

Monetary Trends



The Preemptive Fed

In February 2000, the Federal Open Market Committee (FOMC) began releasing an assessment of the risks of either “heightened inflation pressures” or “economic weakness.” This forward-looking assessment suggests that the FOMC is prepared to take preemptive policy actions when warranted. At the first seven of its eight meetings in 2000, the FOMC concluded that the risk of heightened inflation pressures predominated, and tightened policy at the first three of those meetings. By the December 2000 meeting, however, the FOMC judged that economic growth may be slowing to an extent that the “risks are weighted mainly toward conditions that may generate economic weakness in the foreseeable future.” How did financial markets respond to the policy easing—a 50 basis point decrease in the federal funds target rate—on January 3, 2001, in light of the risk assessment issued at the FOMC meeting on December 19, 2000?

To put the reaction of financial markets in context, note that the FOMC’s press releases on December 19, 2000, and January 3, 2001, described current inflation pressures as “diminished” and “contained.” In contrast, in the spring of 1990, as the economy was about to dip into recession, the inflation rate was “uncomfortable and unacceptable,” as described by one FOMC member. Thus, unlike 1990, the FOMC in early 2001 is not faced simultaneously with a possibly weakening economy and uncomfortably high inflation.

The accompanying chart shows the responses of the Treasury yield curve and the forward exchange rate premium (between the dollar and the euro) to the recent policy announcements and easing. The slope of the yield curve is measured as the difference in yields between the 10-year Treasury bond and the three-month Treasury bill. A strongly inverted (negatively sloped) yield curve is often considered a sign of a possible impending recession. Following the recent policy easing, the slope of the yield curve increased. (A

short-lived increase in slope followed the December 19 risk assessment, but it was due to strong year-end demand for Treasury bills unrelated to monetary policy.)

The forward exchange rate premium is expressed as the percentage difference between the one-year forward rate (in dollars per euro) and the spot rate. Because real interest rates are procyclical, recession fears would lead to expectations of reductions in real interest rates in the United States—which generally are thought to have a negative impact on the future value of the dollar. If monetary policy steps are believed to reduce the risk of recession, then the forward premium (in dollars per euro) would be expected to decrease—precisely what happened following the January 3 policy easing.

In addition, stock markets responded strongly on January 3 to the FOMC policy easing, with the NASDAQ posting its largest one-day gain ever. Hence, a broad spectrum of financial markets—bond, equity and foreign exchange—reacted to the FOMC’s action on January 3 in a way consistent with the view that the policy easing was a preemptive move to lessen the likelihood of a recession.

—Michael Dueker

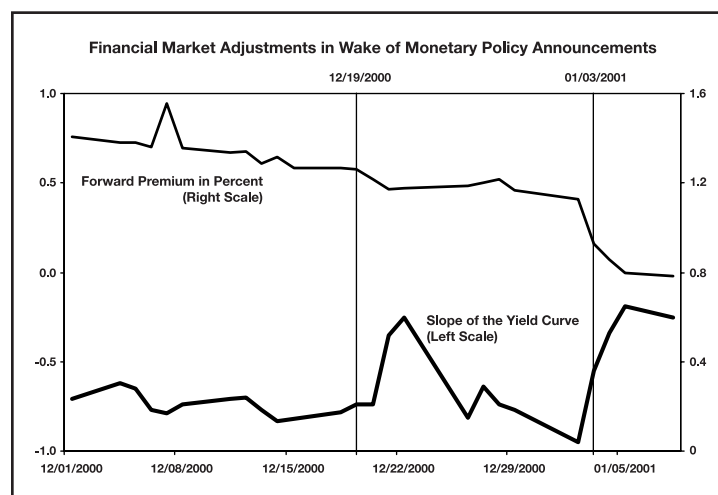


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Conventions used in this publication:

1. Unless otherwise indicated, data are monthly.
2. Shaded areas indicate recessions, as dated by the National Bureau of Economic Research.
3. The *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: $[(x_t / x_{t-12}) - 1] \times 100$.

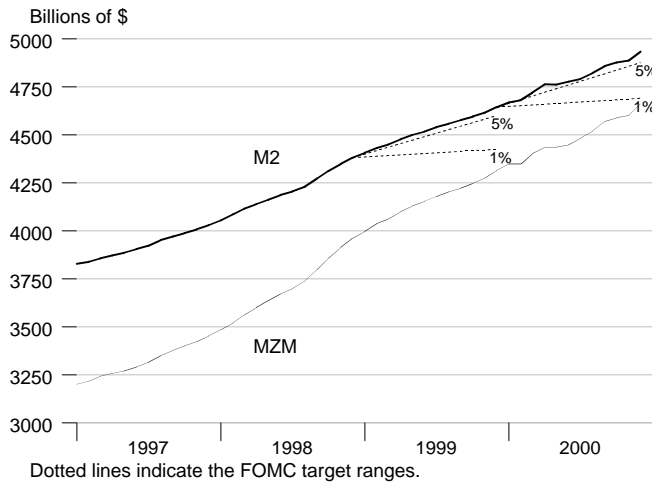
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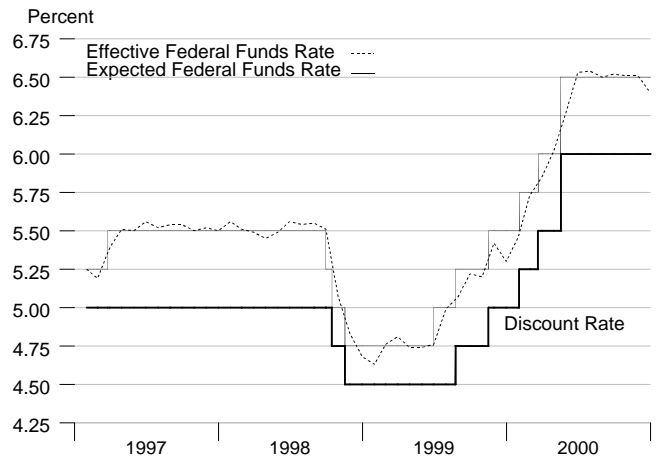
or to:

webmaster@stls.frb.org

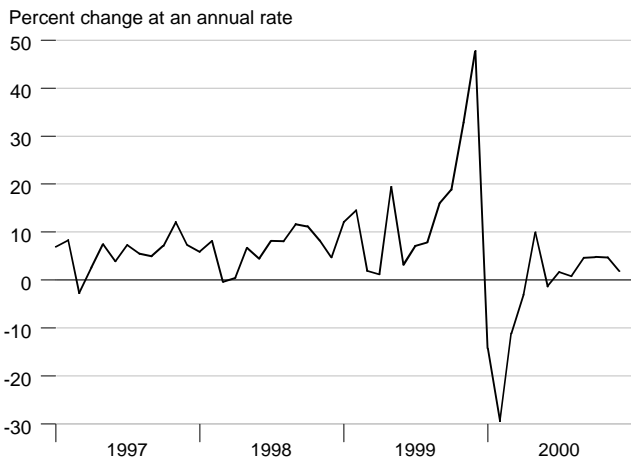
M2 and MZM



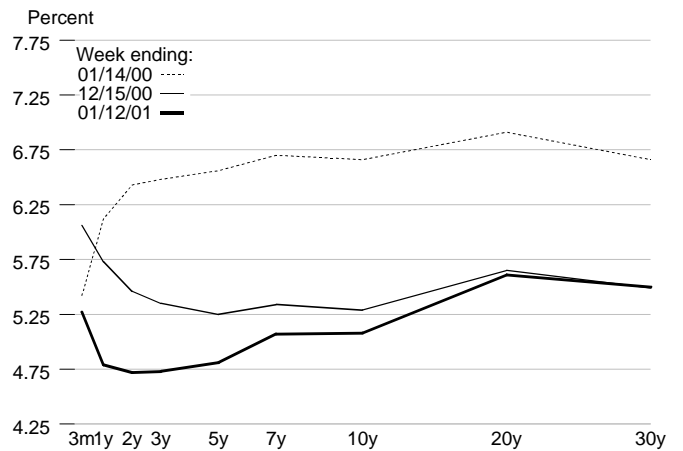
Reserve Market Rates



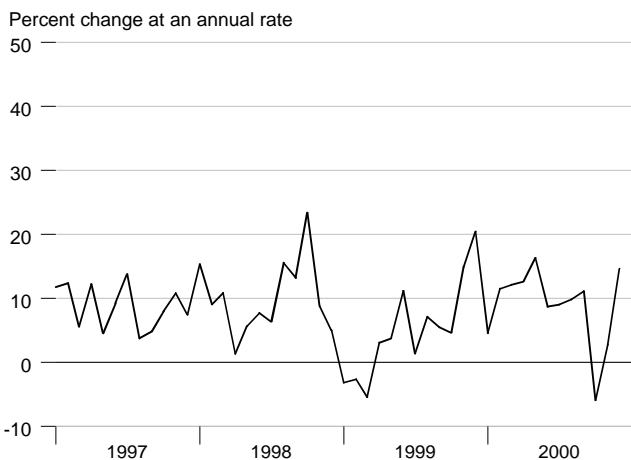
Adjusted Monetary Base



Treasury Yield Curve



Total Bank Credit

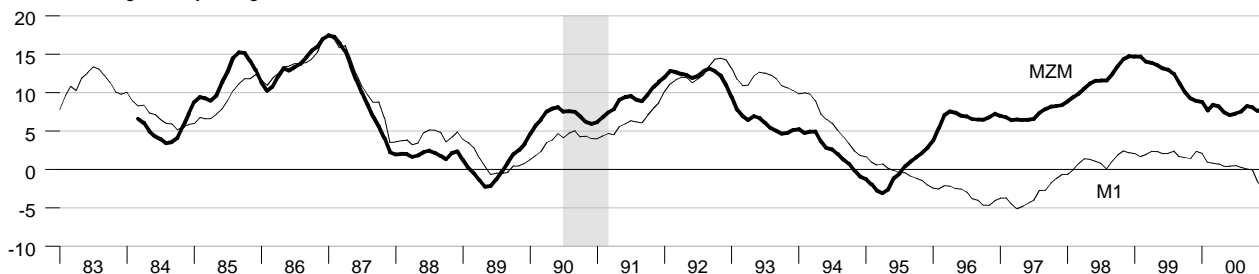


Interest Rates

| | Oct 00 | Nov 00 | Dec 00 |
|----------------------------|--------|--------|--------|
| Federal Funds Rate | 6.51 | 6.51 | 6.40 |
| Discount Rate | 6.00 | 6.00 | 6.00 |
| Prime Rate | 9.50 | 9.50 | 9.50 |
| Conventional Mortgage Rate | 7.80 | 7.75 | 7.38 |
| Treasury Yields: | | | |
| 3-month constant maturity | 6.29 | 6.36 | 5.94 |
| 6-month constant maturity | 6.32 | 6.34 | 5.92 |
| 1-year constant maturity | 6.01 | 6.09 | 5.60 |
| 3-year constant maturity | 5.85 | 5.79 | 5.26 |
| 5-year constant maturity | 5.78 | 5.70 | 5.17 |
| 10-year constant maturity | 5.74 | 5.72 | 5.24 |
| 30-year constant maturity | 5.80 | 5.78 | 5.49 |

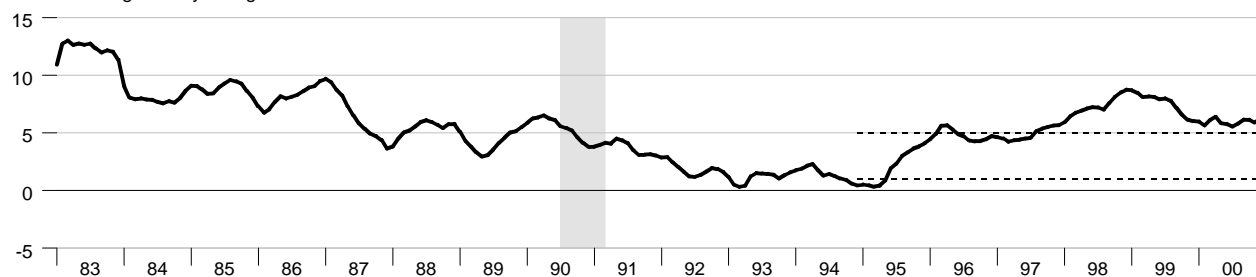
MZM and M1

Percent change from year ago



M2

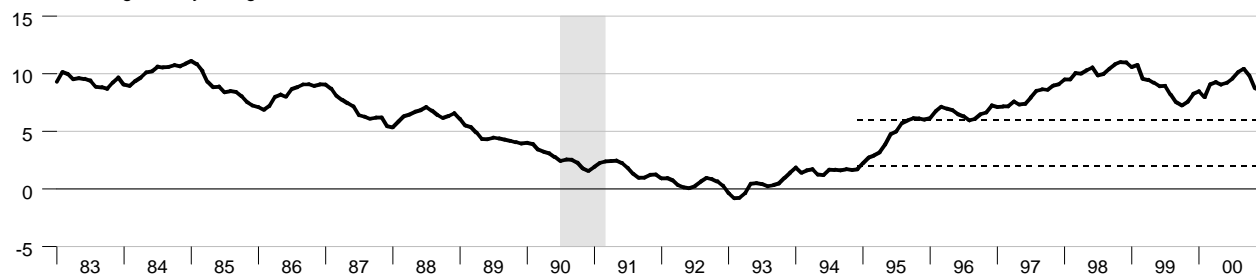
Percent change from year ago



Dotted lines indicate the FOMC target ranges.

M3

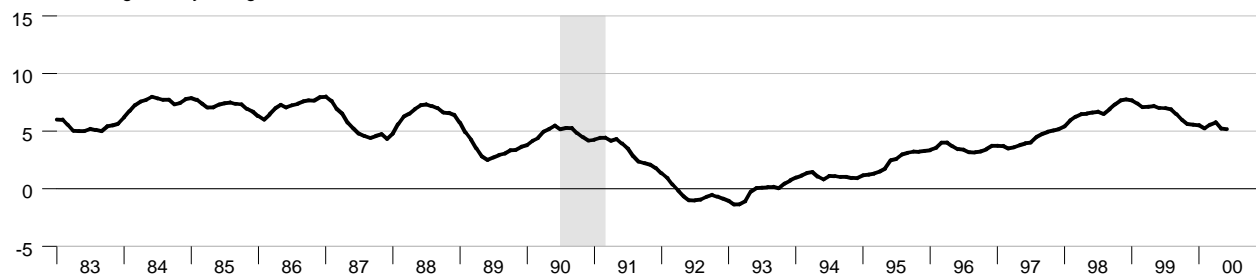
Percent change from year ago



Dotted lines indicate the FOMC target ranges.

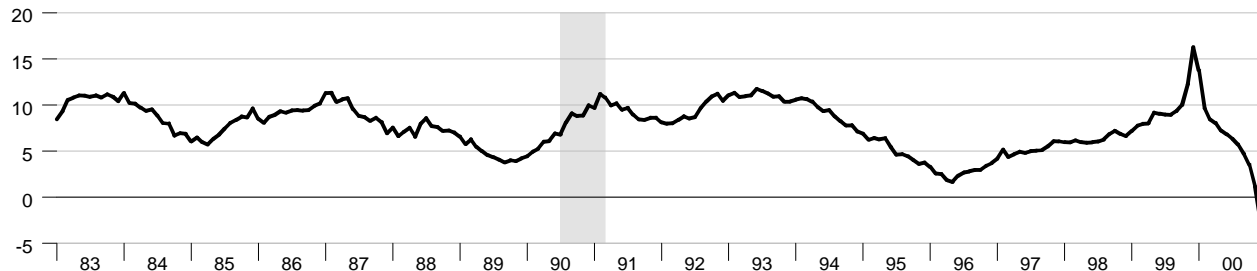
Monetary Services Index - M2

Percent change from year ago



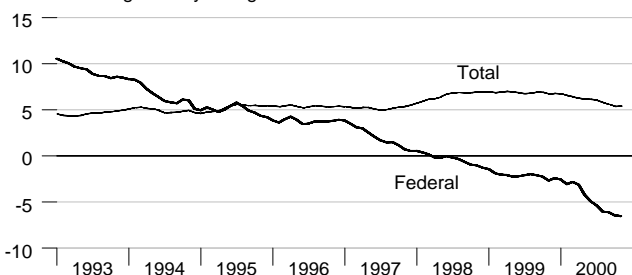
Adjusted Monetary Base

Percent change from year ago



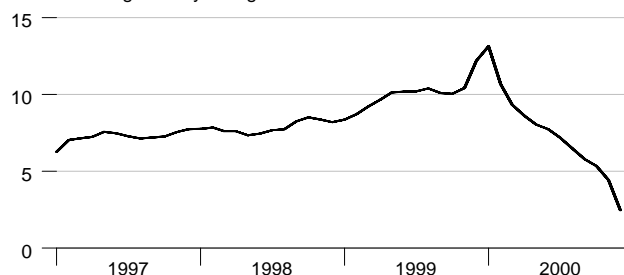
Domestic Nonfinancial Debt

Percent change from year ago



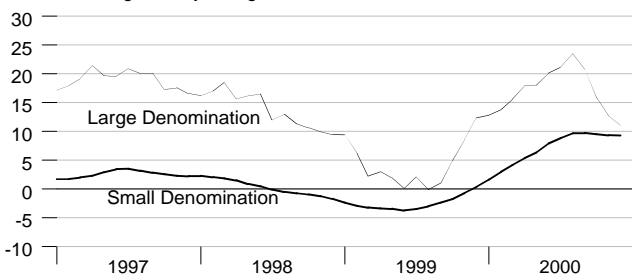
Currency Held by the Nonbank Public

Percent change from year ago



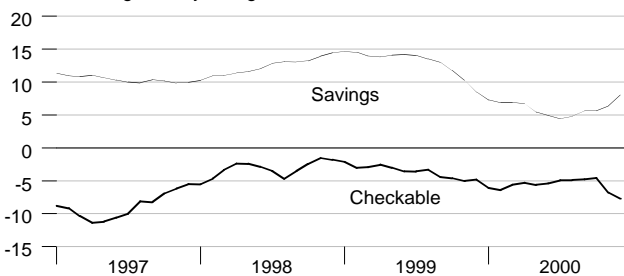
Time Deposits

Percent change from year ago



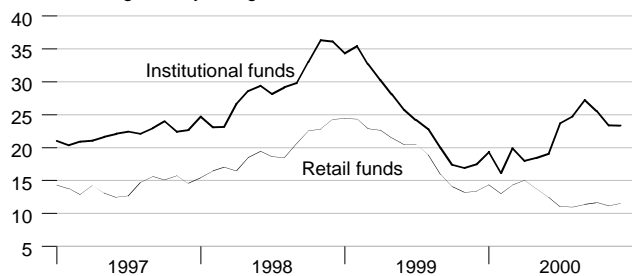
Checkable and Savings Deposits

Percent change from year ago



Money Market Mutual Fund Shares

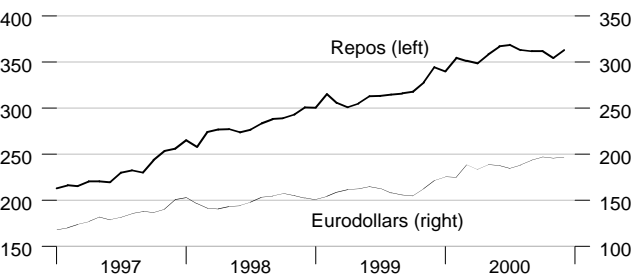
Percent change from year ago



Repurchase Agreements and Eurodollars

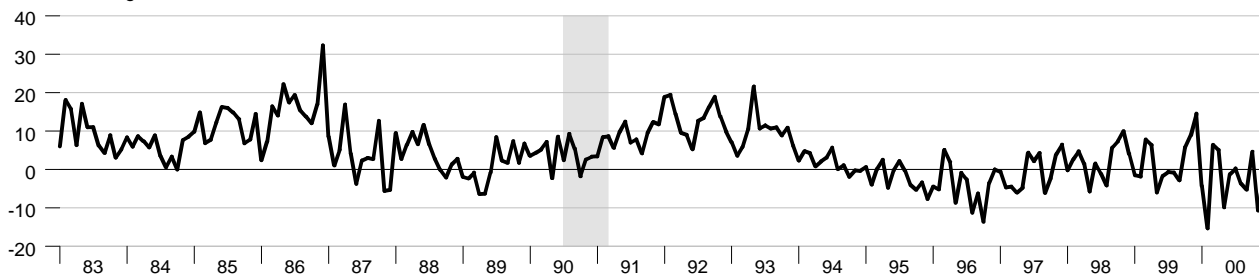
Billions of dollars

Billions of dollars



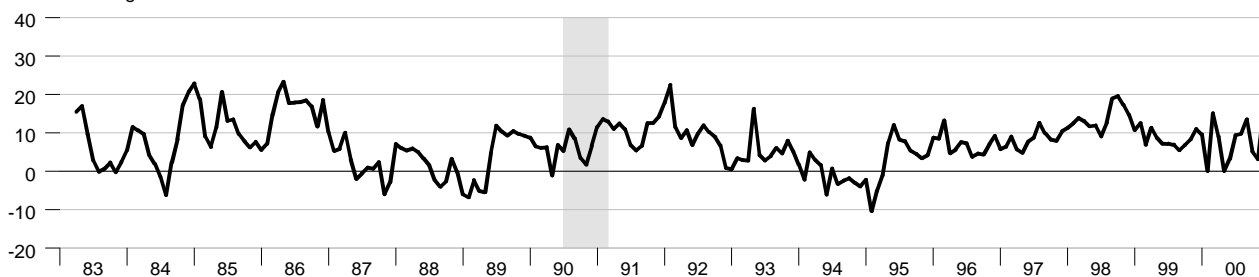
M1

Percent change at an annual rate



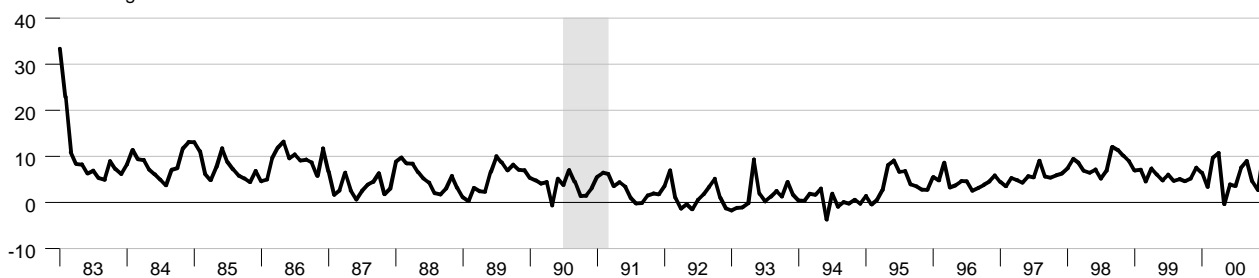
MZM

Percent change at an annual rate



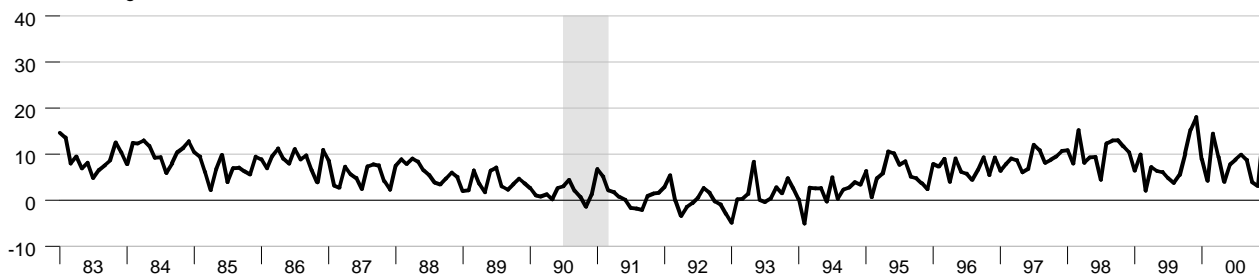
M2

Percent change at an annual rate

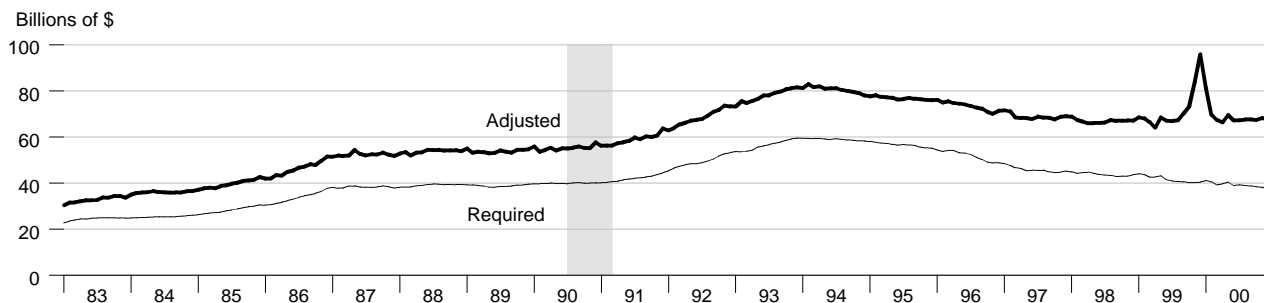


M3

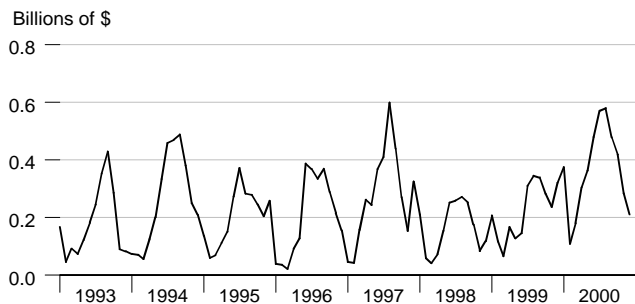
Percent change at an annual rate



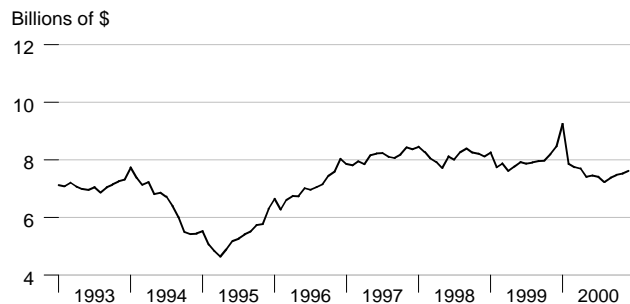
Adjusted and Required Reserves



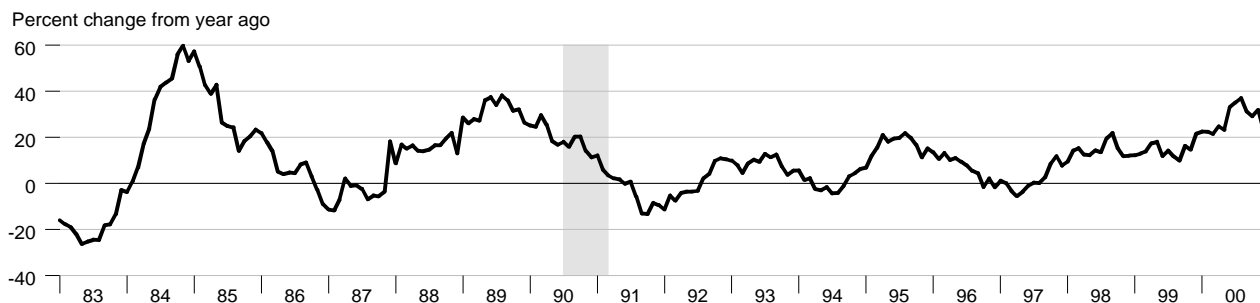
Total Borrowings, nsa



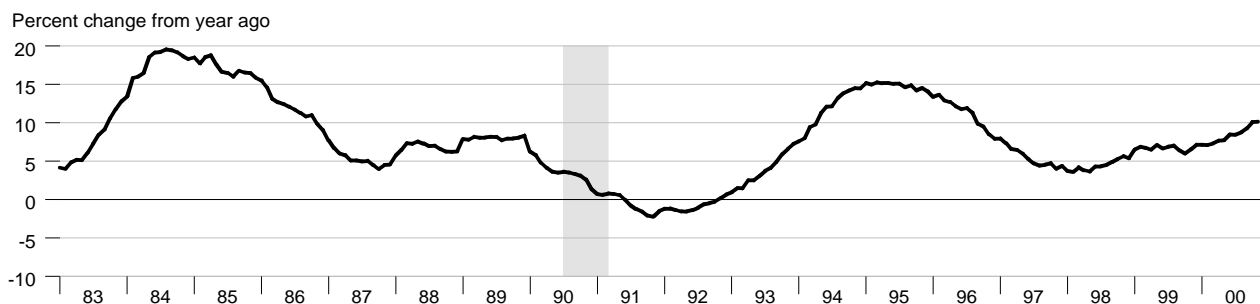
Excess Reserves plus RCB Contracts



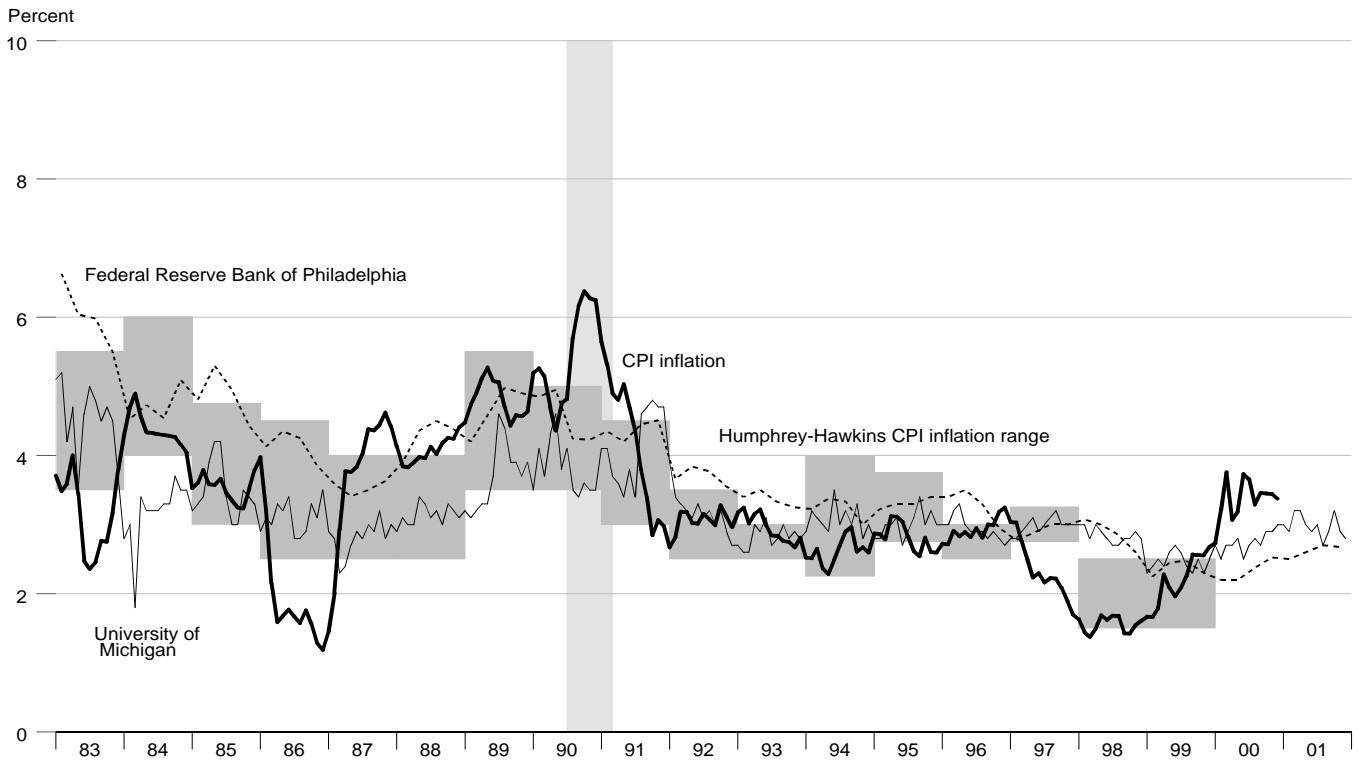
Nonfinancial Commercial Paper



Consumer Credit

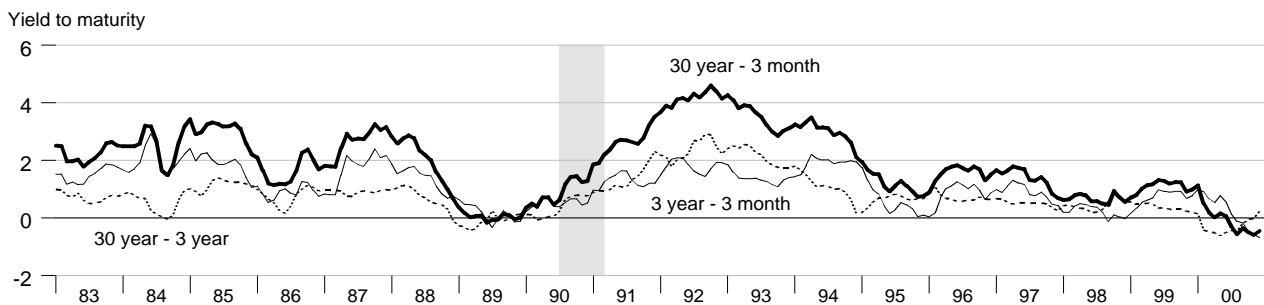


Inflation and Inflation Expectations

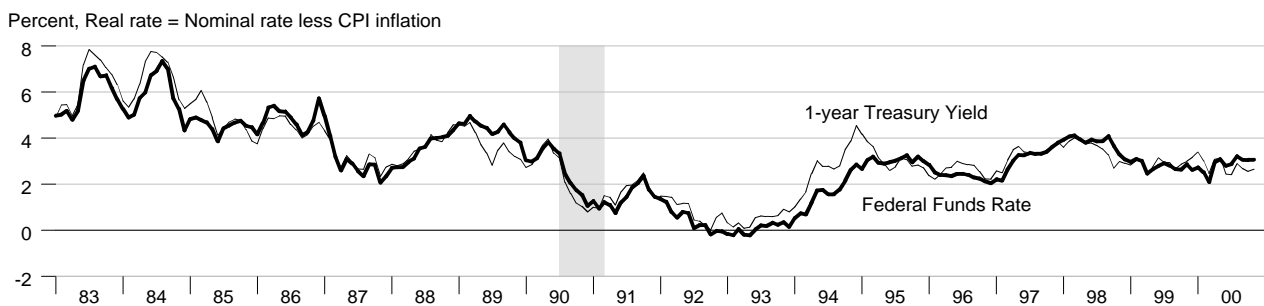


The shaded region shows the Humphrey-Hawkins CPI inflation range. Beginning in January 2000, the Humphrey-Hawkins inflation range was reported using the PCE price index and therefore is not shown on this graph. See page 19 for information.

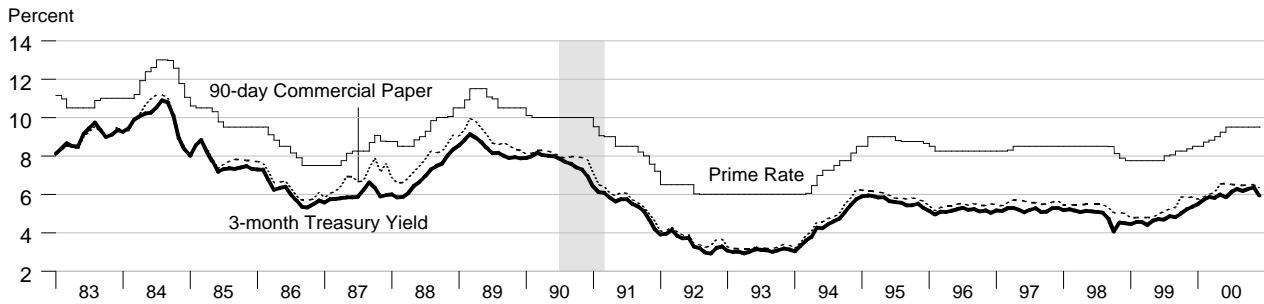
Treasury Security Yield Spreads



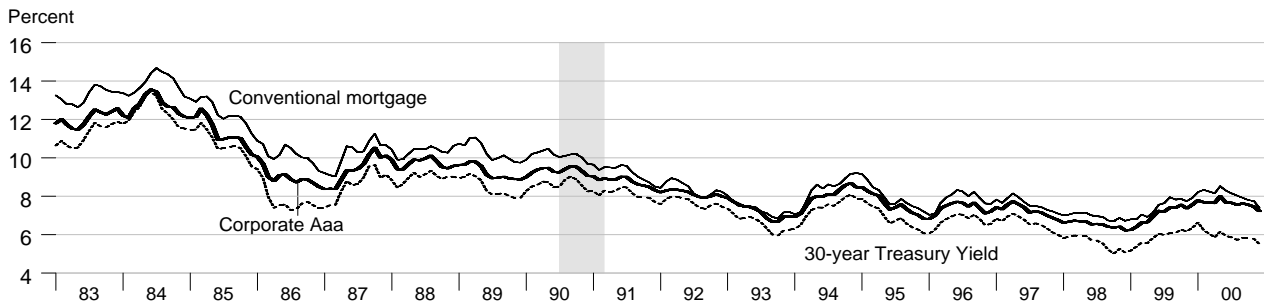
Real Interest Rates



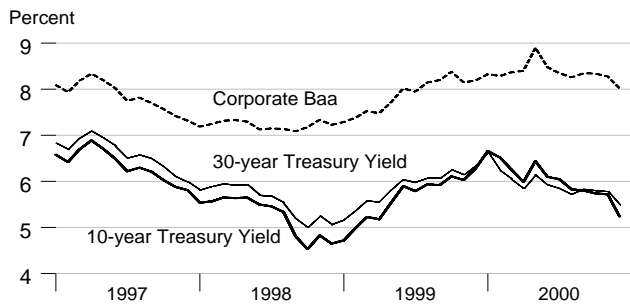
Short Term Interest Rates



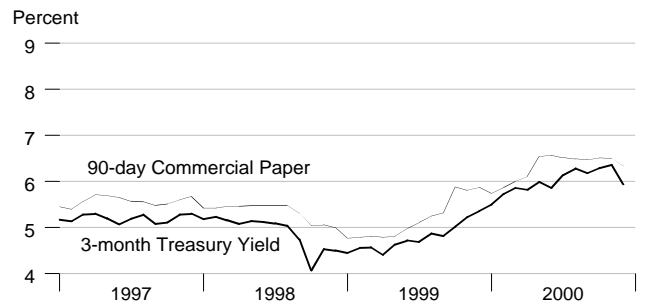
Long Term Interest Rates



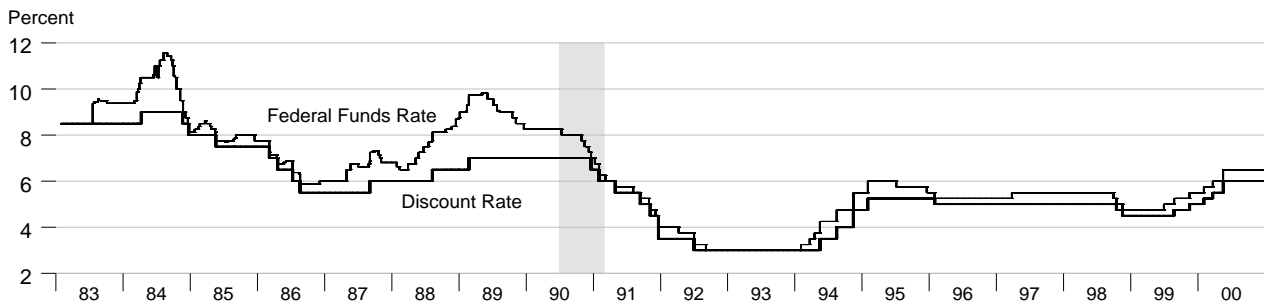
Long Term Interest Rates



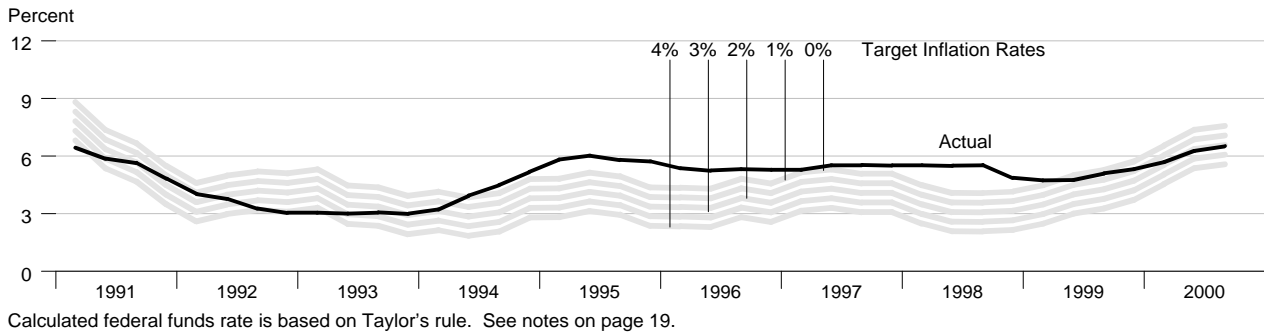
Short Term Interest Rates



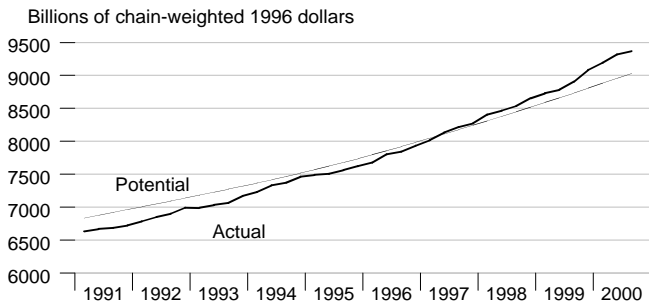
FOMC Expected Federal Funds Rate and Discount Rate



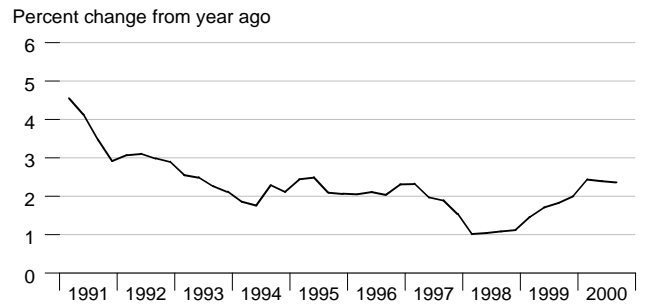
Federal Funds Rate and Inflation Targets



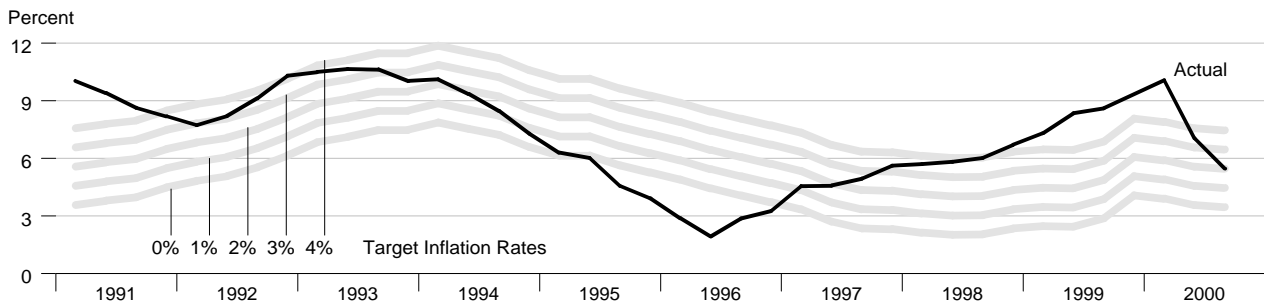
Actual and Potential Real GDP



PCE Inflation

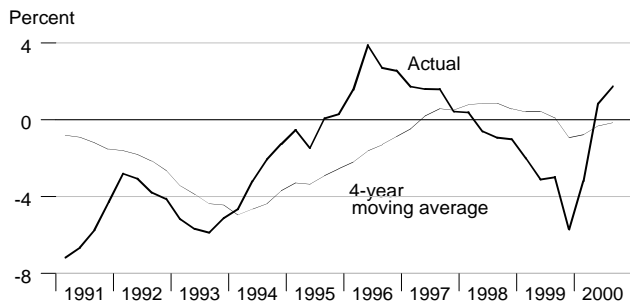


Monetary Base Growth* and Inflation Targets

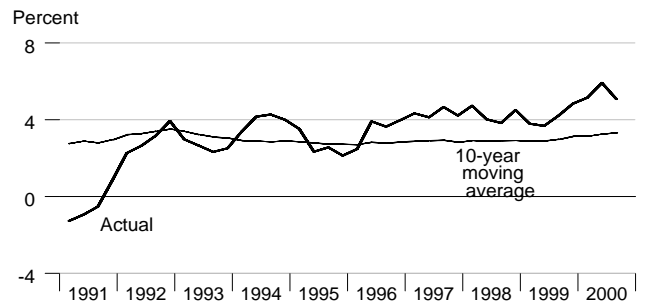


*Modified for the effects of sweeps programs on reserve demand. Calculated base growth is based on McCallum's rule. Actual base growth is percent change from year ago. See notes on page 19.

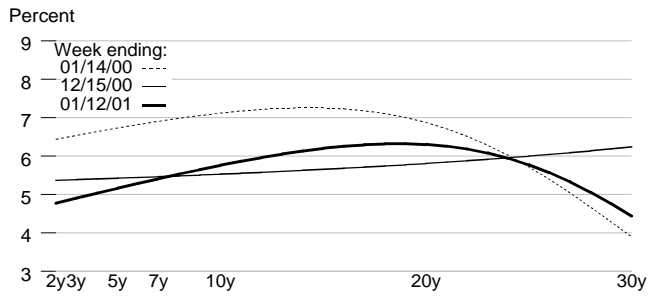
Monetary Base Velocity Growth



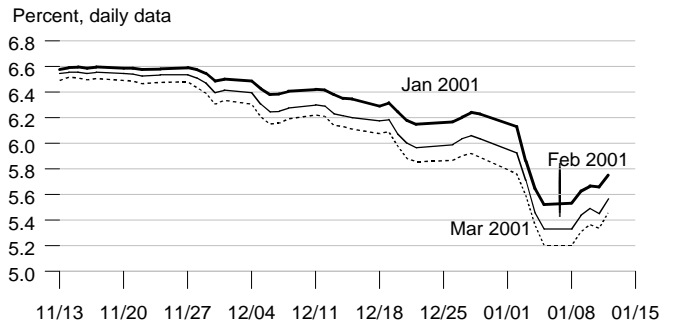
Real Output Growth



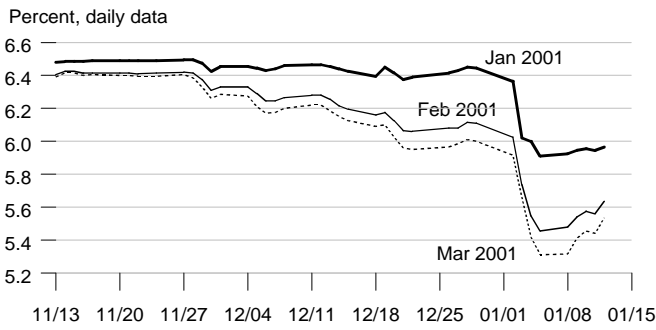
Implied One-Year Forward Rates



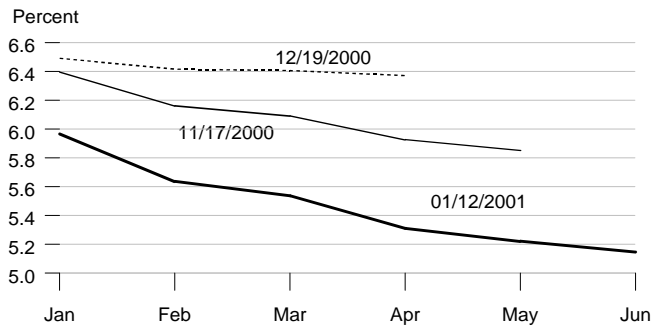
Rates on 3-Month Eurodollar Futures



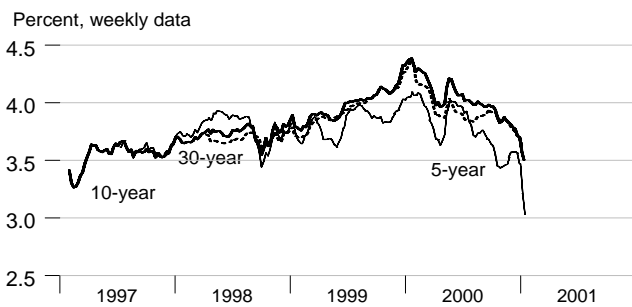
Rates on Selected Fed Funds Futures Contracts



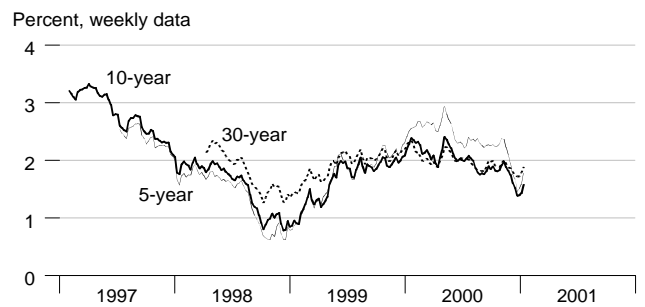
Implied Yields on Fed Funds Futures



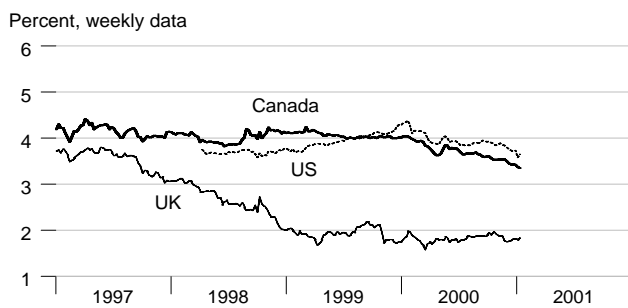
Inflation-Protected Treasury Yields



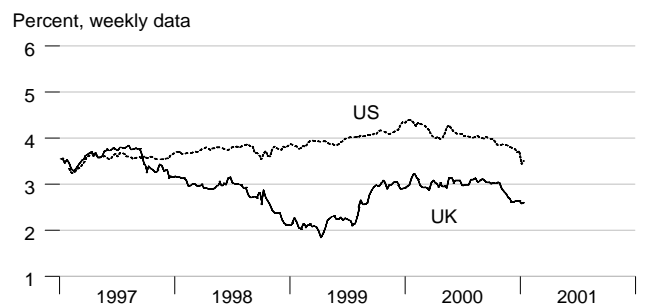
Inflation-Protected Treasury Yield Spreads



Inflation-Indexed 30-Year Bonds



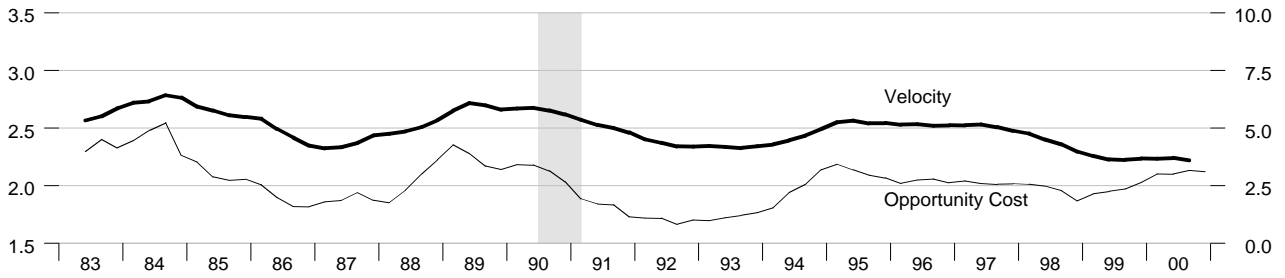
Inflation-Indexed 10-Year Bonds



MZM Velocity and Opportunity Cost

Velocity = Nominal GDP / MZM

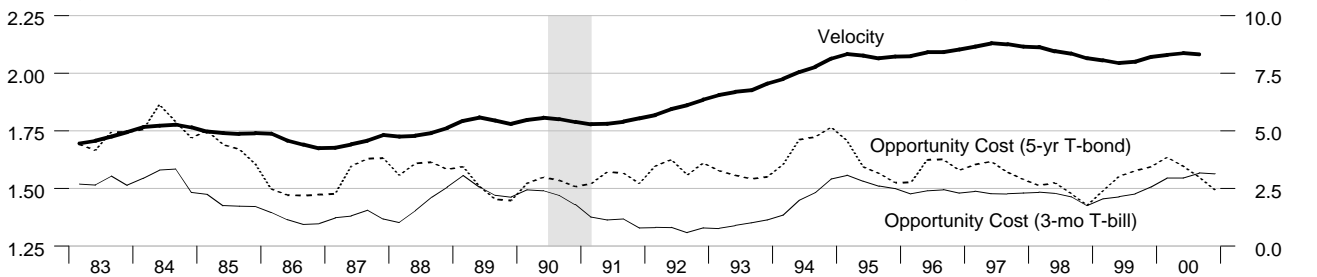
Opportunity Cost = 3 month T-bill rate less MZM own rate



M2 Velocity and Opportunity Cost

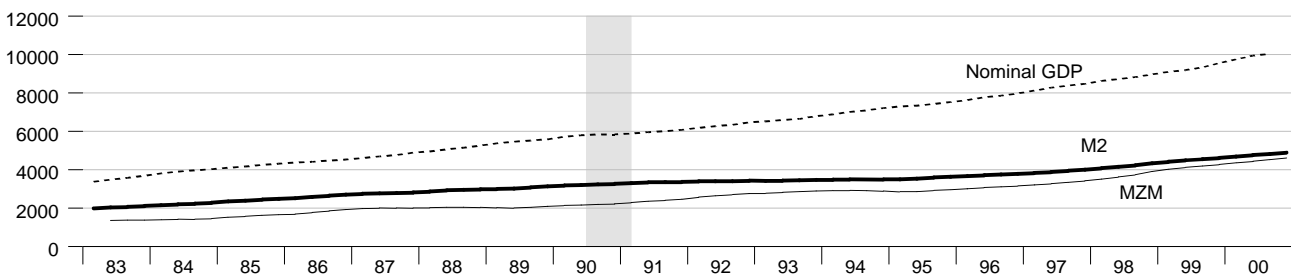
Velocity = Nominal GDP / M2

Opportunity Cost = Treasury rate less M2 own rate



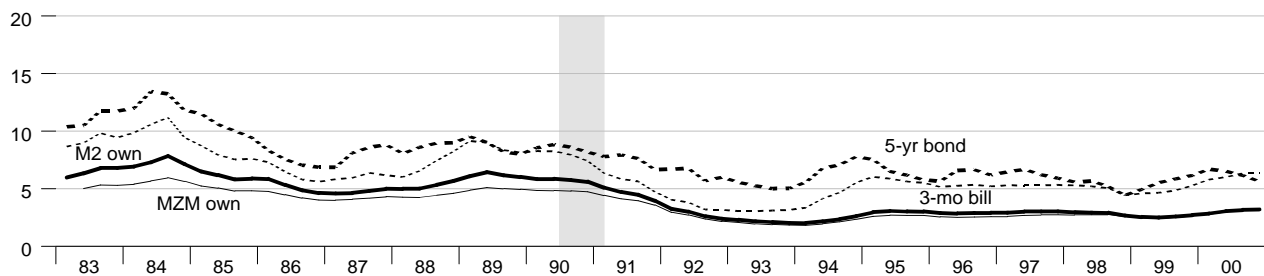
M2, MZM and Nominal GDP

Billions of \$



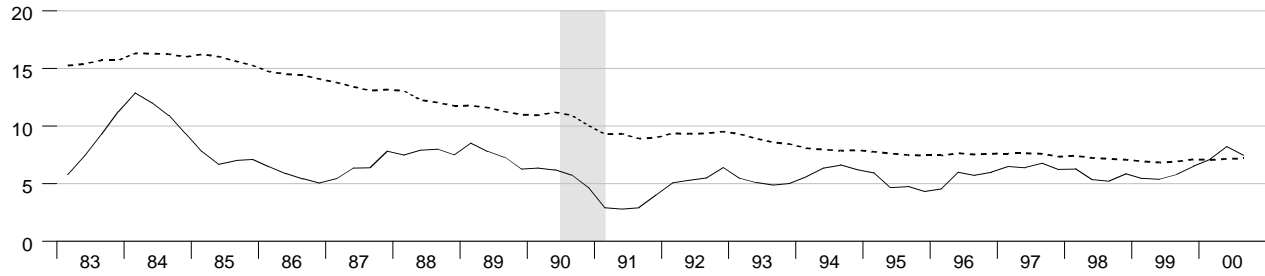
Interest Rates

Percent



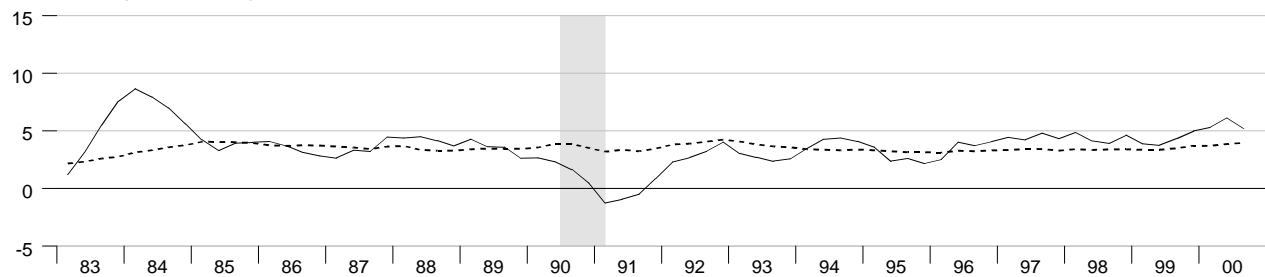
Gross Domestic Product

Percent change from year ago



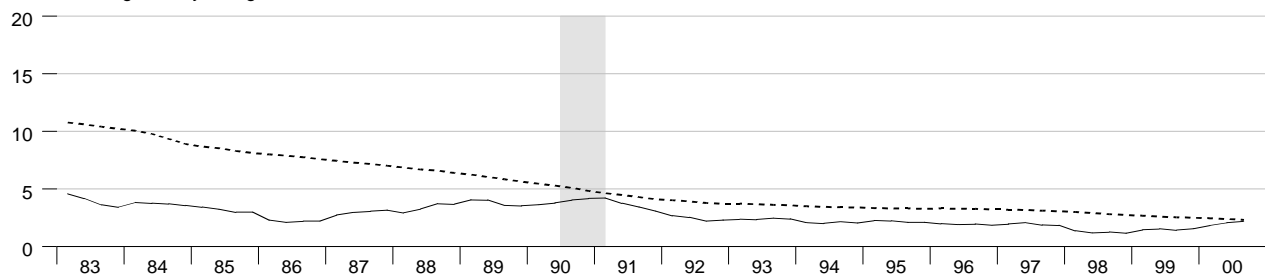
Real Gross Domestic Product

Percent change from year ago



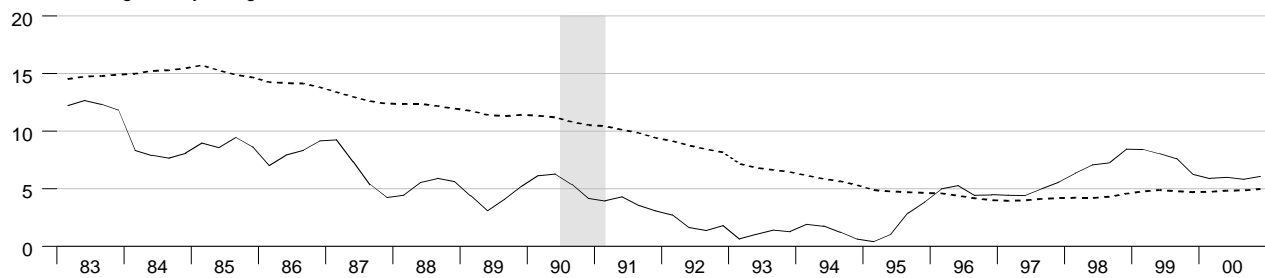
Gross Domestic Product Price Index

Percent change from year ago



M2

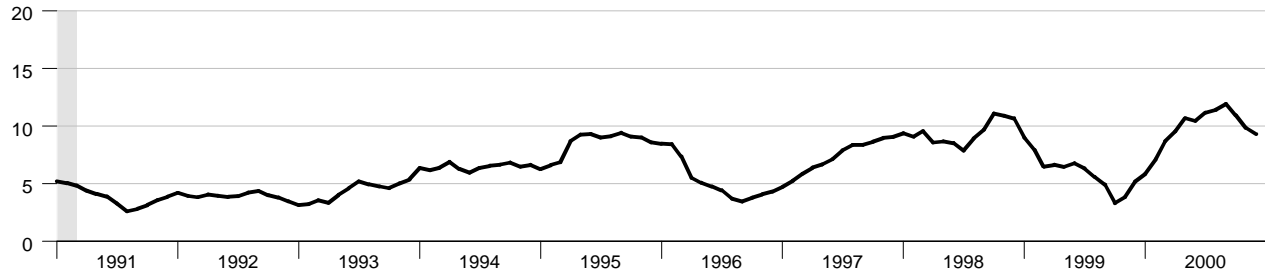
Percent change from year ago



Dashed lines indicate 10-year moving averages

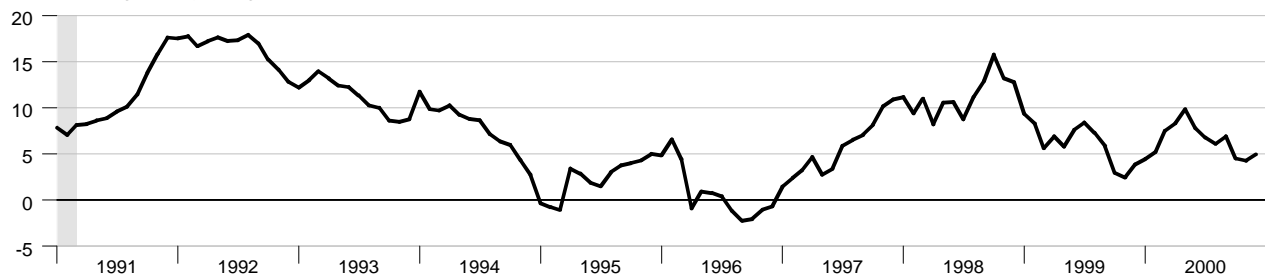
Bank Credit

Percent change from year ago



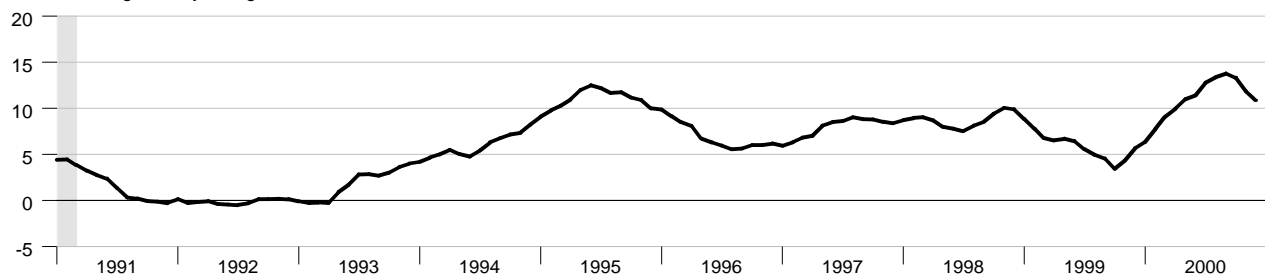
Investment Securities in Bank Credit at Commercial Banks

Percent change from year ago



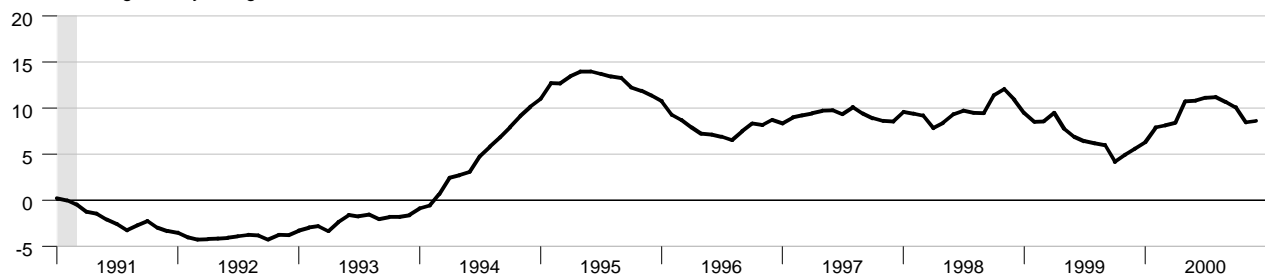
Total Loans and Leases in Bank Credit at Commercial Banks

Percent change from year ago

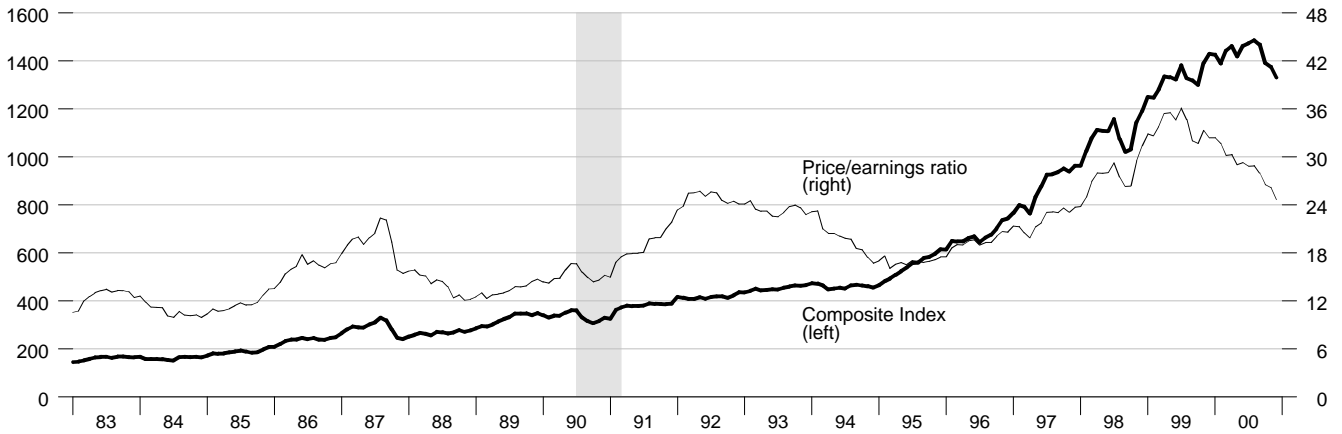


Commercial and Industrial Loans at Commercial Banks

Percent change from year ago



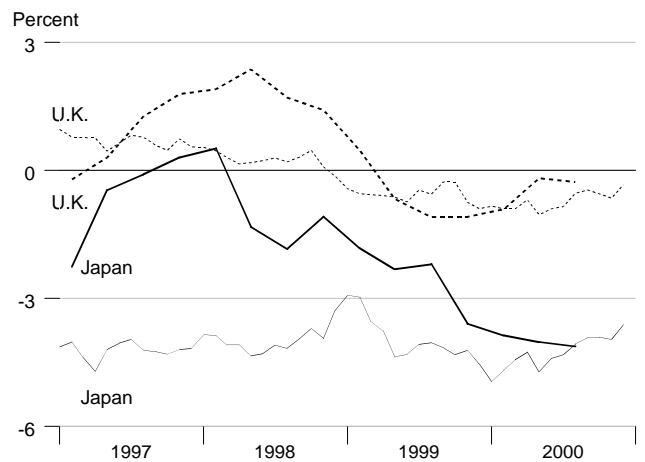
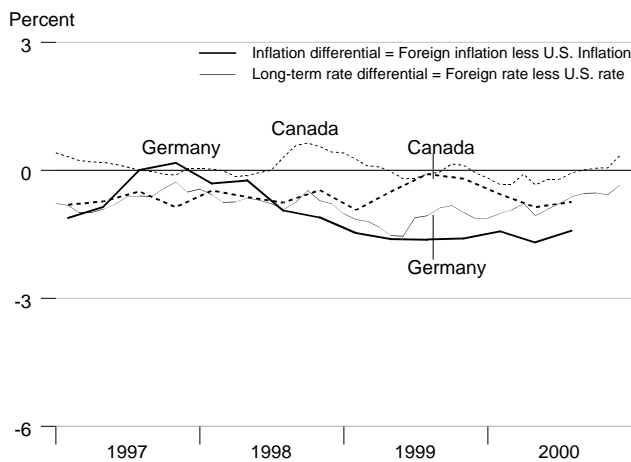
Standard and Poor's 500



Inflation and Long-Term Interest Rates

| | Trend in Consumer Price Inflation Rates Percent change from year ago | | | | Recent Long-Term Government Bond Rates Percent | | | |
|----------------|---|--------|--------|--------|---|-------|-------|-------|
| | 1999Q4 | 2000Q1 | 2000Q2 | 2000Q3 | Sep00 | Oct00 | Nov00 | Dec00 |
| United States | 2.56 | 3.21 | 3.31 | 3.47 | 5.80 | 5.74 | 5.72 | 5.24 |
| Canada | 2.36 | 2.65 | 2.45 | 2.73 | 5.81 | 5.79 | 5.78 | 5.58 |
| France | 1.00 | 1.50 | 1.49 | 1.89 | 5.93 | 5.92 | 5.78 | 5.55 |
| Germany | 0.96 | 1.78 | 1.62 | 2.05 | 5.26 | 5.21 | 5.15 | 4.89 |
| Italy | 2.06 | 2.36 | 2.50 | 2.63 | 5.64 | 5.60 | 5.55 | 5.30 |
| Japan | -1.04 | -0.65 | -0.72 | -0.66 | 1.88 | 1.83 | 1.76 | 1.62 |
| United Kingdom | 1.47 | 2.30 | 3.13 | 3.20 | 5.34 | 5.19 | 5.07 | 4.90 |

Inflation and Long-Term Interest Rates Differentials



| | | Money Stock | | | | Bank | | | |
|------|-----|-------------|----------|----------|----------|----------|---------------|----------|---------|
| | | M1 | MZM | M2 | M3 | Credit | Monetary Base | Reserves | MSI M2 |
| 1996 | | 1106.430 | 3093.410 | 3738.718 | 4793.925 | 3685.798 | 455.572 | 73.401 | 217.848 |
| 1997 | | 1069.929 | 3315.754 | 3921.016 | 5176.679 | 3954.242 | 478.708 | 68.873 | 227.067 |
| 1998 | | 1080.853 | 3702.780 | 4207.106 | 5708.436 | 4326.559 | 508.942 | 66.925 | 242.237 |
| 1999 | | 1102.400 | 4159.262 | 4525.509 | 6212.795 | 4585.622 | 557.864 | 71.665 | 258.556 |
| 2000 | | 1103.644 | 4486.332 | 4794.724 | 6785.226 | 5032.409 | 590.783 | 68.897 | |
| 1998 | 1 | 1076.722 | 3521.794 | 4085.079 | 5496.338 | 4187.982 | 498.320 | 67.645 | 235.943 |
| | 2 | 1078.669 | 3634.897 | 4162.077 | 5635.994 | 4250.816 | 502.020 | 66.044 | 239.950 |
| | 3 | 1076.068 | 3743.756 | 4234.539 | 5760.885 | 4351.522 | 511.546 | 66.905 | 243.733 |
| | 4 | 1091.952 | 3910.675 | 4346.728 | 5940.528 | 4515.917 | 523.882 | 67.105 | 249.320 |
| 1999 | 1 | 1097.197 | 4031.765 | 4429.060 | 6062.878 | 4513.960 | 536.334 | 67.691 | 253.370 |
| | 2 | 1102.979 | 4127.140 | 4497.396 | 6155.193 | 4532.026 | 545.912 | 66.526 | 257.003 |
| | 3 | 1098.119 | 4200.457 | 4557.975 | 6234.340 | 4595.156 | 557.969 | 68.112 | 260.280 |
| | 4 | 1111.305 | 4277.685 | 4617.605 | 6398.767 | 4701.348 | 591.242 | 84.333 | 263.570 |
| 2000 | 1 | 1111.269 | 4366.019 | 4690.295 | 6579.458 | 4838.940 | 593.096 | 72.685 | 267.157 |
| | 2 | 1108.565 | 4439.491 | 4766.625 | 6721.099 | 4995.225 | 586.041 | 67.693 | 270.860 |
| | 3 | 1101.051 | 4523.309 | 4823.246 | 6861.292 | 5123.295 | 589.062 | 67.482 | |
| | 4 | 1093.691 | 4616.508 | 4898.730 | 6979.056 | 5172.177 | 594.932 | 67.730 | |
| 1998 | Dec | 1097.367 | 3961.013 | 4380.572 | 5994.023 | 4539.415 | 526.458 | 67.074 | 251.010 |
| 1999 | Jan | 1095.962 | 3996.326 | 4405.966 | 6026.173 | 4527.419 | 531.760 | 68.517 | 252.260 |
| | Feb | 1094.273 | 4037.902 | 4432.154 | 6075.920 | 4517.438 | 538.190 | 68.067 | 253.460 |
| | Mar | 1101.357 | 4061.068 | 4449.059 | 6086.542 | 4497.024 | 539.053 | 66.488 | 254.390 |
| | Apr | 1107.196 | 4099.173 | 4476.389 | 6123.050 | 4508.550 | 539.608 | 64.109 | 255.900 |
| | May | 1101.663 | 4128.831 | 4498.905 | 6155.539 | 4522.719 | 548.331 | 68.423 | 257.070 |
| | Jun | 1100.078 | 4153.415 | 4516.895 | 6186.991 | 4564.808 | 549.796 | 67.045 | 258.040 |
| | Jul | 1099.477 | 4178.117 | 4539.654 | 6211.804 | 4570.089 | 553.060 | 66.880 | 259.220 |
| | Aug | 1098.734 | 4202.067 | 4557.450 | 6231.366 | 4597.186 | 556.711 | 67.248 | 260.240 |
| | Sep | 1096.145 | 4221.187 | 4576.821 | 6259.851 | 4618.192 | 564.135 | 70.207 | 261.380 |
| | Oct | 1101.394 | 4245.144 | 4594.569 | 6312.867 | 4636.194 | 572.989 | 73.317 | 262.320 |
| | Nov | 1109.564 | 4274.449 | 4614.587 | 6393.659 | 4693.993 | 588.669 | 83.917 | 263.420 |
| | Dec | 1122.958 | 4313.463 | 4643.659 | 6489.776 | 4773.856 | 612.068 | 95.765 | 264.970 |
| 2000 | Jan | 1118.851 | 4347.750 | 4668.784 | 6537.714 | 4792.067 | 604.790 | 81.107 | 266.190 |
| | Feb | 1104.547 | 4347.922 | 4682.027 | 6560.881 | 4837.939 | 589.978 | 69.560 | 266.760 |
| | Mar | 1110.409 | 4402.384 | 4720.073 | 6639.778 | 4886.814 | 584.520 | 67.387 | 268.520 |
| | Apr | 1115.069 | 4435.409 | 4762.344 | 6691.731 | 4938.408 | 583.046 | 66.400 | 270.670 |
| | May | 1105.886 | 4435.581 | 4760.986 | 6714.057 | 5005.516 | 587.857 | 69.490 | 270.510 |
| | Jun | 1104.739 | 4447.483 | 4776.546 | 6757.508 | 5041.751 | 587.219 | 67.189 | 271.400 |
| | Jul | 1104.937 | 4482.154 | 4790.932 | 6807.245 | 5079.693 | 588.034 | 67.256 | |
| | Aug | 1101.511 | 4518.584 | 4821.289 | 6863.266 | 5121.366 | 588.446 | 67.584 | |
| | Sep | 1096.704 | 4569.189 | 4857.516 | 6913.366 | 5168.826 | 590.705 | 67.606 | |
| | Oct | 1100.889 | 4588.590 | 4875.973 | 6935.851 | 5143.365 | 593.067 | 67.403 | |
| | Nov | 1091.063 | 4600.559 | 4886.930 | 6953.899 | 5155.197 | 595.397 | 68.234 | |
| | Dec | 1089.120 | 4660.374 | 4933.287 | 7047.418 | 5217.968 | 596.332 | 67.552 | |

*All values are given in billions of dollars

| | | Federal Funds | Discount Rate | Prime Rate | 3-mo CDs | Treasury Yields | | | Corporate Aaa Bonds | S & L Aaa Bonds | Conventional Mortgage |
|------|-----|---------------|---------------|------------|----------|-----------------|------|-------|---------------------|-----------------|-----------------------|
| | | | | | | 3 mo | 3 yr | 30 yr | | | |
| 1996 | | 5.30 | 5.02 | 8.27 | 5.39 | 5.15 | 5.99 | 6.70 | 7.37 | 5.52 | 7.80 |
| 1997 | | 5.46 | 5.00 | 8.44 | 5.62 | 5.20 | 6.10 | 6.61 | 7.26 | 5.32 | 7.60 |
| 1998 | | 5.35 | 4.92 | 8.35 | 5.47 | 4.91 | 5.14 | 5.58 | 6.53 | 4.93 | 6.94 |
| 1999 | | 4.97 | 4.62 | 7.99 | 5.33 | 4.78 | 5.49 | 5.87 | 7.04 | 5.28 | 7.43 |
| 2000 | | 6.24 | 5.73 | 9.23 | 6.46 | 6.00 | 6.22 | 5.94 | 7.62 | 5.58 | 8.06 |
| 1998 | 1 | 5.52 | 5.00 | 8.50 | 5.55 | 5.19 | 5.46 | 5.88 | 6.67 | 4.94 | 7.05 |
| | 2 | 5.50 | 5.00 | 8.50 | 5.59 | 5.11 | 5.57 | 5.85 | 6.64 | 5.00 | 7.09 |
| | 3 | 5.53 | 5.00 | 8.50 | 5.53 | 4.96 | 5.11 | 5.47 | 6.49 | 4.95 | 6.87 |
| | 4 | 4.86 | 4.66 | 7.92 | 5.20 | 4.37 | 4.41 | 5.11 | 6.33 | 4.82 | 6.76 |
| 1999 | 1 | 4.73 | 4.50 | 7.75 | 4.90 | 4.53 | 4.87 | 5.37 | 6.42 | 4.87 | 6.88 |
| | 2 | 4.75 | 4.50 | 7.75 | 4.98 | 4.59 | 5.35 | 5.80 | 6.93 | 5.05 | 7.20 |
| | 3 | 5.09 | 4.60 | 8.10 | 5.38 | 4.79 | 5.71 | 6.04 | 7.33 | 5.42 | 7.80 |
| | 4 | 5.31 | 4.87 | 8.37 | 6.06 | 5.20 | 6.00 | 6.25 | 7.49 | 5.79 | 7.83 |
| 2000 | 1 | 5.68 | 5.19 | 8.69 | 6.03 | 5.70 | 6.56 | 6.30 | 7.71 | 5.82 | 8.26 |
| | 2 | 6.27 | 5.74 | 9.25 | 6.57 | 5.89 | 6.52 | 5.98 | 7.77 | 5.72 | 8.32 |
| | 3 | 6.52 | 6.00 | 9.50 | 6.63 | 6.20 | 6.16 | 5.80 | 7.61 | 5.45 | 8.03 |
| | 4 | 6.47 | 6.00 | 9.50 | 6.59 | 6.20 | 5.63 | 5.69 | 7.40 | 5.32 | 7.64 |
| 1998 | Dec | 4.68 | 4.50 | 7.75 | 5.14 | 4.50 | 4.48 | 5.06 | 6.22 | 4.83 | 6.72 |
| 1999 | Jan | 4.63 | 4.50 | 7.75 | 4.89 | 4.45 | 4.61 | 5.16 | 6.24 | 4.85 | 6.79 |
| | Feb | 4.76 | 4.50 | 7.75 | 4.90 | 4.56 | 4.90 | 5.37 | 6.40 | 4.80 | 6.81 |
| | Mar | 4.81 | 4.50 | 7.75 | 4.91 | 4.57 | 5.11 | 5.58 | 6.62 | 4.96 | 7.04 |
| | Apr | 4.74 | 4.50 | 7.75 | 4.88 | 4.41 | 5.03 | 5.55 | 6.64 | 4.89 | 6.92 |
| | May | 4.74 | 4.50 | 7.75 | 4.92 | 4.63 | 5.33 | 5.81 | 6.93 | 5.05 | 7.15 |
| | Jun | 4.76 | 4.50 | 7.75 | 5.13 | 4.72 | 5.70 | 6.04 | 7.23 | 5.22 | 7.55 |
| | Jul | 4.99 | 4.50 | 8.00 | 5.24 | 4.69 | 5.62 | 5.98 | 7.19 | 5.24 | 7.63 |
| | Aug | 5.07 | 4.56 | 8.06 | 5.41 | 4.87 | 5.77 | 6.07 | 7.40 | 5.47 | 7.94 |
| | Sep | 5.22 | 4.75 | 8.25 | 5.50 | 4.82 | 5.75 | 6.07 | 7.39 | 5.56 | 7.82 |
| | Oct | 5.20 | 4.75 | 8.25 | 6.13 | 5.02 | 5.94 | 6.26 | 7.55 | 5.78 | 7.85 |
| | Nov | 5.42 | 4.86 | 8.37 | 6.00 | 5.23 | 5.92 | 6.15 | 7.36 | 5.77 | 7.74 |
| | Dec | 5.30 | 5.00 | 8.50 | 6.05 | 5.36 | 6.14 | 6.35 | 7.55 | 5.82 | 7.91 |
| 2000 | Jan | 5.46 | 5.00 | 8.50 | 5.95 | 5.50 | 6.49 | 6.63 | 7.78 | 5.91 | 8.21 |
| | Feb | 5.73 | 5.24 | 8.73 | 6.01 | 5.73 | 6.65 | 6.23 | 7.68 | 5.88 | 8.33 |
| | Mar | 5.85 | 5.34 | 8.83 | 6.14 | 5.86 | 6.53 | 6.05 | 7.68 | 5.68 | 8.24 |
| | Apr | 6.02 | 5.50 | 9.00 | 6.28 | 5.82 | 6.36 | 5.85 | 7.64 | 5.60 | 8.15 |
| | May | 6.27 | 5.71 | 9.24 | 6.71 | 5.99 | 6.77 | 6.15 | 7.99 | 5.87 | 8.52 |
| | Jun | 6.53 | 6.00 | 9.50 | 6.73 | 5.86 | 6.43 | 5.93 | 7.67 | 5.69 | 8.29 |
| | Jul | 6.54 | 6.00 | 9.50 | 6.67 | 6.14 | 6.28 | 5.85 | 7.65 | 5.53 | 8.15 |
| | Aug | 6.50 | 6.00 | 9.50 | 6.61 | 6.28 | 6.17 | 5.72 | 7.55 | 5.43 | 8.03 |
| | Sep | 6.52 | 6.00 | 9.50 | 6.60 | 6.18 | 6.02 | 5.83 | 7.62 | 5.40 | 7.91 |
| | Oct | 6.51 | 6.00 | 9.50 | 6.67 | 6.29 | 5.85 | 5.80 | 7.55 | 5.46 | 7.80 |
| | Nov | 6.51 | 6.00 | 9.50 | 6.65 | 6.36 | 5.79 | 5.78 | 7.45 | 5.38 | 7.75 |
| | Dec | 6.40 | 6.00 | 9.50 | 6.45 | 5.94 | 5.26 | 5.49 | 7.21 | 5.11 | 7.38 |

*All values are given as a percent at an annual rate

| | | M1 | MZM | M2 | M3 |
|--|------|-------|-------|-------|-------|
| Percent change from previous period | | | | | |
| <hr/> | | | | | |
| | 1996 | -3.20 | 6.55 | 4.78 | 6.59 |
| | 1997 | -3.30 | 7.19 | 4.88 | 7.98 |
| | 1998 | 1.02 | 11.67 | 7.30 | 10.27 |
| | 1999 | 1.99 | 12.33 | 7.57 | 8.84 |
| | 2000 | 0.11 | 7.86 | 5.95 | 9.21 |
| <hr/> | | | | | |
| 1998 | 1 | 0.73 | 2.84 | 1.92 | 2.65 |
| | 2 | 0.18 | 3.21 | 1.88 | 2.54 |
| | 3 | -0.24 | 2.99 | 1.74 | 2.22 |
| | 4 | 1.48 | 4.46 | 2.65 | 3.12 |
| 1999 | 1 | 0.48 | 3.10 | 1.89 | 2.06 |
| | 2 | 0.53 | 2.37 | 1.54 | 1.52 |
| | 3 | -0.44 | 1.78 | 1.35 | 1.29 |
| | 4 | 1.20 | 1.84 | 1.31 | 2.64 |
| 2000 | 1 | -0.00 | 2.06 | 1.57 | 2.82 |
| | 2 | -0.24 | 1.68 | 1.63 | 2.15 |
| | 3 | -0.68 | 1.89 | 1.19 | 2.09 |
| | 4 | -0.67 | 2.06 | 1.57 | 1.72 |
| <hr/> | | | | | |
| 1998 | Dec | 0.33 | 1.22 | 0.75 | 0.87 |
| <hr/> | | | | | |
| 1999 | Jan | -0.13 | 0.89 | 0.58 | 0.54 |
| | Feb | -0.15 | 1.04 | 0.59 | 0.83 |
| | Mar | 0.65 | 0.57 | 0.38 | 0.17 |
| <hr/> | | | | | |
| | Apr | 0.53 | 0.94 | 0.61 | 0.60 |
| | May | -0.50 | 0.72 | 0.50 | 0.53 |
| | Jun | -0.14 | 0.60 | 0.40 | 0.51 |
| <hr/> | | | | | |
| | Jul | -0.05 | 0.59 | 0.50 | 0.40 |
| | Aug | -0.07 | 0.57 | 0.39 | 0.31 |
| | Sep | -0.24 | 0.46 | 0.43 | 0.46 |
| <hr/> | | | | | |
| | Oct | 0.48 | 0.57 | 0.39 | 0.85 |
| | Nov | 0.74 | 0.69 | 0.44 | 1.28 |
| | Dec | 1.21 | 0.91 | 0.63 | 1.50 |
| <hr/> | | | | | |
| 2000 | Jan | -0.37 | 0.79 | 0.54 | 0.74 |
| | Feb | -1.28 | 0.00 | 0.28 | 0.35 |
| | Mar | 0.53 | 1.25 | 0.81 | 1.20 |
| <hr/> | | | | | |
| | Apr | 0.42 | 0.75 | 0.90 | 0.78 |
| | May | -0.82 | 0.00 | -0.03 | 0.33 |
| | Jun | -0.10 | 0.27 | 0.33 | 0.65 |
| <hr/> | | | | | |
| | Jul | 0.02 | 0.78 | 0.30 | 0.74 |
| | Aug | -0.31 | 0.81 | 0.63 | 0.82 |
| | Sep | -0.44 | 1.12 | 0.75 | 0.73 |
| <hr/> | | | | | |
| | Oct | 0.38 | 0.42 | 0.38 | 0.33 |
| | Nov | -0.89 | 0.26 | 0.22 | 0.26 |
| | Dec | -0.18 | 1.30 | 0.95 | 1.34 |

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.

MZM: M2 minus small denomination time deposits, plus institutional money market mutual funds. The label MZM was coined by William Poole (1991) for this aggregate, proposed earlier by Motley (1988). Due to distortions caused by regulatory changes, the largest of which the introduction of money market accounts, data for MZM begin March 1983 in this publication.

M2: M1 plus: savings deposits (including money market deposit accounts) and small denomination (less than \$100,000) time deposits issued by financial institutions; and shares in retail money market mutual funds (funds with initial investments of less than \$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 firms except depository institutions and money market mutual funds.

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).

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 series, a 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) and <http://www.stls.frb.org/research/newbase.html>.

Monetary Services Index: an index which 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; additional data are available at <http://www.stls.frb.org/research/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 *Federal Reserve Bulletin*, tables 1.21 and 1.26. MZM, 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: **MZM**, or "Money, Zero Maturity" includes the zero maturity, or immediately available, components of M3. MZM equals M2 minus small denomination time deposits, plus institutional money market mutual funds (that is, the money market mutual funds included in M3 but excluded from M2). 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 <http://www.stls.frb.org/research/swdata.html>. For analytical purposes, MZM largely replaces M1. The **Discount Rate** and **Expected 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** shows constant maturity yields calculated by the U.S. Treasury Department for securities with 3 months and 1, 2, 3, 5, 7, 10, 20 and 30 years to maturity. Daily data and a description are available at <http://www.stls.frb.org/fred/data/wkly.html>. See also *Federal Reserve Bulletin*, table 1.35.

Page 5: **Total Checkable Deposits** is the sum of demand and other checkable deposits. **Total Savings Deposits** is the sum of money market deposit accounts (MMDA), 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 *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 range as reported to the Congress in the February Humphrey-Hawkins Act testimony each year. Beginning February 2000, the FOMC began using the Personal Consumption Expenditures (PCE) price index to report its inflation range, and therefore is not shown on this graph. **CPI Inflation** is the percentage change from a year ago in the CPI for all urban consumers. **Real Interest Rates** are ex post measures, equal to nominal rates minus CPI inflation.

Page 9: **FOMC Expected Federal Funds Rate** is the level (or midpoint of the range, if applicable) of the federal funds rate that the staff of the Federal Open Market Committee expected to be consistent with the desired degree of pressure on bank reserve positions.

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

$$r_t^* = 2.5 + \pi_{t-1} + (\pi_{t-1} - \pi^*)/2 + 100 \times (y_{t-1} - y_{t-1}^P)/2$$

to five alternative target inflation rates $\pi^* = 0, 1, 2, 3, 4$ percent, where r_t^* is the implied federal funds rate, π_{t-1} is the previous period's inflation rate (PCE), y_{t-1} is the log of the previous period's level of real GDP, and y_{t-1}^P is the log of an estimate of the previous period's level of potential output. **Potential real output** 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

$$\Delta MB_t^* = \pi^* + (10\text{-year moving average growth of real GDP}) \\ - (4\text{-year moving average of base velocity growth})$$

to five alternative target inflation rates $\pi^* = 0, 1, 2, 3, 4$ percent, where ΔMB_i^* 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 $((y_t - y_{t-40})/40) \times 4 \times 100$, where y_t is the log of real GDP. The four-year moving average of base velocity growth is calculated similarly. To adjust the monetary base for the effect of retail-deposit sweep programs, we add to the monetary base an amount equal to 10 percent of the total amount swept, as estimated by the Federal Reserve Board staff. These estimates are imprecise, at best. Sweep program data are available at <http://www.stls.frb.org/research/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 $m = 1, \dots, 30$ 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)

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

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. For a discussion of the use of forward rates as indicators of inflation expectations, see Sharpe (1997). **Rates on 3-Month Euro-dollar Futures** and **Rates on Selected Fed Funds Futures Contracts** each trace through time the yield on three specific contracts. **Implied Yields on Fed Funds Futures** displays a single day's snapshot of yields for contracts expiring in the months shown on the horizontal axis. **Inflation-Protected Treasury Yield Spreads** equal, for 5, 10, and 30 year maturities, the difference between the Treasury constant maturity yield and the yield on the most recently issued inflation-protected security. **Inflation-Indexed Bonds** for Canada are the 31-year bond with a maturity date of 12/01/2026; for the U.K., the 37.5-year bond with a maturity date of 07/17/2024 and the 12.1-year bond with a maturity date of 10/21/2004; and, for the U.S., the 30-year bond with a maturity date of 04/15/2028 and the 10-year bond with a maturity date of 01/15/2007.

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. Two alternative opportunity costs are shown, one relative to the 3-month Treasury constant-maturity yield, the other to the 5-year constant-maturity yield.

Page 13: Real Gross Domestic Product is GDP as measured in chained 1992 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 1992 dollars.

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

Sources

Bank of Canada

Canadian inflation-linked bond yields.

Bank of England

U.K. inflation-linked bond yields.

Board of Governors of the Federal Reserve System

Monetary aggregates and components, nonfinancial debt: H.6 release; bank credit and components: H.8 release; consumer credit: G.19 release; required reserves, excess reserves, clearing balance contracts and discount window borrowing: H.4.1 and H.3 releases; interest rates: H.15 and G.13 releases; nonfinancial commercial paper: Board of Governors web site; M2 and MZM own rates.

Bureau of Economic Analysis

Gross domestic product.

Bureau of Labor Statistics

Consumer price index.

Federal Reserve Bank of Philadelphia

Survey of Professional Forecasters inflation expectations.

Federal Reserve Bank of St. Louis

Adjusted monetary base and adjusted total reserves, monetary services index, one-year forward rates.

Organization for Economic Cooperation and Development

International interest and inflation rates.

University of Michigan Survey Research Center

Median expected price change.

Congressional Budget Office

Potential real GDP.

Dow Jones and Co. (Wall Street Journal)

Federal funds futures contracts, Eurodollar futures.

Standard and Poors Inc.

Stock price-earnings ratio, stock price composite index.

U.S. Department of the Treasury

U.S. inflation-protected security yields.

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