$((y_t - y_{t-40})/40)$? 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 $m = 1,\ldots,$ 10 years to maturity are obtained by linear interpolation between reported yields. These yields are smoothed by fitting the regression suggested by Nelson and Siegel (1987),

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

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 $D(m) = (1 - e^{-R(m)\,?\,m})/R(m)$. These rates are linear approximations to the true instantaneous forward rates; see Shiller (1990). For a discussion of the use of forward rates as indicators of inflation expectations, see Sharpe (1997). **Rates on 3-Month Eurodollar Futures** and **Rates on Selected Federal Funds Futures Contracts** trace through time the yield on three specific contracts. **Rates on Federal Funds Futures on Selected Dates** displays a single day's snapshot of yields for contracts expiring in the months shown on the horizontal axis. **Inflation-Indexed Treasury Securities and Yield Spreads** are those plotted on page 3. **Inflation-Indexed 10-Year Government Notes** shows the yield of an inflation-indexed note that is scheduled to mature in approximately (but not greater than) 10 years. The current French note has a maturity date of 7/25/2015, the current U.K. note has a maturity date of 8/16/2013, and the current U.S. note has a maturity date of 1/15/2018. **Inflation-Indexed Treasury Yield Spreads** and **Inflation-Indexed 10-Year Government Yield Spreads** equal the difference between the yields on the most recently issued inflation-indexed securities and the unadjusted security yields of similar maturity.

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

Page 13: **Real Gross Domestic Product** is GDP as measured in chained 2000 dollars. The **Gross Domestic Product Price Index** is the implicit price deflator for GDP, which is defined by the Bureau of Economic Analysis, U.S. Department of Commerce, as the ratio of GDP measured in current dollars to GDP measured in chained 2000 dollars.

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

Page 15: **Inflation Rate Differentials** are the differences between the foreign consumer price inflation rates and year-over-year changes in the U.S. all-items Consumer Price Index.

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

Sources

Agence France Trésor: French note yields.

Bank of Canada: Canadian note yields.

Bank of England: U.K. note 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. security yields.

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Taylor, John B. (1993). "Discretion versus Policy Rules in Practice," *Carnegie-Rochester Conference Series on Public Policy*, vol. 39, pp. 195-214.

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

Monetary Trends

December 2008

The Great Recapitalization

On October 14, 2008, the U.S. Treasury announced a voluntary Capital Purchase Program intended to increase the flow of financing to U.S. businesses and consumers. Under the program, the Treasury will inject capital directly into the banking system by purchasing senior preferred equity shares from certain depository financial institutions. Historical precedents exist for these measures, including the bolstering of bank capital with U.S. government funds by the Reconstruction Finance Corporation in the 1930s and the recapitalization of banks by governments in the Nordic countries in the 1990s. This new Treasury recapitalization program is simply the latest policy action of its kind, implemented to respond to recent changes in market perceptions of the risks facing the U.S. banking sector.

During the past several decades, U.S. commercial banks have diversified, continually moving away from their traditional deposit-taking and lending business into lending that is not financed by deposits or by other bank liabilities. Beginning in the 1970s, securitization permitted banks to originate and sell loans, rather than holding loans on their balance sheets. Banks developed new instruments—such as leveraged loans and guarantees on commercial paper—that allowed participation in commercial lending without on-balance-sheet intermediation. This trend was accelerated, to some extent, by the incentive to avoid new regulations and increased capital requirements. The innovations were widely regarded as effectively strengthening the banking system. For example, a 2003 analysis observed that "the improvements in risk management offered by securitization, loan syndication, and hedging via derivatives instruments have helped banks shed unwanted risks."[1]

Recent financial turmoil has strained bank balance sheets and called into question previous opinion on how securitization would affect bank risk. Many highly leveraged loans became unmarketable. Contingent liabilities, such as letters of credit, became burdensome as banks found themselves obliged to bring onto their balance sheets these securities whose market prices were substantially below the original values. House price declines called into question the value of mortgage-based derivatives, while the government conservatorship of Fannie Mae and Freddie Mac, as well as the Lehman Brothers collapse, meant that banks incurred losses on their investments in these institutions. The deteriorating outlook has led financial institutions to become more conservative in their loan-making policies and more prudent overall: Banks are rebuilding their capital at the same time that equity price declines have damaged their capital base. One clear result of the retrenchment of banks and the deterioration of balance sheets is the high spread on interest rates on interbank loans (which have risen) over returns on Treasury securities (which have declined).

This contractionary pressure on banks' balance sheets, furthermore, comes when considerations about stabilizing the economy justify the expansion of banks' portfolios at a faster rate. The Treasury's Capital Purchase Program therefore can be seen from a macroeconomic perspective as a means of arresting the contractionary pressure on the economy. Bank equity capital is a bank liability, as are deposits. Bank equity capital is being boosted by the official recapitalization program, and the safety of deposits has been reinforced by recent legislated increases in deposit insurance. These policy measures shore up the liabilities side of the bank's balance sheet and, in so doing, encourage expansion of the asset side. These effects help subdue and reverse pressure for financial and economic contraction.

—Edward Nelson

[1] Krainer, John and Lopez, Jose A. "The Current Strength of the U.S. Banking Sector." Federal Reserve Bank of San Francisco *Economic Letter*, Number 2003-37, December 19, 2003, pp. 1-3; www.frbsf.org/publications/economics/letter/2003/el2003-37.html.

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

Contents

Page

3	Monetary and Financial Indicators at a Glance
4	Monetary Aggregates and Their Components
6	Monetary Aggregates: Monthly Growth
7	Reserves Markets and Short-Term Credit Flows
8	Measures of Expected Inflation
9	Interest Rates
10	Policy-Based Inflation Indicators
11	Implied Forward Rates, Futures Contracts, and Inflation-Indexed Securities
12	Velocity, Gross Domestic Product, and M2
14	Bank Credit
15	Stock Market Index and Foreign Inflation and Interest Rates
16	Reference Tables
18	Definitions, Notes, and Sources

Conventions used in this publication:

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

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

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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 ($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 *Statistical Supplement to the 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** and **Real Treasury Yield Curve** show constant maturity yields calculated by the U.S. Treasury for securities 5, 7, 10, and 20 years to maturity. **Inflation-Indexed Treasury Yield Spreads** are a measure of inflation compensation at those horizons, and it is simply the nominal constant maturity yield less the real constant maturity yield. Daily data and descriptions are available at research.stlouisfed.org/fred2/. See also *Statistical Supplement to the Federal Reserve Bulletin*, table 1.35. The 30-year constant maturity series was discontinued by the Treasury as of February 18, 2002.

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

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

Page 8: **Inflation Expectations** measures include the quarterly Federal Reserve Bank of Philadelphia *Survey of Professional Forecasters*, the monthly University of Michigan Survey Research Center's *Surveys of Consumers*, and the annual Federal Open Market Committee (FOMC) range as reported to the Congress in the February testimony that accompanies the Monetary Policy Report to the Congress. Beginning February 2000, the FOMC began using the personal consumption expenditures (PCE) price index to report its inflation range; the FOMC then switched to the PCE chain-type price index excluding food and energy prices ("core") beginning July 2004. Accordingly, neither are shown on this graph. **CPI Inflation** is the percentage change from a year ago in the consumer price index for all urban consumers. **Real Interest Rates** are ex post measures, equal to nominal rates minus year-over-year CPI inflation.

From 1991 to the present the source of the long-term PCE inflation expectations data is the Federal Reserve Bank of Philadelphia's *Survey of Professional Forecasters*. Prior to 1991, the data were obtained from the Board of Governors of the Federal Reserve System. Realized (actual) inflation is the annualized rate of change for the 40-quarter period that corresponds to the forecast horizon (the expectations measure). For example, in 1965:Q1, annualized PCE inflation over the next 40 quarters was expected to average 1.7 percent. In actuality, the average annualized rate of change measured 4.8 percent from 1965:Q1 to 1975:Q1. Thus, the vertical distance between the two lines in the chart at any point is the forecast error.

Page 9: **FOMC Intended Federal Funds Rate** is the level (or midpoint of the range, if applicable) of the federal funds rate that the staff of the FOMC expected to be consistent with the desired degree of pressure on bank reserve positions. In recent years, the FOMC has set an explicit target for the federal funds rate.

Page 10: **Federal Funds Rate and Inflation Targets** shows the observed federal funds rate, quarterly, and the level of the funds rate implied by applying Taylor's (1993) equation

$$f_t^* = 2.5 + \neq_{t-1} + (\neq_{t-1} - \neq^*)/2 + 100\ ?\ (y_{t-1} - y_{t-1}^P)/2$$

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

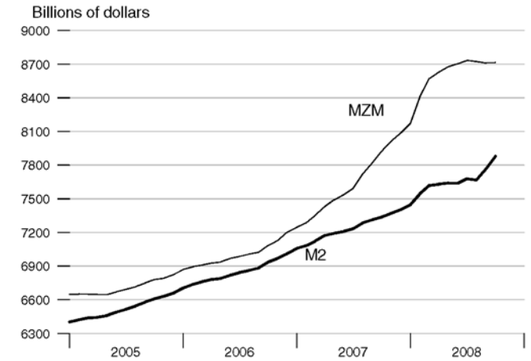
$$\varnothing MB_t^* = \neq^* + (\text{10-year moving average growth of real GDP}) - (\text{4-year moving average of base velocity growth})$$

to five alternative target inflation rates, $\neq^* = 0, 1, 2, 3, 4$ percent, where $\varnothing MB_t^*$ 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

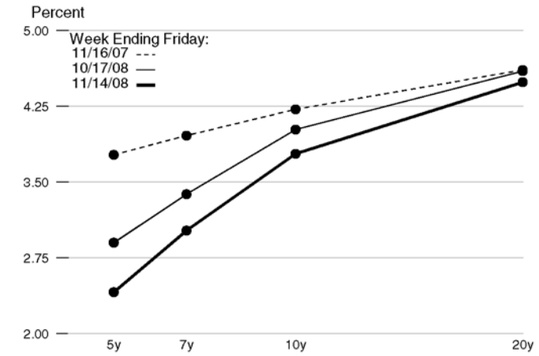
		M1	MZM	M2	M3*
Percent change at an annual rate					
2003		6.46	7.30	6.88	6.40
2004		5.57	3.98	4.73	5.09
2005		2.03	2.08	4.28	5.97
2006		0.19	4.31	4.99	4.95
2007		-0.35	9.01	5.70	
2006	1	1.98	5.38	6.12	
	2	-0.55	3.10	3.70	
	3	-3.68	3.54	3.93	
	4	0.36	7.55	6.38	
2007	1	0.43	8.82	6.63	
	2	0.88	10.41	5.84	
	3	-1.37	12.12	4.74	
	4	-0.31	15.34	5.15	
2008	1	1.33	18.79	9.03	
	2	0.99	13.56	5.25	
	3	12.18	2.49	3.63	
2006	Oct	6.13	10.06	8.92	
	Nov	2.70	7.67	6.10	
	Dec	-3.91	12.38	6.97	
2007	Jan	5.27	7.30	7.92	
	Feb	-4.40	6.92	4.45	
	Mar	2.03	10.70	6.68	
	Apr	6.92	12.68	8.36	
	May	-2.11	9.46	3.33	
	Jun	-8.16	7.67	2.77	
	Jul	2.26	8.96	3.87	
	Aug	1.25	20.30	8.70	
	Sep	-3.10	15.63	4.59	
	Oct	2.73	15.65	3.99	
	Nov	-3.39	13.67	5.56	
	Dec	0.80	10.66	5.21	
2008	Jan	0.58	12.88	7.23	
	Feb	4.93	35.15	15.78	
	Mar	2.18	22.36	11.34	
	Apr	-3.50	8.22	2.08	
	May	-2.84	6.68	1.48	
	Jun	15.89	3.85	-0.32	
	Jul	14.86	4.15	6.41	
	Aug	-7.99	-1.38	-1.50	
	Sep	51.51	-1.70	15.52	
	Oct	15.87	0.42	16.95	

*See table of contents for changes to the series.

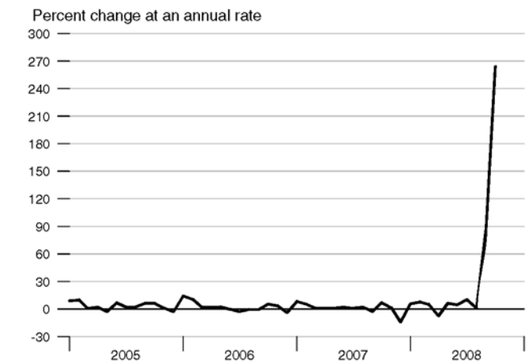
M2 and MZM



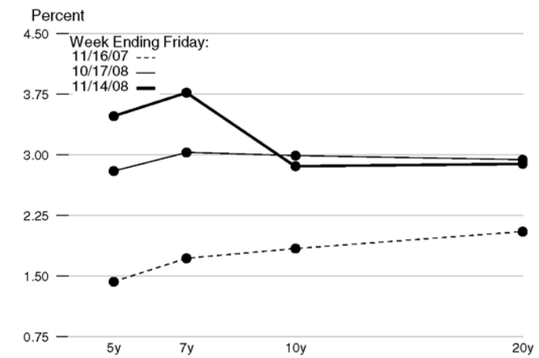
Treasury Yield Curve



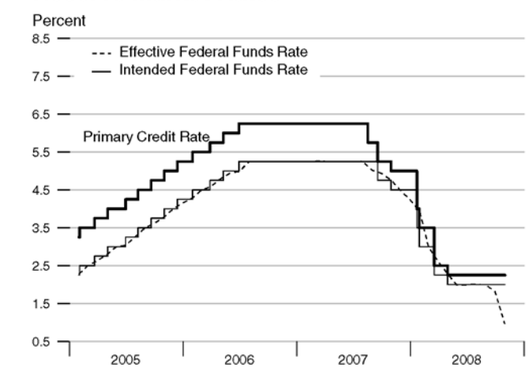
Adjusted Monetary Base



Real Treasury Yield Curve

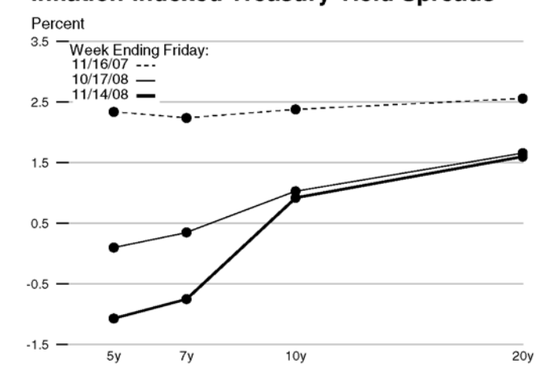


Reserve Market Rates



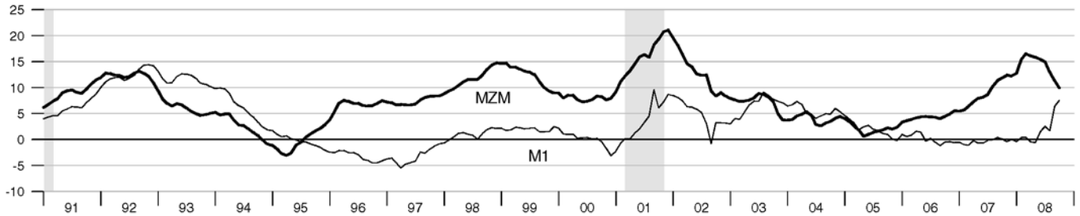
Data available as of October 2008.

Inflation-Indexed Treasury Yield Spreads



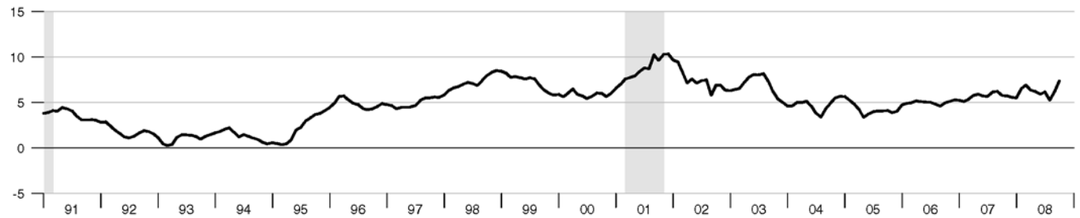
MZM and M1

Percent change from year ago



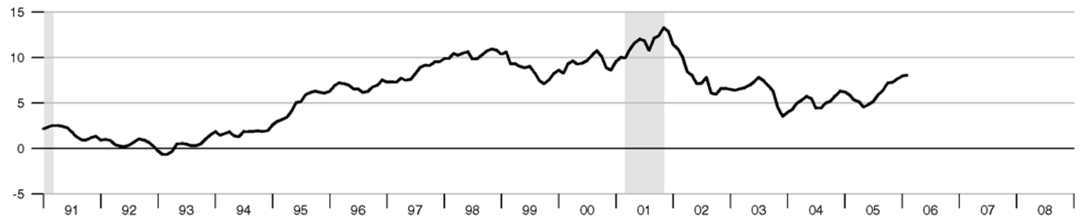
M2

Percent change from year ago



M3*

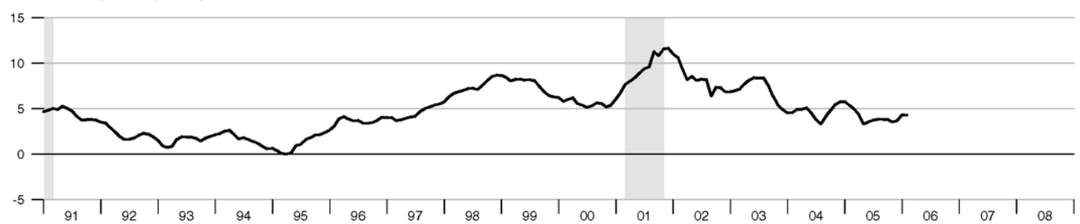
Percent change from year ago



*See table of contents for changes to the series.

Monetary Services Index - M2**

Percent change from year ago



**We will not update the MSI series until we revise the code to accomodate the discontinuation of M3.

		Federal Funds	Primary Credit Rate	Prime Rate	3-mo CDs	Treasury Yields 3-mo	3-yr	10-yr	Corporate Aaa Bonds	Municipal Aaa Bonds	Conventional Mortgage
2003		1.13	2.11	4.12	1.15	1.03	2.11	4.02	5.67	4.52	5.82
2004		1.35	2.34	4.34	1.56	1.40	2.78	4.27	5.63	4.50	5.84
2005		3.21	4.19	6.19	3.51	3.21	3.93	4.29	5.23	4.28	5.86
2006		4.96	5.96	7.96	5.15	4.85	4.77	4.79	5.59	4.15	6.41
2007		5.02	5.86	8.05	5.27	4.47	4.34	4.63	5.56	4.13	6.34
2006	1	4.46	5.43	7.43	4.72	4.50	4.58	4.57	5.39	4.29	6.24
	2	4.91	5.90	7.90	5.18	4.83	4.98	5.07	5.89	4.36	6.60
	3	5.25	6.25	8.25	5.39	5.03	4.87	4.90	5.68	4.13	6.56
	4	5.25	6.25	8.25	5.32	5.03	4.65	4.63	5.39	3.82	6.24
2007	1	5.26	6.25	8.25	5.31	5.12	4.68	4.68	5.36	3.91	6.22
	2	5.25	6.25	8.25	5.32	4.87	4.76	4.85	5.58	4.13	6.37
	3	5.07	5.93	8.18	5.42	4.42	4.41	4.73	5.75	4.27	6.55
	4	4.50	5.02	7.52	5.02	3.47	3.50	4.26	5.53	4.24	6.23
2008	1	3.18	3.67	6.21	3.23	2.09	2.17	3.66	5.46	4.39	5.88
	2	2.09	2.33	5.08	2.76	1.65	2.67	3.89	5.60	4.42	6.09
	3	1.94	2.25	5.00	3.06	1.52	2.63	3.86	5.65	4.46	6.31
2006	Oct	5.25	6.25	8.25	5.33	5.05	4.72	4.73	5.51	3.91	6.36
	Nov	5.25	6.25	8.25	5.32	5.07	4.64	4.60	5.33	3.81	6.24
	Dec	5.24	6.25	8.25	5.32	4.97	4.58	4.56	5.32	3.76	6.14
2007	Jan	5.25	6.25	8.25	5.32	5.11	4.79	4.76	5.40	3.89	6.22
	Feb	5.26	6.25	8.25	5.31	5.16	4.75	4.72	5.39	3.95	6.29
	Mar	5.26	6.25	8.25	5.30	5.08	4.51	4.56	5.30	3.88	6.16
	Apr	5.25	6.25	8.25	5.31	5.01	4.60	4.69	5.47	3.99	6.18
	May	5.25	6.25	8.25	5.31	4.87	4.69	4.75	5.47	4.04	6.26
	Jun	5.25	6.25	8.25	5.33	4.74	5.00	5.10	5.79	4.36	6.66
	Jul	5.26	6.25	8.25	5.32	4.96	4.82	5.00	5.73	4.24	6.70
	Aug	5.02	6.01	8.25	5.49	4.32	4.34	4.67	5.79	4.30	6.57
	Sep	4.94	5.53	8.03	5.46	3.99	4.06	4.52	5.74	4.26	6.38
	Oct	4.76	5.24	7.74	5.08	4.00	4.01	4.53	5.66	4.20	6.38
	Nov	4.49	5.00	7.50	4.97	3.35	3.35	4.15	5.44	4.26	6.21
	Dec	4.24	4.83	7.33	5.02	3.07	3.13	4.10	5.49	4.25	6.10
2008	Jan	3.94	4.48	6.98	3.84	2.82	2.51	3.74	5.33	4.13	5.76
	Feb	2.98	3.50	6.00	3.06	2.17	2.19	3.74	5.53	4.42	5.92
	Mar	2.61	3.04	5.66	2.79	1.28	1.80	3.51	5.51	4.63	5.97
	Apr	2.28	2.49	5.24	2.85	1.31	2.23	3.68	5.55	4.45	5.92
	May	1.98	2.25	5.00	2.66	1.76	2.69	3.88	5.57	4.34	6.04
	Jun	2.00	2.25	5.00	2.76	1.89	3.08	4.10	5.68	4.47	6.32
	Jul	2.01	2.25	5.00	2.79	1.66	2.87	4.01	5.67	4.44	6.43
	Aug	2.00	2.25	5.00	2.79	1.75	2.70	3.89	5.64	4.44	6.48
	Sep	1.81	2.25	5.00	3.59	1.15	2.32	3.69	5.65	4.49	6.04
	Oct	0.97	1.81	4.56	4.32	0.69	1.86	3.81	6.28	5.23	6.20

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

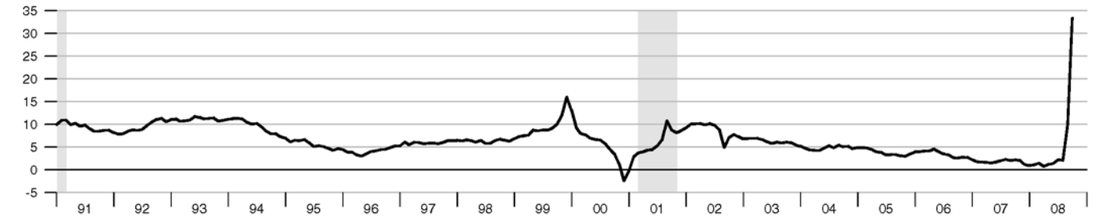
		Money Stock				Bank	Adjusted		
		M1	MZM	M2	M3*	Credit	Monetary Base	Reserves	MSI M2**
	2003	1273.484	6318.069	5967.902	8787.321	6118.966	740.938	93.325	315.192
	2004	1344.422	6569.804	6249.938	9234.718	6595.304	776.768	96.129	329.873
	2005	1371.780	6706.774	6517.356	9786.477	7244.412	806.628	96.560	343.539
	2006	1374.386	6995.516	6842.574	10270.74	7957.088	835.040	94.913	
	2007	1369.603	7626.162	7232.850		8743.307	850.578	94.200	
2006	1	1381.850	6891.629	6735.147		7621.982	830.534	96.495	
	2	1379.956	6945.088	6797.397		7883.623	836.387	95.082	
	3	1367.253	7006.517	6864.172		8037.437	834.610	94.829	
	4	1368.486	7138.831	6973.582		8285.309	838.627	93.247	
2007	1	1369.946	7296.282	7089.234		8426.782	846.309	94.122	
	2	1372.969	7486.247	7192.676		8563.884	849.918	93.557	
	3	1368.271	7713.138	7277.898		8834.607	852.266	95.428	
	4	1367.227	8008.981	7371.592		9147.954	853.821	93.692	
2008	1	1371.773	8385.200	7537.915		9354.571	856.319	96.177	
	2	1375.174	8669.503	7636.885		9395.114	859.325	94.389	
	3	1417.056	8723.376	7706.185		9462.619	892.683	117.633	
2006	Oct	1367.925	7084.115	6936.579		8227.077	837.884	93.955	
	Nov	1371.000	7129.412	6971.827		8275.357	840.308	94.689	
	Dec	1366.533	7202.966	7012.339		8353.494	837.690	91.097	
2007	Jan	1372.533	7246.756	7058.625		8393.945	843.494	94.186	
	Feb	1367.496	7288.538	7084.824		8460.136	847.258	94.424	
	Mar	1369.809	7353.552	7124.254		8426.264	848.174	93.757	
	Apr	1377.704	7431.242	7173.881		8506.172	848.961	93.602	
	May	1375.280	7489.817	7193.761		8563.990	849.615	92.772	
	Jun	1365.924	7537.682	7210.385		8621.491	851.179	94.298	
	Jul	1368.498	7593.947	7233.660		8705.330	851.857	94.604	
	Aug	1369.928	7722.440	7286.098		8842.190	853.437	96.647	
	Sep	1366.388	7823.027	7313.937		8956.300	851.505	95.032	
	Oct	1369.502	7925.050	7338.264		9057.189	856.460	93.525	
	Nov	1365.636	8015.346	7372.260		9180.338	857.515	95.757	
	Dec	1366.542	8086.547	7404.252		9206.335	847.487	91.793	
2008	Jan	1367.201	8173.321	7448.859		9273.957	851.441	95.083	
	Feb	1372.814	8412.758	7546.783		9334.389	856.944	96.197	
	Mar	1375.303	8569.521	7618.102		9455.368	860.571	97.250	
	Apr	1371.297	8628.210	7631.283		9408.850	855.241	94.379	
	May	1368.056	8676.231	7640.693		9402.533	859.685	94.935	
	Jun	1386.168	8704.067	7638.679		9373.958	863.050	93.853	
	Jul	1403.336	8734.172	7679.499		9398.277	870.540	96.796	
	Aug	1393.996	8724.140	7669.926		9414.481	871.333	96.422	
	Sep	1453.837	8711.816	7769.130		9575.099	936.176	159.682	
	Oct	1473.062	8714.868	7878.896		9961.035	1142.242	347.477	

Note: All values are given in billions of dollars. *See table of contents for changes to the series.

**We will not update the MSI series until we revise the code to accommodate the discontinuation of M3.

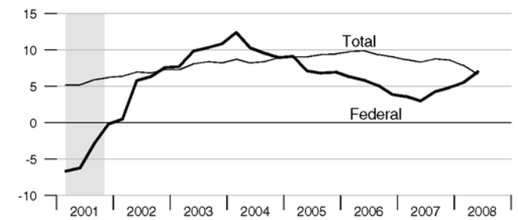
Adjusted Monetary Base

Percent change from year ago



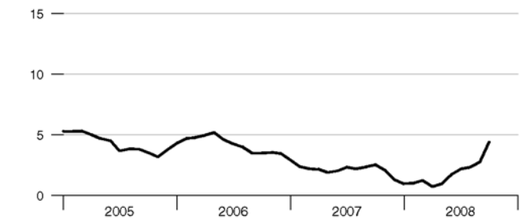
Domestic Nonfinancial Debt

Percent change from year ago



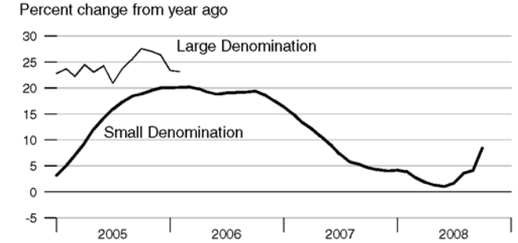
Currency Held by the Nonbank Public

Percent change from year ago



Time Deposits*

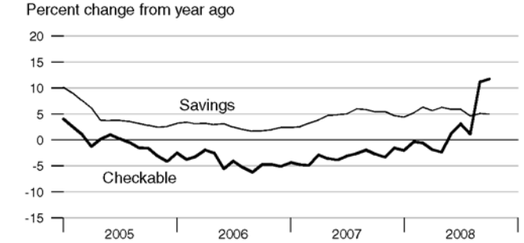
Percent change from year ago



*See table of contents for changes to the series.

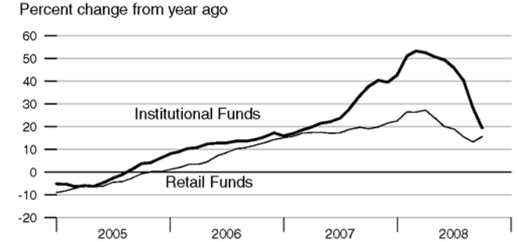
Checkable and Savings Deposits

Percent change from year ago



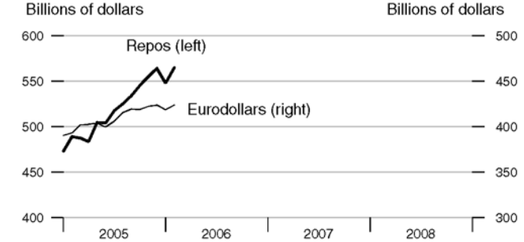
Money Market Mutual Fund Shares

Percent change from year ago



Repurchase Agreements and Eurodollars*

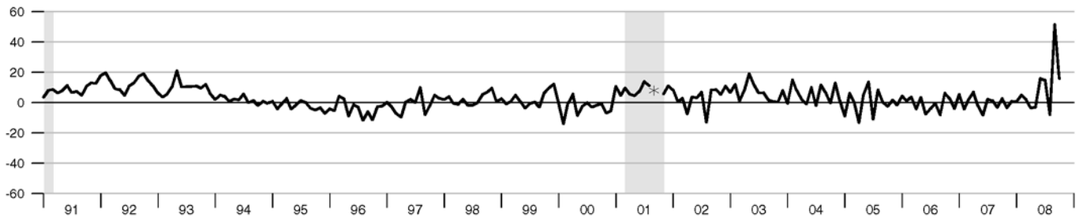
Billions of dollars | Billions of dollars



*See table of contents for changes to these series.

M1

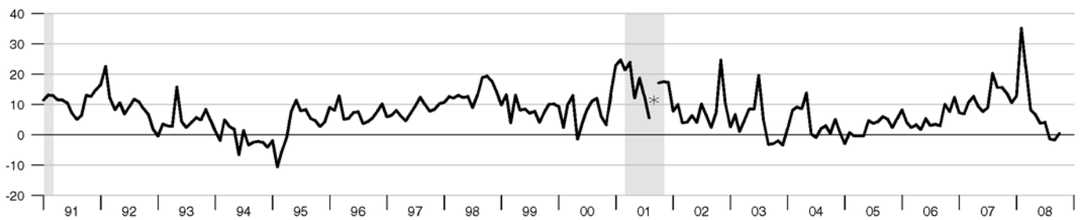
Percent change at an annual rate



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

MZM

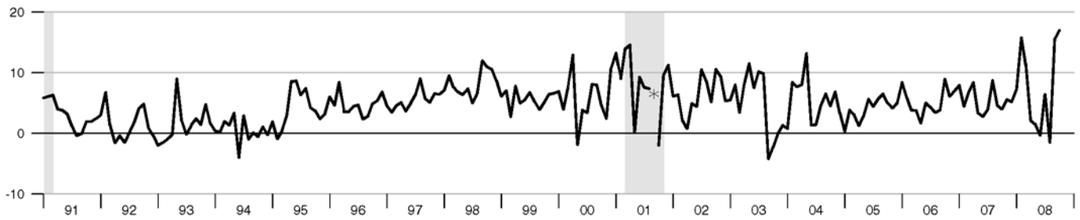
Percent change at an annual rate



*Actual value for September 2001 is 39.41 percent rate.

M2

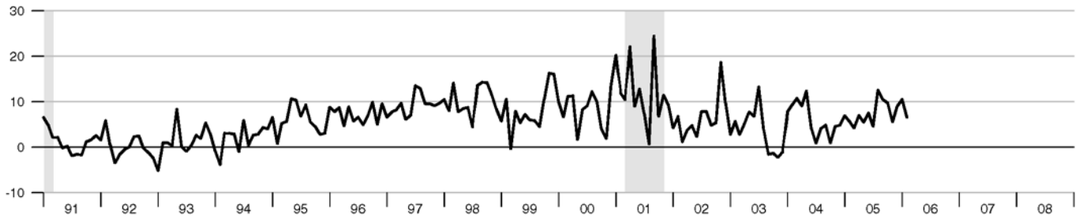
Percent change at an annual rate



*Actual value for September 2001 is 24.90 percent rate.

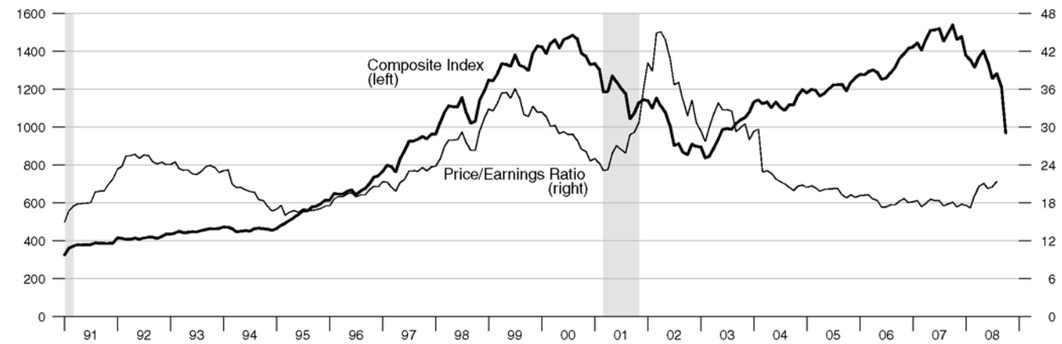
M3*

Percent change at an annual rate



*See table of contents for changes to the series.

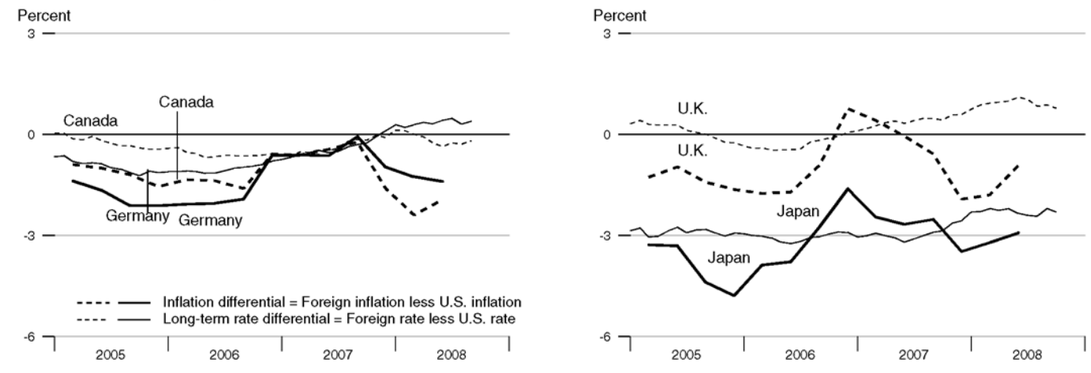
Standard & Poor's 500



Recent Inflation and Long-Term Interest Rates

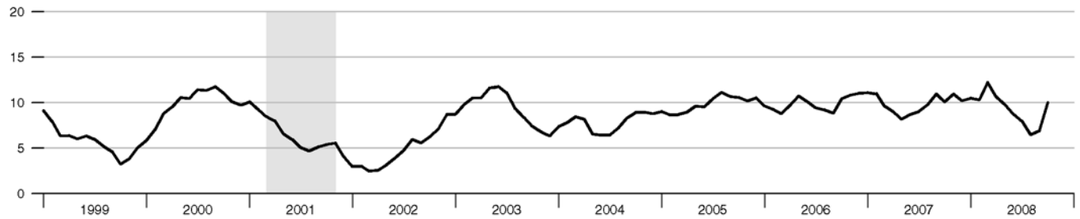
	Consumer Price Inflation Rates (Percent change from year ago)				Long-Term Government Bond Rates (Percent)			
	2007Q4	2008Q1	2008Q2	2008Q3	Jul08	Aug08	Sep08	Oct08
United States	4.01	4.17	4.29	5.27	4.01	3.89	3.69	3.81
Canada	2.41	1.78	2.35	.	3.76	3.60	3.50	.
France	2.34	2.95	3.30	.	4.69	4.40	.	.
Germany	3.04	2.92	2.90	.	4.49	4.20	4.09	.
Italy	2.36	3.06	3.57	3.97	5.09	4.81	4.80	.
Japan	0.53	0.96	1.37	.	1.61	1.47	1.49	1.51
United Kingdom	2.09	2.38	3.37	.	5.05	4.73	4.57	4.59

Inflation and Long-Term Interest Rate Differentials



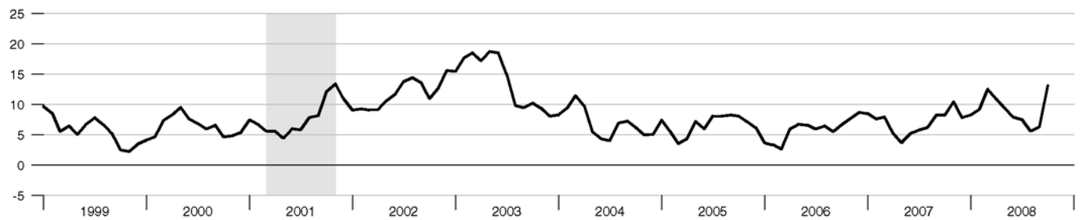
Bank Credit

Percent change from year ago



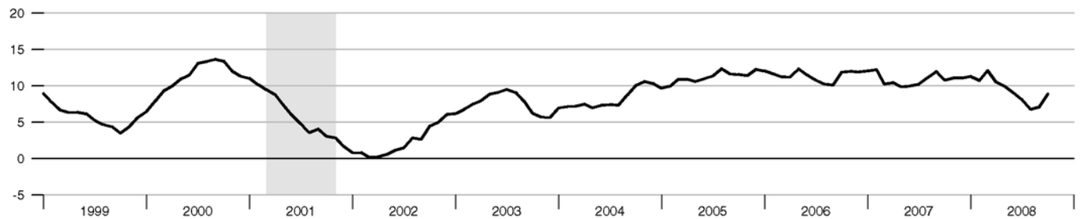
Investment Securities in Bank Credit at Commercial Banks

Percent change from year ago



Total Loans and Leases in Bank Credit at Commercial Banks

Percent change from year ago

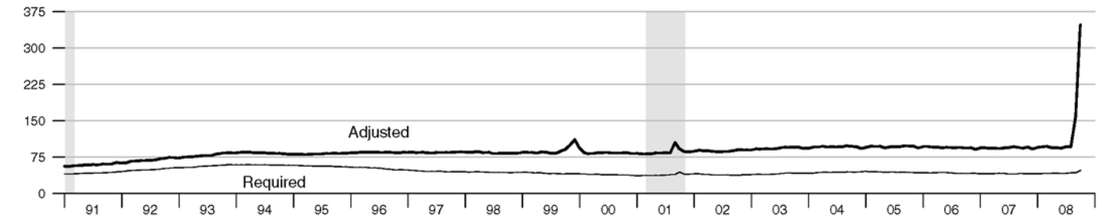


Commercial and Industrial Loans at Commercial Banks

Percent change from year ago

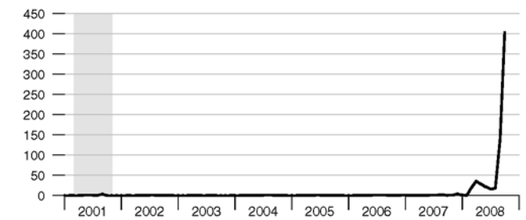
Adjusted and Required Reserves

Billions of dollars



Total Borrowings, nsa

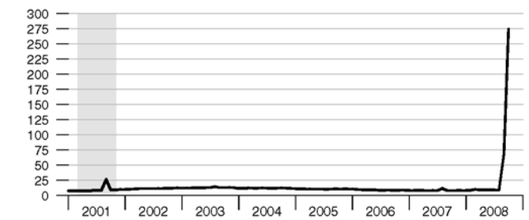
Billions of dollars



* Data exclude term auction credit

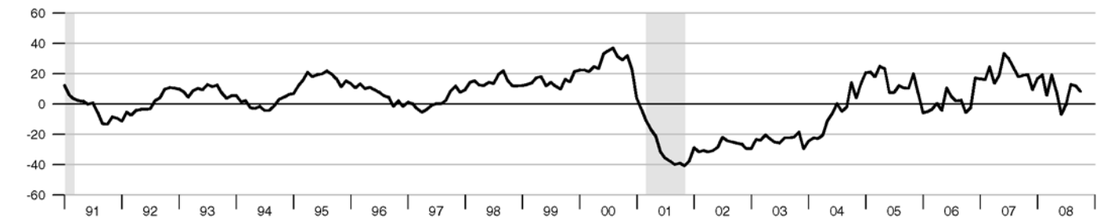
Excess Reserves plus RCB Contracts

Billions of dollars



Nonfinancial Commercial Paper

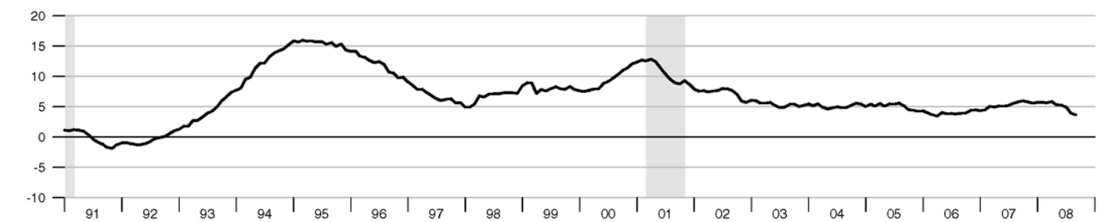
Percent change from year ago



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

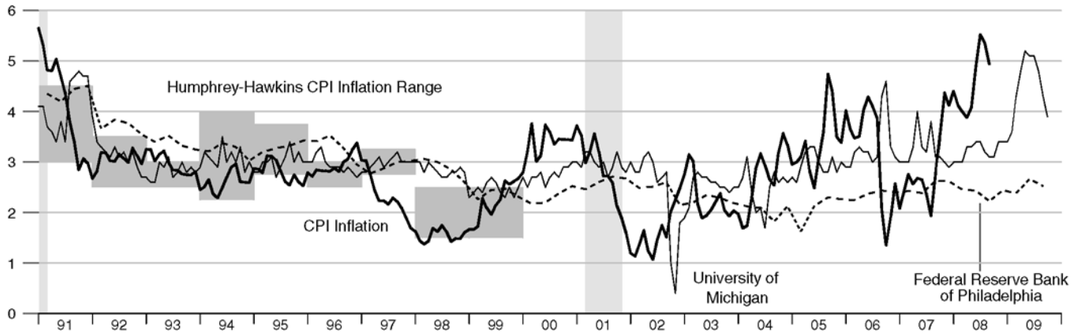
Consumer Credit

Percent change from year ago



CPI Inflation and 1-Year-Ahead CPI Inflation Expectations

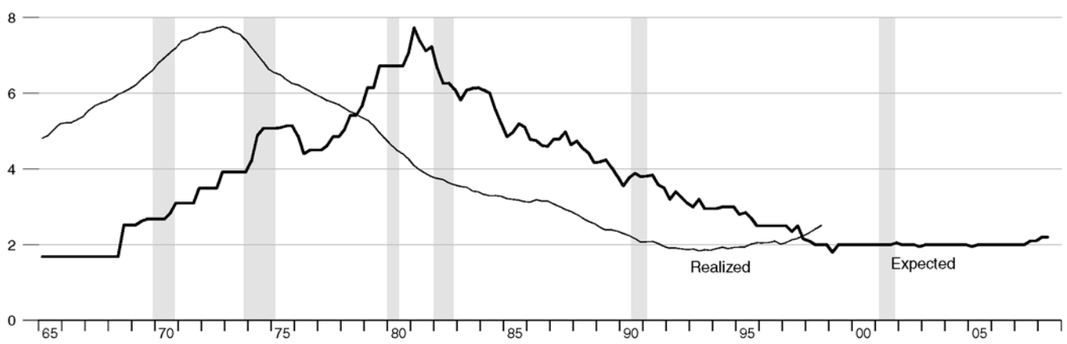
Percent



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

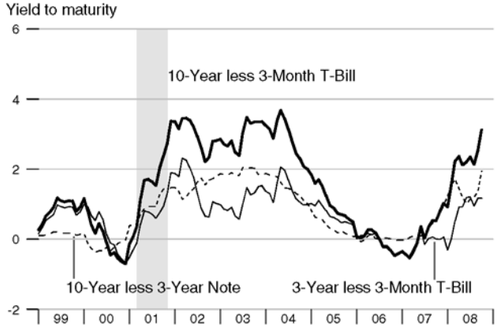
10-Year Ahead PCE Inflation Expectations and Realized Inflation

Percent



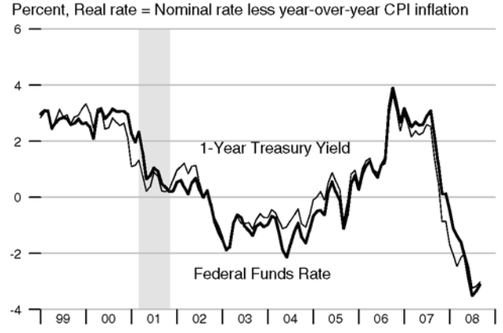
Treasury Security Yield Spreads

Yield to maturity



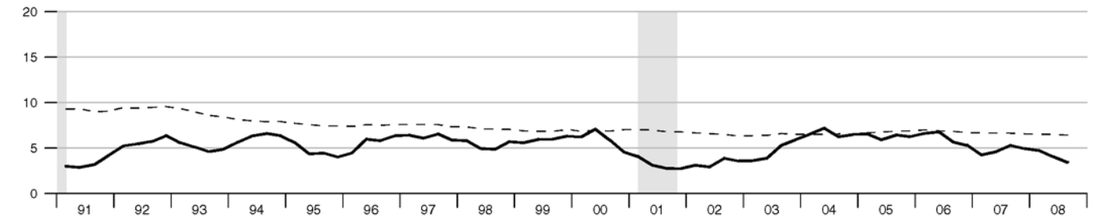
Real Interest Rates

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



Gross Domestic Product

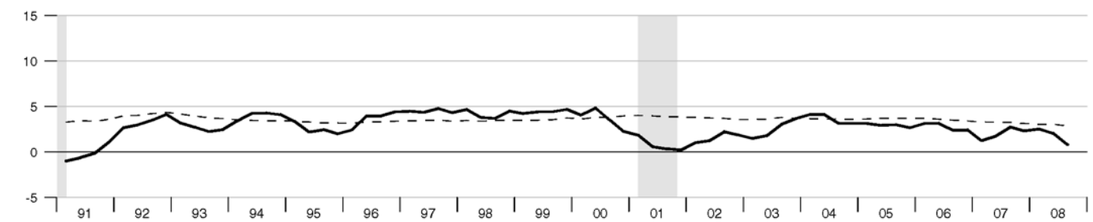
Percent change from year ago



Dashed lines indicate 10-year moving averages.

Real Gross Domestic Product

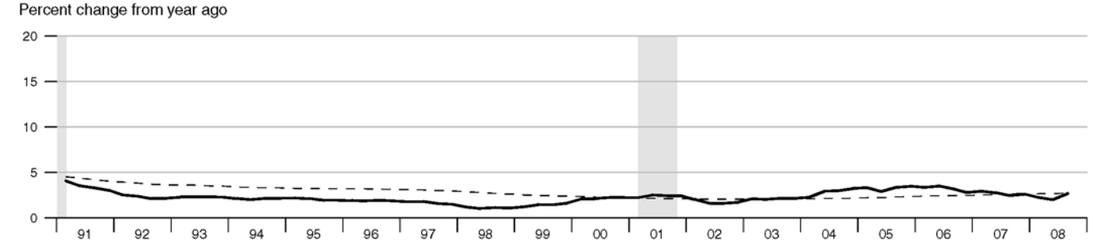
Percent change from year ago



Dashed lines indicate 10-year moving averages.

Gross Domestic Product Price Index

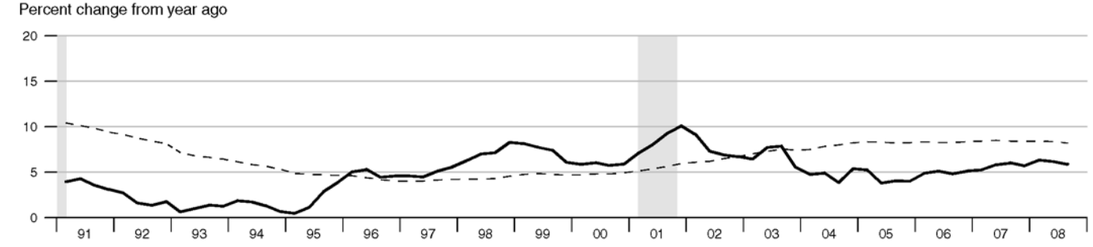
Percent change from year ago



Dashed lines indicate 10-year moving averages.

M2

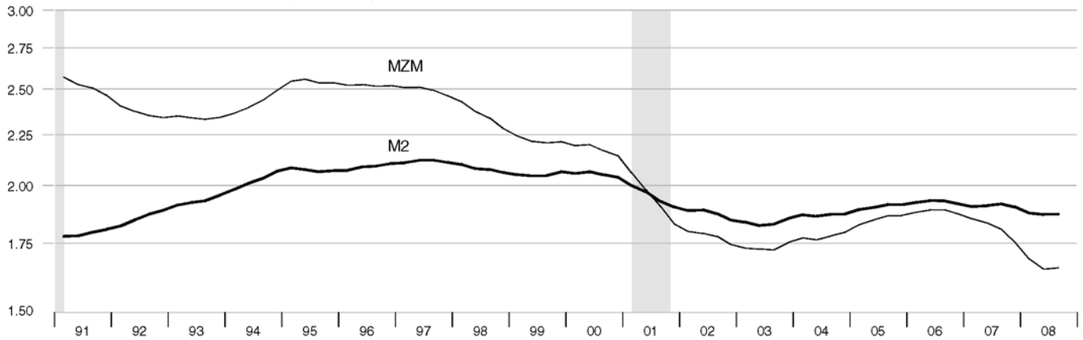
Percent change from year ago



Dashed lines indicate 10-year moving averages.

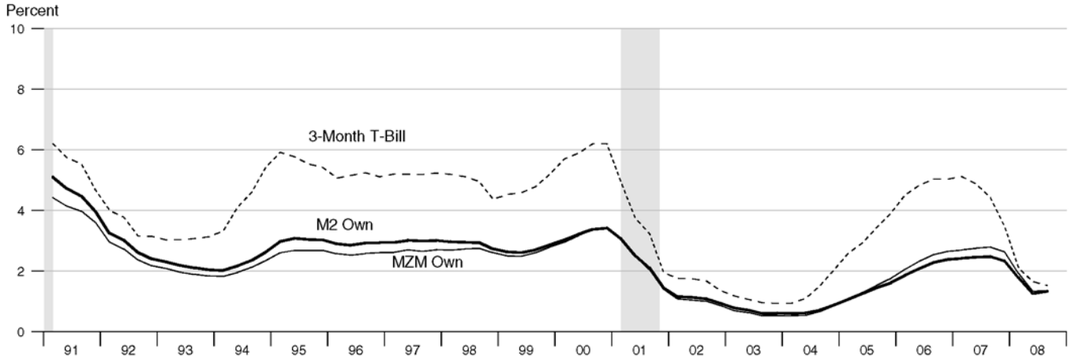
Velocity

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



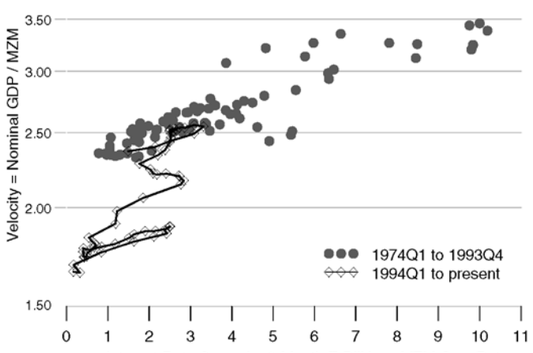
Interest Rates

Percent



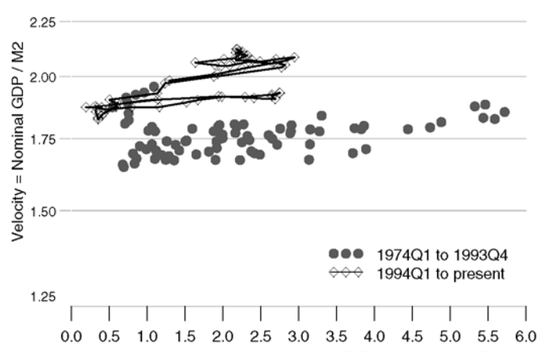
MZM Velocity and Interest Rate Spread

Ratio Scale



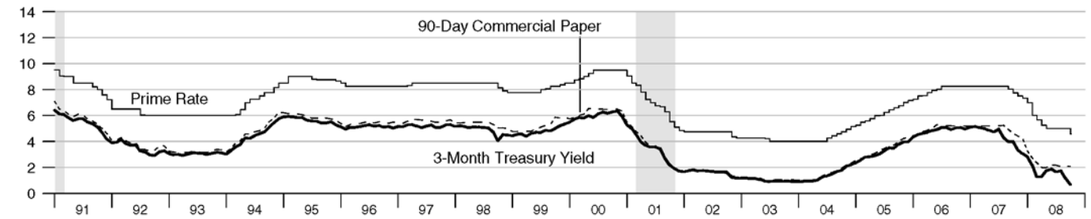
M2 Velocity and Interest Rate Spread

Ratio Scale



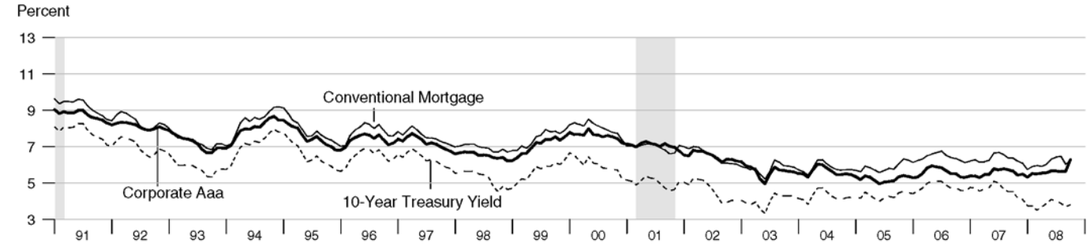
Short-Term Interest Rates

Percent



Long-Term Interest Rates

Percent



Long-Term Interest Rates

Percent

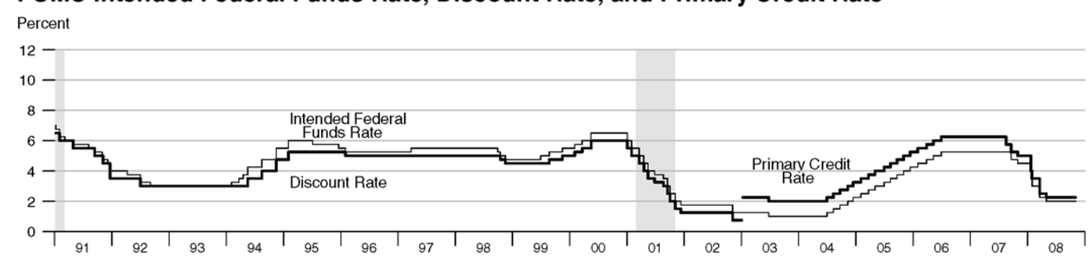
Short-Term Interest Rates

Percent

*90-Day Commercial Paper data are not available for December 2005, January 2006, and July 2006.

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

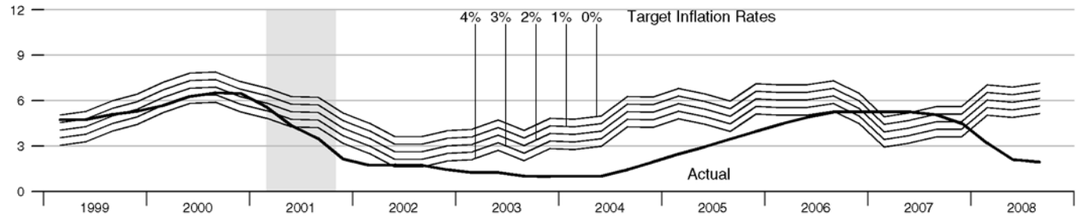
Percent



Data available as of October 2008.

Federal Funds Rate and Inflation Targets

Percent

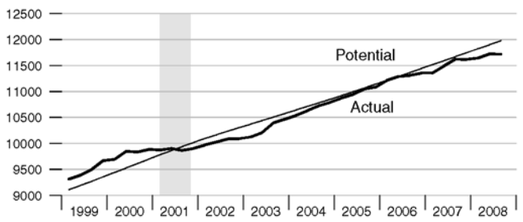


Calculated federal funds rate is based on Taylor's rule. See notes on page 19.

Components of Taylor's Rule

Actual and Potential Real GDP

Billions of chain-weighted 2000 dollars

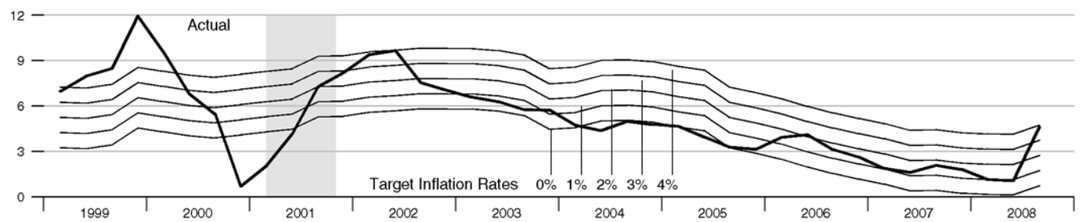


PCE Inflation

Percent change from year ago

Monetary Base Growth* and Inflation Targets

Percent

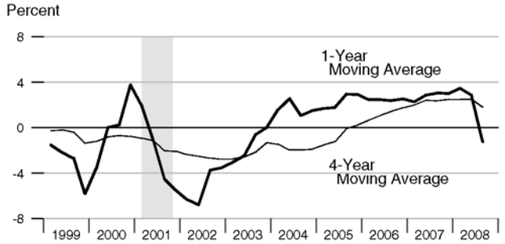


*Modified for the effects of sweeps programs on reserve demand.
Calculated base growth is based on McCallum's rule. Actual base growth is percent change from year ago. See notes on page 19.

Components of McCallum's Rule

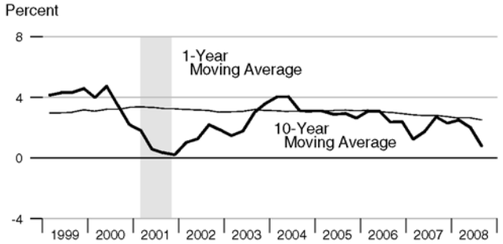
Monetary Base Velocity Growth

Percent



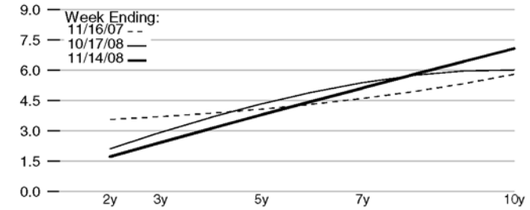
Real Output Growth

Percent



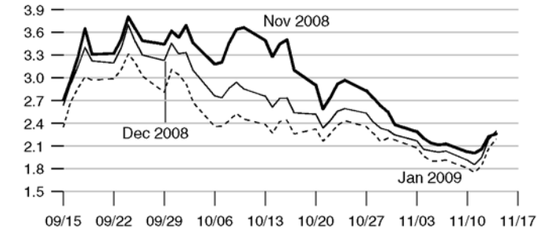
Implied One-Year Forward Rates

Percent



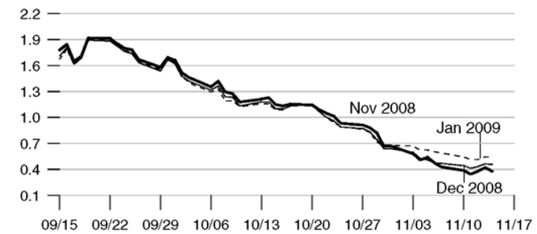
Rates on 3-Month Eurodollar Futures

Percent, daily data



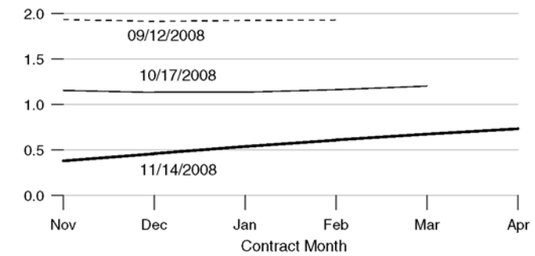
Rates on Selected Federal Funds Futures Contracts

Percent, daily data



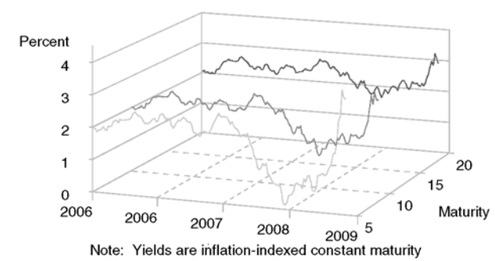
Rates on Federal Funds Futures on Selected Dates

Percent



Inflation-Indexed Treasury Securities

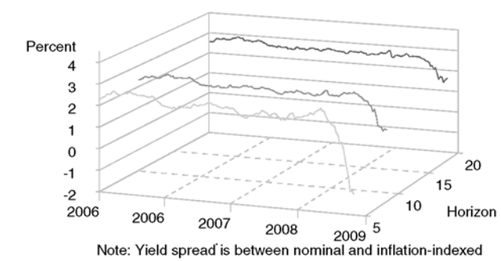
Weekly data



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

Inflation-Indexed Treasury Yield Spreads

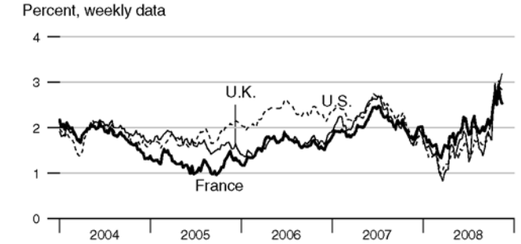
Weekly data

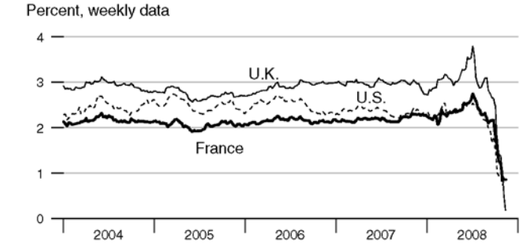


Note: Yield spread is between nominal and inflation-indexed constant maturity U.S. Treasury securities.

Inflation-Indexed 10-Year Government Notes

Percent, weekly data



Inflation-Indexed 10-Year Government Yield Spreads

Percent, weekly data