Fueling Expected Inflation

Maintaining expectations of a low, stable inflation rate is essential to achieving the goals of monetary policy. But how, exactly, do households and firms form inflation expectations? It seems reasonable that rapidly rising prices for frequently purchased goods would attract more notice than stable prices for goods purchased less frequently. Recent correlations between increases in gasoline prices and in inflation expectations provide an example. Federal Reserve Chairman Bernanke cited this risk in his July 15 Monetary Policy Report to the Congress: “…the currently high level of inflation, if sustained, might lead the public to revise up its expectations for longer-term inflation. If that were to occur, and those revised expectations were to become embedded in the domestic wage- and price-setting process, we could see an unwelcome rise in actual inflation over the longer term. A critical responsibility of monetary policy makers is to prevent that process from taking hold.”

During 2008, through June, the U.S. all-items CPI increased at a 5.4 percent rate, while the chain-price index for personal consumption expenditures (PCE) increased at a 3.3 percent pace. The comparable “core” measures that exclude food and energy increased at 2.3 percent and 1.9 percent rates, respectively. By some measures, inflation expectations increased as well. In the University of Michigan’s household survey, the median expected inflation rate for the next 12 months increased from 3.4 percent in the December 2007 survey to 5.1 percent in the July 2008 survey, its second-highest level since 1981, just below May’s 5.2 percent figure. Although the survey’s median expected inflation rate for the next 5 to 10 years changed little, from 3.1 percent in December to 3.2 percent in July, it is at its second-highest level since 1995, just below May and June’s 3.4 percent figures. These increases seem incongruous with the 1.9 percent rate of increase of the chain-price index for core PCE, the FOMC’s preferred inflation measure.

Linkages between commodity prices and inflation expectations also are a concern in Europe. In the United Kingdom, the all-items CPI increased 0.7 percent in June and is 3.8 percent higher than one year earlier, the largest year-over-year increase since June 1992. The core CPI, however, was up only 1.6 percent year-over-year. According to the YouGov/Citicorp survey, inflation expected during the next 12 months jumped to 4.6 percent in June from 4.1 percent in May. Similarly, inflation expected for the next 50 years (inferred from inflation-indexed gilt bonds) rose to 4 percent. In the euro area, June consumer price inflation was at a 4 percent annual rate, double the European Central Bank’s (ECB) desired rate; on July 3, the ECB raised its benchmark interest rate to 4.25 percent. Press reports cited concern that inflation expectations were increasing.

Increases in gasoline prices are shown in the table. The retail price of gasoline in the United States increased 30 percent during the first half of 2008, while gasoline prices in the United Kingdom and the euro area increased between 8 percent and 15 percent. The relatively higher taxes in Europe, accounting for more than half the retail price, buffer gasoline’s retail price against increases in the cost of crude oil.

Recent increases in inflation expectations appear to more strongly reflect rising commodity prices, rather than core inflation rates or policymakers’ longer-term inflation goals. Europe’s lesser rate of increase in gasoline prices perhaps provides the ECB and the Bank of England a bit more policymaking flexibility. The much larger increase in the United States suggests more difficult circumstances for the Federal Reserve.

—Richard G. Anderson and Charles S. Gascon

1 Chairman Ben S. Bernanke, Semiannual Monetary Policy Report to the Congress, before the Committee on Banking, Housing, and Urban Affairs, U.S. Senate, July 15, 2008.

<table>
<thead>
<tr>
<th>Increase per gallon, in each country’s own currency, January 7 to July 14, 2008</th>
<th>Belgium</th>
<th>France</th>
<th>Germany</th>
<th>Italy</th>
<th>Netherlands</th>
<th>U.K.</th>
<th>U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>8%</td>
<td>10%</td>
<td>11%</td>
<td>9%</td>
<td>15%</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>Tax component per gallon, in U.S. dollars, as of July 14, 2008</td>
<td>Retail price with taxes</td>
<td>$9.40</td>
<td>$8.95</td>
<td>$9.27</td>
<td>$9.23</td>
<td>$10.16</td>
<td>$9.02</td>
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<tr>
<td>Retail price without taxes</td>
<td>$4.18</td>
<td>$3.83</td>
<td>$3.85</td>
<td>$4.29</td>
<td>$4.53</td>
<td>$3.87</td>
<td>$3.94</td>
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<tr>
<td>Tax share of retail price</td>
<td>55.5%</td>
<td>57.2%</td>
<td>58.5%</td>
<td>53.5%</td>
<td>55.4%</td>
<td>57.1%</td>
<td>9.2%</td>
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</table>

SOURCE: Energy Information Agency, FRB H.10, and authors’ calculations.
## Contents

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3 Monetary and Financial Indicators at a Glance  
4 Monetary Aggregates and Their Components  
6 Monetary Aggregates: Monthly Growth  
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8 Measures of Expected Inflation  
9 Interest Rates  
10 Policy-Based Inflation Indicators  
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12 Velocity, Gross Domestic Product, and M2  
14 Bank Credit  
15 Stock Market Index and Foreign Inflation and Interest Rates  
16 Reference Tables  
18 Definitions, Notes, and Sources

### Conventions used in this publication:

1. Unless otherwise indicated, data are monthly.
2. Shaded areas indicate recessions, as determined by the National Bureau of Economic Research.
3. Percent change at an annual rate is the simple, not compounded, monthly percent change multiplied by 12. For example, using consecutive months, the percent change at an annual rate in \( x \) between month \( t-1 \) and the current month \( t \) is: \( [(x_t/x_{t-1})-1] \times 1200 \). Note that this differs from *National Economic Trends*. In that publication, monthly percent changes are compounded and expressed as annual growth rates.
4. The percent change from year ago refers to the percent change from the same period in the previous year. For example, the percent change from year ago in \( x \) between month \( t-12 \) and the current month \( t \) is: \( [(x_t/x_{t-12})-1] \times 100 \).

We welcome your comments addressed to:

Editor, *Monetary Trends*  
Research Division  
Federal Reserve Bank of St. Louis  
P.O. Box 442  
St. Louis, MO 63166-0442

On March 23, 2006, the Board of Governors of the Federal Reserve System ceased the publication of the M3 monetary aggregate. It also ceased publishing the following components: large-denomination time deposits, RPs, and eurodollars.

or to:

stlsFRED@stls.frb.org

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Monetary Trends

Adjusted Monetary Base
Percent change from year ago

Domestic Nonfinancial Debt
Percent change from year ago

Currency Held by the Nonbank Public
Percent change from year ago

Time Deposits*
Percent change from year ago

Checkable and Savings Deposits
Percent change from year ago

Money Market Mutual Fund Shares
Percent change from year ago

Repurchase Agreements and Eurodollars*
Billions of dollars

*See table of contents for changes to the series.
M1
Percent change at an annual rate

*Actual values for September and October 2001 are 55.87 and -38.35 percent rate, respectively.

M2
Percent change at an annual rate

*Actual value for September 2001 is 39.41 percent rate.

M3*
Percent change at an annual rate

*See table of contents for changes to the series.
Adjusted and Required Reserves
Billions of dollars

Total Borrowings, nsa
Billions of dollars

Excess Reserves plus RCB Contracts
Billions of dollars

Nonfinancial Commercial Paper
Percent change from year ago

Consumer Credit
Percent change from year ago

* Total borrowings include loans to depository institutions for primary, secondary, seasonal credit, primary dealer credit facility, and other credit extensions, but exclude term auction credit.

* Actual value for September 2001 is $26.43 billion.

As of April 10, 2006, the Federal Reserve Board made major changes to its commercial paper calculations. For more information, please refer to http://www.federalreserve.gov/releases/cp/about.htm.
CPI Inflation and 1-Year-Ahead CPI Inflation Expectations

The shaded region shows the Humphrey-Hawkins CPI inflation range. Beginning in January 2000, the Humphrey-Hawkins inflation range was reported using the PCE price index and therefore is not shown on this graph.

10-Year Ahead PCE Inflation Expectations and Realized Inflation

Treasury Security Yield Spreads

Real Interest Rates

Percent, Real rate = Nominal rate less year-over-year CPI inflation
Monetary Trends
updated through 08/08/08

Short-Term Interest Rates

Long-Term Interest Rates

FOMC Intended Federal Funds Rate, Discount Rate, and Primary Credit Rate

Data available as of July 2008.

Federal Funds Rate and Inflation Targets

Calculated federal funds rate is based on Taylor’s rule. See notes on page 19.

Components of Taylor’s Rule

Actual and Potential Real GDP
Billions of chain-weighted 2000 dollars

PCE Inflation
Percent change from year ago

Monetary Base Growth* and Inflation Targets

*Modified for the effects of sweeps programs on reserve demand.

Calculated base growth is based on McCallum’s rule. Actual base growth is percent change from year ago. See notes on page 19.

Components of McCallum’s Rule

Monetary Base Velocity Growth
Percent

Real Output Growth
Percent

1-Year Moving Average
4-Year Moving Average
10-Year Moving Average

Research Division
Federal Reserve Bank of St. Louis
Monetary Trends

Updated through 08/19/08

Implied One-Year Forward Rates
Percent

Week Ending:
08/17/08 07/18/08 08/15/08

11

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Federal Reserve Bank of St. Louis

Rates on 3-Month Eurodollar Futures
Percent, daily data

Rates on Selected Federal Funds Futures Contracts
Percent, daily data

Rates on Federal Funds Futures on Selected Dates
Percent

Inflation-Indexed Treasury Securities
Weekly data

Note: Yields are inflation-indexed constant maturity U.S. Treasury securities

Inflation-Indexed 10-Year Government Notes
Percent, weekly data

Inflation-Indexed 10-Year Government Yield Spreads
Percent, weekly data

Note: Yield spread is between nominal and inflation-indexed constant maturity U.S. Treasury securities.
Monetary Trends

updated through 08/15/08

Research Division
Federal Reserve Bank of St. Louis

Gross Domestic Product
Percent change from year ago

Real Gross Domestic Product
Percent change from year ago

Gross Domestic Product Price Index
Percent change from year ago

M2
Percent change from year ago

Dashed lines indicate 10-year moving averages.
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>
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<tbody>
<tr>
<td></td>
<td>Percent change from year ago</td>
<td>Percent</td>
</tr>
<tr>
<td></td>
<td>2007Q3 2007Q4 2008Q1 2008Q2</td>
<td>Apr08 May08 Jun08 Jul08</td>
</tr>
<tr>
<td>United States</td>
<td>2.36  4.01  4.17  4.29</td>
<td>3.68  3.88  4.10  4.01</td>
</tr>
<tr>
<td>Canada</td>
<td>2.13  2.41  1.78  .</td>
<td>3.61  3.63  3.74  .</td>
</tr>
<tr>
<td>France</td>
<td>1.27  2.34  2.95  .</td>
<td>4.27  4.41  .  .</td>
</tr>
<tr>
<td>Germany</td>
<td>2.30  3.04  2.92  .</td>
<td>4.04  4.20  4.52  .</td>
</tr>
<tr>
<td>Italy</td>
<td>1.64  2.36  3.06  3.57</td>
<td>4.53  4.70  5.11  .</td>
</tr>
<tr>
<td>Japan</td>
<td>-0.16  0.53  0.96  .</td>
<td>1.43  1.68  1.76  1.61</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>1.78  2.09  2.38  .</td>
<td>4.64  4.87  5.21  5.05</td>
</tr>
</tbody>
</table>

Inflation and Long-Term Interest Rate Differentials

---

Research Division
Federal Reserve Bank of St. Louis
<table>
<thead>
<tr>
<th>Year</th>
<th>Money Stock</th>
<th>Bank Credit</th>
<th>Adjusted Monetary Base</th>
<th>Reserves</th>
<th>MSI M2**</th>
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<tbody>
<tr>
<td></td>
<td>M1</td>
<td>MZM</td>
<td>M2</td>
<td>M3*</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Credit</td>
</tr>
<tr>
<td>2003</td>
<td>1273.484</td>
<td>6327.288</td>
<td>5984.480</td>
<td>8787.321</td>
<td>6118.279</td>
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<tr>
<td>2004</td>
<td>1344.422</td>
<td>6578.702</td>
<td>6266.901</td>
<td>9234.718</td>
<td>6600.373</td>
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<tr>
<td>2005</td>
<td>1371.780</td>
<td>6725.614</td>
<td>6545.752</td>
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<td>7245.093</td>
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<tr>
<td>2006</td>
<td>1374.386</td>
<td>6999.280</td>
<td>6859.317</td>
<td>10270.74</td>
<td>7957.545</td>
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<tr>
<td>2007</td>
<td>1369.124</td>
<td>7641.525</td>
<td>7264.433</td>
<td>2008</td>
<td>1381.850</td>
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<td></td>
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</tr>
<tr>
<td>2008</td>
<td>1371.412</td>
<td>8403.683</td>
<td>7576.924</td>
<td>834.243</td>
<td>859.322</td>
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<tr>
<td></td>
<td></td>
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<tr>
<td>2006</td>
<td>1370.673</td>
<td>6987.911</td>
<td>6858.026</td>
<td>7985.948</td>
<td>834.988</td>
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<tr>
<td>2007</td>
<td>1372.151</td>
<td>7254.747</td>
<td>7082.238</td>
<td>839.091</td>
<td>843.492</td>
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<tr>
<td></td>
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<td></td>
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<tr>
<td>2008</td>
<td>1366.988</td>
<td>8184.691</td>
<td>7480.146</td>
<td>9267.518</td>
<td>851.442</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note: All values are given in billions of dollars. *See table of contents for changes to the series. **We will not update the MSI series until we revise the code to accommodate the discontinuation of M3.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Year</td>
<td>Federal Funds</td>
<td>Primary Credit Rate</td>
<td>Prime Rate</td>
<td>3-mo CDs</td>
<td>Treasury Yields 3-mo</td>
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<td>---------------</td>
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<td>----------</td>
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<tr>
<td>2003</td>
<td>1.13</td>
<td>2.11</td>
<td>4.12</td>
<td>1.15</td>
<td>1.03</td>
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<tr>
<td>2004</td>
<td>1.35</td>
<td>2.34</td>
<td>4.34</td>
<td>1.56</td>
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<td>3.21</td>
<td>4.19</td>
<td>6.19</td>
<td>3.51</td>
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<td>5.96</td>
<td>7.96</td>
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<th>Apr</th>
<th>May</th>
<th>Jun</th>
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<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
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<td>6.25</td>
<td>6.25</td>
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<td>5.31</td>
<td>5.01</td>
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<td>4.69</td>
<td>5.01</td>
<td>4.60</td>
<td>4.69</td>
<td>5.01</td>
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</table>

Note: All values are given as a percent at an annual rate.
### Table: Percent change at an annual rate

<table>
<thead>
<tr>
<th>Year</th>
<th>M1</th>
<th>MZM</th>
<th>M2</th>
<th>M3*</th>
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<td>2.23</td>
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#### Monthly Data:

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### Additional Data:

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<tr>
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*See table of contents for changes to the series.
Definitions

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.

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.

M3: M2 plus large-denomination ($100,000 or more) time deposits; repurchase agreements issued by depository institutions; Eurodollar deposits, specifically, dollar-denominated deposits due to nonbank U.S. addresses held at foreign offices of U.S. banks worldwide and all banking offices in Canada and the United Kingdom; and institutional money market mutual funds (funds with initial investments of $50,000 or more).

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

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.

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, 2001, 2003).

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 spliced 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 Rasche (1996a, 2001, 2003).

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/msi/index.html.

Note: M1, M2, M3, Bank Credit, and Domestic Nonfinancial Debt are constructed and published by the Board of Governors of the Federal Reserve System. For details, see Statistical Supplement to the Federal Reserve Bulletin, tables 1.21 and 1.26. M2M, Adjusted Monetary Base, Adjusted Reserves, and Monetary Services Index are constructed and published by the Research Division of the Federal Reserve Bank of St. Louis.

Notes

Page 3: Readers are cautioned that, since early 1994, the level and growth of M1 have been depressed by retail sweep programs that reclassify transactions deposits (demand deposits and other checkable deposits) as savings deposits overnight, thereby reducing banks’ required reserves; see Anderson and Rasche (2001) and research.stlouisfed.org/aggreg/sdata.html. 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. The Treasury Yield Curve and Real Treasury Yield Curve show constant maturity yields calculated by the U.S. Treasury for securities 5, 7, 10, and 20 years to maturity. 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 research.stlouisfed.org/fred2. 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.

Page 5: Checkable Deposits is the sum of demand and other checkable deposits. Savings Deposits is the sum of money market deposit accounts and passbook and statement savings. Time Deposits have a minimum initial maturity of 7 days. Large Time Deposits are deposits of $100,000 or more. Retail and Institutional Money Market Mutual Funds are as included in M2 and the non-M2 component of M3, respectively.

Page 7: Excess Reserves plus RCB (Required Clearing Balance) Contracts equals the amount of deposits at Federal Reserve Banks held by depository institutions but not applied to satisfy statutory reserve requirements. (This measure excludes the vault cash held by depository institutions that is not applied to satisfy statutory reserve requirements.) Consumer Credit includes most short- and intermediate-term credit extended to individuals. See Statistical Supplement to the Federal Reserve Bulletin, table 1.55.

Page 8: 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. Real Interest Rates are ex post measures, equal to nominal rates minus year-over-year CPI inflation.

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 1965:Q1, annualized PCE inflation over the next 40 quarters was expected to average 1.7 percent. In actuality, the average annualized rate of change measured 4.8 percent from 1965:Q1 to 1975:Q1. Thus, the vertical distance between the two lines in the chart at any point is the forecast error.

Page 9: 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.

Page 10: 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

\[ f_t^* = 2.5 + \pi_{t-1} + (\pi_{t-1} - \pi_t^*)/2 + 100 \times (y_{t-1} - y_{t-1}^*)/2 \]

to five alternative target inflation rates, \( \pi_t^* = 0, 1, 2, 3, 4 \) percent, where \( f_t^* \) is the implied federal funds rate, \( \pi_{t-1} \) is the previous period’s inflation rate (PCE) measured on a year-over-year basis, \( y_{t-1} \) is the log of the previous period’s level of real gross domestic product (GDP), and \( y_{t-1}^* \) is the log of an estimate of the previous period’s level of potential output. Potential Real GDP is as estimated by the Congressional Budget Office.

Monetary Base Growth and Inflation Targets shows the quarterly growth of the adjusted monetary base (modified to include an estimate of the effect of sweep programs) implied by applying McCallum’s (1988, 1993) equation

\[ \Delta M_t = \pi_t + (10\text{-year moving average growth of real GDP}) \]

– (4-year moving average of base velocity growth) to five alternative target inflation rates, \( \pi_t = 0, 1, 2, 3, 4 \) percent, where \( \Delta M_t \) is the implied growth rate of the adjusted monetary base. The 10-year moving average growth of real GDP for a quarter \( t \) is calculated as the average quarterly growth during the previous 40 quarters, at an annual rate, by the formula
 Monetary Trends

\[(y_t - y_{t-1})/40 \text{, where } y_t \text{ is the log of real GDP. The 4-year moving average of base velocity growth is calculated similarly. To adjust the} \]
\[\text{monetary base for the effect of retail-deposit sweep programs, we add to the monetary} \]
\[\text{base an amount equal to 10 percent of the total amount swept, as estimated by} \]
\[\text{the Federal Reserve Board staff. These estimates are imprecise, at best. Sweep} \]
\[\text{program data are found at research.stlouisfed.org/aggreg/swdata.html.} \]

**Page 11: Implied One-Year Forward Rates** are calculated by this Bank from Treasury constant maturity yields. Yields to maturity, \(R(m)\), for securities with \(m = 1, \ldots, 10\) 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),

\[
R(m) = a_0 + (a_1 + a_2)/(1 - e^{-m(50)/(m(50) - a_2)} e^{-m(50)},
\]

and forward rates are calculated from these smoothed yields using equation (a) in table 13.1 of Shiller (1990),

\[
f(m) = [D(m)R(m) - D(m-1)] / [D(m) - D(m-1)],
\]

where duration is approximated as \(D(m) = (1 - e^{-R(m) \times m})/R(m)\). 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 and Rates on Selected Federal Funds Futures Contracts trace through time the yield on three specific contracts. 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. Inflation-Indexed Treasury Securities and Yield Spreads are those plotted on page 3. Inflation-Indexed 10-Year Government Notes shows the yield of an inflation-indexed note that is scheduled to mature in approximately (but not greater than) 10 years. The current French note has a maturity date of 7/25/2015, the current U.K. note has a maturity date of 8/16/2013, and the current U.S. note has a maturity date of 1/15/2018. Inflation-Indexed Treasury Yield Spreads and Inflation-Indexed 10-Year Government Yield Spreads equal the difference between the yields on the most recently issued inflation-indexed securities and the unadjusted security yields of similar maturity.

**Page 12: Velocity** (for MZM and M2) equals the ratio of GDP, measured in current dollars, to the level of the monetary aggregate. MZM and M2 Own Rates are weighted averages of the rates received by households and firms on the assets included in the aggregates. Prior to 1982, the 3-month T-bill rates are secondary market yields. From 1982 forward, rates are 3-month constant maturity yields.

**Page 13: Real Gross Domestic Product** is GDP as measured in chained 2000 dollars. 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 2000 dollars.

**Page 14: Investment Securities** are all securities held by commercial banks in both investment and trading accounts.

**Page 15: 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.

**Page 17: Treasury Yields** are Treasury constant maturities as reported in the Board of Governors of the Federal Reserve System’s H.15 release.

**Sources**

Agence France Trésor: French note yields.

Bank of Canada: Canadian note yields.


Board of Governors of the Federal Reserve System:


Bureau of Economic Analysis: GDP.

Bureau of Labor Statistics: CPI.

Chicago Board of Trade: Federal funds futures contract.

Chicago Mercantile Exchange: Eurodollar futures.

Congressional Budget Office: Potential real GDP.


Federal Reserve Bank of St. Louis: Adjusted monetary base and adjusted reserves, monetary services index, M2M own rate, one-year forward rates.

Organization for Economic Cooperation and Development: International interest and inflation rates.

Standard & Poor’s: Stock price-earnings ratio, stock price composite index.

University of Michigan Survey Research Center: Median expected price change.


**References**


*Available on the Internet at research.stlouisfed.org/publications/review.