

Regional Patterns in the Quality of Bank Assets

The quality of U.S. bank assets varied during the late 1980s and early 1990s. At various times during this period the average asset quality of banks in New England, the Southwest, and California was unusually poor relative to that of banks in other parts of the nation. Since the asset quality problems of banks in these three regions peaked at different times, differences in measures of asset quality across regions remained large for an extended period. I compare the recent range of differences in asset quality across regions (during the recent recession and current economic expansion) with comparable data for the late 1980s and early 1990s.

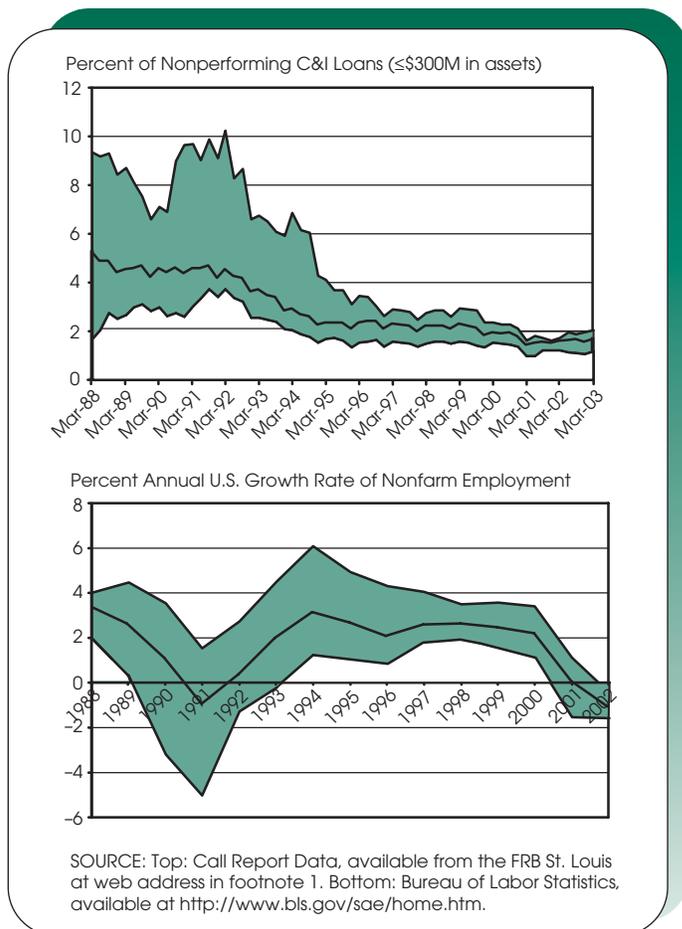
The measure of asset quality shown here is the percentage of commercial and industrial (C&I) loans that are nonperforming (past due ≥ 90 days or classified as nonaccrual). This measure of asset quality for community banks (often identified as banks with total assets less than \$1 billion) is more likely to reflect the economic conditions in the Census divisions of their headquarters than would the nonperforming loan ratios of very large banks with offices located in several regions. In the top chart the shaded area is the range of the average nonperforming C&I loan ratios for relatively small community banks (total assets < \$300 million) across the nine Census divisions (groups of contiguous states) since 1988; the solid line is the average nonperforming C&I loan ratio for these relatively small community banks. The decline in this line indicates that the average nonperforming loan ratio at these banks was higher during the late 1980s and early 1990s than during the recent recession and current economic expansion. The range of the average nonperforming C&I loan ratio across the Census divisions shrank substantially during the second half of the 1990s and did not widen during the recession of 2001 or the following economic expansion. The patterns are similar for the nonperforming C&I loan rate for banks with total assets between \$300 million and \$1 billion and for the nonperforming rate on total loans for community banks in each of the two size groups (above and below \$300 million, not shown). Regional differences in asset quality have been very small during recent quarters relative to the

size of the differences in the late 1980s and early 1990s.¹

Differences in the pace of economic activity across regions of the nation began declining during the 1990s, which may explain the narrowing of the range of bank asset quality across regions since the mid-1990s. The bottom chart shows the range of growth rates of nonfarm employment across the nine Census divisions; the solid line is the national growth rate of employment, and the shaded area is the range of growth rates across Census divisions. The range of the growth rates of employment narrowed substantially around 1997. The average range of growth rates across Census divisions was 4.5 percentage points for 1988-96, compared with 2 percentage points for 1997-2002.

—R. Alton Gilbert

¹Measures of bank performance each quarter by bank size and Census division are available from this Bank at <http://research.stlouisfed.org/fred2/categories/83>.



Views expressed do not necessarily reflect official positions of the Federal Reserve System.

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Conventions used in this publication:

1. Unless otherwise indicated, data are monthly.
2. Except where otherwise noted, solid shading indicates recessions, as determined by the National Bureau of Economic Research. The NBER has not yet determined the end of the recession that began in March 2001; however, the hatched shading indicates this recession ended in November 2001, as determined by a statistical model for dating business cycle turning points developed by Marcelle Chauvet (“An Econometric Characterization of Business Cycle Dynamics with Factor Structure and Regime Switching,” *International Economic Review*, November 1998, pp. 969-96) and discussed by Marcelle Chauvet and Jeremy Piger (“Identifying Business Cycle Turning Points in Real Time,” *Federal Reserve Bank of St. Louis Review*, March/April 2003, pp. 47-62).
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: $[(x_t/x_{t-12})-1] \times 100$.

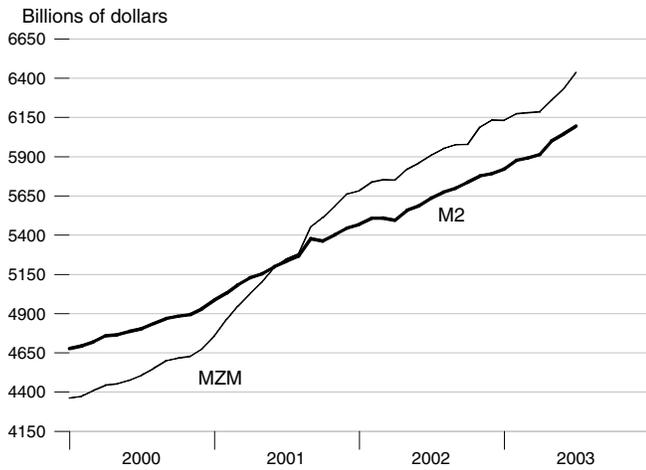
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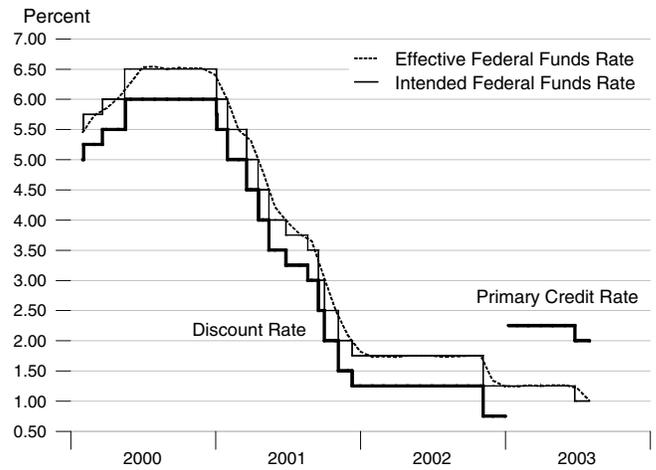
or to:

stlsFRED@stls.frb.org

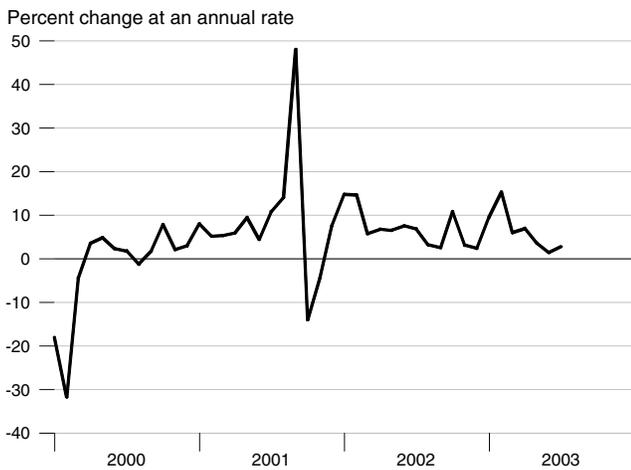
M2 and MZM



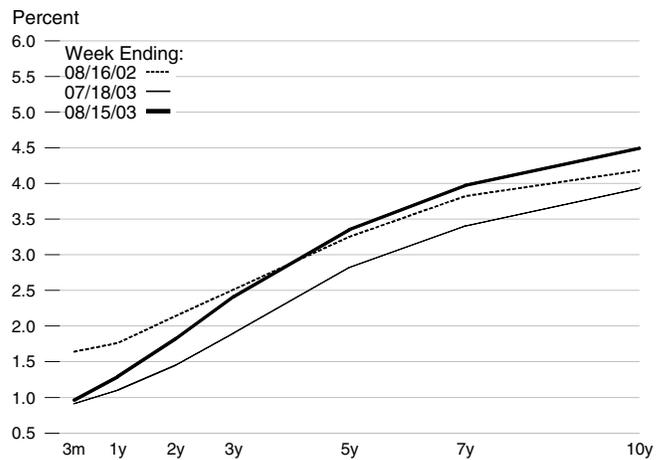
Reserve Market Rates



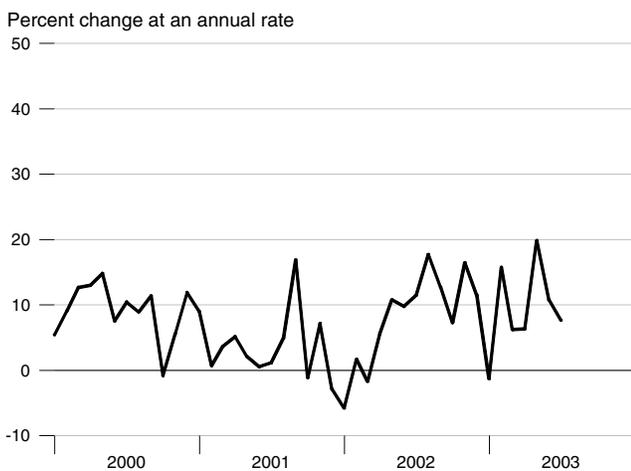
Adjusted Monetary Base



Treasury Yield Curve



Total Bank Credit

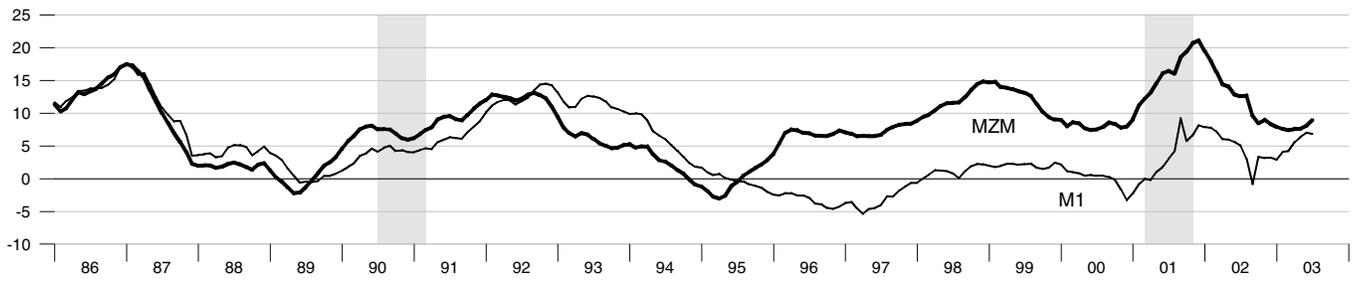


Interest Rates

	May 03	Jun 03	Jul 03
Federal Funds Rate	1.26	1.22	1.01
Prime Rate	4.25	4.22	4.00
Primary Credit Rate	2.25	2.20	2.00
Conventional Mortgage Rate	5.48	5.23	5.63
Treasury Yields:			
3-Month Constant Maturity	1.09	0.94	0.92
6-Month Constant Maturity	1.11	0.94	0.97
1-Year Constant Maturity	1.18	1.01	1.12
3-Year Constant Maturity	1.75	1.51	1.93
5-Year Constant Maturity	2.52	2.27	2.87
10-Year Constant Maturity	3.57	3.33	3.98

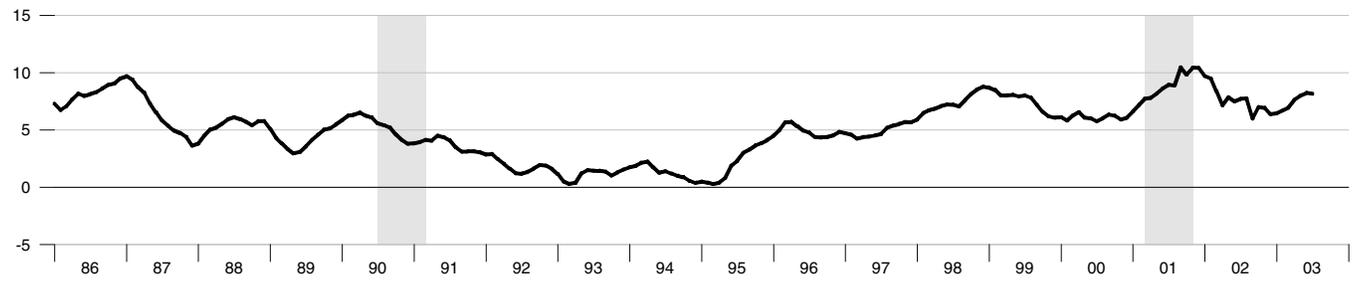
MZM and M1

Percent change from year ago



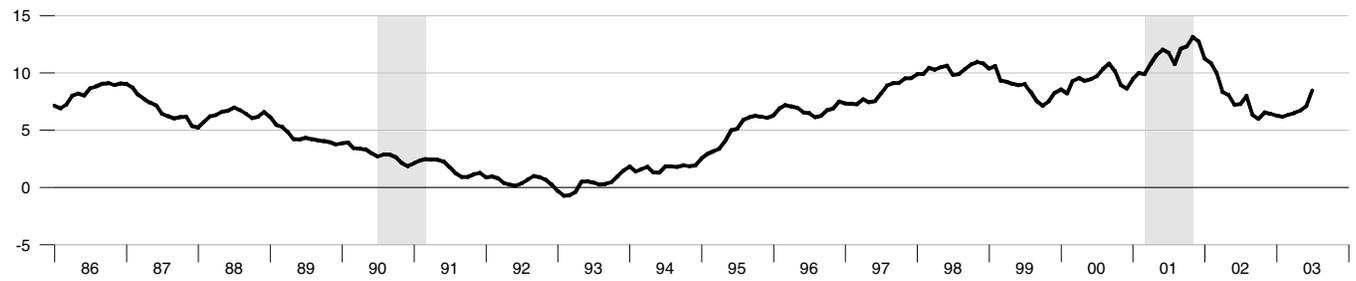
M2

Percent change from year ago



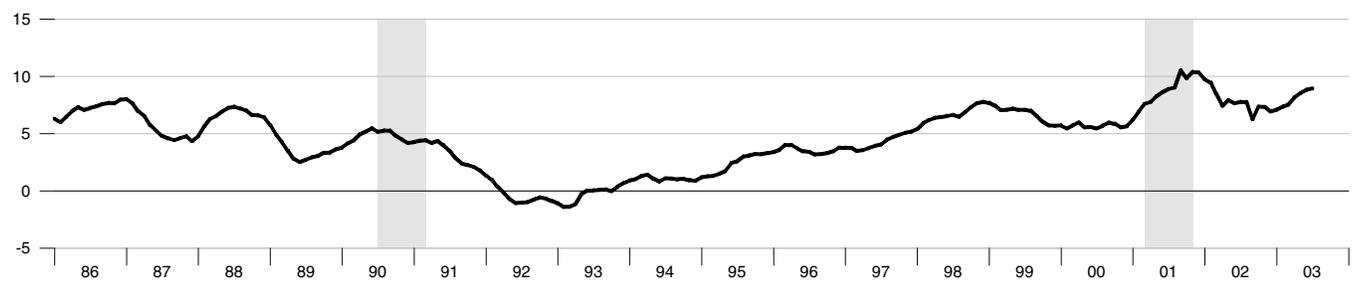
M3

Percent change from year ago



Monetary Services Index - M2

Percent change from year ago



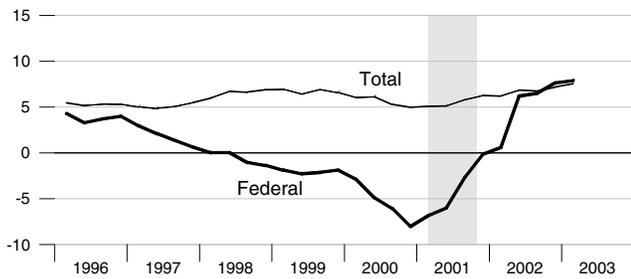
Adjusted Monetary Base

Percent change from year ago



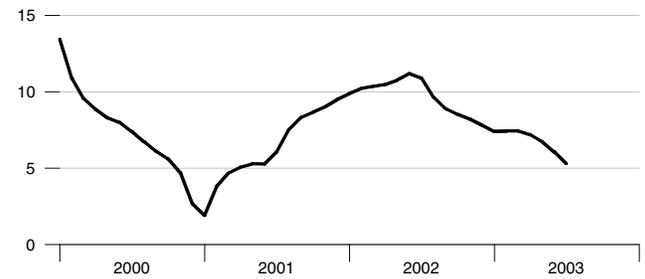
Domestic Nonfinancial Debt

Percent change from year ago



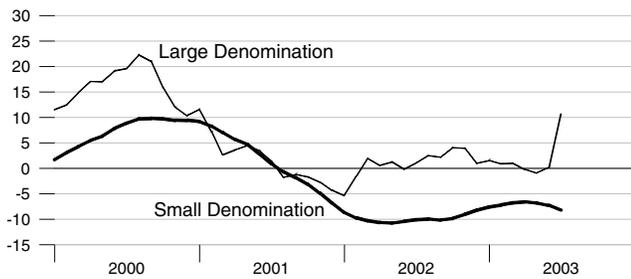
Currency Held by the Nonbank Public

Percent change from year ago



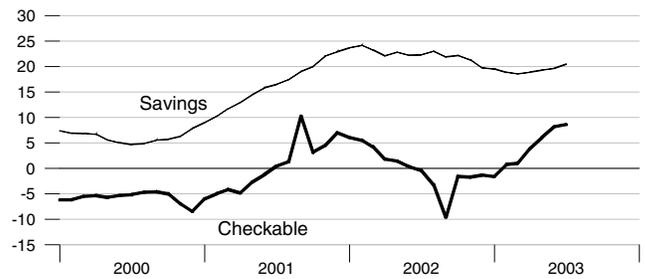
Time Deposits

Percent change from year ago



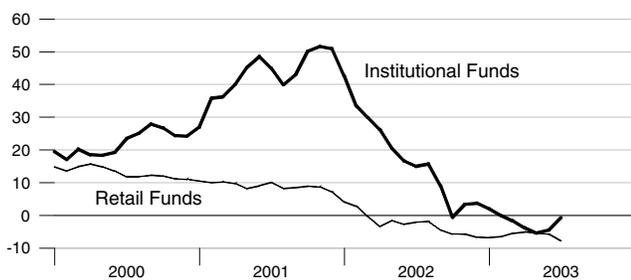
Checkable and Savings Deposits

Percent change from year ago



Money Market Mutual Fund Shares

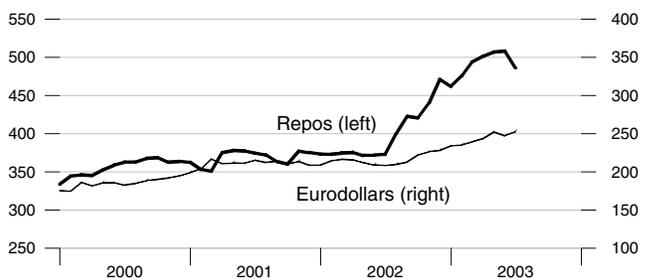
Percent change from year ago



Repurchase Agreements and Eurodollars

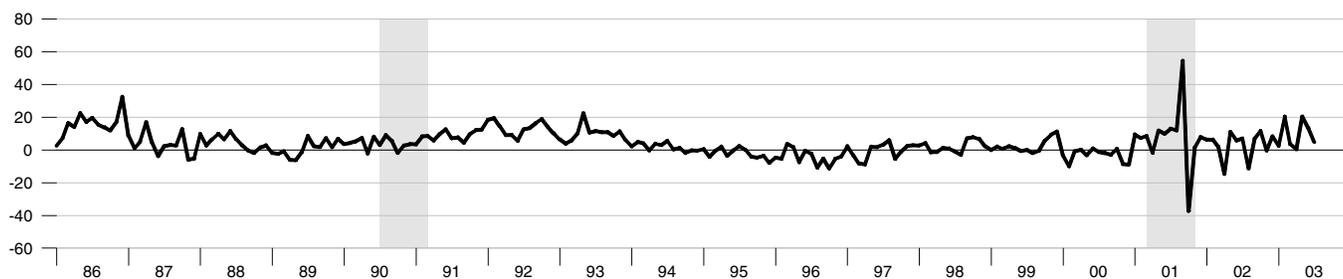
Billions of dollars

Billions of dollars



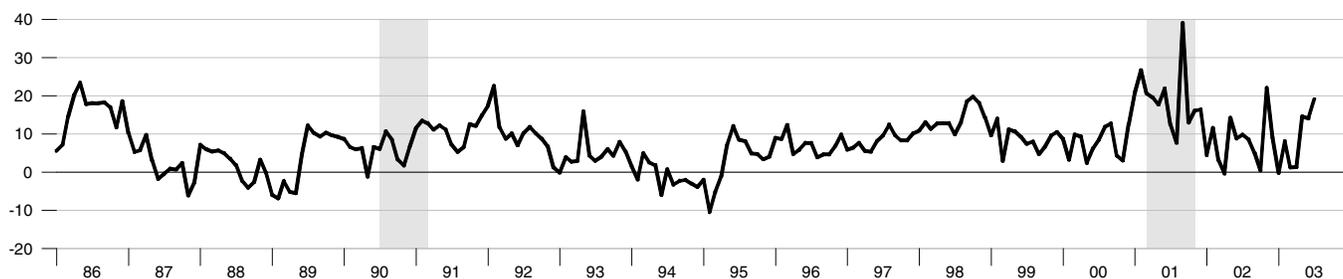
M1

Percent change at an annual rate



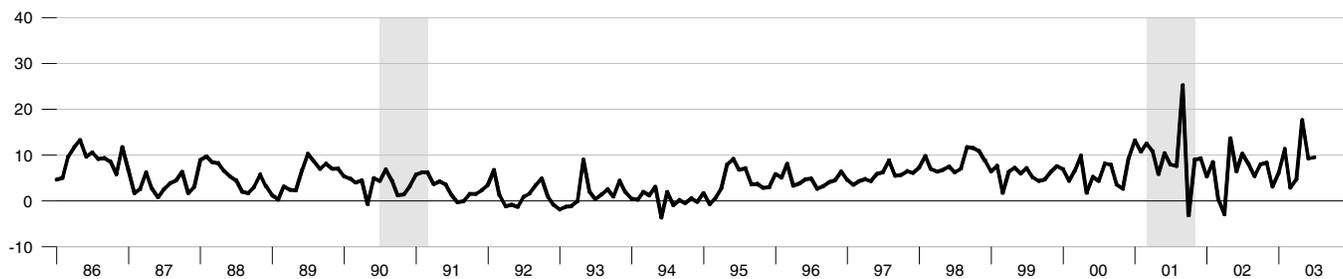
M2M

Percent change at an annual rate



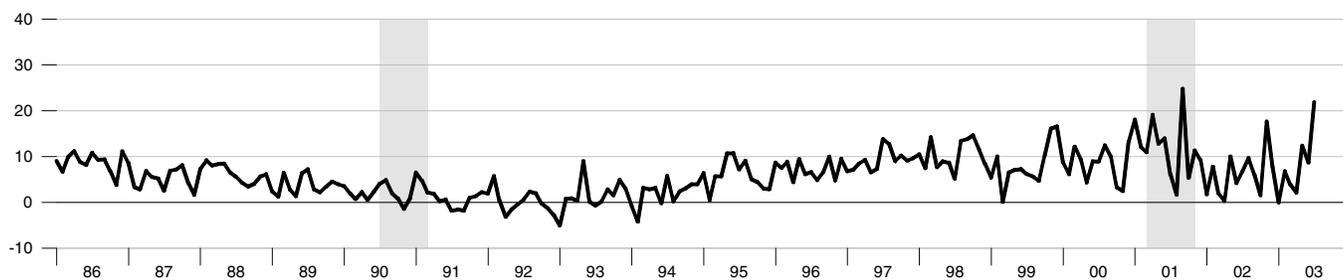
M2

Percent change at an annual rate



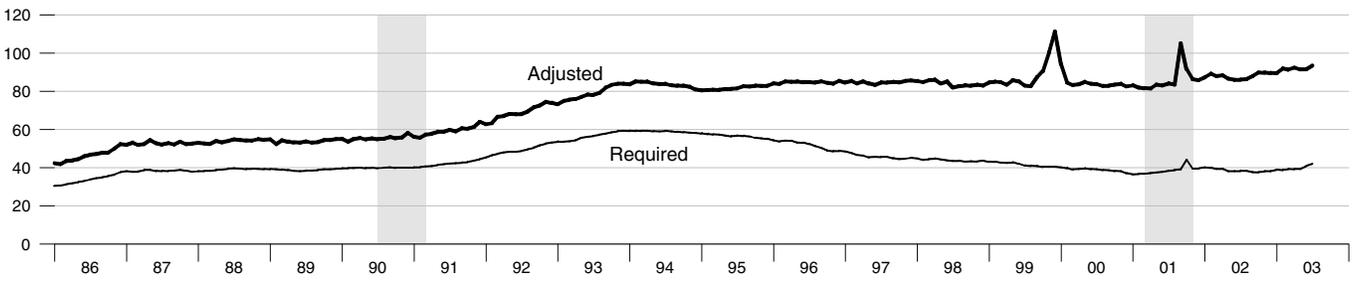
M3

Percent change at an annual rate



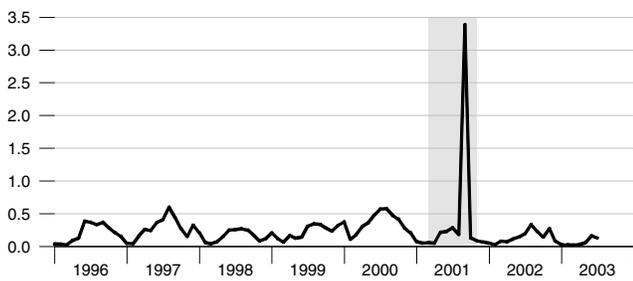
Adjusted and Required Reserves

Billions of dollars



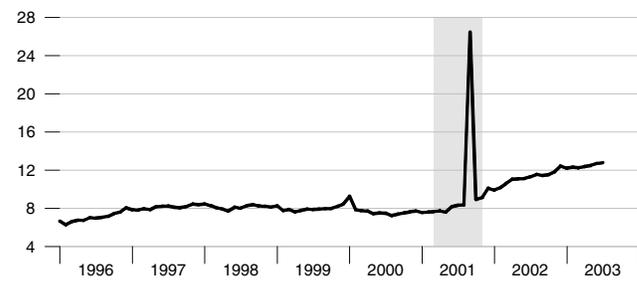
Total Borrowings, nsa

Billions of dollars



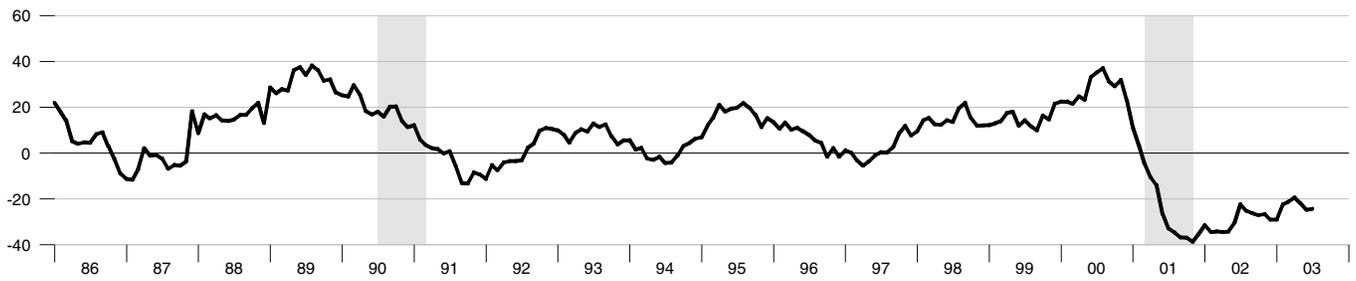
Excess Reserves plus RCB Contracts

Billions of dollars



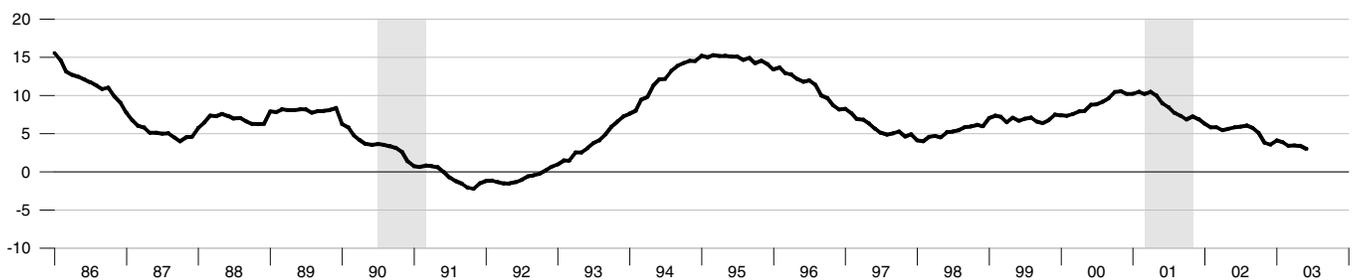
Nonfinancial Commercial Paper

Percent change from year ago

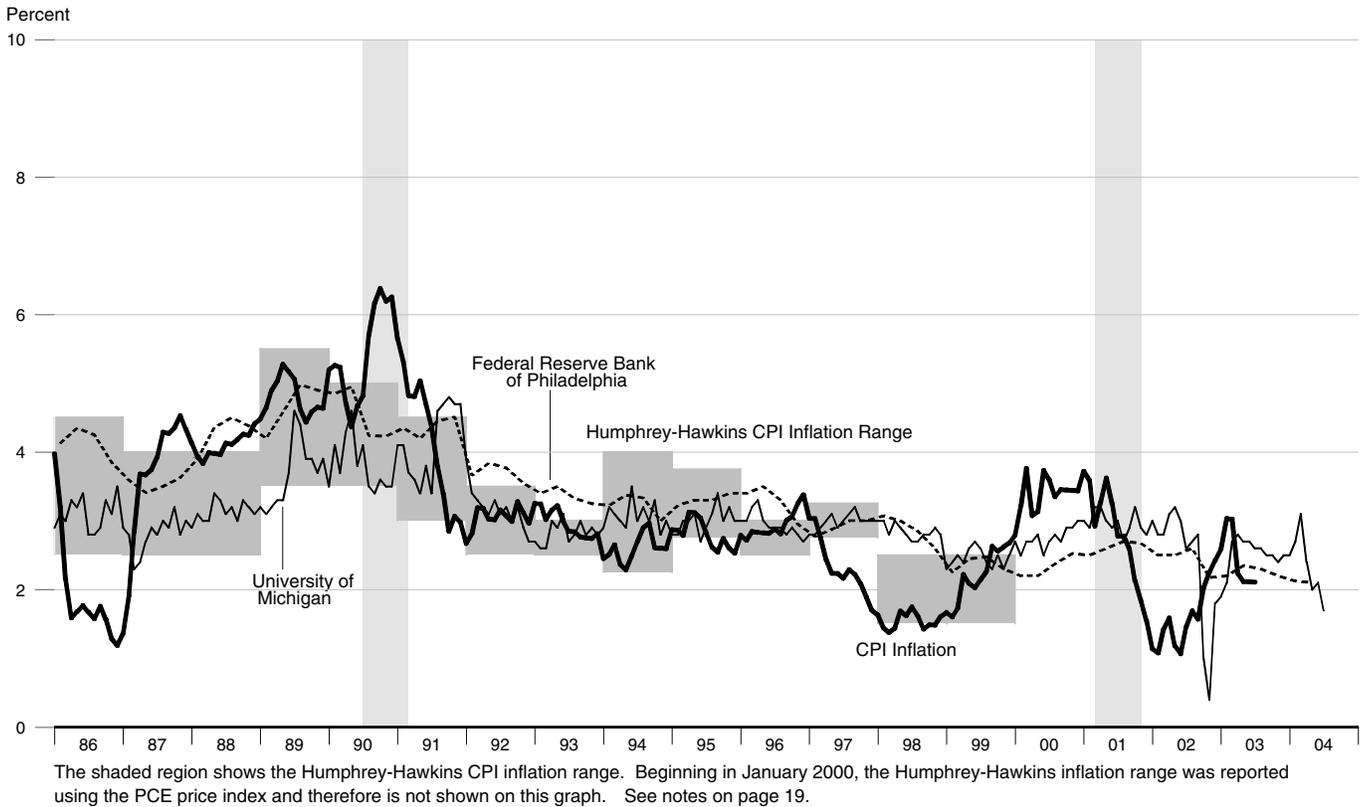


Consumer Credit

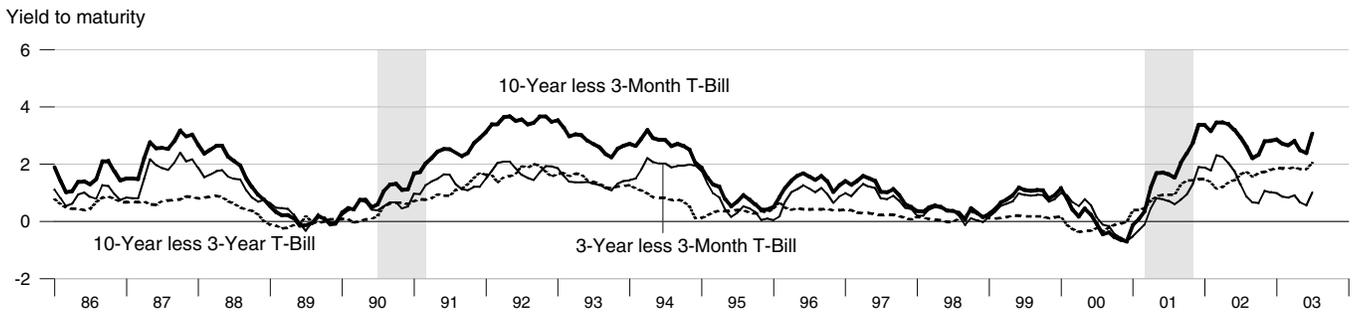
Percent change from year ago



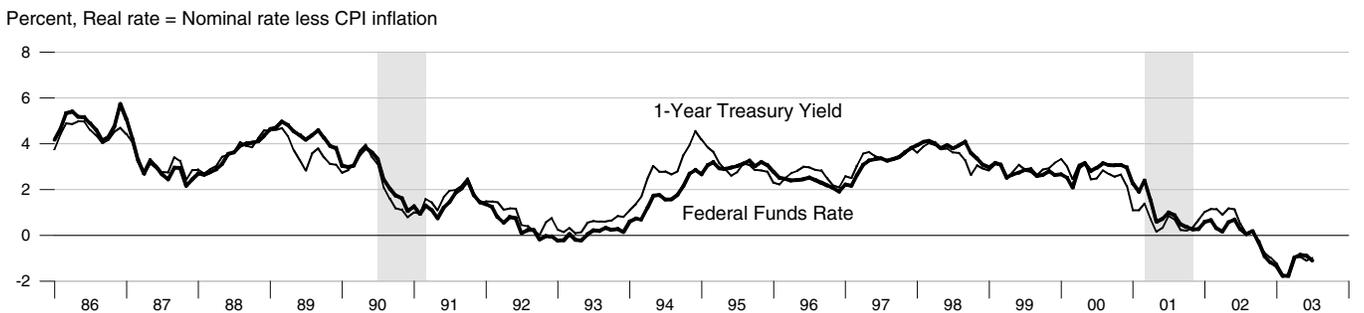
Inflation and Inflation Expectations



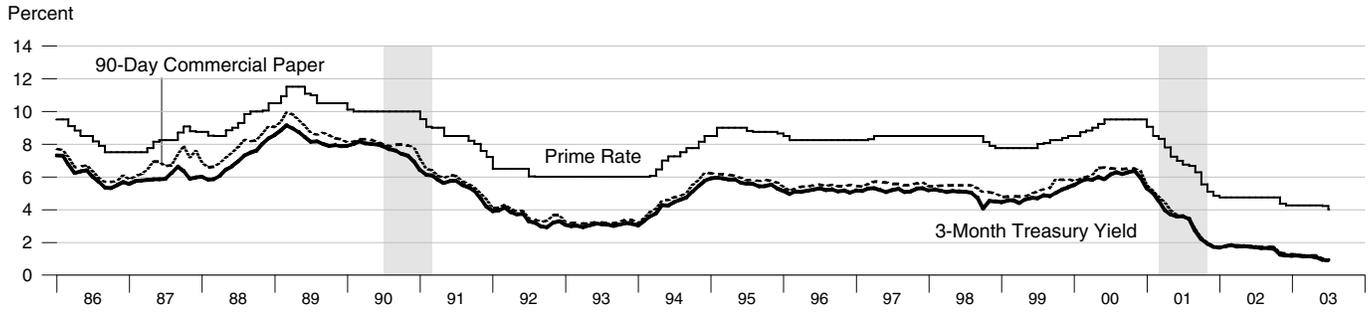
Treasury Security Yield Spreads



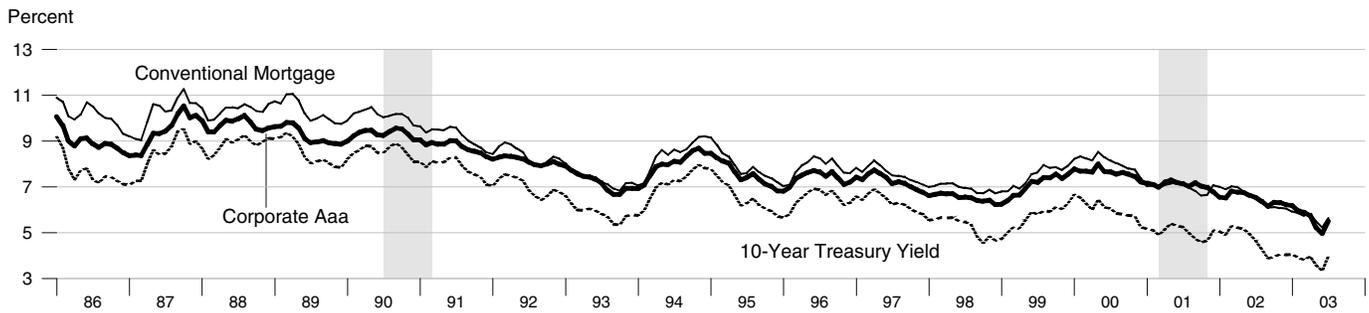
Real Interest Rates



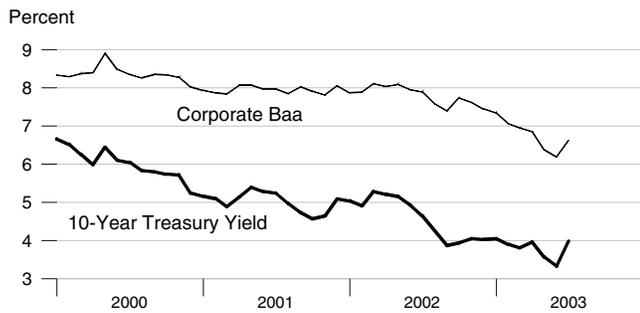
Short-Term Interest Rates



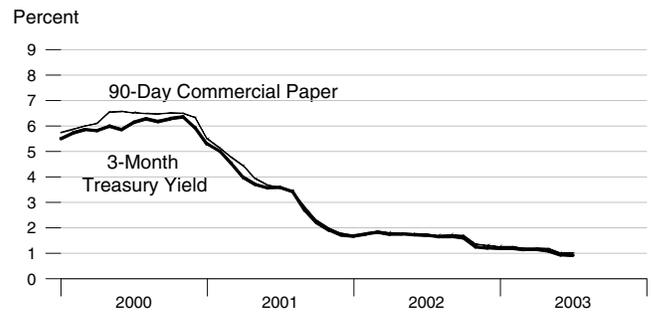
Long-Term Interest Rates



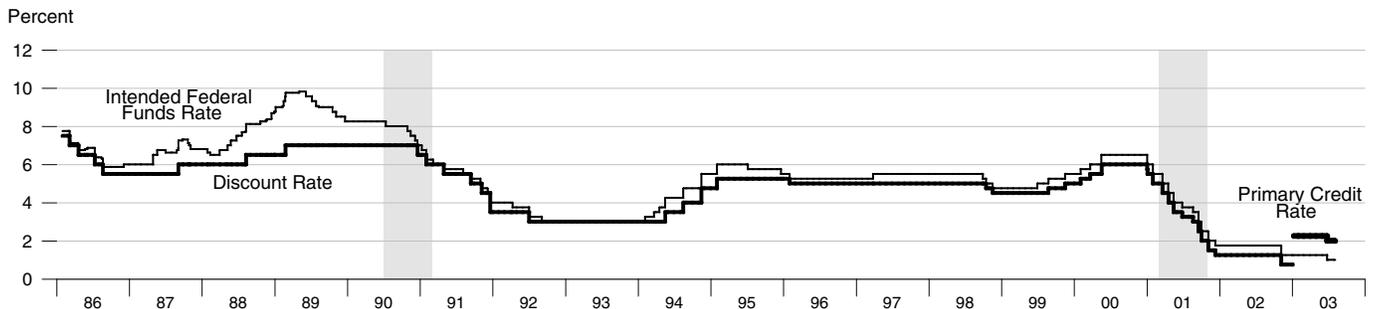
Long-Term Interest Rates



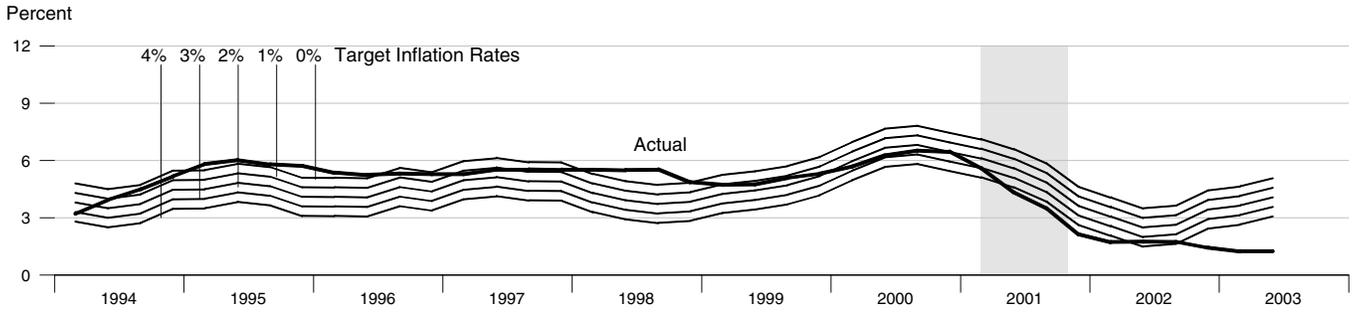
Short-Term Interest Rates



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



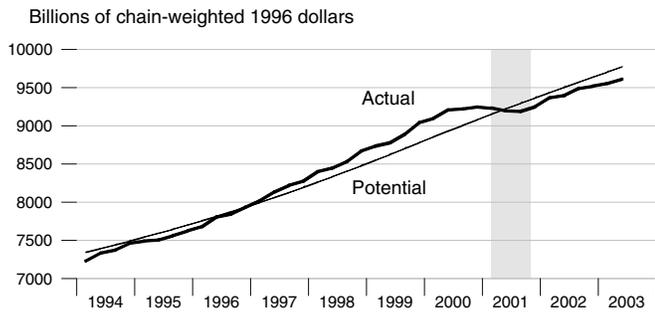
Federal Funds Rate and Inflation Targets



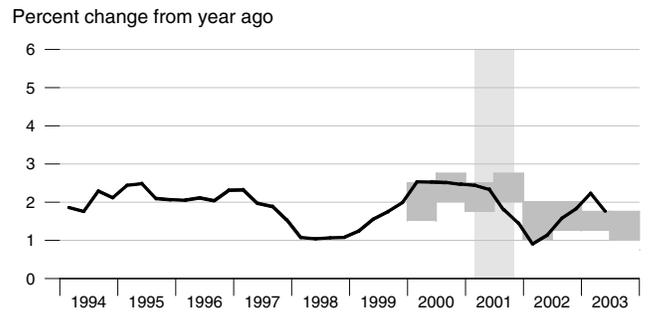
Calculated federal funds rate is based on Taylor's rule. See notes on page 19.

Components of Taylor's Rule

Actual and Potential Real GDP

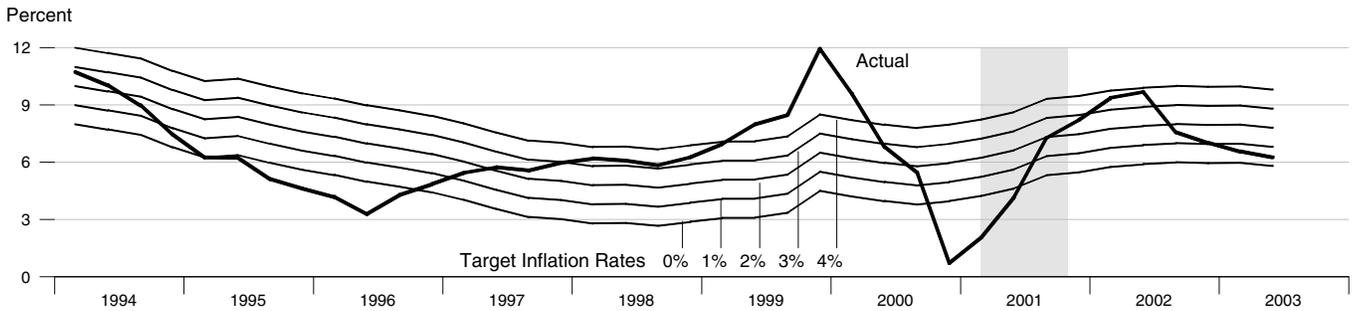


PCE Inflation and Projections



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

Monetary Base Growth* and Inflation Targets

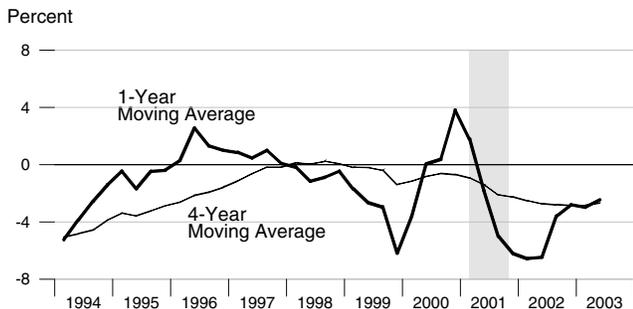


*Modified for the effects of sweeps programs on reserve demand.

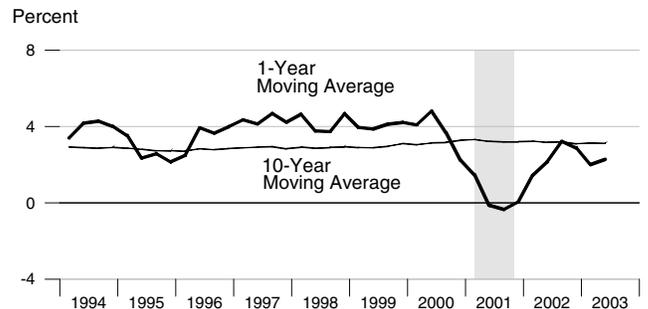
Calculated base growth is based on McCallum's rule. Actual base growth is percent change from year ago. See notes on page 19.

Components of McCallum's Rule

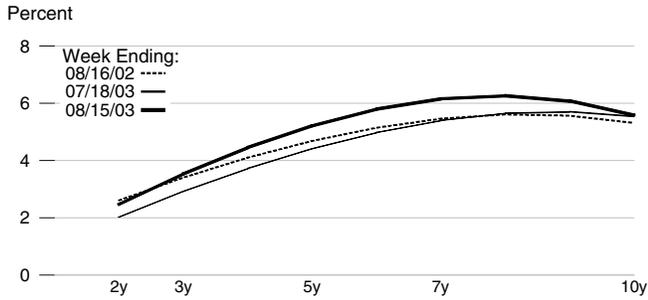
Monetary Base Velocity Growth



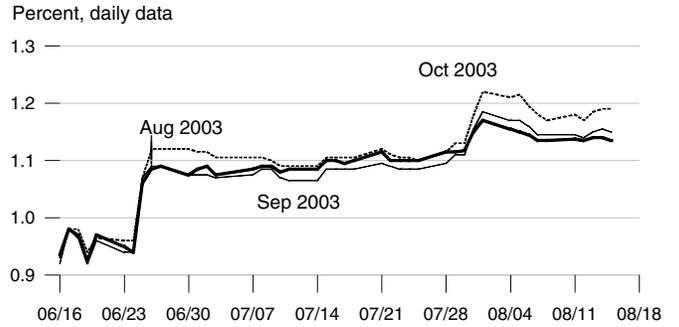
Real Output Growth



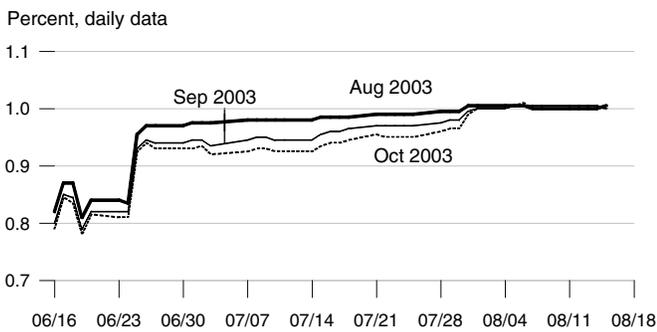
Implied One-Year Forward Rates



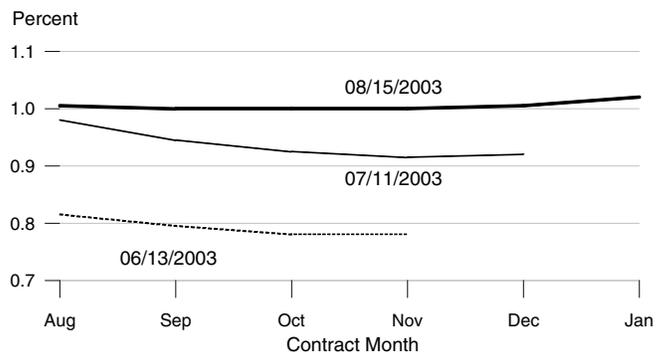
Rates on 3-Month Eurodollar Futures



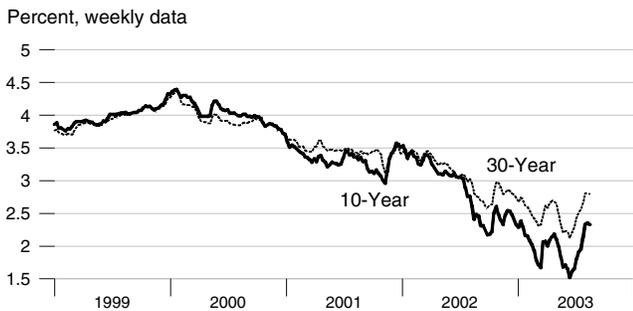
Rates on Selected Federal Funds Futures Contracts



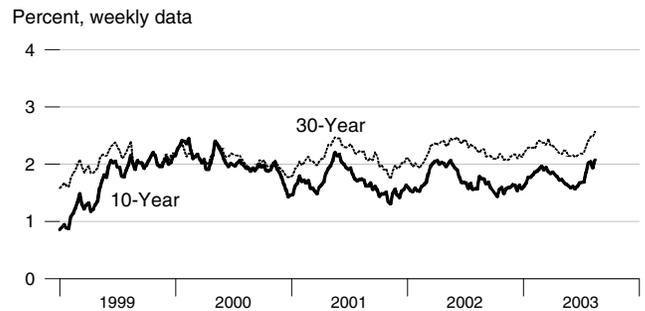
Rates on Federal Funds Futures on Selected Dates



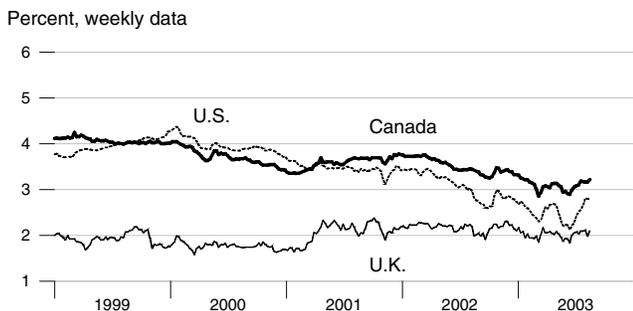
Inflation-Indexed Treasury Bonds



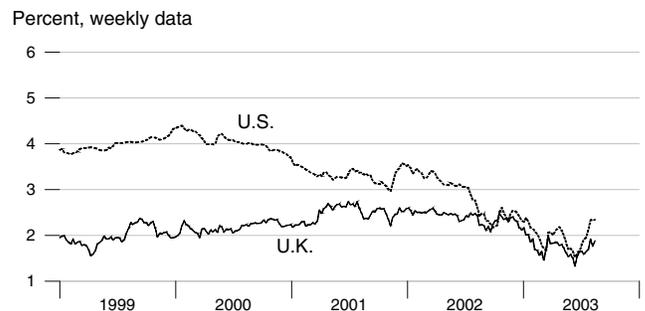
Inflation-Indexed Treasury Yield Spreads



Inflation-Indexed 30-Year Government Bonds

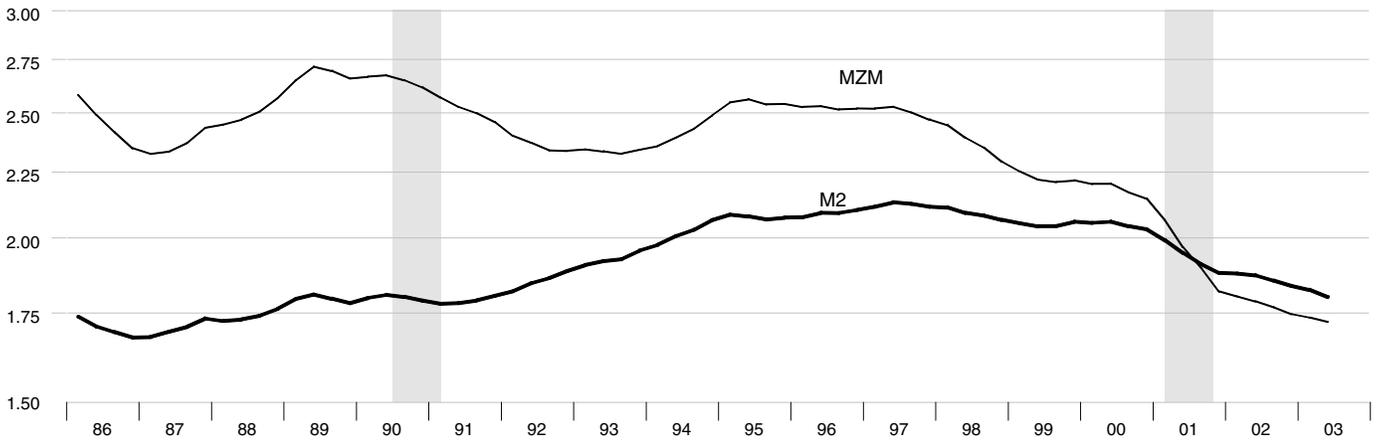


Inflation-Indexed 10-Year Government Bonds



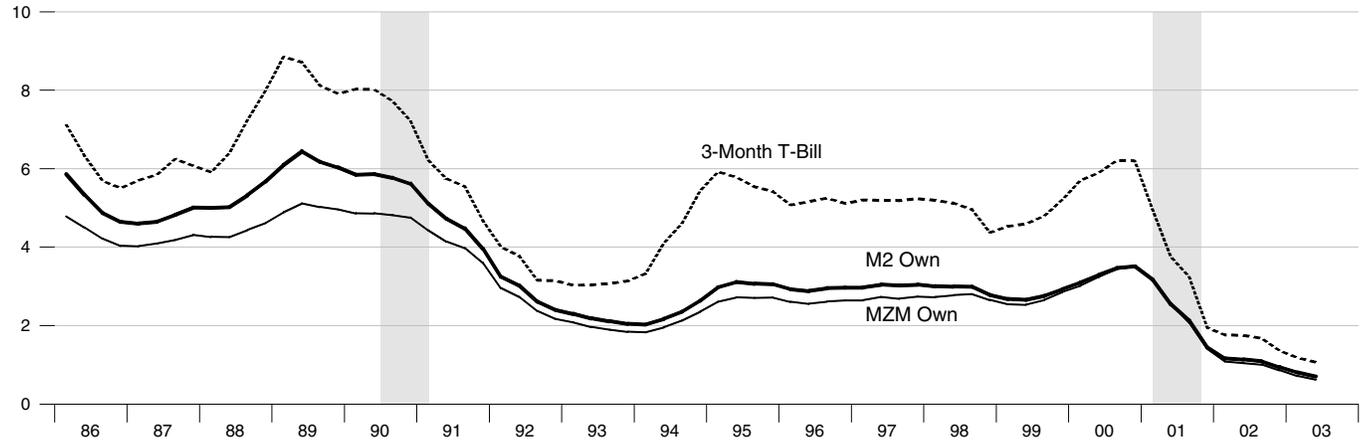
Velocity

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



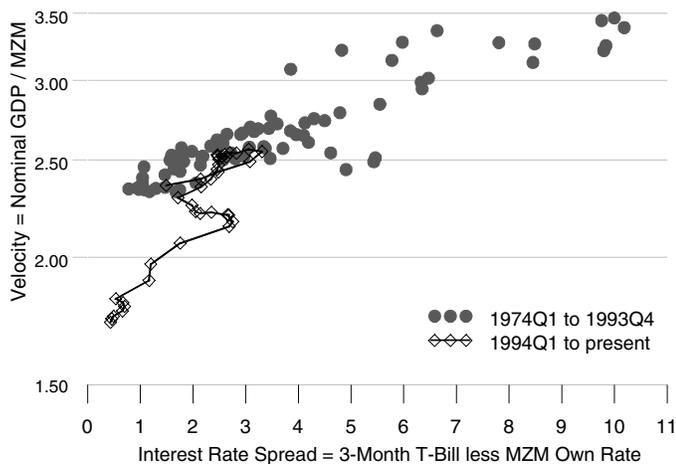
Interest Rates

Percent



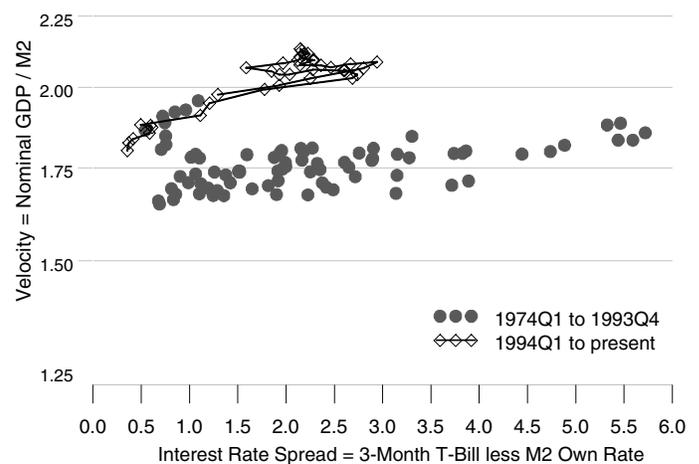
MZM Velocity and Interest Rate Spread

Ratio Scale



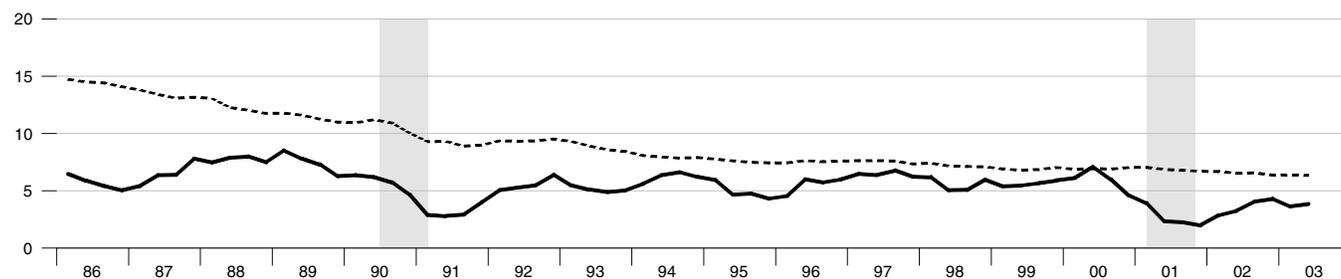
M2 Velocity and Interest Rate Spread

Ratio Scale



Gross Domestic Product

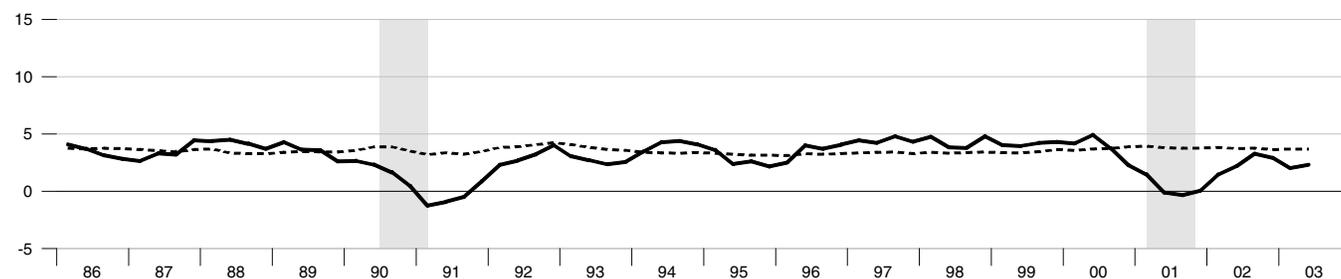
Percent change from year ago



Dashed lines indicate 10-year moving averages.

Real Gross Domestic Product

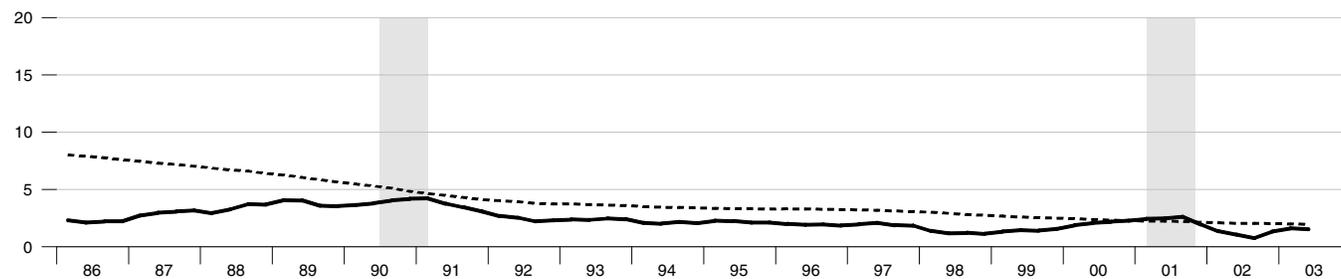
Percent change from year ago



Dashed lines indicate 10-year moving averages.

Gross Domestic Product Price Index

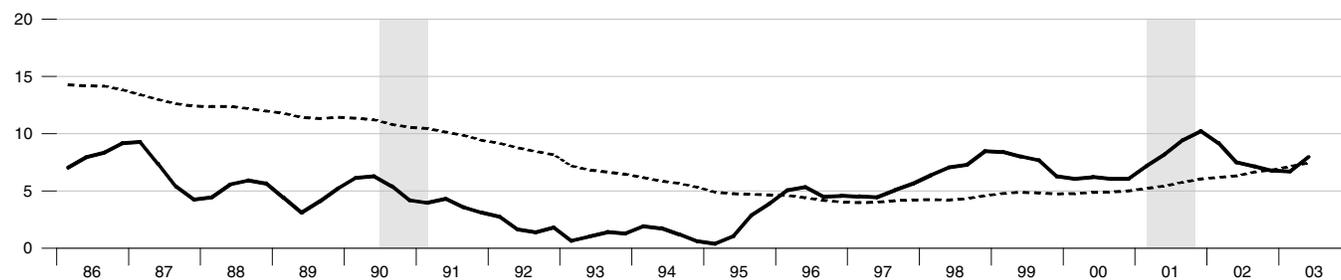
Percent change from year ago



Dashed lines indicate 10-year moving averages.

M2

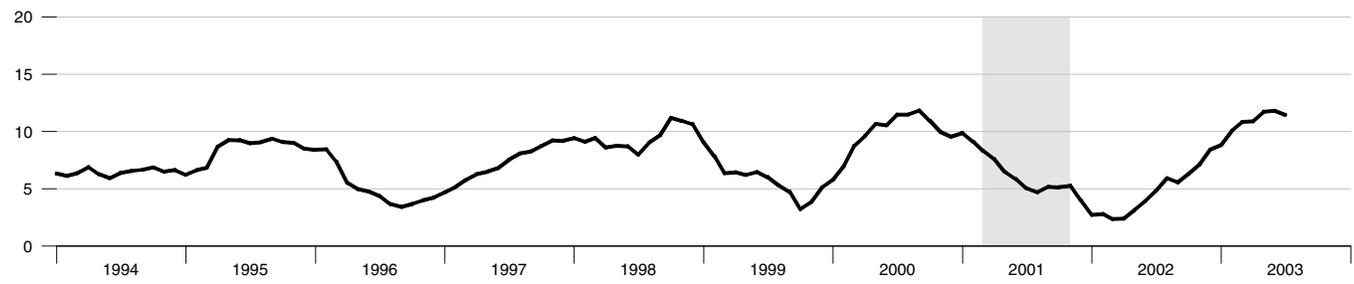
Percent change from year ago



Dashed lines indicate 10-year moving averages.

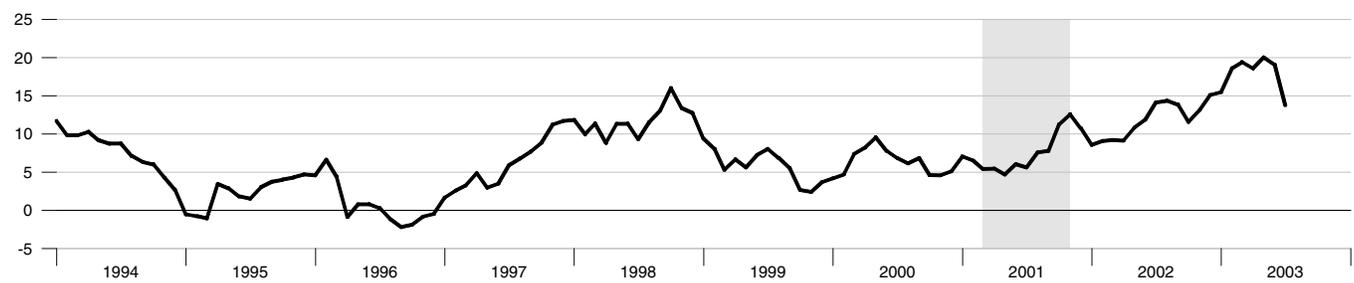
Bank Credit

Percent change from year ago



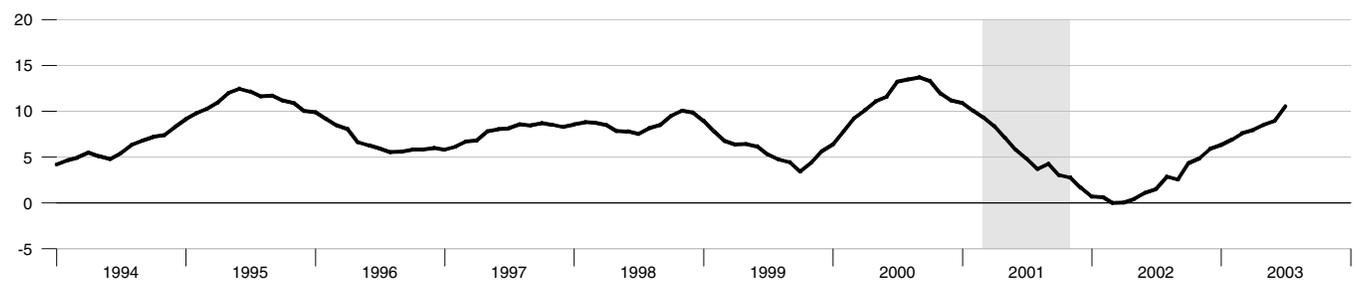
Investment Securities in Bank Credit at Commercial Banks

Percent change from year ago



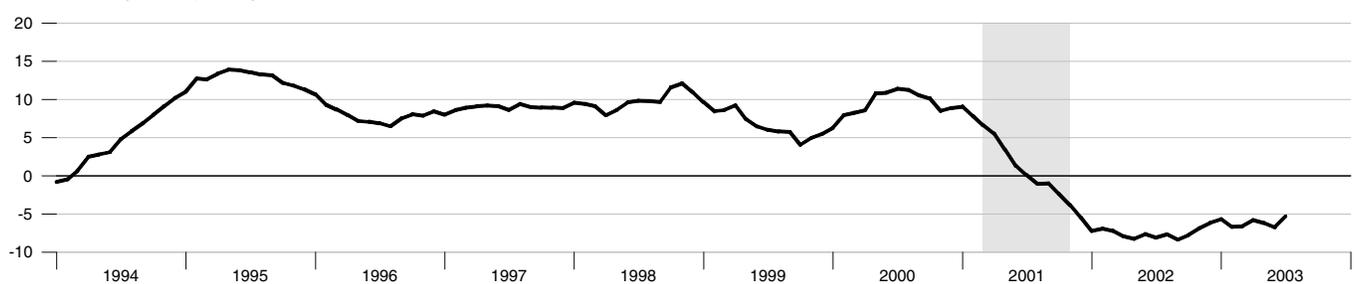
Total Loans and Leases in Bank Credit at Commercial Banks

Percent change from year ago

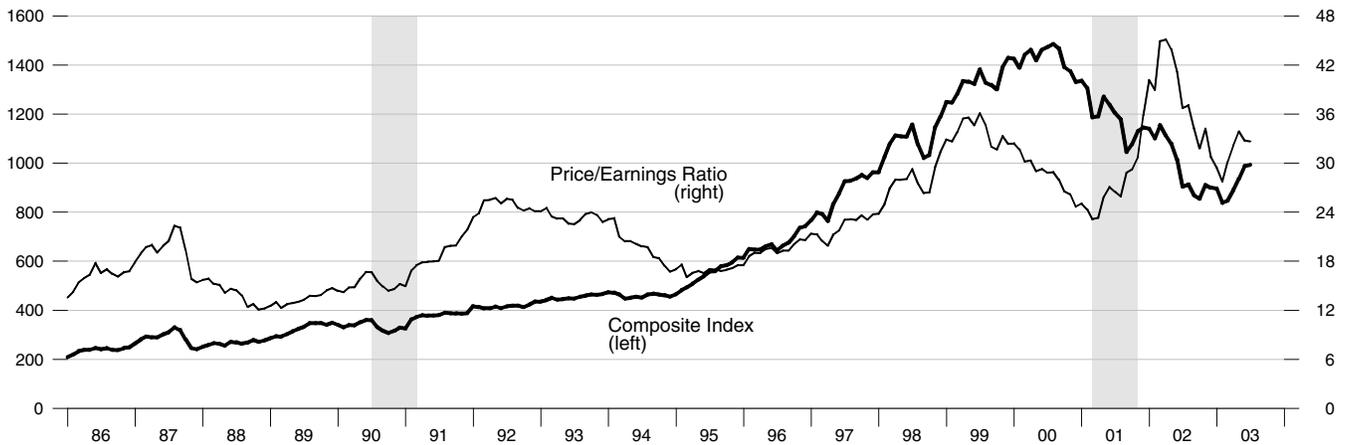


Commercial and Industrial Loans at Commercial Banks

Percent change from year ago



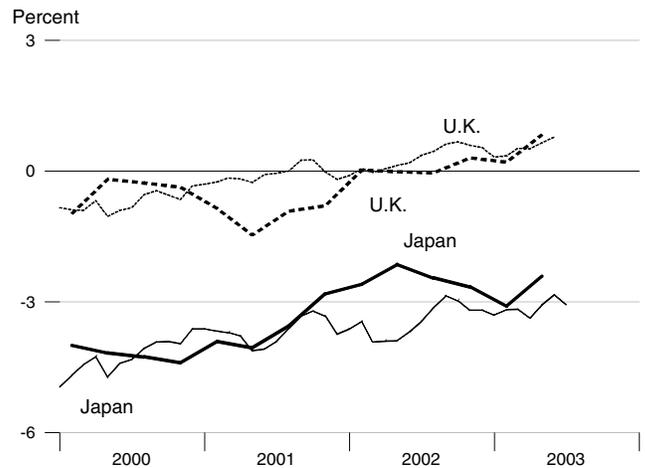
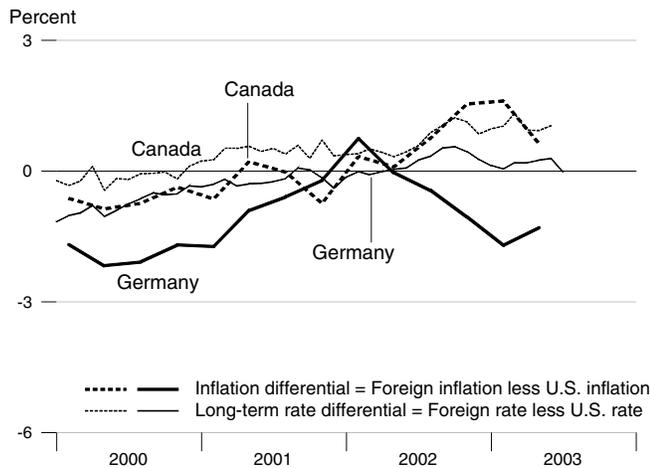
Standard & Poor's 500



Recent Inflation and Long-Term Interest Rates

	Consumer Price Inflation Rates				Long-Term Government Bond Rates			
	Percent change from year ago				Percent			
	2002Q3	2002Q4	2003Q1	2003Q2	Apr03	May03	Jun03	Jul03
United States	1.58	2.25	2.87	2.17	3.96	3.57	3.33	3.98
Canada	2.33	3.79	4.47	2.81	4.90	4.50	4.37	.
France	1.75	2.14	2.38	1.92	4.49	3.88	3.93	.
Germany	1.14	1.20	1.17	0.87	4.15	3.82	3.62	3.97
Italy	2.41	2.77	2.72	2.67	4.31	4.04	4.13	.
Japan	-0.87	-0.40	-0.23	-0.24	0.59	0.50	0.49	0.92
United Kingdom	1.53	2.56	3.07	3.01	4.47	4.22	4.11	.

Inflation and Long-Term Interest Rate Differentials



		Money Stock				Bank	Adjusted		
		M1	MZM	M2	M3	Credit	Monetary Base	Reserves	MSI M2
1998		1079.870	3709.460	4207.773	5749.669	4325.717	525.184	84.060	241.553
1999		1101.495	4170.041	4525.775	6252.402	4578.437	574.181	88.664	257.899
2000		1103.401	4507.616	4801.194	6841.028	5027.373	607.106	84.511	272.522
2001		1136.611	5218.970	5221.875	7620.986	5345.578	641.167	85.931	296.258
2002		1190.256	5886.105	5619.389	8228.818	5593.932	697.071	87.924	319.376
2001	1	1100.135	4855.412	5032.809	7275.901	5272.530	619.676	82.207	285.331
	2	1116.115	5107.226	5160.071	7542.994	5313.769	629.484	82.722	292.818
	3	1162.814	5327.136	5291.533	7725.814	5363.259	651.930	90.906	300.508
	4	1167.377	5586.105	5403.087	7939.235	5432.755	663.578	87.887	306.373
2002	1	1183.762	5724.013	5494.506	8055.002	5411.145	680.264	88.157	311.585
	2	1181.599	5809.887	5546.291	8137.333	5481.301	692.937	86.979	315.238
	3	1190.547	5944.733	5668.776	8281.752	5654.944	702.753	86.820	322.266
	4	1205.117	6065.788	5767.982	8441.184	5828.339	712.330	89.741	328.413
2003	1	1227.840	6160.958	5862.334	8559.355	5947.433	726.820	90.923	334.384
	2	1255.972	6260.004	5986.618	8688.853	6109.940	738.225	91.824	342.014
2001	Jul	1138.001	5247.612	5232.558	7666.166	5323.585	638.344	84.123	297.028
	Aug	1149.222	5281.126	5265.733	7676.583	5345.576	645.817	83.517	299.264
	Sep	1201.220	5452.671	5376.309	7834.693	5420.615	671.628	105.077	305.233
	Oct	1163.909	5511.502	5362.212	7869.722	5415.650	663.798	91.551	304.237
	Nov	1165.335	5585.291	5402.608	7943.632	5447.829	661.381	86.229	306.399
	Dec	1172.887	5661.523	5444.441	8004.351	5434.785	665.556	85.880	308.482
2002	Jan	1179.038	5682.552	5468.550	8016.074	5408.671	673.713	87.296	310.003
	Feb	1185.171	5737.146	5506.972	8067.869	5416.167	681.914	89.238	312.215
	Mar	1187.077	5752.342	5507.995	8081.063	5408.598	685.165	87.936	312.538
	Apr	1172.605	5750.446	5494.617	8083.141	5433.901	689.008	88.352	312.458
	May	1183.278	5818.325	5557.095	8150.281	5482.653	692.736	86.588	315.712
	Jun	1188.913	5860.890	5587.162	8178.576	5527.348	697.068	85.998	317.545
	Jul	1195.803	5908.516	5634.983	8224.290	5580.103	701.032	86.100	320.043
	Aug	1184.532	5950.535	5672.855	8290.107	5662.376	702.878	86.382	322.451
	Sep	1191.305	5975.149	5698.489	8330.860	5722.354	704.350	87.978	324.304
	Oct	1202.680	5977.528	5736.336	8341.483	5757.151	710.664	89.827	326.546
	Nov	1202.252	6087.124	5776.231	8463.682	5835.969	712.472	89.818	328.843
	Dec	1210.419	6132.711	5791.378	8518.387	5891.896	713.853	89.578	329.850
2003	Jan	1213.013	6131.419	5820.994	8518.273	5885.756	719.528	89.508	331.950
	Feb	1233.462	6172.621	5875.886	8566.060	5962.820	728.657	91.901	335.139
	Mar	1237.044	6178.835	5890.122	8593.732	5993.723	732.276	91.360	336.062
	Apr	1237.412	6185.526	5913.371	8608.874	6025.309	736.488	92.370	337.923
	May	1258.330	6260.521	6000.085	8697.388	6124.795	738.668	91.495	342.593
	Jun	1272.173	6333.965	6046.398	8760.296	6179.716	739.518	91.608	345.526
	Jul	1277.325	6434.333	6094.284	8919.459	6219.222	741.179	93.448	348.616

*All values are given in billions of dollars.

		Federal	Discount	Primary	Prime	3-mo	Treasury Yields			Corporate	S & L	Conventional
		Funds	Rate	Credit Rate	Rate		CDs	3-mo	3-yr	10-yr	Aaa Bonds	
1998		5.35	4.92		8.35	5.47	4.91	5.14	5.26	6.53	4.93	6.94
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
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
2001	Jul	3.77	3.25		6.75	3.66	3.59	4.31	5.24	7.13	5.04	7.13
	Aug	3.65	3.16		6.67	3.48	3.44	4.04	4.97	7.02	4.89	6.95
	Sep	3.07	2.77		6.28	2.87	2.69	3.45	4.73	7.17	4.93	6.82
	Oct	2.49	2.02		5.53	2.31	2.20	3.14	4.57	7.03	4.89	6.62
	Nov	2.09	1.58		5.10	2.03	1.91	3.22	4.65	6.97	4.85	6.66
	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

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

		M1	MZM	M2	M3
Percent change at an annual rate					
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	1998	0.99	11.67	7.29	10.36
	1999	2.00	12.42	7.56	8.74
	2000	0.17	8.10	6.09	9.41
	2001	3.01	15.78	8.76	11.40
	2002	4.72	12.78	7.61	7.98
<hr/>					
2001	1	2.71	18.61	10.65	13.24
	2	5.81	20.75	10.11	14.68
	3	16.74	17.22	10.19	9.69
	4	1.57	19.45	8.43	11.05
2002	1	5.61	9.88	6.77	5.83
	2	-0.73	6.00	3.77	4.09
	3	3.03	9.28	8.83	7.10
	4	4.90	8.15	7.00	7.70
2003	1	7.54	6.28	6.54	5.60
	2	9.16	6.43	8.48	6.05
<hr/>					
2001	Jul	12.97	12.42	7.94	6.03
	Aug	11.83	7.66	7.61	1.63
	Sep	54.30	38.98	25.20	24.72
	Oct	-37.27	12.95	-3.15	5.37
	Nov	1.47	16.07	9.04	11.27
	Dec	7.78	16.38	9.29	9.17
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2002	Jan	6.29	4.46	5.31	1.76
	Feb	6.24	11.53	8.43	7.75
	Mar	1.93	3.18	0.22	1.96
	Apr	-14.63	-0.40	-2.91	0.31
	May	10.92	14.16	13.64	9.97
	Jun	5.71	8.78	6.49	4.17
	Jul	6.95	9.75	10.27	6.71
	Aug	-11.31	8.53	8.07	9.60
	Sep	6.86	4.96	5.42	5.90
	Oct	11.46	0.48	7.97	1.53
	Nov	-0.43	22.00	8.35	17.58
	Dec	8.15	8.99	3.15	7.76
<hr/>					
2003	Jan	2.57	-0.25	6.14	-0.02
	Feb	20.23	8.06	11.32	6.73
	Mar	3.48	1.21	2.91	3.88
	Apr	0.36	1.30	4.74	2.11
	May	20.29	14.55	17.60	12.34
	Jun	13.20	14.08	9.26	8.68
	Jul	4.86	19.02	9.50	21.80

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).

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 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, 1996b, 2001).

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, 2001).

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; additional data are available 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: **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 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 Department 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/fred/data/wkly.html. See also *Federal Reserve Bulletin*, table 1.35. The 30-year constant maturity series was discontinued by the Treasury Department 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 $((y_t - y_{t-40})/40) \times 4 \times 100$, 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 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 bond for Canada has a maturity date of 12/01/2031, 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 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 1996 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 1996 dollars.

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

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

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: 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:** Articles from this Bank's *Review* are available on the Internet at research.stlouisfed.org/publications/review/.