

The FOMC's “Considerable Period”

At its August 12, 2003, meeting, the Federal Open Market Committee (FOMC) took the unusual step of foreshadowing its future policy course by announcing that its current highly accommodative monetary policy could “be maintained for a considerable period.” Although the FOMC did not specify the length of the “considerable period,” the change in federal funds rate futures contracts suggested that market observers interpreted the language to be a commitment by the FOMC that it would not increase its target level of the federal funds rate for at least six months, perhaps longer. The FOMC repeated this language in the press releases following its subsequent three meetings.

The FOMC’s August minutes note that they made this unconventional policy commitment, with the federal funds target rate already at the “quite accommodative” level of 1 percent, “to encourage progress toward closing the economy’s currently wide output gap and, with inflation already near the low end of what some members regarded as an acceptable range, to resist significant further disinflation.” Because spending decisions are more closely linked to the behavior of longer-term rates, to achieve this goal the FOMC appears to have made this unconventional commitment so as to reduce long-term interest rates in the absence of further reductions in the federal funds rate target.

Even if longer-term rates are determined in large part by market expectations for future short-term rates, it is difficult to know how changes in monetary policy will affect longer-term nominal interest rates. The effect of monetary policy on longer-term rates is complicated by the fact that observed long-term nominal rates comprise three unobserved components—the real rate, the inflation compensation, and a premium for inflation uncertainty. Consequently, longer-term rates need not fall when monetary policy eases, whether the easier policy comes in the form of a reduction in the overnight rate target or by an unconventional commitment to extend the duration of a low target rate for a time period longer than suggested by historical experience.

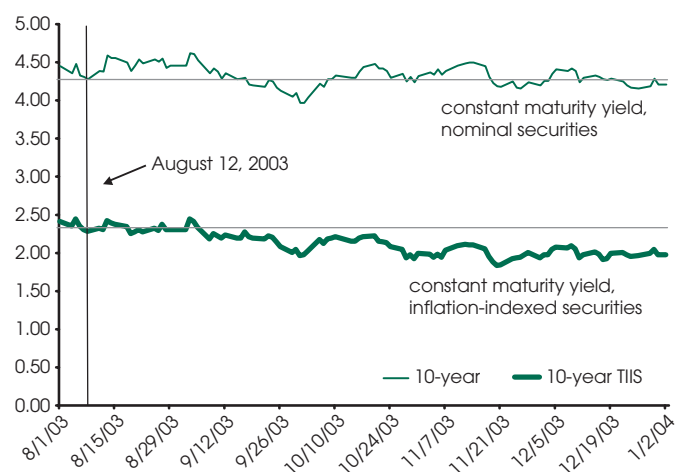
While an apparently easier policy might reduce one component, such as the real rate, it might simultaneously

increase the level of or uncertainty associated with expectations of future inflation. For example, despite widely publicized decreases in actual inflation, longer-term nominal rates have decreased by substantially less, since January 2001, than the FOMC’s 550-basis-point reduction in the federal funds rate.

Economists often look at the market for inflation-indexed government bonds when they seek to separate changes in longer-term nominal rates into their real and expected inflation components. The figure tracks the 10-year constant-maturity yields on Treasury nominal and inflation-indexed securities since the August publication of the “considerable period” language. The generally downward drift of the TIIS yield suggests that the FOMC’s unconventional language might, in fact, have reduced real long-term interest rates. At the same time, the essentially unchanged nominal 10-year yield suggests that the decrease in the real-rate component has been matched by either an increase in inflation compensation or the inflation-uncertainty premium. It remains an open question whether this unconventional policy will cause the output gap to close more quickly.

—Richard G. Anderson and Daniel L. Thornton

10-Year Constant-Maturity Treasury Yields Since August 1, 2003



SOURCE: Board of Governors of the Federal Reserve System, H.15 release, daily figures.

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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: $[(x_t/x_{t-12})-1] \times 100$.

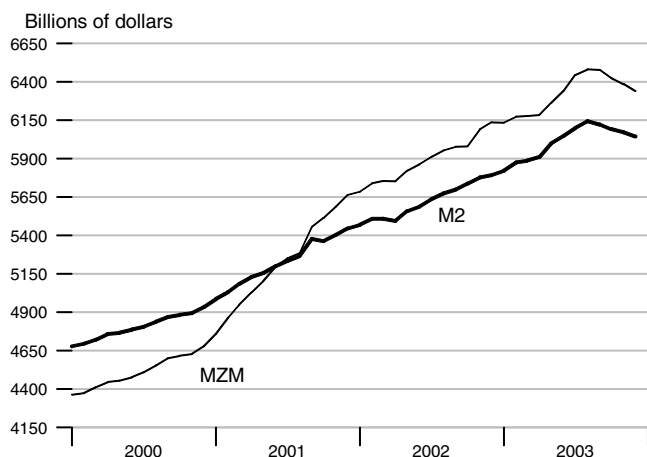
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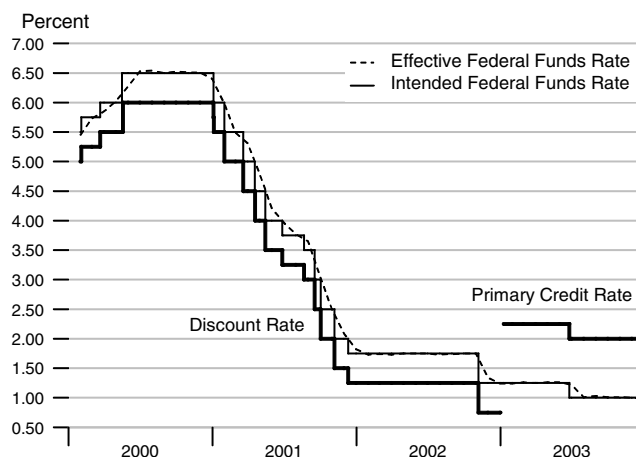
or to:

stlsFRED@stls.frb.org

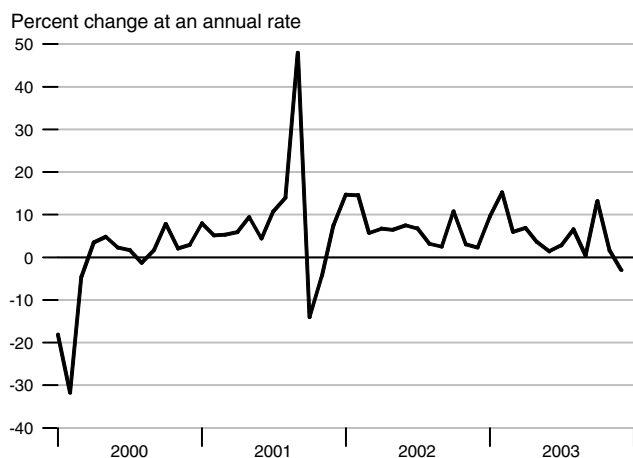
M2 and MZM



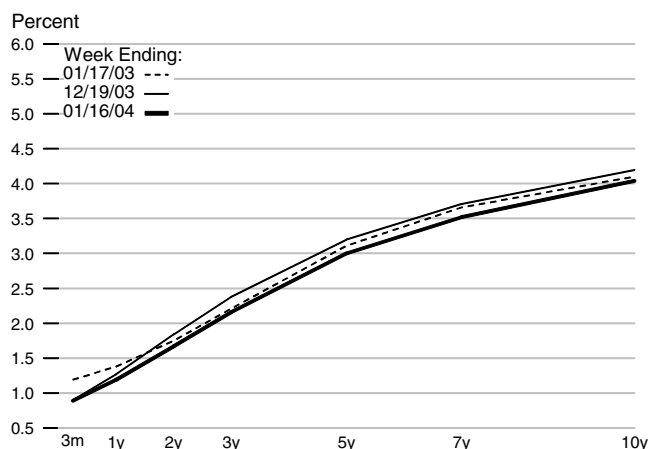
Reserve Market Rates



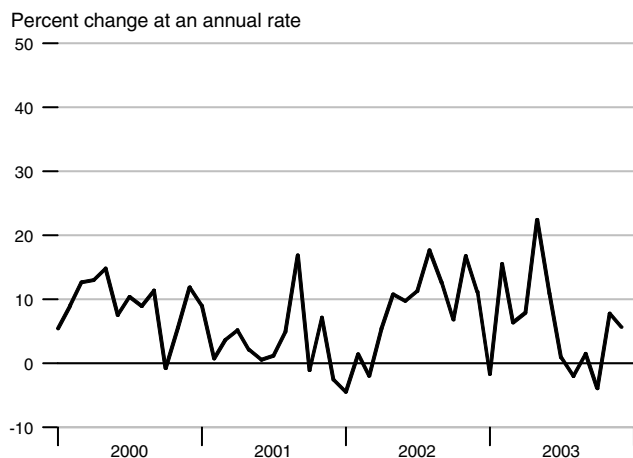
Adjusted Monetary Base



Treasury Yield Curve



Total Bank Credit



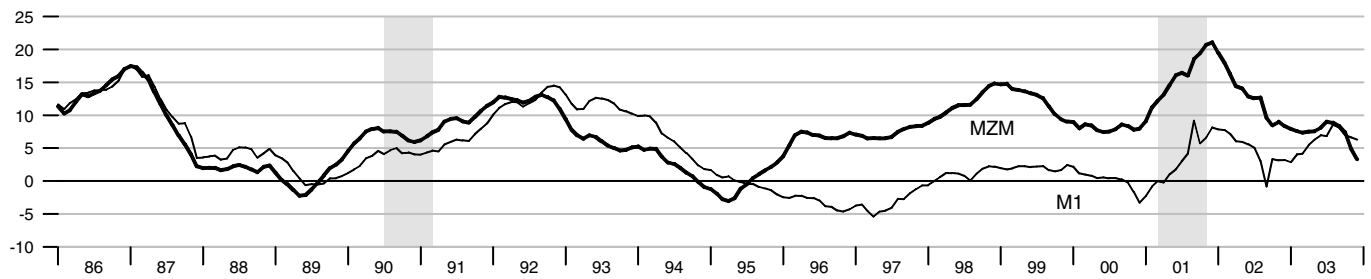
Interest Rates

	Oct 03	Nov 03	Dec 03
Federal Funds Rate	1.01	1.00	0.98
Prime Rate	4.00	4.00	4.00
Primary Credit Rate	2.00	2.00	2.00
Conventional Mortgage Rate	5.95	5.93	5.88

Treasury Yields:			
3-Month Constant Maturity	0.94	0.95	0.91
6-Month Constant Maturity	1.02	1.04	1.01
1-Year Constant Maturity	1.25	1.34	1.31
3-Year Constant Maturity	2.26	2.45	2.44
5-Year Constant Maturity	3.19	3.29	3.27
10-Year Constant Maturity	4.29	4.30	4.27

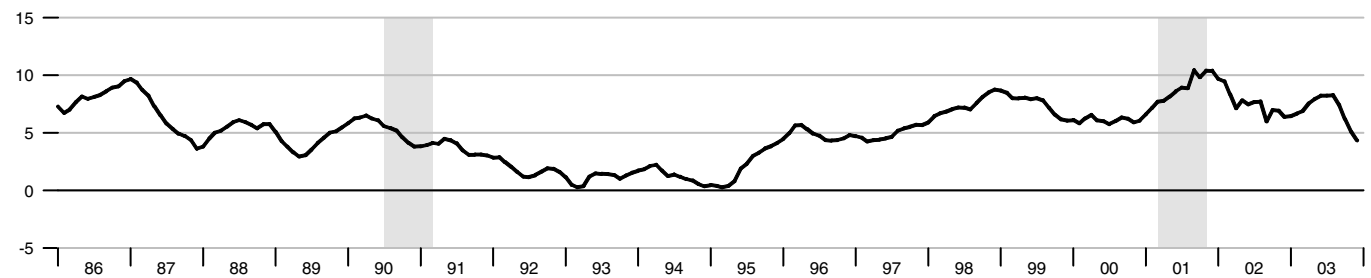
MZM and M1

Percent change from year ago



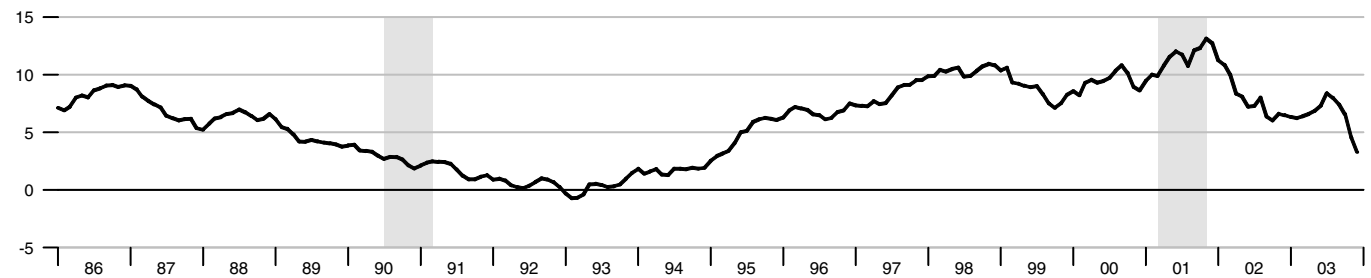
M2

Percent change from year ago



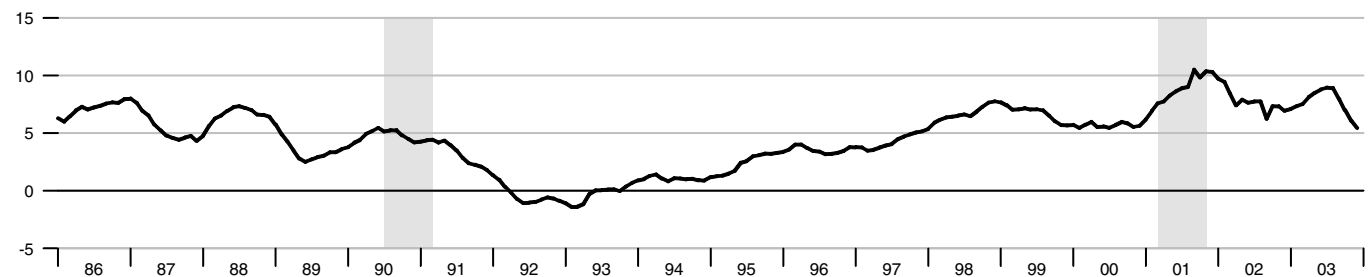
M3

Percent change from year ago



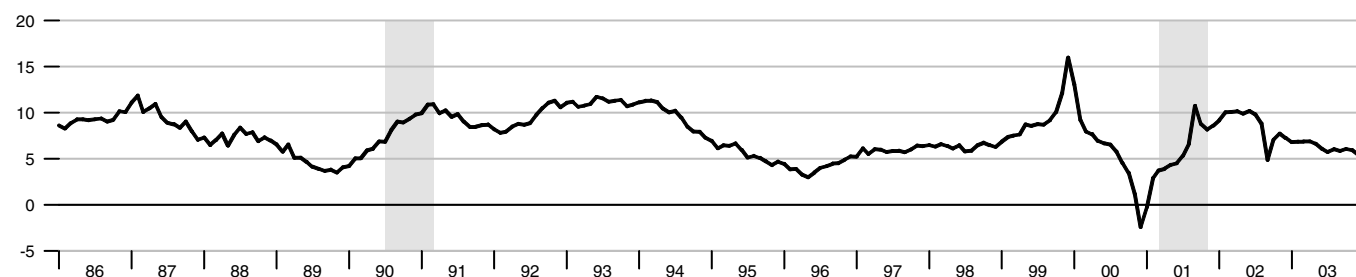
Monetary Services Index - M2

Percent change from year ago



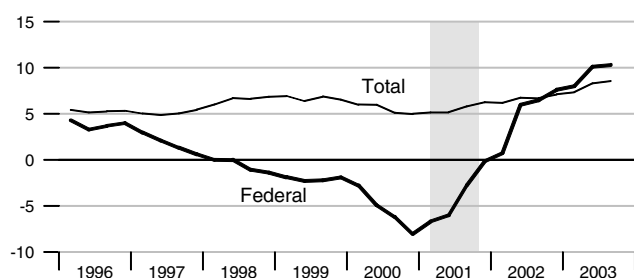
Adjusted Monetary Base

Percent change from year ago



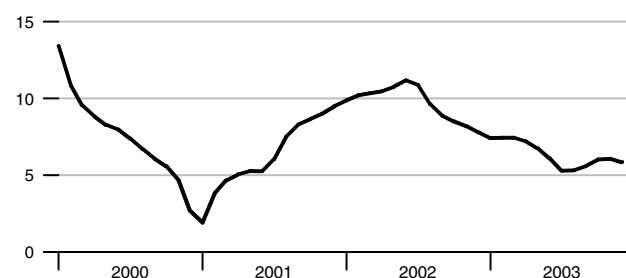
Domestic Nonfinancial Debt

Percent change from year ago



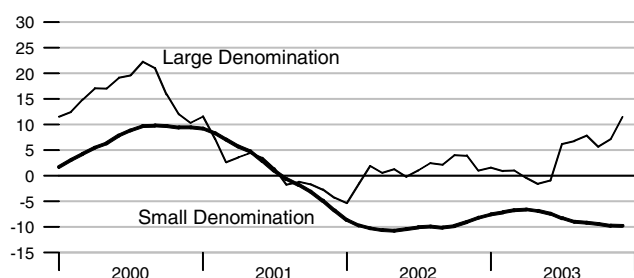
Currency Held by the Nonbank Public

Percent change from year ago



Time Deposits

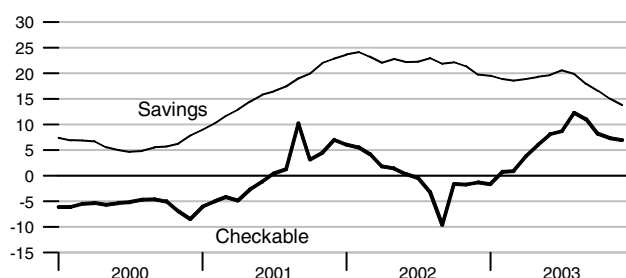
Percent change from year ago



Note: The surge in large time deposits for the month of July 2003, was due to accounting changes for commercial banks. For further information, please refer to www.federalreserve.gov/releases/h8/.

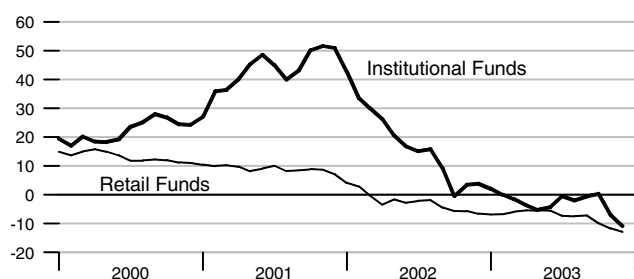
Checkable and Savings Deposits

Percent change from year ago



Money Market Mutual Fund Shares

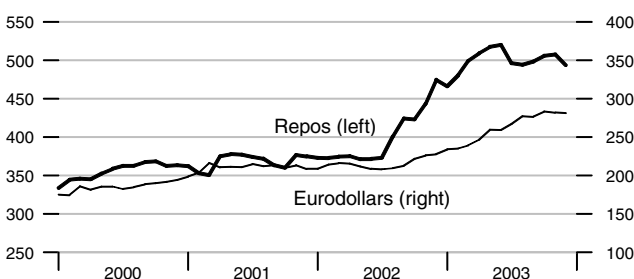
Percent change from year ago



Repurchase Agreements and Eurodollars

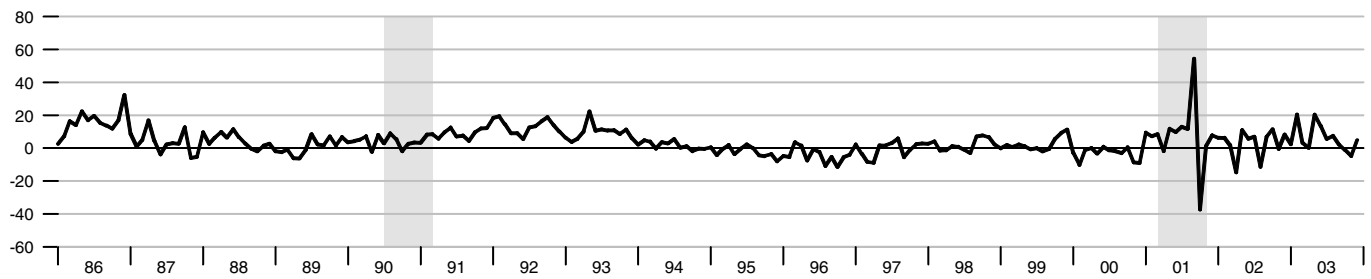
Billions of dollars

Billions of dollars



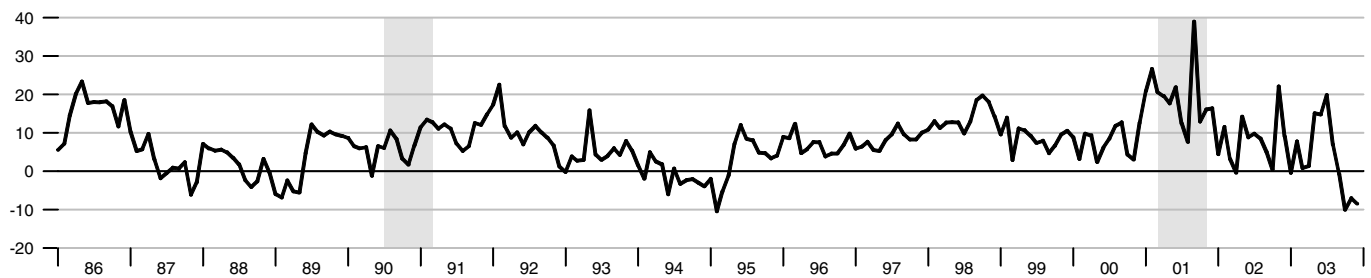
M1

Percent change at an annual rate



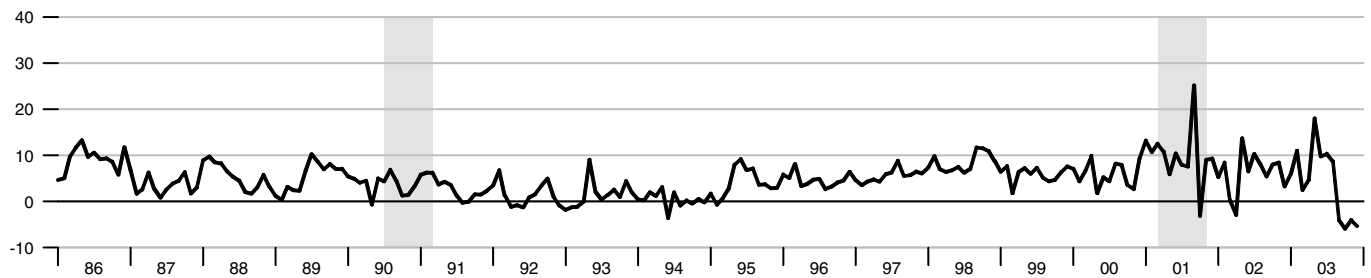
M2M

Percent change at an annual rate



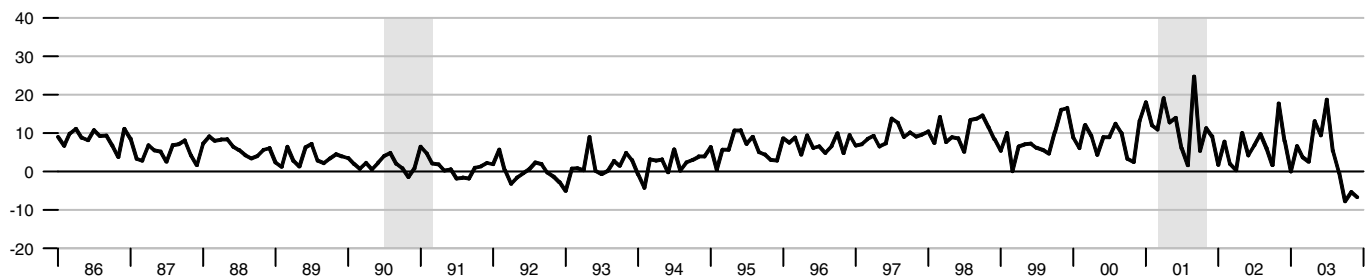
M2

Percent change at an annual rate



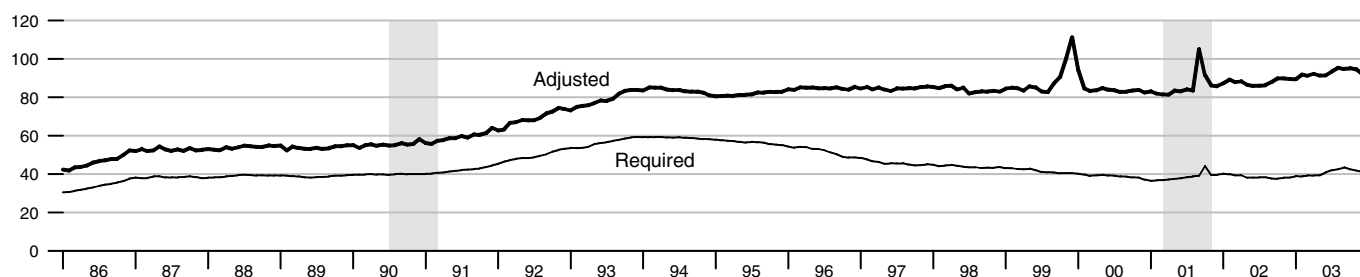
M3

Percent change at an annual rate



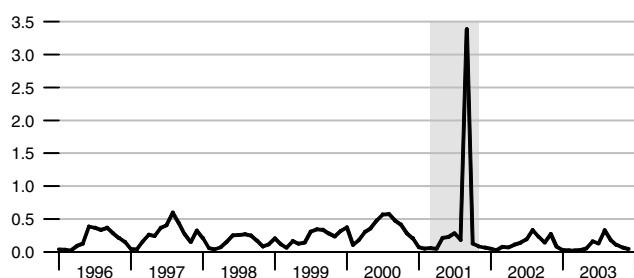
Adjusted and Required Reserves

Billions of dollars



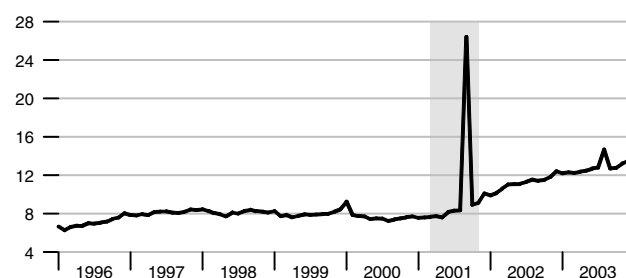
Total Borrowings, nsa

Billions of dollars



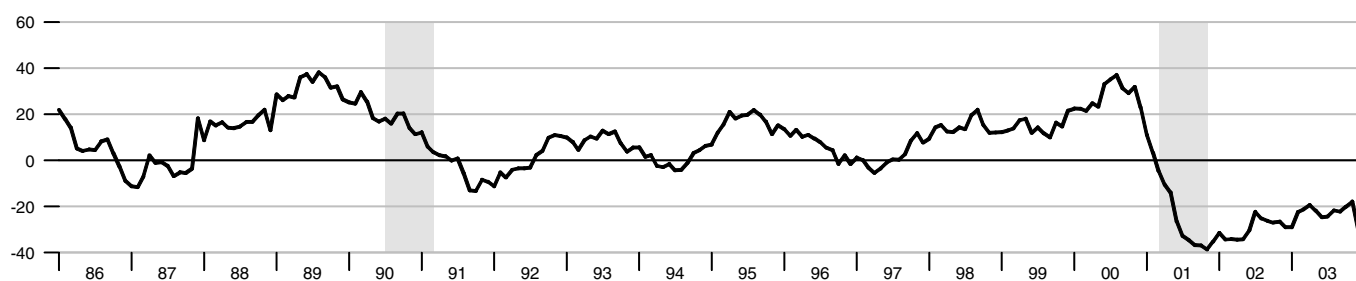
Excess Reserves plus RCB Contracts

Billions of dollars



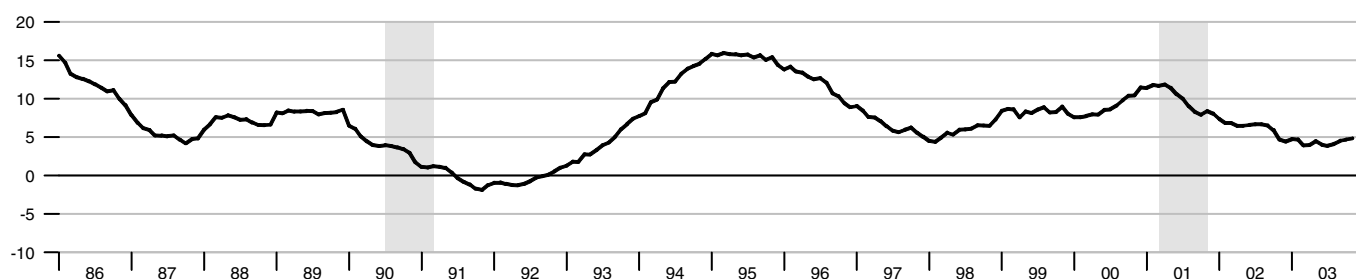
Nonfinancial Commercial Paper

Percent change from year ago

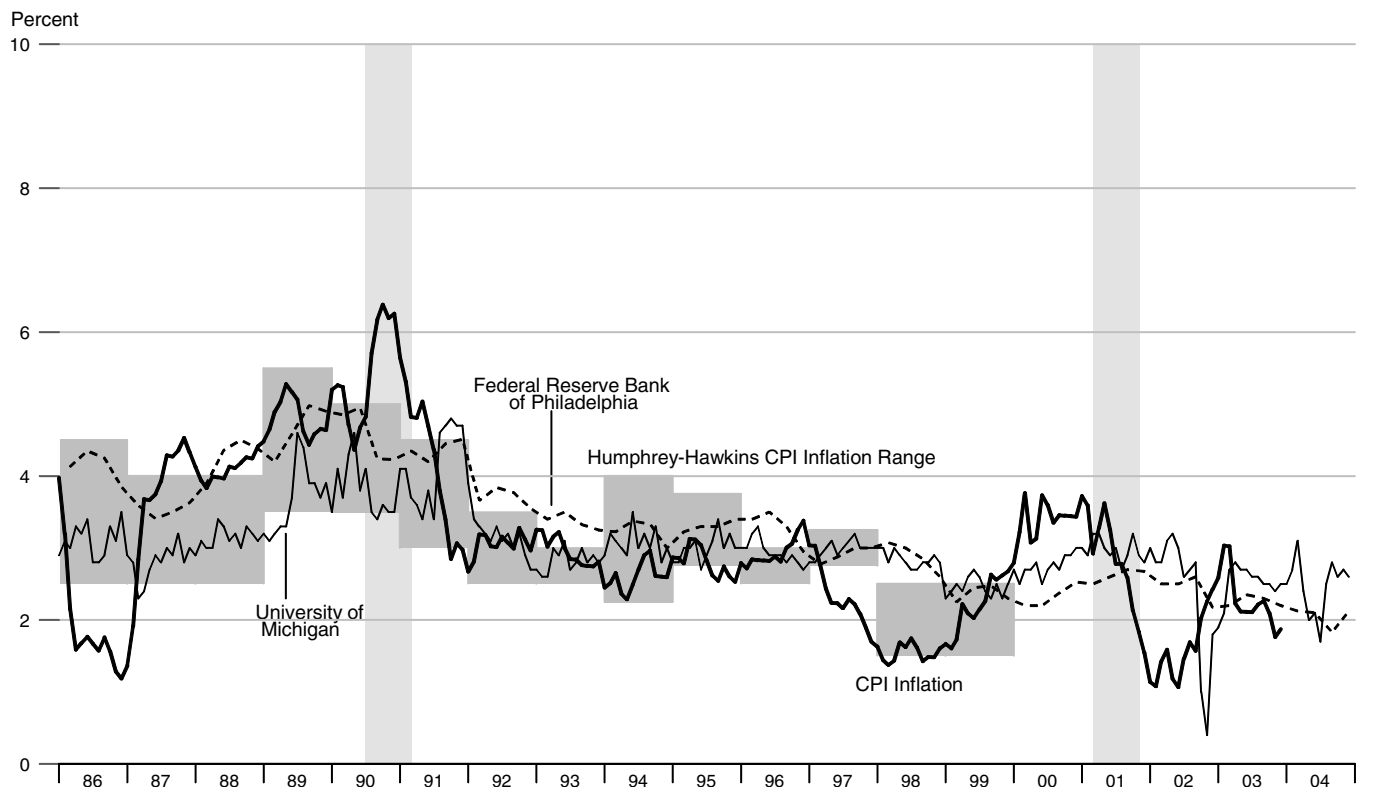


Consumer Credit

Percent change from year ago

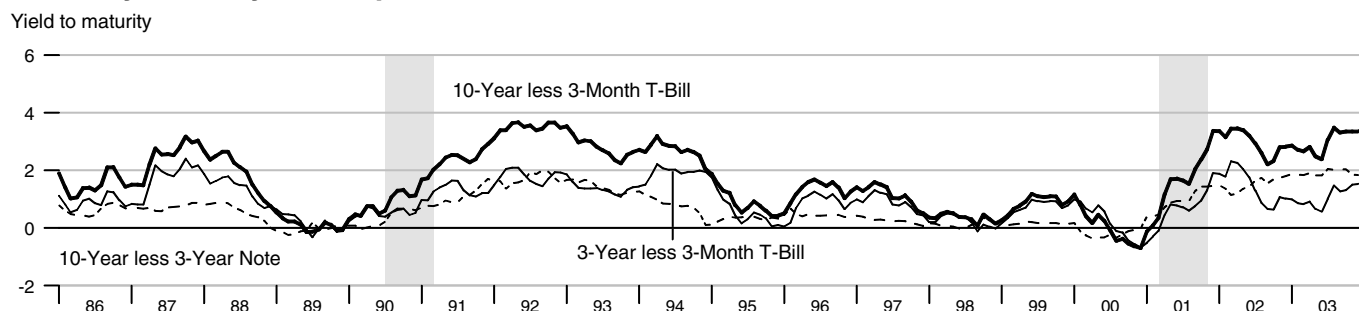


Inflation and Inflation Expectations

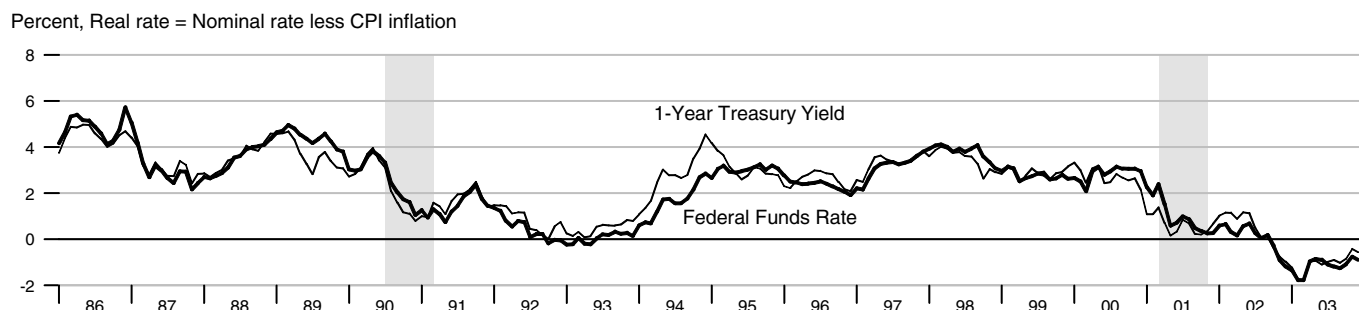


The shaded region shows the Humphrey-Hawkins CPI inflation range. Beginning in January 2000, the Humphrey-Hawkins inflation range was reported using the PCE price index and therefore is not shown on this graph. See notes on page 19.

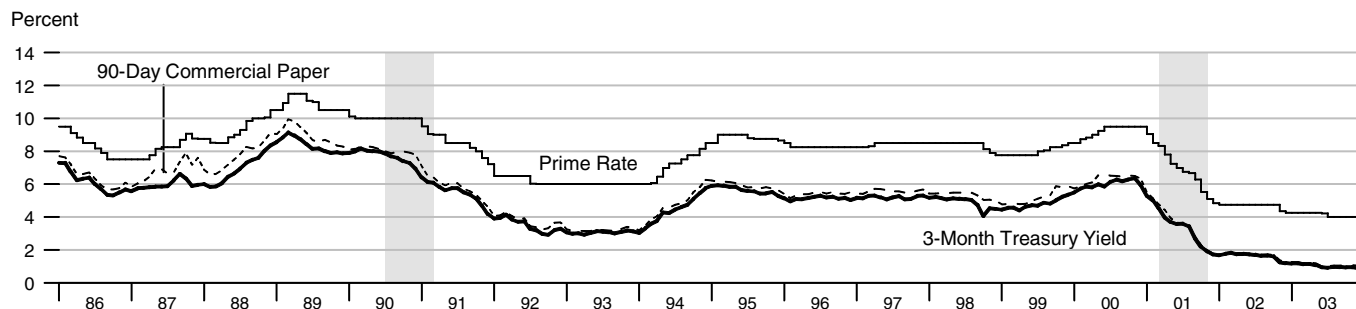
Treasury Security Yield Spreads



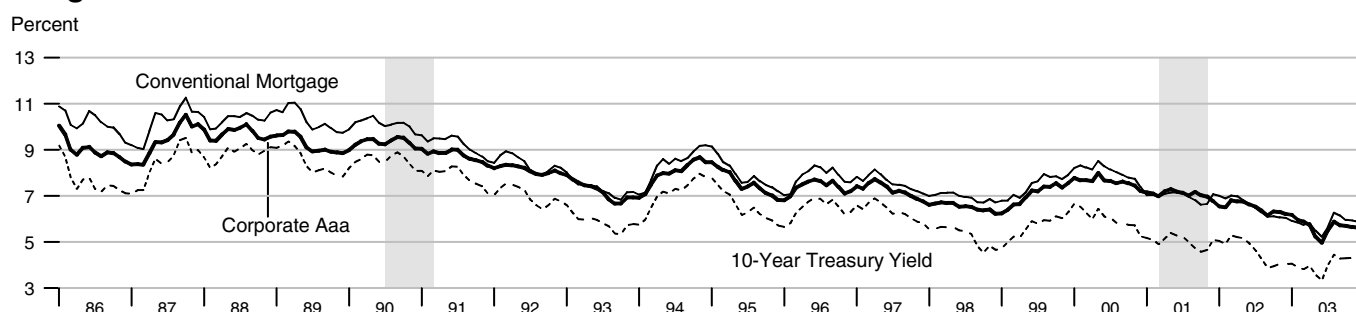
Real Interest Rates



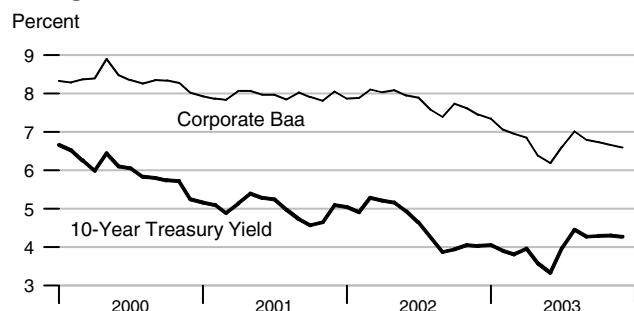
Short-Term Interest Rates



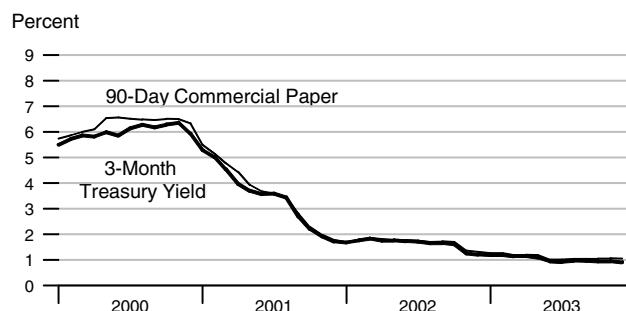
Long-Term Interest Rates



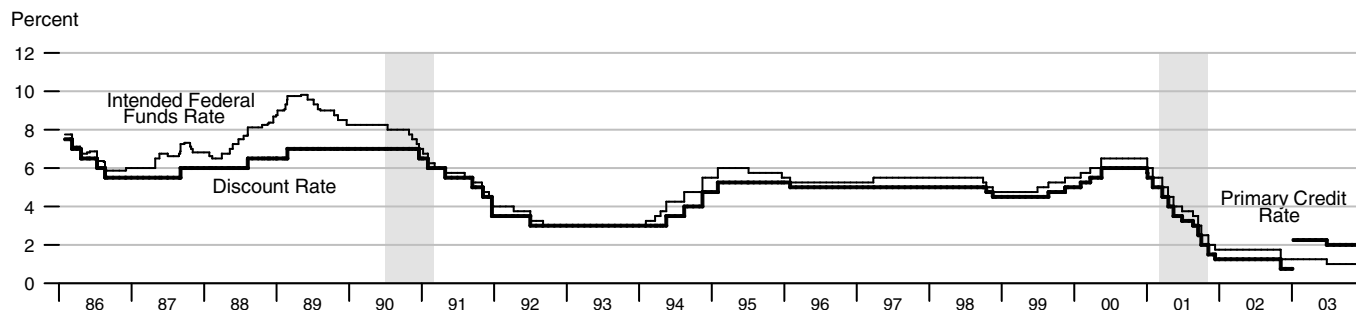
Long-Term Interest Rates



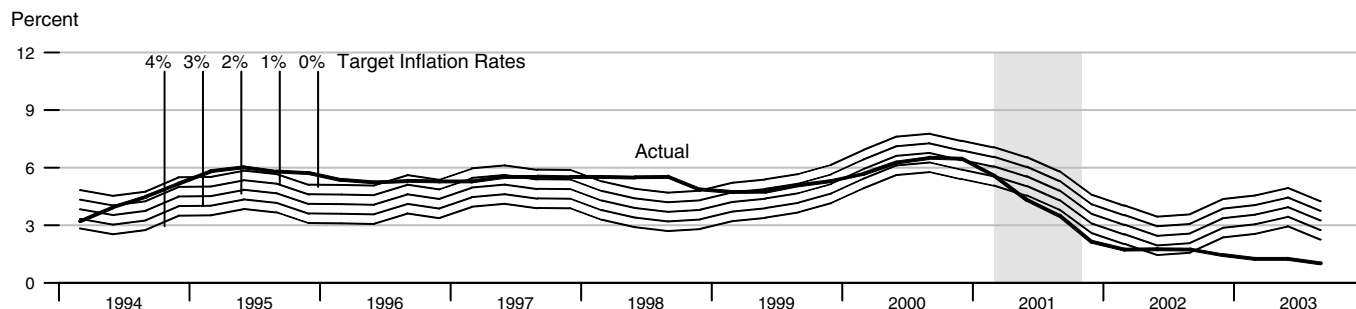
Short-Term Interest Rates



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



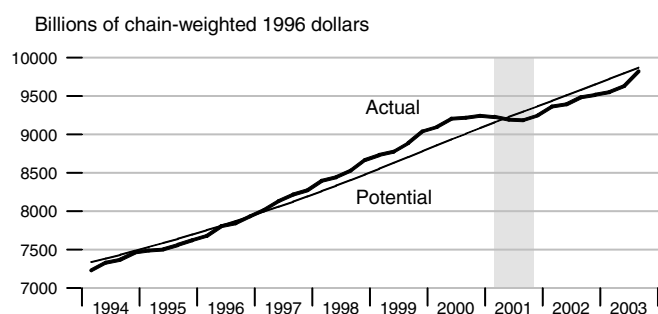
Federal Funds Rate and Inflation Targets



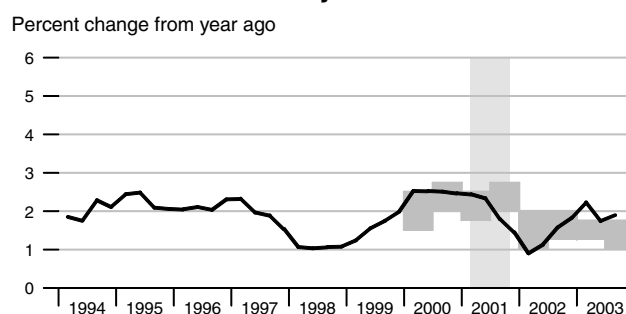
Calculated federal funds rate is based on Taylor's rule. See notes on page 19.

Components of Taylor's Rule

Actual and Potential Real GDP

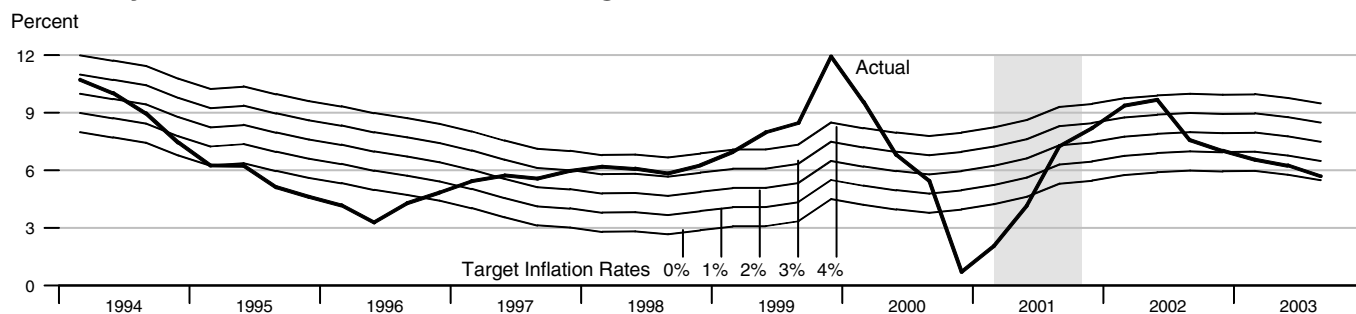


PCE Inflation and Projections



The shaded region shows the range of projections published in the Monetary Policy Report to the Congress.

Monetary Base Growth* and Inflation Targets

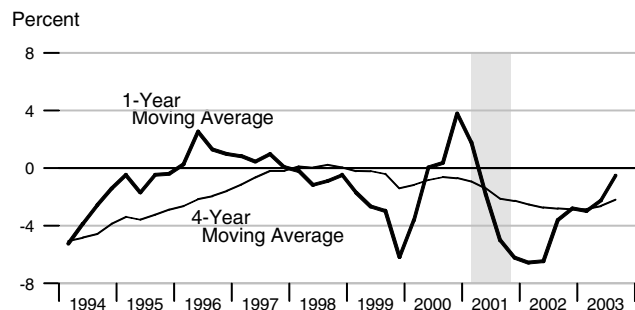


*Modified for the effects of sweeps programs on reserve demand.

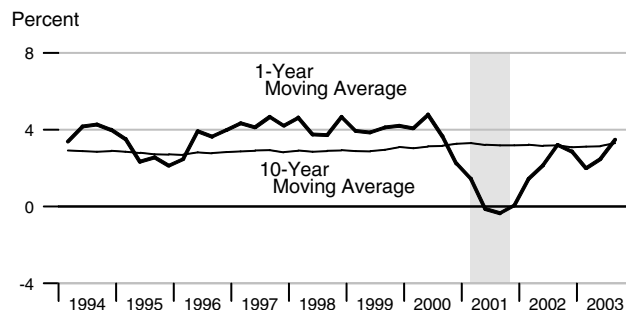
Calculated base growth is based on McCallum's rule. Actual base growth is percent change from year ago. See notes on page 19.

Components of McCallum's Rule

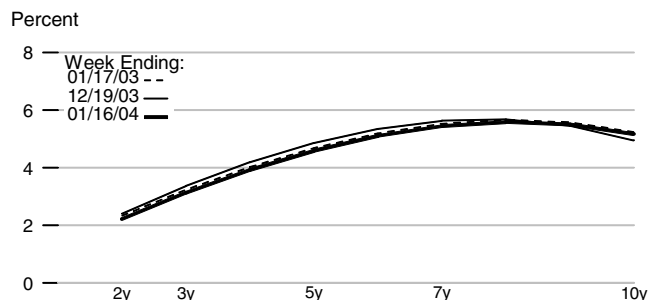
Monetary Base Velocity Growth



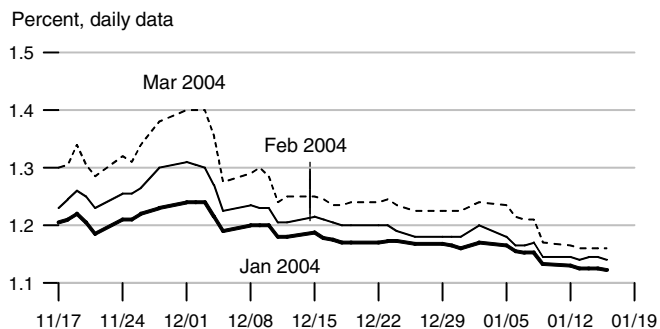
Real Output Growth



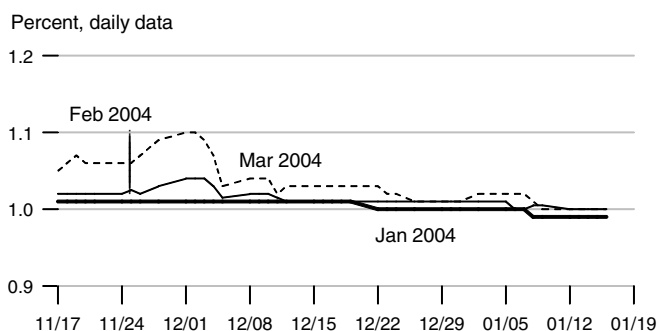
Implied One-Year Forward Rates



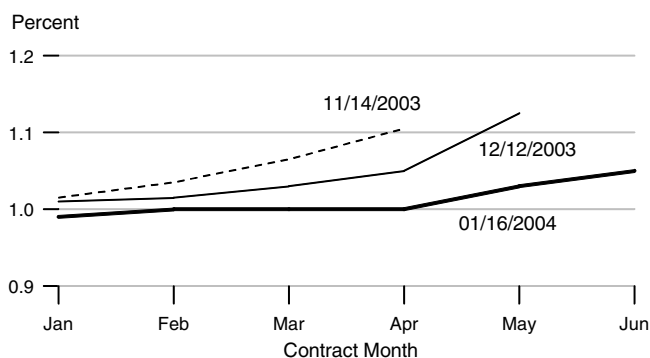
Rates on 3-Month Eurodollar Futures



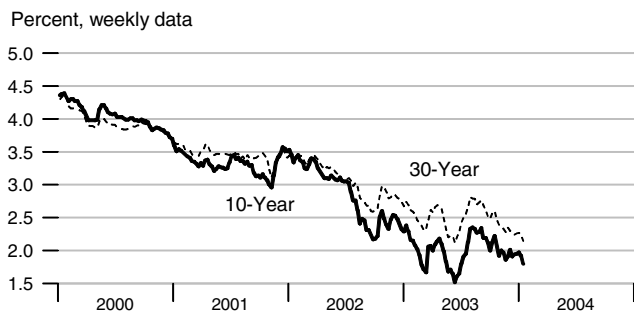
Rates on Selected Federal Funds Futures Contracts



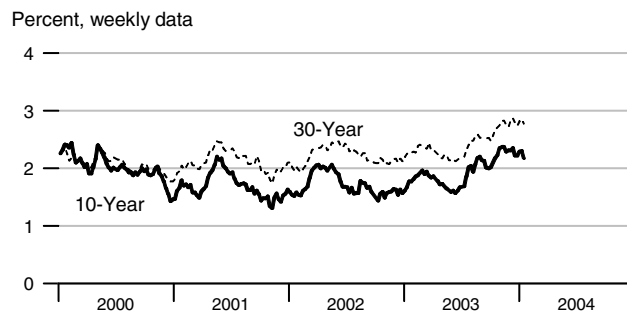
Rates on Federal Funds Futures on Selected Dates



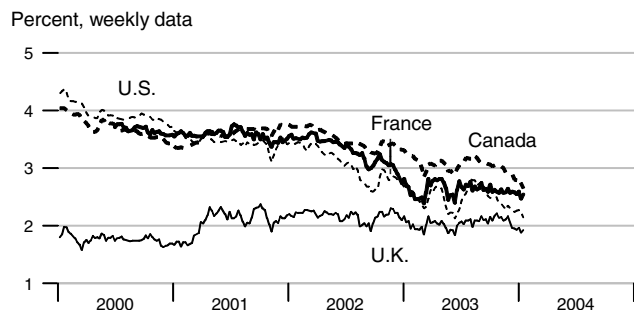
Inflation-Indexed Treasury Bonds



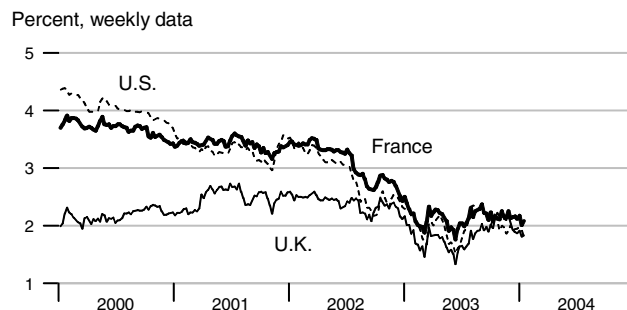
Inflation-Indexed Treasury Yield Spreads



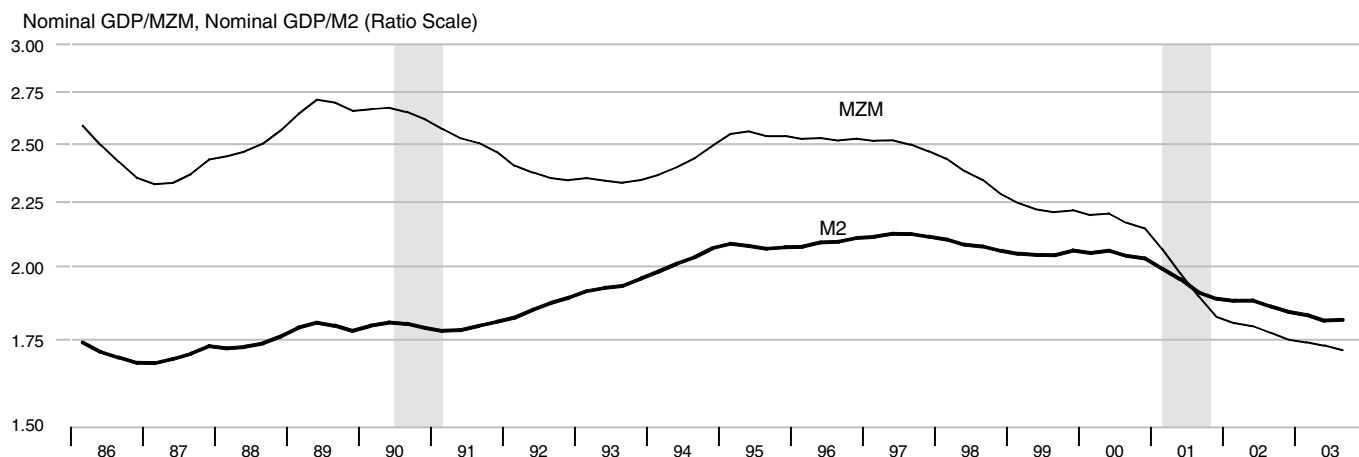
Inflation-Indexed 30-Year Government Bonds



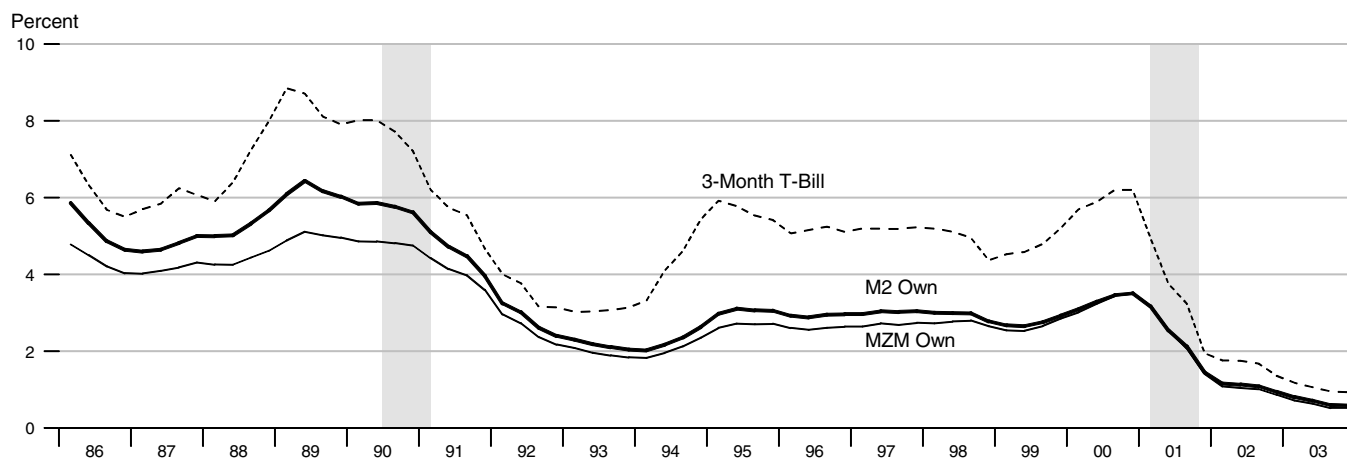
Inflation-Indexed 10-Year Government Bonds



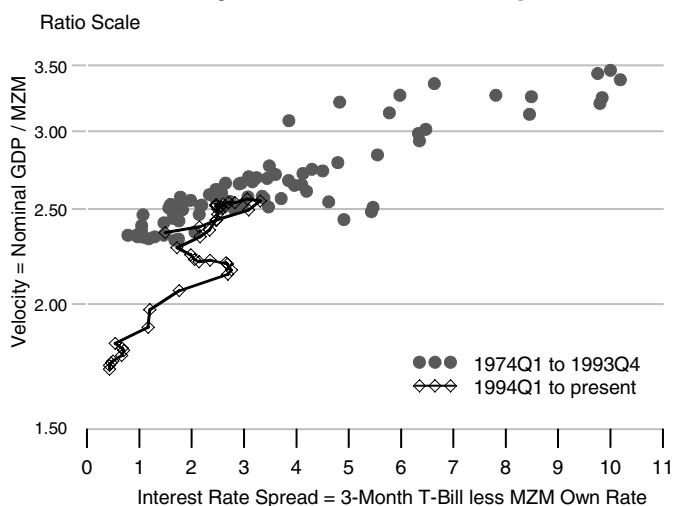
Velocity



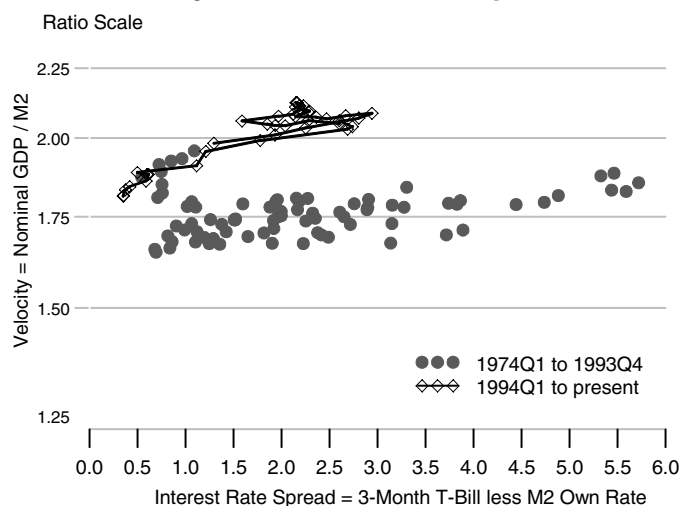
Interest Rates



MZM Velocity and Interest Rate Spread

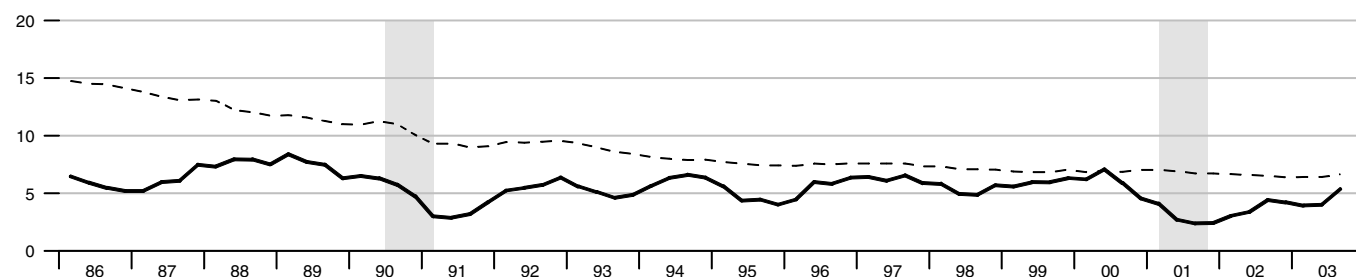


M2 Velocity and Interest Rate Spread



Gross Domestic Product

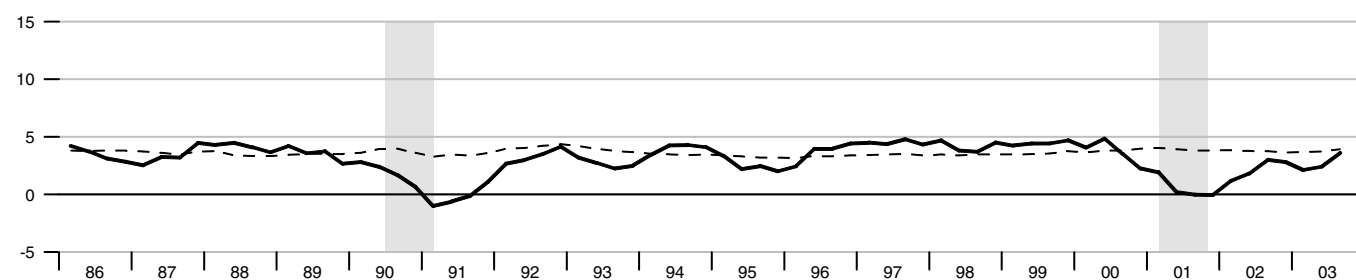
Percent change from year ago



Dashed lines indicate 10-year moving averages.

Real Gross Domestic Product

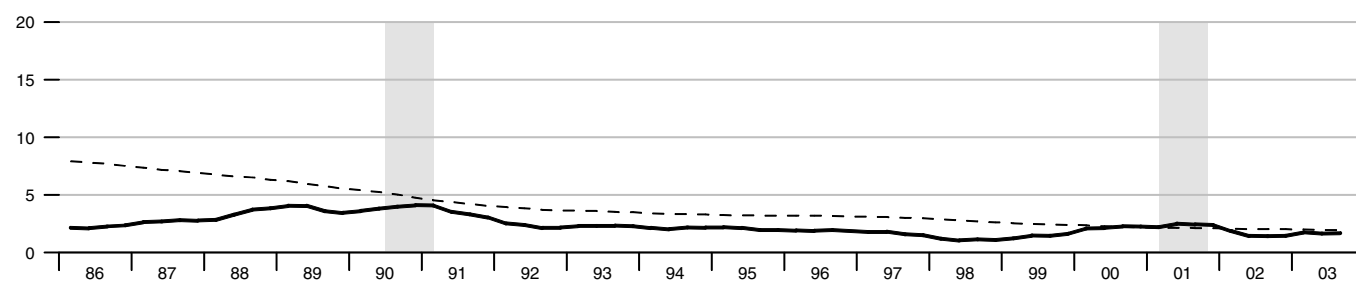
Percent change from year ago



Dashed lines indicate 10-year moving averages.

Gross Domestic Product Price Index

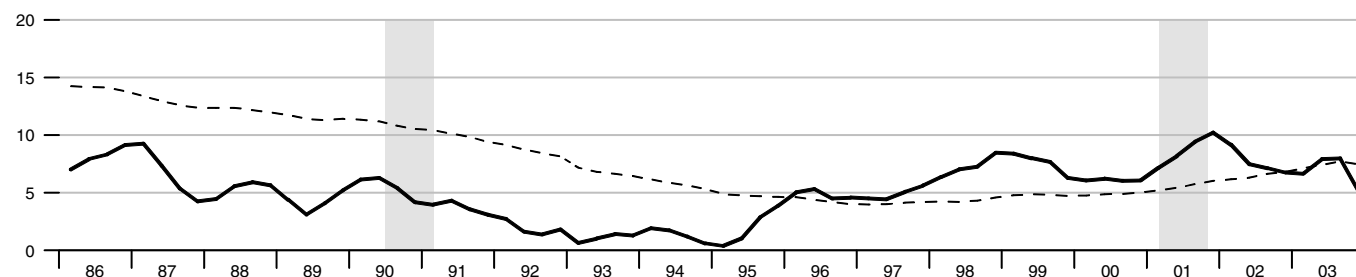
Percent change from year ago



Dashed lines indicate 10-year moving averages.

M2

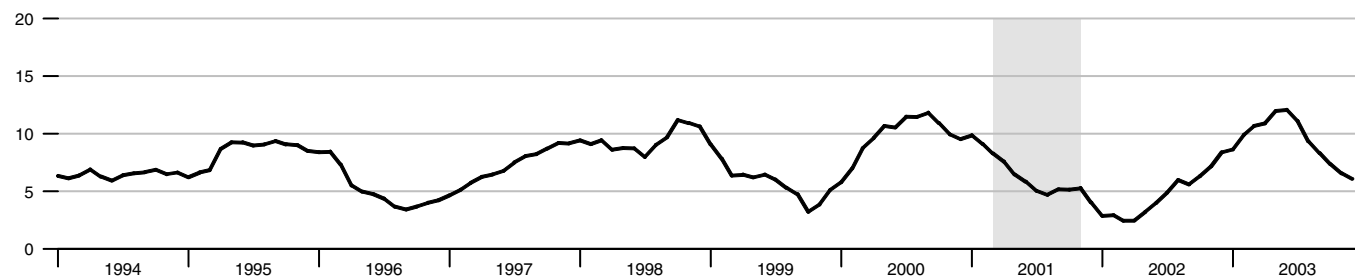
Percent change from year ago



Dashed lines indicate 10-year moving averages.

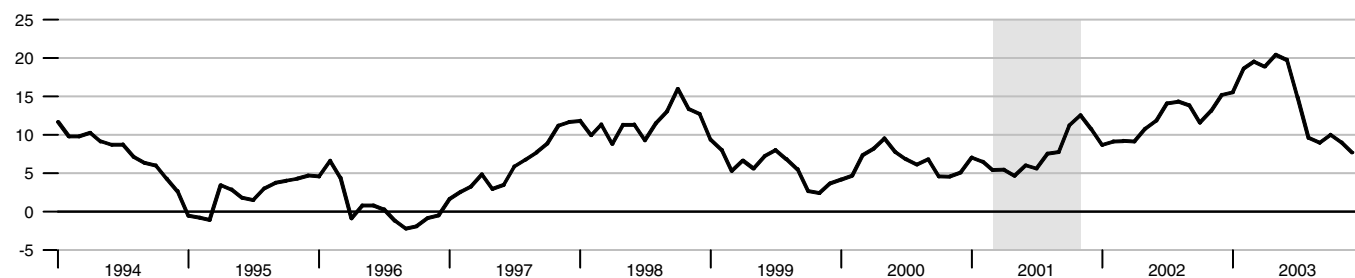
Bank Credit

Percent change from year ago



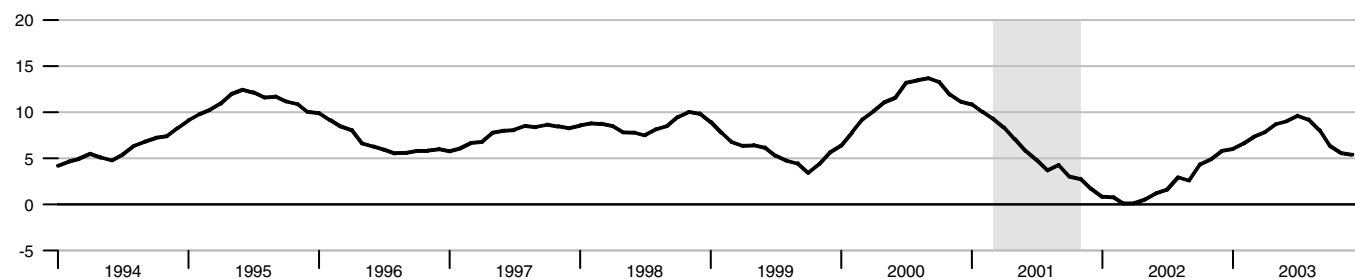
Investment Securities in Bank Credit at Commercial Banks

Percent change from year ago



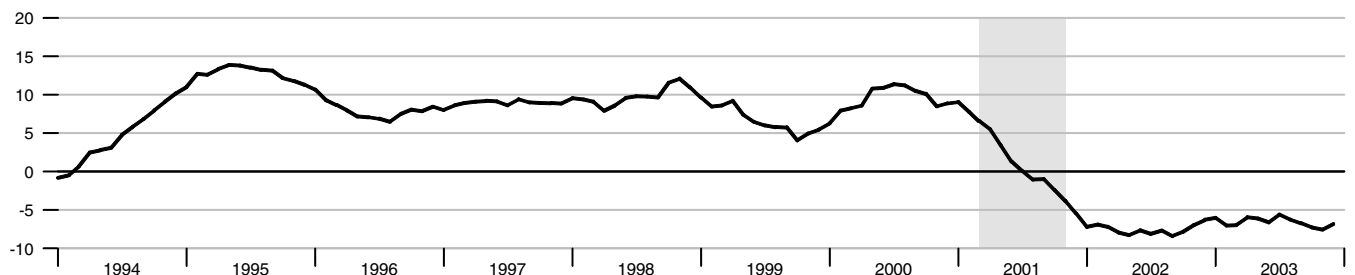
Total Loans and Leases in Bank Credit at Commercial Banks

Percent change from year ago

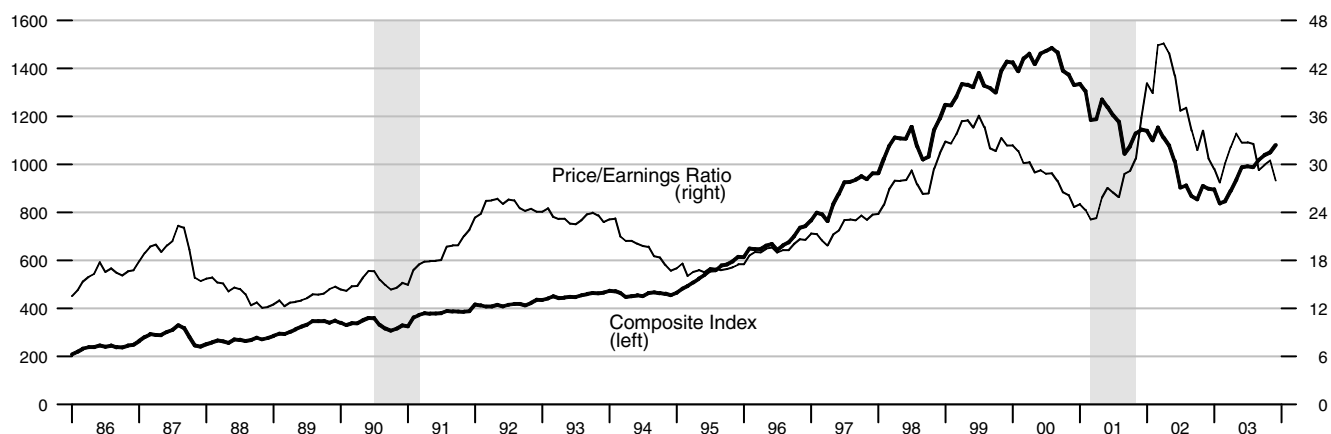


Commercial and Industrial Loans at Commercial Banks

Percent change from year ago



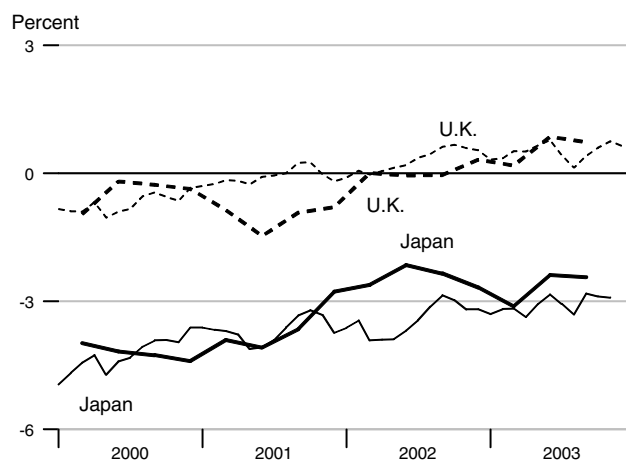
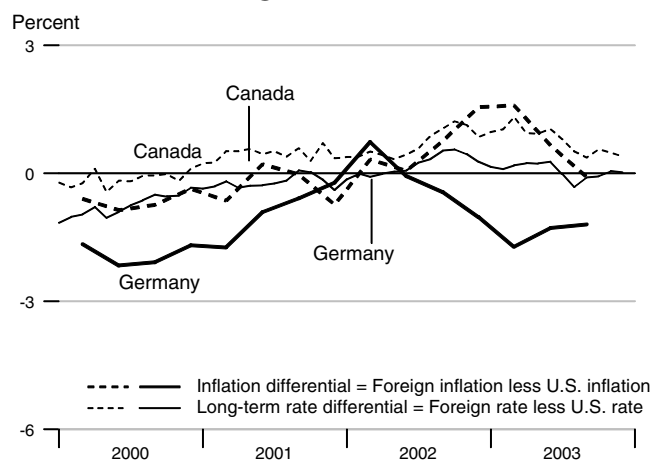
Standard & Poor's 500



Recent Inflation and Long-Term Interest Rates

	Consumer Price Inflation Rates				Long-Term Government Bond Rates			
	Percent change from year ago				Percent			
	2003Q1	2003Q2	2003Q3	2003Q4	Sep03	Oct03	Nov03	Dec03
United States	2.88	2.15	2.20	1.91	4.27	4.29	4.30	4.27
Canada	4.47	2.81	2.11	.	4.64	4.85	4.79	4.66
France	2.38	1.92	1.95	.	4.17	4.46	.	.
Germany	1.16	0.87	1.00	.	4.17	4.22	4.35	4.29
Italy	2.72	2.70	2.74	2.53	4.40	4.38	4.51	4.46
Japan	-0.23	-0.23	-0.24	.	1.45	1.40	1.39	.
United Kingdom	3.07	3.01	2.93	.	4.68	4.89	5.05	4.91

Inflation and Long-Term Interest Rate Differentials



		Money Stock				Bank	Adjusted		
		M1	MZM	M2	M3	Credit	Monetary Base	Reserves	MSI M2
1999		1101.501	4170.281	4525.990	6252.637	4577.111	574.181	88.664	257.907
2000		1103.476	4508.669	4801.910	6842.016	5025.725	607.106	84.511	272.545
2001		1136.615	5220.753	5222.602	7622.646	5343.662	641.167	85.931	296.280
2002		1190.234	5888.755	5619.989	8232.295	5595.008	697.071	87.927	319.397
2003		1263.080	6319.322	6009.465	8766.149	6118.817	740.704	92.800	343.779
2001	1	1100.144	4856.861	5033.492	7277.265	5270.407	619.676	82.207	285.353
	2	1116.133	5108.948	5160.865	7544.598	5311.739	629.484	82.722	292.843
	3	1162.812	5329.059	5292.309	7727.597	5361.261	651.930	90.905	300.532
	4	1167.372	5588.141	5403.744	7941.125	5431.241	663.578	87.887	306.393
2002	1	1183.773	5726.069	5494.908	8056.785	5415.096	680.264	88.156	311.600
	2	1181.579	5812.218	5546.655	8139.404	5482.935	692.937	86.979	315.250
	3	1190.495	5947.501	5669.317	8285.396	5655.398	702.753	86.821	322.283
	4	1205.088	6069.232	5769.077	8447.594	5826.602	712.330	89.753	328.454
2003	1	1227.664	6162.302	5861.268	8566.100	5942.361	726.821	90.845	334.407
	2	1255.536	6262.786	5985.377	8703.189	6121.802	738.225	91.745	341.956
	3	1283.876	6468.337	6121.844	8942.375	6196.634	744.023	94.577	350.033
	4	1285.244	6383.863	6069.371	8852.930	6214.468	753.748	94.031	348.721
2001	Dec	1172.884	5663.621	5445.098	8006.248	5434.114	665.556	85.880	308.503
2002	Jan	1179.046	5684.649	5469.090	8017.885	5413.877	673.713	87.295	310.020
	Feb	1185.197	5739.210	5507.373	8069.641	5420.175	681.914	89.237	312.230
	Mar	1187.076	5754.347	5508.262	8082.829	5411.236	685.165	87.937	312.549
	Apr	1172.596	5752.540	5494.843	8084.978	5435.551	689.008	88.352	312.466
	May	1183.264	5820.652	5557.466	8152.352	5484.325	692.736	86.586	315.724
	Jun	1188.878	5863.461	5587.657	8180.881	5528.930	697.068	85.999	317.561
	Jul	1195.740	5911.203	5635.502	8227.125	5580.858	701.032	86.101	320.059
	Aug	1184.469	5953.277	5673.379	8293.720	5662.922	702.878	86.383	322.468
	Sep	1191.275	5978.022	5699.071	8335.343	5722.413	704.350	87.978	324.323
	Oct	1202.643	5980.604	5737.043	8346.900	5755.031	710.665	89.827	326.569
	Nov	1202.199	6090.541	5777.281	8470.033	5835.333	712.473	89.839	328.881
	Dec	1210.421	6136.550	5792.906	8525.850	5889.442	713.851	89.594	329.911
2003	Jan	1212.846	6134.494	5821.757	8526.012	5881.164	719.527	89.443	332.008
	Feb	1233.432	6174.093	5874.992	8572.888	5957.160	728.658	91.817	335.172
	Mar	1236.715	6178.318	5887.054	8599.401	5988.759	732.279	91.275	336.040
	Apr	1236.918	6185.217	5910.018	8617.636	6028.101	736.486	92.278	337.855
	May	1257.822	6262.954	5998.629	8711.722	6140.739	738.662	91.418	342.528
	Jun	1271.867	6340.186	6047.484	8780.210	6196.567	739.526	91.540	345.486
	Jul	1277.827	6444.881	6099.519	8916.889	6201.068	741.236	93.471	348.715
	Aug	1285.750	6482.012	6143.615	8956.538	6190.635	745.282	95.410	351.214
	Sep	1288.051	6478.119	6122.399	8953.697	6198.200	745.552	94.851	350.169
	Oct	1286.914	6423.981	6092.136	8895.953	6178.046	753.729	95.174	349.416
	Nov	1281.826	6386.264	6071.479	8856.095	6217.984	754.692	94.635	348.842
	Dec	1286.991	6341.344	6044.498	8806.741	6247.375	752.823	92.285	347.906

*All values are given in billions of dollars.

		Federal Funds	Discount Rate	Primary Credit Rate	Prime Rate	3-mo CDs	Treasury Yields			Corporate Aaa Bonds	S & L Aaa Bonds	Conventional Mortgage
							3-mo	3-yr	10-yr			
1999		4.97	4.62		7.99	5.33	4.78	5.49	5.64	7.04	5.28	7.43
2000		6.24	5.73		9.23	6.46	6.00	6.22	6.03	7.62	5.58	8.06
2001		3.89	3.41		6.92	3.69	3.47	4.08	5.02	7.08	5.01	6.97
2002		1.67	1.17		4.68	1.73	1.63	3.10	4.61	6.49	4.87	6.54
2003		1.13		2.11	4.12	1.15	1.03	2.11	4.02	5.67	4.52	5.82
2001	1	5.59	5.11		8.62	5.26	4.95	4.64	5.05	7.08	5.03	7.01
	2	4.33	3.83		7.34	4.10	3.75	4.43	5.27	7.22	5.11	7.13
	3	3.50	3.06		6.57	3.34	3.24	3.93	4.98	7.11	4.95	6.97
	4	2.13	1.64		5.16	2.06	1.94	3.33	4.77	6.92	4.97	6.78
2002	1	1.73	1.25		4.75	1.82	1.76	3.75	5.08	6.62	5.02	6.97
	2	1.75	1.25		4.75	1.83	1.75	3.77	5.10	6.71	5.01	6.81
	3	1.74	1.25		4.75	1.76	1.67	2.62	4.26	6.35	4.72	6.29
	4	1.44	0.94		4.45	1.49	1.36	2.27	4.01	6.28	4.71	6.08
2003	1	1.25		2.25	4.25	1.26	1.18	2.07	3.92	6.00	4.60	5.83
	2	1.25		2.23	4.24	1.17	1.06	1.77	3.62	5.31	4.28	5.51
	3	1.02		2.00	4.00	1.07	0.95	2.20	4.23	5.70	4.68	6.01
	4	1.00		2.00	4.00	1.10	0.93	2.38	4.29	5.66	4.52	5.92
2001	Dec	1.82	1.33		4.84	1.83	1.72	3.62	5.09	6.77	5.18	7.07
2002	Jan	1.73	1.25		4.75	1.74	1.68	3.56	5.04	6.55	5.05	7.00
	Feb	1.74	1.25		4.75	1.82	1.76	3.55	4.91	6.51	4.93	6.89
	Mar	1.73	1.25		4.75	1.91	1.83	4.14	5.28	6.81	5.09	7.01
	Apr	1.75	1.25		4.75	1.87	1.75	4.01	5.21	6.76	5.09	6.99
	May	1.75	1.25		4.75	1.82	1.76	3.80	5.16	6.75	5.03	6.81
	Jun	1.75	1.25		4.75	1.81	1.73	3.49	4.93	6.63	4.92	6.65
	Jul	1.73	1.25		4.75	1.79	1.71	3.01	4.65	6.53	4.81	6.49
	Aug	1.74	1.25		4.75	1.73	1.65	2.52	4.26	6.37	4.78	6.29
	Sep	1.75	1.25		4.75	1.76	1.66	2.32	3.87	6.15	4.58	6.09
	Oct	1.75	1.25		4.75	1.73	1.61	2.25	3.94	6.32	4.66	6.11
	Nov	1.34	0.83		4.35	1.39	1.25	2.32	4.05	6.31	4.77	6.07
	Dec	1.24	0.75		4.25	1.34	1.21	2.23	4.03	6.21	4.70	6.05
2003	Jan	1.24			4.25	1.29	1.19	2.18	4.05	6.17	4.72	5.92
	Feb	1.26		2.25	4.25	1.27	1.19	2.05	3.90	5.95	4.57	5.84
	Mar	1.25		2.25	4.25	1.23	1.15	1.98	3.81	5.89	4.51	5.75
	Apr	1.26		2.25	4.25	1.24	1.15	2.06	3.96	5.74	4.60	5.81
	May	1.26		2.25	4.25	1.22	1.09	1.75	3.57	5.22	4.16	5.48
	Jun	1.22		2.20	4.22	1.04	0.94	1.51	3.33	4.97	4.07	5.23
	Jul	1.01		2.00	4.00	1.05	0.92	1.93	3.98	5.49	4.59	5.63
	Aug	1.03		2.00	4.00	1.08	0.97	2.44	4.45	5.88	4.82	6.26
	Sep	1.01		2.00	4.00	1.08	0.96	2.23	4.27	5.72	4.63	6.15
	Oct	1.01		2.00	4.00	1.10	0.94	2.26	4.29	5.70	4.64	5.95
	Nov	1.00		2.00	4.00	1.11	0.95	2.45	4.30	5.65	4.50	5.93
	Dec	0.98		2.00	4.00	1.10	0.91	2.44	4.27	5.62	4.41	5.88

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

		M1	M2	M3
Percent change at an annual rate				
1999		2.00	12.42	8.74
2000		0.18	8.11	9.43
2001		3.00	15.79	11.41
2002		4.72	12.80	8.00
2003		6.12	7.31	6.48
2001				
	1	2.71	18.62	10.64
	2	5.81	20.76	10.12
	3	16.73	17.23	10.19
	4	1.57	19.45	8.42
2002				
	1	5.62	9.87	6.75
	2	-0.74	6.02	3.77
	3	3.02	9.31	8.85
	4	4.90	8.19	7.04
2003				
	1	7.49	6.13	6.39
	2	9.08	6.52	8.47
	3	9.03	13.13	9.12
	4	0.43	-5.22	-3.43
2001 Dec		7.78	16.39	9.29
2002 Jan		6.30	4.46	5.29
	Feb	6.26	11.52	8.40
	Mar	1.90	3.16	0.19
	Apr	-14.64	-0.38	-2.92
	May	10.92	14.21	13.68
	Jun	5.69	8.83	6.52
	Jul	6.93	9.77	10.28
	Aug	-11.31	8.54	8.07
	Sep	6.90	4.99	5.43
	Oct	11.45	0.52	8.00
	Nov	-0.44	22.06	8.42
	Dec	8.21	9.07	3.25
2003 Jan		2.40	-0.40	5.98
	Feb	20.37	7.75	10.97
	Mar	3.19	0.82	2.46
	Apr	0.20	1.34	4.68
	May	20.28	15.08	17.99
	Jun	13.40	14.80	9.77
	Jul	5.62	19.82	10.33
	Aug	7.44	6.91	8.68
	Sep	2.15	-0.72	-4.14
	Oct	-1.06	-10.03	-5.93
	Nov	-4.74	-7.05	-4.07
	Dec	4.84	-8.44	-5.33

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 (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: 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,b, 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 *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: 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/swdata.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** shows constant maturity yields calculated by the U.S. Treasury for securities with 3 months and 1, 2, 3, 5, 7, and 10 years to maturity. Daily data and descriptions are available at research.stlouisfed.org/fred2/. See

also *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 *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 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 consumer price index for all urban consumers. **Real Interest Rates** are ex post measures, equal to nominal rates minus CPI inflation.

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

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

to five alternative target inflation rates, $\pi^* = 0, 1, 2, 3, 4$ percent, where f_t^* is the implied federal funds rate, π_{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}^P 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

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

to five alternative target inflation rates, $\pi^* = 0, 1, 2, 3, 4$ percent, where ΔMB_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 $((y_t - y_{t-40})/40) \times 400$, where y_t is the log of real GDP. The 4-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 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 $m = 1, \dots, 10$ 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),

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

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 (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 Bonds** are yields on the most recently issued inflation-indexed securities of 10- and 30-year original maturities. **Inflation-Indexed Treasury Yield Spreads** equal, for 10- and 30-year maturities, the difference between the yields on the most recently issued inflation-indexed securities and the unadjusted bond yields of similar maturity. **Inflation-Indexed 30-Year Government Bonds** shows the yield of an inflation-indexed bond that is scheduled to mature in approximately (but not greater than) 30 years. The current Canadian bond has a maturity date of 12/01/2031, the current French bond has a maturity date of 7/25/2032, the current U.K. bond has a maturity date of 7/22/2030, and the current U.S. bond has a maturity date of 4/15/2032. **Inflation-Indexed 10-Year Government Bonds** shows the yield of an inflation-indexed bond that is scheduled to mature in approximately (but not greater than) 10 years. The current French bond has a maturity date of 7/25/2013, the current U.K. bond has a maturity date of 8/16/2013, and the current U.S. bond has a maturity date of 7/15/2013.

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 inflation-indexed bond yields.

Bank of Canada: Canadian inflation-indexed bond yields.

Bank of England: U.K. inflation-indexed bond yields.

Board of Governors of the Federal Reserve System:

Monetary aggregates and components: 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 release. Nonfinancial commercial paper: Board of Governors website. Nonfinancial debt: Z.1 release. M2 own rate.

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 Philadelphia: Survey of Professional Forecasters inflation expectations.

Federal Reserve Bank of St. Louis: Adjusted monetary base and adjusted reserves, monetary services index, MZM 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.

U.S. Department of the Treasury: U.S. inflation-indexed security yields.

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