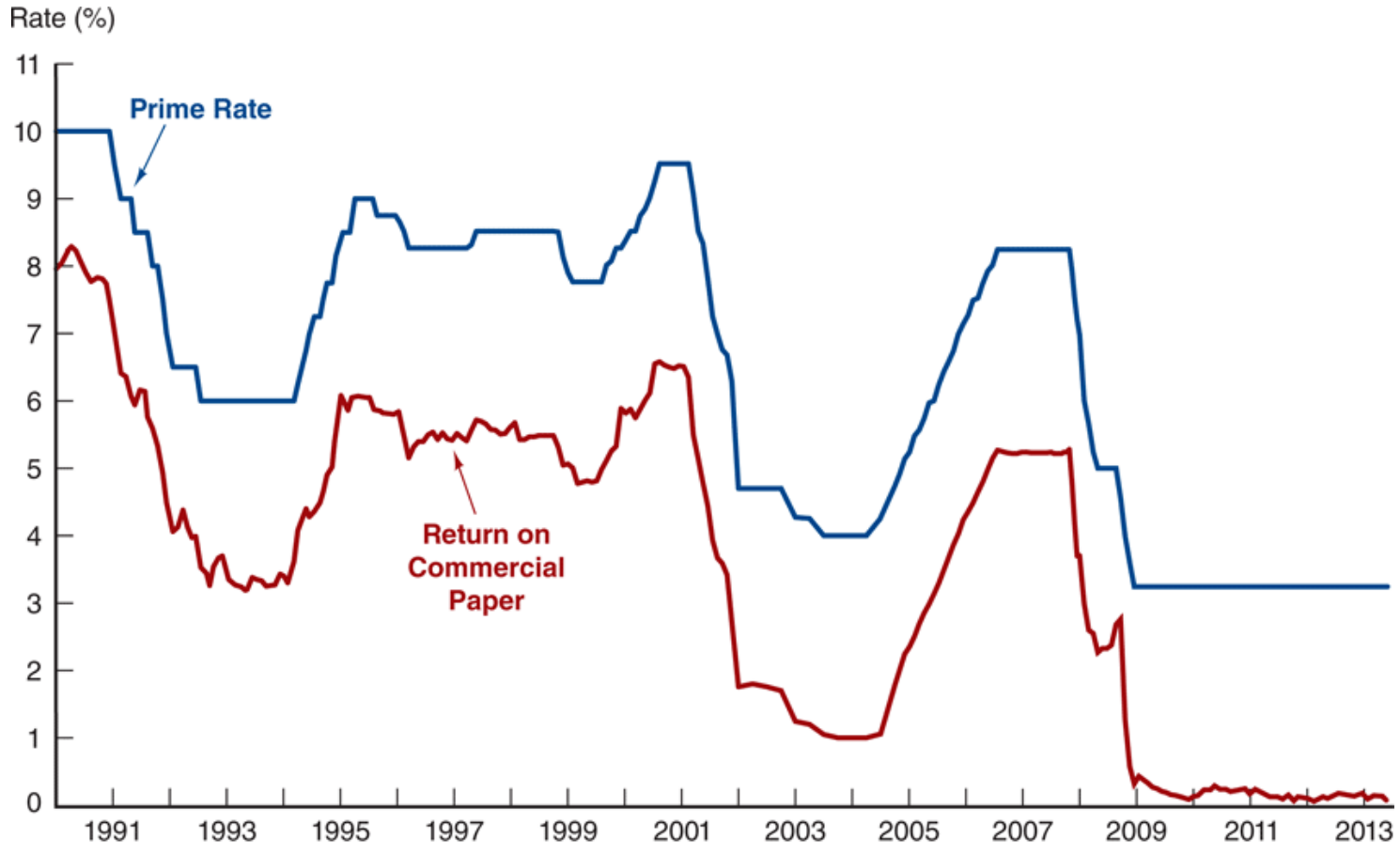
Money Market Instruments: Commercial Paper

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

Figure 11.5 Return on Commercial Paper and the Prime Rate, 1990–2013



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

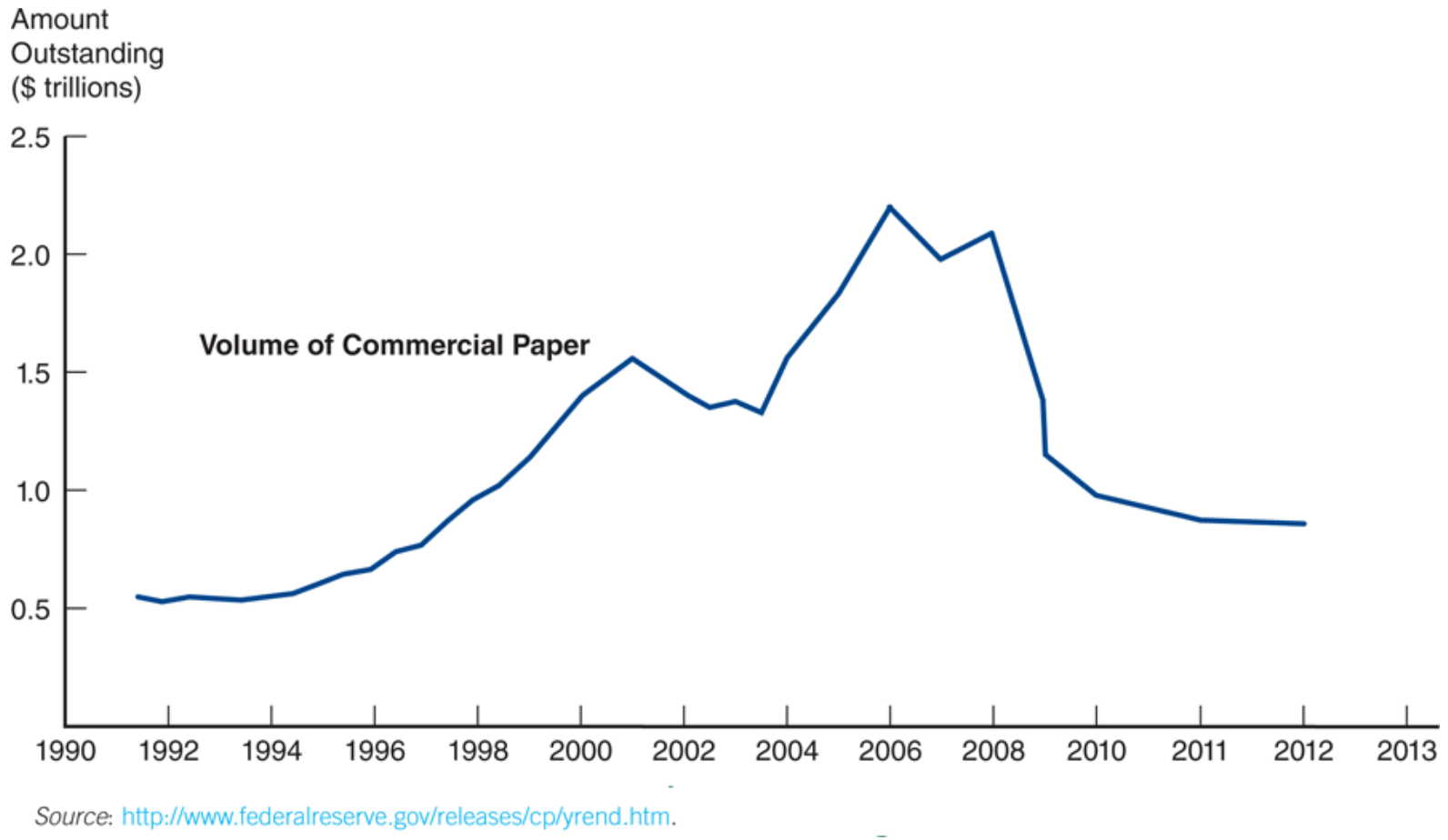
Money Market Instruments: Commercial Paper

Commercial paper volume:

- fell significantly during the recent economic recession
- annual market is still large, at well over $0.85 trillion outstanding

Money Market Instruments: Commercial Paper Volume

Figure 11.6 Volume of Commercial Paper Outstanding



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

Money Market Instruments: Commercial Paper

A special type of commercial paper, known as asset-backed commercial paper (ABCP)

- played a key role in the financial crisis in 2008 backed by securitized mortgages
- often difficult to understand
- accounted for about $1 trillion

Money Market Instruments: Commercial Paper

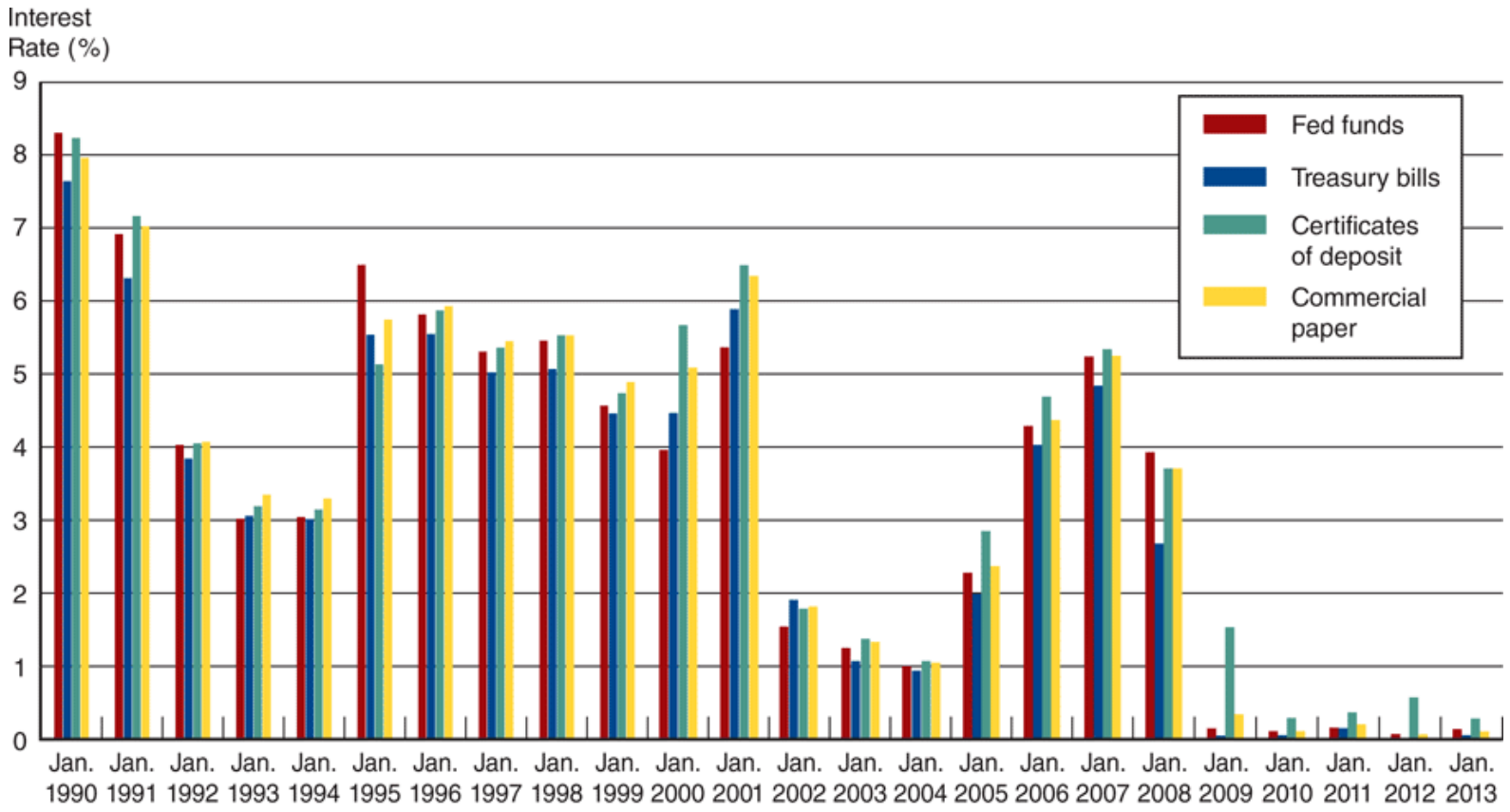
When the poor quality of the underlying assets was exposed, a run on ABCP began. Because ABCP was held by many money market mutual funds (MMMFs), these funds also experienced a run. The government eventually had to step in to prevent the collapse of the MMMF market.

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

Comparing Money Market Securities : A comparison of rates

Figure 11.7 Interest Rates on Money Market Securities, 1990–2013



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

Comparing Money Market Securities

Liquidity is also an important feature, which is closely tied to the depth of the secondary market for the various instruments.

Comparing Money Market Securities: Money Market Securities and Their Depth

Table 11.4 Money Market Securities and Their Markets

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