Monetary Trends - Monetary Aggregates and Their Components

M2 and MZM
Billions of dollars

Shaded areas indicate U.S. recessions
Source: Board of Governors of the Federal Reserve System (US)
2018 fred.stlouisfed.org

M2 minus small-denomination time deposits, plus institutional money market mutual funds (that is, those included in M3 but excluded from M2). The label MZM was coined by William Poole (1991); the aggregate itself was proposed earlier by Motley (1988). M2: M1 plus savings deposits (including money market deposit accounts) and small-denomination (under $100,000) time deposits issued by financial institutions; and shares in retail money market mutual funds (funds with initial investments under $50,000), net of retirement accounts.

Adjusted Monetary Base
Seasonally Adjusted

Shaded areas indicate U.S. recessions
Source: Board of Governors of the Federal Reserve System (US)
2018 fred.stlouisfed.org

Adjusted Monetary Base: The sum of currency in circulation outside Federal Reserve Banks and the U.S. Treasury, deposits of depository financial institutions at Federal Reserve Banks, and an adjustment for the effects of changes in statutory reserve requirements on the quantity of base money held by depositories. This series is a spliced chain index, see Anderson and Rasche (1996a,b, 2001, 2003).
**Monetary Trends - Monetary Aggregates and Their Components**

**Reserve Market Rates**

- Federal Funds Range Midpoint
- Primary Credit Rate
- Effective Federal Funds Rate

Shaded areas indicate U.S. recessions. Source: Board of Governors of the Federal Reserve System (US). 2018 fred.stlouisfed.org

Primary Credit Rate, Discount Rate, and Intended Federal Funds Rate shown in the chart Reserve Market Rates are plotted as of the date of the change, while the Effective Federal Funds Rate is plotted as of the end of the month. Interest rates in the table are monthly averages from the Board of Governors H.15 Statistical Release.

**Treasury Yield Curve**

Percent, Weekly Ending Friday

Shaded areas indicate U.S. recessions. Source: Board of Governors of the Federal Reserve System (US). 2018 fred.stlouisfed.org

The Treasury Yield Curve shows constant maturity yields calculated by the U.S. Treasury for securities 5, 7, 10, and 20 years to maturity.
Real Treasury Yield Curve

The Treasury Yield Curve shows constant maturity yields calculated by the U.S. Treasury for securities 5, 7, 10, and 20 years to maturity.

Inflation-Indexed Treasury Yield Spreads

Inflation-Indexed Treasury Yield Spreads are a measure of inflation compensation at those horizons, and it is simply the nominal constant maturity yield less the real constant maturity yield. Daily data and descriptions are available at fred.stlouisfed.org. See also Statistical Supplement to the Federal Reserve Bulletin, table 1.35. The 30-year constant maturity series was discontinued by the Treasury as of February 18, 2002.
**M1**

M1: The sum of currency held outside the vaults of depository institutions, Federal Reserve Banks, and the U.S. Treasury; travelers checks; and demand and other checkable deposits issued by financial institutions (except demand deposits due to the Treasury and depository institutions), minus cash items in process of collection and Federal Reserve float.

**MZM**

MZM (money, zero maturity): M2 minus small-denomination time deposits, plus institutional money market mutual funds (that is, those included in M3 but excluded from M2). The label MZM was coined by William Poole (1991); the aggregate itself was proposed earlier by Motley (1988).
M2

M2: M1 plus savings deposits (including money market deposit accounts) and small-denomination (under $100,000) time deposits issued by financial institutions; and shares in retail money market mutual funds (funds with initial investments under $50,000), net of retirement accounts.

Monetary Services Index - M2

Monetary Services Index: An index that measures the flow of monetary services received by households and firms from their holdings of liquid assets; see Anderson, Jones, and Nesmith (1997). Indexes are shown for the assets included in M2, with additional data at research.stlouisfed.org/ms/index.html.
Adjusted Monetary Base
Percent change from a year ago

St. Louis Adjusted Monetary Base

Shaded areas indicate U.S. recessions
Source: Board of Governors of the Federal Reserve System (US) 2018 fred.stlouisfed.org

Adjusted Monetary Base: The sum of currency in circulation outside Federal Reserve Banks and the U.S. Treasury, deposits of depository financial institutions at Federal Reserve Banks, and an adjustment for the effects of changes in statutory reserve requirements on the quantity of base money held by depositories. This series is a spliced chain index; see Anderson and Rasche (1999a,b; 2001, 2003).

Domestic Nonfinancial Debt
Percent change from a year ago

Federal
Total

Shaded areas indicate U.S. recessions
Source: Board of Governors of the Federal Reserve System (US) 2018 fred.stlouisfed.org

Domestic Nonfinancial Debt: Total credit market liabilities of the U.S. Treasury, federally sponsored agencies, state and local governments, households, and nonfinancial firms. End-of-period basis.
Monetary Trends - Monetary Aggregates and Their Components

Checkable Deposits
Percent change from a year ago

Money Market Mutual Fund Shares
Percent change from a year ago

Shaded areas indicate U.S. recessions
Source: Board of Governors of the Federal Reserve System (US)
2018 fred.stlouisfed.org

Checkable Deposits is the sum of demand and other checkable deposits.

Retail Money Market Mutual Funds are included in M2. Institutional money market funds are not included in M2.
Savings Deposits
Percent change from a year ago

Shaded areas indicate U.S. recessions

Source: Board of Governors of the Federal Reserve System (US)
2018 fred.stlouisfed.org

Savings Deposits is the sum of money market deposit accounts and passbook and statement savings.
Adjusted and Required Reserves
Billions of dollars

Total Borrowings
Billions of dollars

Sources: Board of Governors, St. Louis Fed
2018 fred.stlouisfed.org

Total Borrowings from the Federal Reserve is the sum of credit extended under the primary, second, and seasonal programs, as well as credit extended under the Term Asset-Backed Securities Loan Facility, and other credit extensions. [NOTE: Excess reserves and total borrowings are not seasonally adjusted.] The excess reserves calculation was changed with the introduction of the new H.3 statistical release, “Aggregate Reserves of Depository Institutions and the Monetary Base” on July 11, 2013. See http://www.federalreserve.gov/releases/h3/current.

Adjusted Reserves: The sum of vault cash and Federal Reserve Bank deposits held by depository institutions and an adjustment for the effects of changes in statutory reserve requirements on the quantity of base money held by depositories. This spitcute chain index is numerically larger than the Board of Governors' measure, which excludes vault cash not used to satisfy statutory reserve requirements and Federal Reserve Bank deposits used to satisfy required clearing balance contracts, see Anderson and Slaeche (1990a, 2001, 2003). Excess Reserve Balances equals the amount of reserve balances maintained at depository institutions (DIs) less reserve balance requirements at Depository Institutions.

Shaded areas indicate U.S. recessions.
Monetary Trends - Monetary Aggregates and Their Components

Excess Reserve Balances
Billions of dollars

Nonfinancial Commercial Paper
Percent change from a year ago

Shaded areas indicate U.S. recessions
Sources: Board of Governors, St. Louis Fed
2018 fred.stlouisfed.org
Consumer Credit
Percent change from a year ago

Shaded areas indicate U.S. recessions

Sources: Board of Governors, St. Louis Fed
2018 fred.stlouisfed.org
Net Percentage of Domestic Banks Tightening Standards for Commercial and Industrial Loans

Percentage

[Graph showing trends in net percentage of domestic banks tightening standards]

Shaded areas indicate U.S. recessions

Source: Board of Governors of the Federal Reserve System (US) 2018 fred.stlouisfed.org

Data are reported in the Senior Loan Officer Opinion Survey on Bank Lending Practices.

Net Percentage of Domestic Banks Tightening Standards for Commercial Real Estate Loans

Percentage

[Graph showing trends in net percentage of domestic banks tightening standards for commercial real estate loans]

Shaded areas indicate U.S. recessions

Source: Board of Governors of the Federal Reserve System (US) 2018 fred.stlouisfed.org

Data are reported in the Senior Loan Officer Opinion Survey on Bank Lending Practices.
Monetary Trends - Monetary Aggregates and Their Components

Net Percentage of Domestic Banks Tightening Standards for Residential Mortgage Loans

Source: Board of Governors of the Federal Reserve System (US)

Data are reported in the Senior Loan Officer Opinion Survey on Bank Lending Practices.

Net Percentage of Domestic Banks Tightening Standards for Consumer Loans

Source: Board of Governors of the Federal Reserve System (US)

Data are reported in the Senior Loan Officer Opinion Survey on Bank Lending Practices.
Monetary Trends - Monetary Aggregates and Their Components

CPI Inflation and 1-year CPI Inflation Expectations

Percent Change

2018 fred.stlouisfed.org

Shaded areas indicate U.S. recessions

Inflation Expectations measures include the quarterly Federal Reserve Bank of Philadelphia Survey of Professional Forecasters, the monthly University of Michigan Survey Research Center’s Surveys of Consumers, and the annual Federal Open Market Committee (FOMC) range as reported to the Congress in the February testimony that accompanies the Monetary Policy Report to the Congress. Beginning February 2000, the FOMC began using the personal consumption expenditures (PCE) price index to report its inflation range; the FOMC then switched to the PCE chain-type price index excluding food and energy prices (“core”) beginning July 2004. Accordingly, neither are shown on this graph. CPI Inflation is the percentage change from a year ago in the consumer price index for all urban consumers.

10 Year Ahead PCE Inflation Expectations and Realized Inflation

Percent Change

2018 fred.stlouisfed.org

From 1991 to the present the source of the long-term PCE inflation expectations data is the Federal Reserve Bank of Philadelphia’s Survey of Professional Forecasters. Prior to 1991, the data were obtained from the Board of Governors of the Federal Reserve System. Realized (actual) inflation is the annualized rate of change for the 40-quarter period that corresponds to the forecast horizon (the expectations measure). For example, in 1965Q1, annualized PCE inflation over the next 40 quarters was expected to average 1.7 percent. In actuality, the average annualized rate of change measured 4.9 percent from 1965Q1 to 1975Q1. Thus, the vertical distance between the two lines in the chart at any point is the forecast error.
Monetary Trends - Monetary Aggregates and Their Components

Treasury Security Yield Spreads
Yield to Maturity

Real Interest Rates
Percent, Real rate = Nominal rate less year-over-year CPI inflation

Shaded areas indicate U.S. recessions
2018 fred.stlouisfed.org
Monetary Trends - Monetary Aggregates and Their Components

Long-Term Interest Rates
Percent Monthly

- Corporate BAA
- 10-Year Treasury Constant Maturity Rate

Shaded areas indicate U.S. recessions
Source: Board of Governors of the Federal Reserve System (US)
2018 fred.stlouisfed.org

Short-Term Interest Rates
Percent Monthly

- 3-Month AA Nonfinancial Commercial Paper Rate
- 3-Month Treasury Constant Maturity Rate

Shaded areas indicate U.S. recessions
Source: Board of Governors of the Federal Reserve System (US)
2018 fred.stlouisfed.org
FOMC Intended Federal Funds Rate, Discount Rate, Primary Credit Rate
Percent Monthly

Shaded areas indicate U.S. recessions
Source: Board of Governors of the Federal Reserve System (US)
2018 fred.stlouisfed.org

FOMC Intended Federal Funds Rate is the level (or midpoint of the range, if applicable) of the federal funds rate that the staff of the FOMC expected to be consistent with the desired degree of pressure on bank reserve positions. In recent years, the FOMC has set an explicit target for the federal funds rate.
Federal Funds Rate and Inflation Targets

Federal Funds Rate and Inflation Targets shows the observed federal funds rate, quarterly, and the level of the funds rate implied by applying Taylor’s (1993) equation to five alternative target inflation rates, \( \pi^t \) is the implied federal funds rate, \( t-1 \) is the previous period’s inflation rate (PCE) measured on a year-over-year basis, \( y_t \) is the log of the previous period’s level of real gross domestic product (GDP), and \( yt-1P \) is the log of an estimate of the previous period’s level of potential output.

\[
\begin{align*}
   \pi^t &= 2.5 \times t-1 + (t-1 - y_t + 100 \times (yt-1 - y_t-1P))/2
\end{align*}
\]

Actual and Potential Real GDP

Billions of Chain-Weighted 2009 Dollars

Potential Real GDP is estimated by the Congressional Budget Office (CBO).
Monetary Trends - Monetary Aggregates and Their Components

PCE Inflation
Percent change from year ago

Monetary Base Growth and Inflation Targets
Percent

Policy Based Inflation Indicators
Monetary Trends - Monetary Aggregates and Their Components

**Implied One-Year Forward Rates**

- Week Ending: 01/26/18
- 12/29/17
- 01/27/17

Shaded areas indicate U.S. recessions

Source: Board of Governors of the Federal Reserve System (US)

2018 fred.stlouisfed.org

Implied One-Year Forward Rates are calculated by this Bank from Treasury constant-maturity yields. Yields to maturity, \( Y(m) \), for securities with \( m \) = 1,..., 10 years to maturity are obtained by linear interpolation between reported yields. These yields are smoothed by fitting the regression suggested by Nelson and Siegel (1987), \( Y(m) = a_0 + (a_1 - a_2) (1 - e^{-m/m_0}) / (m / m_0) + a_2 e^{-m/m_0} \), and forward rates are calculated from these smoothed yields using equation (6) in table 13.1 of Shiller (1990), \( f(m) = (Y(m+1) - Y(m-1)) / (D(m+1) - D(m-1)) \), where duration is approximated as \( D(m) = (1 - e^{-m/m_0}) m / Y(m) \). These rates are linear approximations to the true instantaneous forward rates; see Shiller (1990). For a discussion of the use of forward rates as indicators of inflation expectations, see Sharpe (1997).

**Rates on 3-Month Eurodollar Futures**

Daily data

Shaded areas indicate U.S. recessions

Source: Board of Governors of the Federal Reserve System (US)

2018 fred.stlouisfed.org

Rates on 3-Month Eurodollar Futures trace through time the yield on three specific contracts.
Monetary Trends - Monetary Aggregates and Their Components

Rates on Selected Federal Funds Futures Contracts

Daily data

1st Expiring Contract
3-Month Futures
6-Month Futures
12-Month Futures

Shaded areas indicate U.S. recessions

Source: Board of Governors of the Federal Reserve System (US)

2018 fred.stlouisfed.org

Rates on Selected Federal Funds Futures Contracts trace through time the yield on three specific contracts.

Rates on Federal Funds Futures on Selected Dates

01/26/18
12/29/17
01/27/17

Shaded areas indicate U.S. recessions

Source: Board of Governors of the Federal Reserve System (US)

2018 fred.stlouisfed.org

Rates on Federal Funds Futures on Selected Dates displays a single day's snapshot of yields for contracts expiring in the months shown on the horizontal axis.
Monetary Trends - Monetary Aggregates and Their Components

Inflation-Indexed Treasury Securities

Weekly data

- 5-Year Treasury Inflation-Indexed Security, Constant Maturity
- 10-Year Treasury Inflation-Indexed Security, Constant Maturity
- 20-Year Treasury Inflation-Indexed Security, Constant Maturity

Shaded areas indicate U.S. recessions
Source: Board of Governors of the Federal Reserve System (US)
2018 fred.stlouisfed.org

Inflation-Indexed Treasury Yield Spreads

Weekly data

- 5-year Inflation Yield Spread
- 10-year Inflation Yield Spread
- 20-year Inflation Yield Spread

Shaded areas indicate U.S. recessions
Source: Board of Governors of the Federal Reserve System (US)
2018 fred.stlouisfed.org
Monetary Trends - Velocity, Gross Domestic Product, and M2

Velocity
Nominal GDP/M2, Nominal GDP/M2 (Ratio Scale)

Velocity

Shaded areas indicate U.S. recessions
Sources: B.E.A., Board of Governors, St. Louis Fed

Velocity for M2 and M2 equals the ratio of GDP, measured in current dollars, to the level of the monetary aggregate.

Interest Rates
Percent

Shaded areas indicate U.S. recessions
Sources: B.E.A., Board of Governors, St. Louis Fed

M2 and M2Own Rates are weighted averages of the rates received by households and firms on the assets included in the aggregates.
Monetary Trends - Velocity, Gross Domestic Product, and M2

MZM Velocity and Interest Rate Spread
Ratio Scale

M2 Velocity and Interest Rate Spread
Ratio Scale
Monetary Trends - Velocity, Gross Domestic Product, and M2

Gross Domestic Product
Percent change from a year ago

Real Gross Domestic Product
Percent change from a year ago

Sources: BEA, BLS

2018 fred.stlouisfed.org

Shaded areas indicate U.S. recessions

The Gross Domestic Product Price Index is the implicit price deflator for GDP, which is defined by the Bureau of Economic Analysis, U.S. Department of Commerce, as the ratio of GDP measured in current dollars to GDP measured in chained 2009 dollars.
Monetary Trends - Velocity, Gross Domestic Product, and M2

Gross Domestic Product Price Index
Percent change from a year ago

- Gross Domestic Product: Chain-type Price Index
- 10-Year Moving Average

M2: M1 plus savings deposits (including money market deposit accounts) and small-denomination (under $100,000) time deposits issued by financial institutions, and shares in retail money market mutual funds (funds with initial investments under $50,000), net of retirement accounts.

Gross Domestic Product and M2
Monetary Trends - Velocity, Gross Domestic Product, and M2

Bank Credit

Bank Credit at All Commercial Banks

Percent change from a year ago

Investment Securities in Bank Credit at Commercial Banks

Securities in Bank Credit at All Commercial Banks

Percent change from a year ago

Shaded areas indicate U.S. recessions

Source: Board of Governors of the Federal Reserve System (US) 2018 fred.stlouisfed.org

Bank Credit: All loans, leases, and securities held by commercial banks.

Investment Securities are all securities held by commercial banks in both investment and trading accounts.
Monetary Trends - Velocity, Gross Domestic Product, and M2

Total Loans and Leases in Bank Credit at Commercial Banks
Percent change from a year ago

Shaded areas indicate U.S. recessions
Source: Board of Governors of the Federal Reserve System (US)
2018 fred.stlouisfed.org

Commercial and Industrial Loans at Commercial Banks
Percent change from a year ago

Shaded areas indicate U.S. recessions
Source: Board of Governors of the Federal Reserve System (US)
2018 fred.stlouisfed.org
Recent Inflation and Long-Term Interest Rates

<table>
<thead>
<tr>
<th>Country</th>
<th>Consumer Price Inflation Rates</th>
<th>Long-Term Government Bond Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent change from a year ago</td>
<td>Percent</td>
</tr>
<tr>
<td></td>
<td>2016Q4</td>
<td>2017Q1</td>
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<tr>
<td>United States</td>
<td>1.81</td>
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<tr>
<td>Canada</td>
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<tr>
<td>United Kingdom</td>
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</tbody>
</table>

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**Stock Market Index, Foreign Inflation and Interest Rates**

**Inflation and Long-Term Interest Rate Differentials**

Shaded areas indicate U.S. recessions

Source: S&P Dow Jones Indices LLC

Inflation Rate Differentials are the differences between the foreign consumer price inflation rates and year-over-year changes in the U.S. all-items Consumer Price Index.

2018 fred.stlouisfed.org
Inflation and Long-Term Interest Rate Differentials

Shaded areas indicate U.S. recessions

Source: S&P Dow Jones Indices LLC

Inflation Rate Differentials are the differences between the foreign consumer price inflation rates and year-over-year changes in the U.S. all-items Consumer Price Index.