Prefatory Note

The attached document represents the most complete and accurate version available based on original files from the FOMC Secretariat at the Board of Governors of the Federal Reserve System.

Please note that some material may have been redacted from this document if that material was received on a confidential basis. Redacted material is indicated by occasional gaps in the text or by gray boxes around non-text content. All redacted passages are exempt from disclosure under applicable provisions of the Freedom of Information Act.

Content last modified 04/01/2015.

CLASS I FOMC – RESTRICTED CONTROLLED (FR)

APRIL 23, 2009

MONETARY POLICY ALTERNATIVES

PREPARED FOR THE FEDERAL OPEN MARKET COMMITTEE
BY THE STAFF OF THE BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

RECENT DEVELOPMENTS

SUMMARY

Conditions in financial markets showed some limited signs of improvement over the intermeeting period. Investor concerns about financial institutions appeared to ease somewhat, with a number of major banking organizations posting better-than-expected first-quarter earnings results. An index of bank equity prices rose notably, outperforming broad equity indexes, although credit default swap (CDS) spreads for large banking organizations were little changed, on net, at elevated levels. Rates on short-term funding instruments generally edged lower, and functioning in markets for these instruments improved. Nevertheless, market participants appear to remain concerned about the methodology and results of the stress tests for banks and potential policy responses to the results.

Yields on nominal Treasury securities decreased modestly, on net, over the intermeeting period. Yields dropped appreciably following the FOMC announcement on March 18 that the Federal Reserve would purchase up to $300 billion of longer-term Treasury securities and increase its purchases of agency debt and agency mortgage-backed securities, but yields subsequently retraced a significant portion of that drop amid a perceived improvement in the economic outlook and perhaps some reversal of flight-to-quality flows. Yields on corporate bonds fell a bit more than those on comparable-maturity Treasury securities, leaving risk spreads a little narrower, though still very elevated. Other risk spreads also narrowed somewhat, although they remained high relative to their historical ranges. Rates on mortgages in the primary and secondary markets declined over the intermeeting period, benefiting from the announced expansion of Federal Reserve large scale asset purchases.

Despite the lower interest rates, net private sector debt appears to have contracted in the first quarter. Bond issuance by nonfinancial corporations has been robust, but much of the proceeds have been used to pay down short-term borrowing. Residential mortgage applications have picked up. This increase appears to largely reflect refinancing activity, and mortgage debt is projected to contract in the first quarter. Results from the April Senior Loan Officer Opinion Survey indicated a further tightening of banks' lending policies and a further weakening of demand for loans from both businesses and households.

A number of central banks in both developed and emerging economies eased monetary policy over the intermeeting period. Prices in foreign stock markets surged, especially those for bank stocks, amid a general improvement in investor sentiment and some reports of better-than-expected performance from financial firms in the United States and Europe. Sovereign bond yields in advanced economies generally rose, and the dollar declined against most major currencies.

FINANCIAL INSTITUTIONS

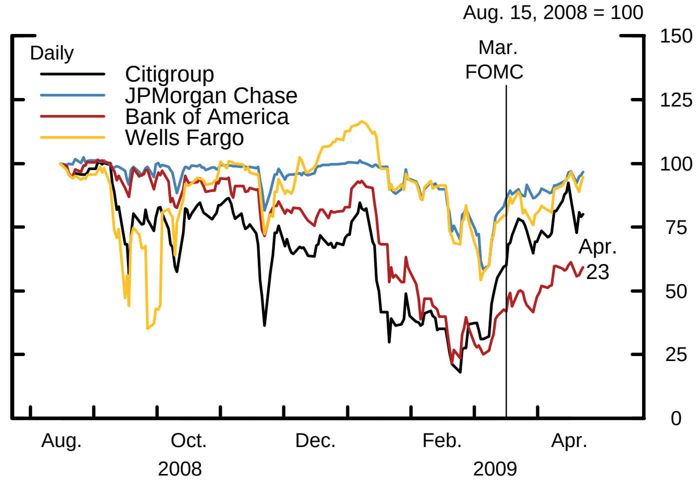
Concern about the health of U.S. financial institutions appeared to abate somewhat, on net, over the intermeeting period. An index of bank equity prices increased about 20 percent, reflecting in part better-than-expected first-quarter earnings results at some large banking organizations (Chart 1). The prices of preferred equity of large bank holding companies also rose significantly. Nonetheless, concerns about the condition of banks persisted. Earnings statements generally noted heavy provisioning for loan losses, causing some smaller banking organizations to post losses in the first quarter. CDS spreads for large bank holding companies and for other banks remained elevated. Rating agencies lowered credit ratings for Wells Fargo and Bank of America on March 25. Investors continue to be uncertain about the methodology being used in the stress tests of large banking organizations; the

Chart 1
Financial Institutions

Bank ETF

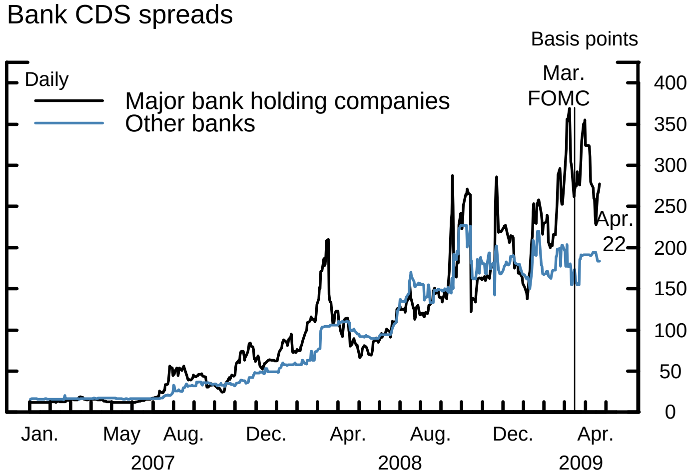
Note. There are 24 banks included.
Source. Bloomberg, Keefe Bruyette & Woods.

Preferred equity



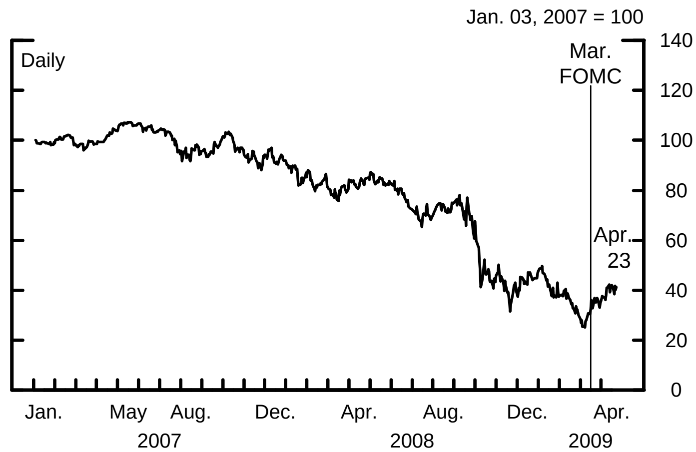
Source. Bloomberg.

Bank CDS spreads



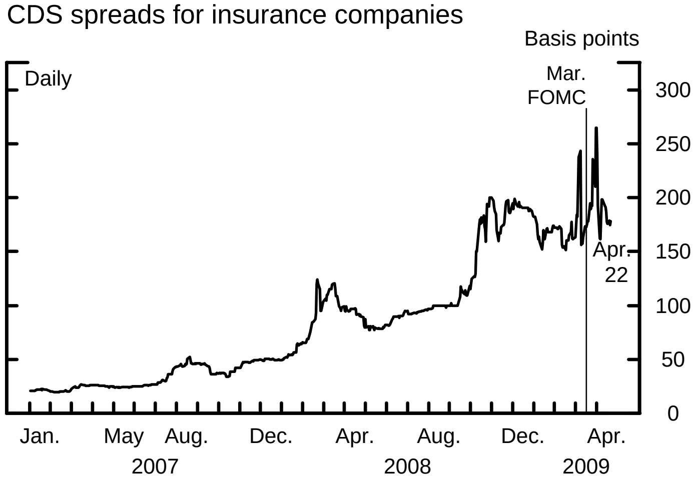
Note. Median spreads for 6 major bank holding companies and 11 other banks.
Source. Markit.

Insurance ETF



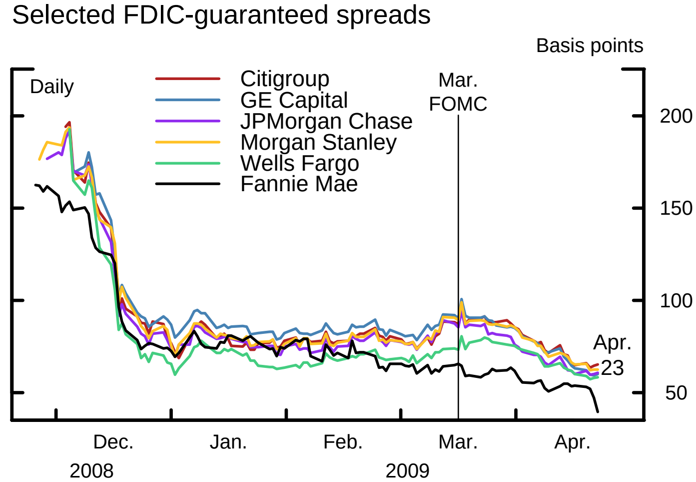
Note. There are 24 insurance companies included.
Source. Bloomberg, Keefe Bruyette & Woods.

CDS spreads for insurance companies



Note. Median spread for 54 insurance companies.
Source. Markit.

Selected FDIC-guaranteed spreads



Note. Spreads to comparable-maturity Treasury securities for issues maturing around year-end 2011.
Source. Bloomberg.

results of those tests, which will be released in early May; and the likely policy responses.[1] On April 2, FASB voted to modify the rules related to fair value accounting for illiquid assets and "other than temporary impairments."[2] These changes were reportedly seen as benefiting financial institutions, but some market participants have raised concerns that the changes could reduce transparency in the financial sector. Market participants were also concerned about the potential influence of the accounting rule changes on banks' reported earnings. A few small banks began repaying the capital injections received through the TARP program, and Goldman Sachs announced its intention to use the funds from its $5 billion April 14 equity offering to do the same. Concerns regarding the capital position of insurance companies appeared to diminish following market reports that some insurance companies would be eligible to receive TARP funds. Insurance company equity prices rose about 25 percent, but CDS spreads for these institutions were little changed on net.

During the intermeeting period, the Treasury announced details regarding the public-private investment partnership (PPIP) program to purchase legacy assets from financial institutions. This announcement was initially well received by market

---

[1] A white paper describing the assumptions underlying the stress tests and the methodology used to implement the tests will be released April 24.

[2] The new fair value guidance for illiquid assets reduces the emphasis that should be placed on the "last transaction price" in valuing assets when markets are not active and transactions are likely to be forced or distressed. The new guidance for other-than-temporary-impairments will require that only the credit-related portion of a debt security's fair value impairment—the difference between the present value of the expected cash flows and the amortized cost basis—be written-down through earnings when two criteria are met: the institution does not have the intent to sell the debt security and it is unlikely that the institution will be required to sell the debt security before a forecasted recovery of its value. In the event the two criteria are not met, the full impairment—the difference between the security's amortized cost basis and its fair value—must be written-down through earnings.

participants. Of late, however, market uncertainty about the efficacy of government support to the financial sector has increased, as investors have reportedly become more hesitant to participate in some government programs as a result of concerns about risk coming from political pressures such as possible disclosure of program use or restrictions on their hiring and compensation practices. Some market participants are also said to be concerned that the Legacy Loans Program portion of the PPIP will attract few sellers, as they believe the difference between current market values of eligible assets and those reflected on banks' books to be quite large.

Issuance of banking organization senior obligations guaranteed by the FDIC under the Temporary Liquidity Guarantee Program (TLGP) totaled about $25 billion over the intermeeting period. Spreads of yields on securities issued under this program to those on comparable-maturity Treasuries generally moved down over the intermeeting period. On April 1, TLGP fees were increased and both the issuance and guarantee periods were extended.[3] On April 6, Standard and Poor's announced that it will no longer automatically assign an A-1+ rating to all short-term FDIC-guaranteed debt owing to the rating agency's concerns about the timeliness of repayment in the event of default. This rating action does not appear to have had any notable effect to date.

MARKET FUNCTIONING

Functioning in many financial markets improved over the period. Conditions in short-term bank funding markets improved somewhat, with reports that the volume of lending had generally risen. Libor fixings (and spreads over OIS) inched down,

[3] Changes to the FDIC program included an increase in guarantee fees for debt with a one-year maturity or longer, with insured depository institutions having smaller fee increases than holding companies; an extension of the period for which FDIC-guaranteed debt can be issued to the end of October 2009; and an extension of the end date for the guarantees under the program from June 30, 2012, to year-end 2012.

perhaps reflecting in part reduced concerns about counterparty credit risk (Chart 2). Even so, Libor-to-OIS spreads remain elevated, especially at maturities beyond one month. Consistent with some easing of conditions in bank funding markets, amounts bid in the TAF auctions conducted over the period were below the levels seen earlier this year, and primary credit outstanding fell about $25 billion, to $45 billion. Overnight general collateral repo rates have also edged down recently, converging toward the federal funds rate, and the volume of longer-maturity repo transactions reportedly increased. Median bid-asked spreads for repo transactions involving most types of collateral were little changed, although bid-asked spreads for transactions involving agency MBS declined a bit. Delivery fails on Treasury securities remained low despite the low level of interest rates. Consistent with steady or improving conditions in the term repo market, the amount of loans outstanding under the TSLF program continued to decline, and the last two TSLF auctions involving Schedule 1 collateral received no bids.[4] During the intermeeting period, the New York Fed increased the regular SOMA securities lending program minimum rate from 1 basis point to 5 basis points in view of improved market functioning.

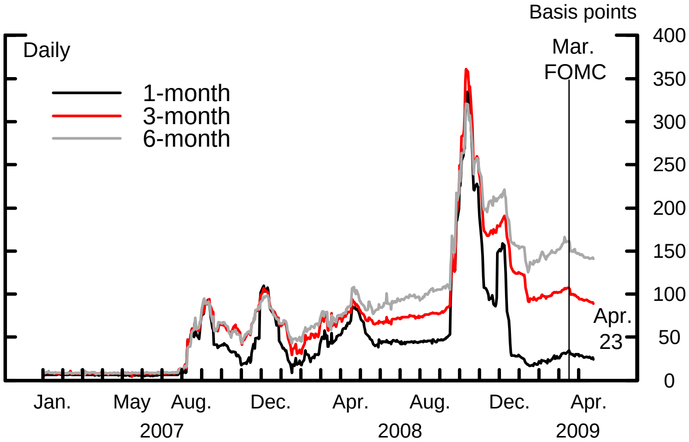
Spreads on both AA-rated asset-backed commercial paper (ABCP) and A2/P2-rated commercial paper (CP) moved down a bit further. The amount of nonfinancial CP and ABCP outstanding declined over the intermeeting period, in part because firms substituted longer-term funding and also because overall demand for financing diminished. Financial CP outstanding edged up, on net, over the past several weeks. Credit extended under the CPFF held steady over the intermeeting period at about $240 billion, while credit extended under the AMLF continued to decline, reaching a level of just $1 billion.[5] Nonetheless, market participants reportedly continue to view

[4] Two dealers terminated TSLF loans early owing to concerns regarding political risks.

[5] During the week starting April 27, about $150 billion in CP at the CPFF will mature.

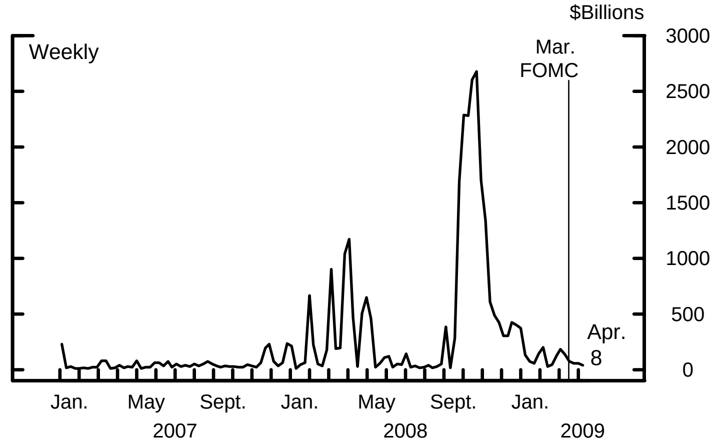
Chart 2
Market Functioning

Spreads of Libor over OIS



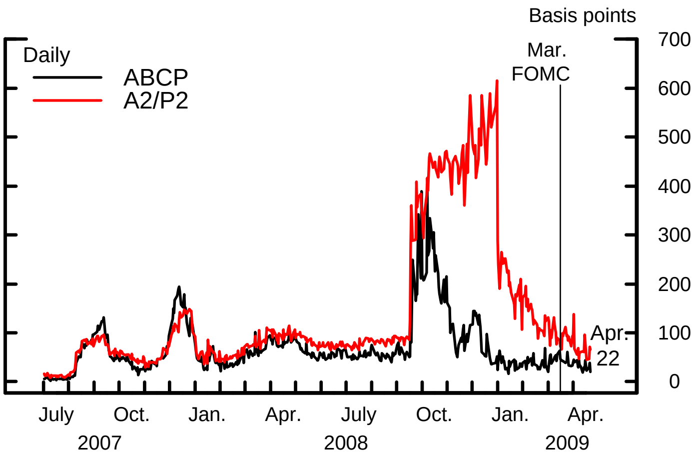
Note. Libor quotes are taken at 6:00 a.m., and OIS quotes are observed at the close of business of the previous trading day.
Source. Bloomberg.

Treasury fails to deliver



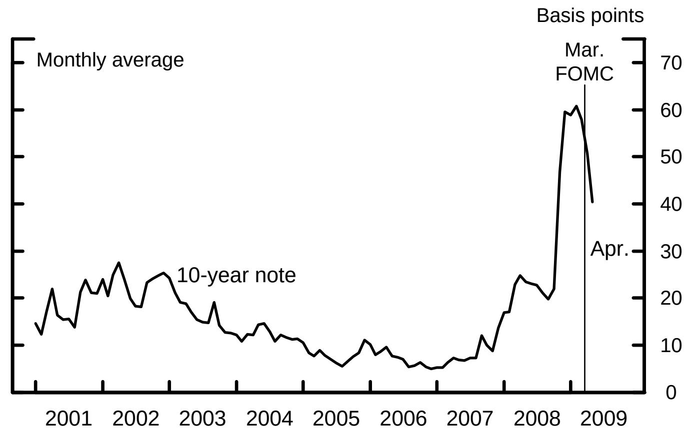
Source. FR2004.

Spreads on 30-day commercial paper



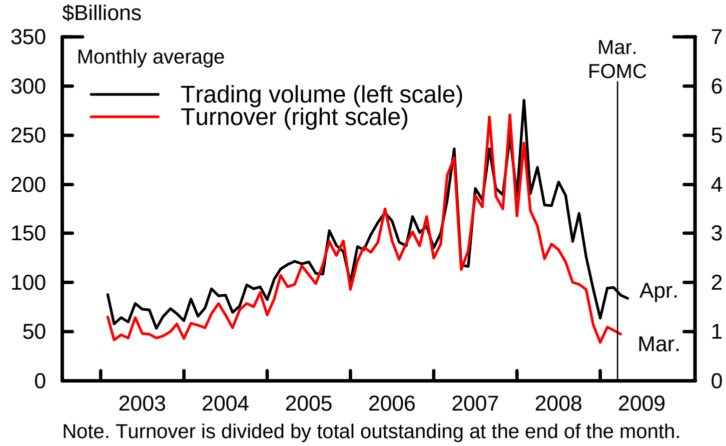
Note. The ABCP spread is the AA ABCP rate minus the AA nonfinancial rate. The A2/P2 spread is the A2/P2 nonfinancial rate minus the AA nonfinancial rate.
Source. Depository Trust & Clearing Corporation.

Treasury on-the-run premium



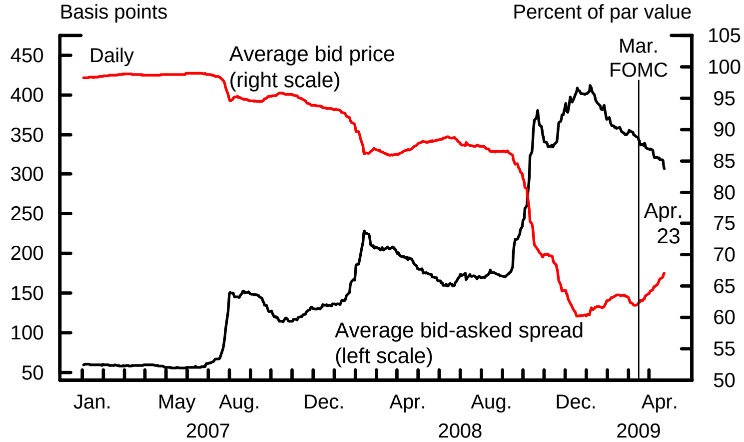
Note. Computed as the spread of the yield read from an estimated off-the-run yield curve over the on-the-run Treasury yield. April observation is the month-to-date average.
Source. Board staff estimates.

On-the-run Treasury market volume and turnover



Note. Turnover is divided by total outstanding at the end of the month.
Source. BrokerTec Interdealer Market Data and Bloomberg.

Pricing in the secondary market for leveraged loans



Source. LSTA/LPC Mark-to-Market Pricing.

the Federal Reserve programs related to the CP market as providing important support.

Functioning in the Treasury market also improved over the intermeeting period, reportedly owing in part to the Federal Reserve's open market purchases. Spreads between the yields on on-the-run and off-the-run notes have narrowed significantly, although they remain wide. Similarly, fitting errors from staff yield-curve models have diminished, although they remain large. Average bid-asked spreads for on-the-run Treasury notes were relatively stable at pre-Lehman levels. Nevertheless, trading volumes remained low by historical standards, despite considerable issuance.

Indicators of functioning in the corporate bond market—such as bid-asked spreads estimated by the staff—suggest that conditions in the speculative-grade segment of the market continued to be strained, although they improved relative to the fall of last year. Similarly, the leveraged loan market showed some improvement over the last few months, with the average bid-asked spread narrowing and the average bid price moving up some from very depressed levels. In the CDS market, changes were introduced on April 8 to reduce counterparty risk and improve operational efficiency by making trades more standardized and fungible, with the intent of facilitating the movement towards central clearing. Prior to the implementation of these changes, liquidity in the CDS market reportedly had declined. However, no significant disruption was reported following the changes and liquidity is said to have returned to recent norms. The basis between the CDX Investment Grade index of CDS spreads and measures of investment-grade corporate spreads—a rough proxy for unexploited arbitrage opportunities in the corporate market—remained at high levels, due to an ongoing lack of financing capacity at major financial institutions.

MONETARY POLICY EXPECTATIONS AND TREASURY YIELDS

The Committee's decision at the March meeting to leave the target range for the federal funds rate unchanged was widely anticipated.[6] However, investors were apparently surprised by the FOMC's announcement that it would increase significantly further the size of the Federal Reserve's balance sheet by purchasing up to $300 billion in Treasury securities and expanding purchases of agency MBS and agency debt by up to $750 and $100 billion, respectively. (See box entitled "Balance Sheet Developments During the Intermeeting Period.") In addition, market participants reportedly interpreted the statement that the federal funds rates was likely to remain exceptionally low for "an extended period" as stronger than the phrase "for some time" in the previous statement. Following the release of the FOMC statement, rates on Eurodollar futures contracts and yields on Treasury, agency, and mortgage-backed securities all fell considerably.[7] The initial decline in the path for the federal funds rate implied by futures rates was subsequently reversed, perhaps in response to the modest improvement in the economic outlook (Chart 3). Based on our standard term premium assumption of 1 basis point per month, market quotes currently suggest that market participants anticipate that the FOMC will start to raise the federal funds rate around the end of 2009. However, staff models suggest that term premiums could well be higher than usual, implying a flatter path for the expected federal funds rate. Only four respondents to the Desk's survey of primary dealers expect the target federal funds rate to be raised before the third quarter of 2010, with

[6] Two other notable announcements regarding Federal Reserve monetary policy were made during the intermeeting period. On March 23, the Federal Reserve and the Treasury announced an accord regarding the appropriate roles of the Federal Reserve and the Treasury to preserve financial and monetary stability. On April 6, the Federal Reserve announced that it had entered into currency swap arrangements with several foreign central banks that would enable the Federal Reserve to provide liquidity in foreign currencies. Neither announcement appeared to prompt any market reaction.

[7] The effective federal funds rate averaged 0.15 percent over the intermeeting period.

Balance Sheet Developments During the Intermeeting Period

Since the March FOMC meeting, the Federal Reserve's total assets have expanded by about $130 billion to around $2,200 billion.[1] The expansion primarily reflected an increase of $215 billion in securities held outright; the Open Market Desk purchased $139 billion in agency mortgage-backed securities, $60 billion in U.S. Treasury securities, and $17 billion in agency securities.[2] The purchases of agency mortgage-backed securities have been concentrated in newly issued 30-year MBS, while the purchases of U.S. Treasury and agency securities have been concentrated in maturities of less than seven years and less than five years, respectively. In addition, the Term Asset-Backed Securities Loan Facility (TALF) conducted its first two operations: The TALF lent roughly $6 billion to finance the issuance of asset-backed securities collateralized by auto and credit card loans; prior to these operations, there had been no significant issuance of these classes of ABS since last summer.

The effect of the System's securities purchases on total assets was damped by a decline in lending through liquidity programs for financial firms. Foreign central bank liquidity swaps declined $47 billion; the sum of primary, secondary, and seasonal credit declined $25 billion; term auction credit declined $13 billion; and primary dealer and other broker-dealer credit declined $12 billion.[3] The runoff in credit provided under these facilities reflected in part improvement in short-term funding markets, with market participants noting that rates have declined and lending volumes have increased in term bank funding and repurchase agreement markets. Securities lent through the Term Securities Lending Facility, which do not affect assets because the Federal Reserve retains ownership, declined by $62 billion. Dealers reduced or stopped their use of this facility for a number of reasons, including the improved market conditions, continued deleveraging, and concerns about government restrictions on program participants.

On the liability side of the Federal Reserve's balance sheet, the expansion was reflected primarily in a sharp increase of $145 billion in the reserve balances of depository institutions. The U.S. Treasury's General Account remained elevated and quite volatile during the intermeeting period due to inflows of corporate and personal tax receipts, but it declined $15 billion, on net. The Supplementary Financing Account remained unchanged at $200 billion over the period.

---

[1] These data are through April 22, 2009.
[2] The figures for MBS holdings reflect trades that have settled.
[3] The amount of term auction credit and the amount of foreign central bank liquidity swaps are expected to decline $52 billion and $32 billion respectively, on April 23, 2009.

Federal Reserve Balance Sheet

Billions of dollars

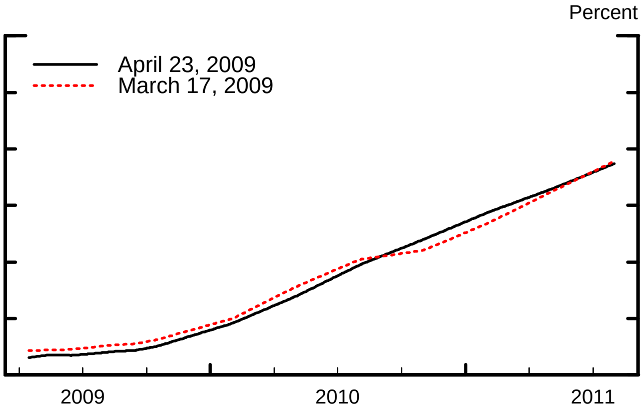
	Change since last FOMC	Current (4/22/2009)	Maximum level	Date of maximum level
Total assets	**129**	**2,198**	**2,256**	**12/17/2008**
Selected assets:				
Liquidity programs for financial firms	-105	791	1247	11/06/2008
Primary, secondary, and seasonal credit	-25	44	114	10/28/2008
Term auction credit (TAF)*	-13	456	493	03/11/2009
Foreign central bank liquidity swaps*	-47	283	586	12/04/2008
Primary Dealer Credit Facility (PDCF)	-12	8	156	09/29/2008
Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF)	-7	1	152	10/01/2008
Lending through other credit facilities	8	249	351	01/23/2009
Net portfolio holdings of Commercial Paper Funding Facility LLC (CPFF)	1	242	351	01/23/2009
Term Asset-Backed Securities Loan Facility (TALF)	6	6	6	04/22/2009
Support for specific institutions	0	116	118	04/02/2009
Credit extended to AIG	0	44	91	10/27/2008
Net portfolio holdings of Maiden Lane LLC, Maiden Lane II LLC, and Maiden Lane III LLC	0	72	75	12/30/2008
Securities held outright	215	967	967	04/22/2009
U.S. Treasury securities	60	535	741	08/14/2007
Agency securities	17	65	65	04/22/2009
Agency mortgage-backed securities**	139	368	368	04/22/2009
Memo: Term Securities Lending Facility (TSLF)	-62	44	236	10/01/2008
Total liabilities	**128**	**2,152**	**2,213**	**12/04/2008**
Selected liabilities:				
Currency in circulation	1	863	866	04/21/2009
Reserve balances of depository institutions	145	916	939	04/17/2009
U.S. Treasury, general account	-15	94	137	10/23/2008
U.S. Treasury, supplemental financing account	0	200	559	10/22/2008
Other deposits	-1	0	53	04/14/2009
Total capital	**1**	**46**	**46**	**04/14/2009**

* The amount of term auction credit and the amount of foreign central bank liquidity swaps are expected to decline $52 billion and $32 billion respectively, on April 23, 2009.

**Includes only mortgage-backed security purchases that have already settled.

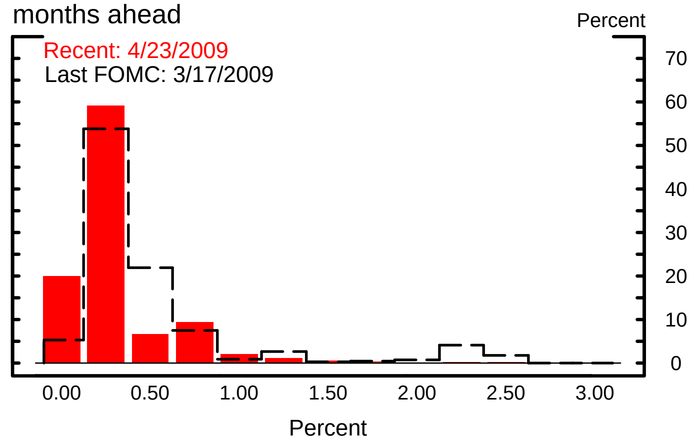
Chart 3
Interest Rate Developments

Expected federal funds rates



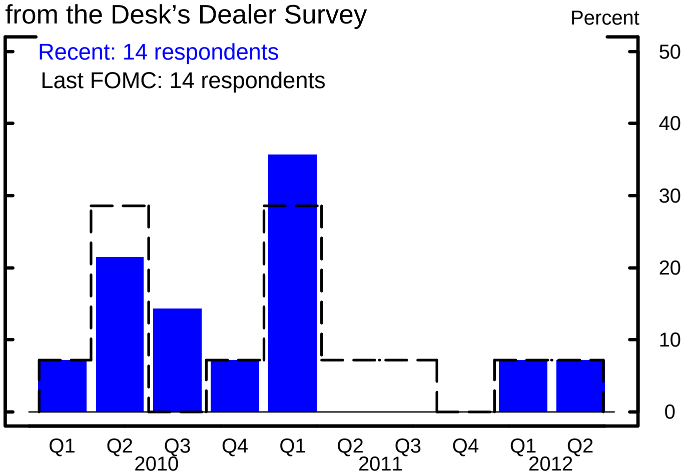
Note. Estimates from federal funds and Eurodollar futures, with an allowance for term premiums and other adjustments.
Source. Chicago Mercantile Exchange and CBOT.

Implied distribution of federal funds rate six months ahead



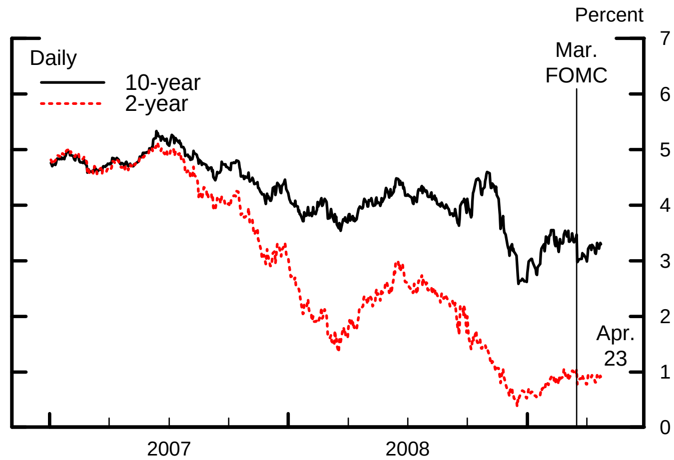
Note. Derived from options on Eurodollar futures contracts, with term premium and other adjustments to estimate expectations for the federal funds rate.
Source. CBOT.

Distribution of expected quarter of first rate increase from the Desk's Dealer Survey



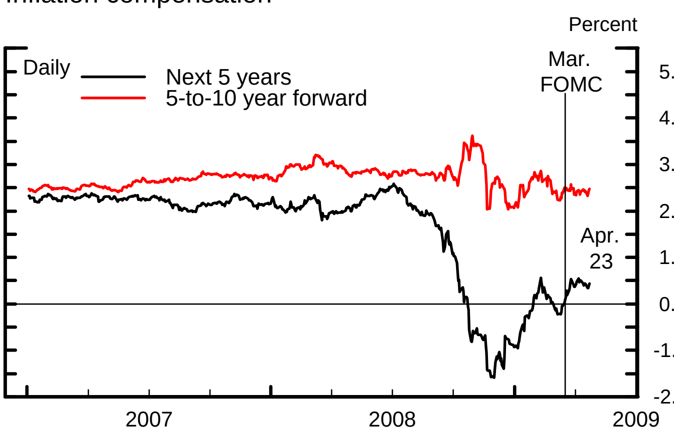
Source. Federal Reserve Bank of New York.

Nominal Treasury yields



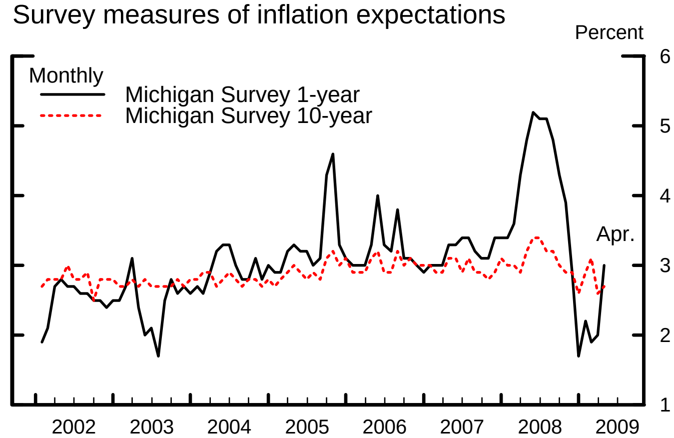
Note. Par yields from a smoothed nominal off-the-run Treasury yield curve.
Source. Board staff estimates.

Inflation compensation



Note. Estimates based on smoothed nominal and inflation-indexed Treasury yield curves and adjusted for the indexation-lag (carry) effect.
Source. Barclays, PLC.; Bloomberg; Board staff estimates.

Survey measures of inflation expectations



Source. Reuters/University of Michigan.

half of the respondents anticipating the first rate increase to occur during or after the first quarter of 2011, roughly the same as in the last survey. The primary dealers also placed small but non-negligible odds on the Committee modestly increasing the scale of asset purchases over the next few meetings.

Immediately following the FOMC announcement, yields on two- and ten-year nominal Treasury securities dropped about 20 and 40 basis points, respectively. A portion of these initial declines was retraced over the intermeeting period amid a perceived improvement in the economic outlook, the abatement of concern about financial institutions, continued strong Treasury issuance, and perhaps some reversal of flight-to-quality flows. Yields on both two- and ten-year nominal Treasury securities ended the period down about 15 basis points. Implied volatility on long-term Treasury yields decreased substantially following the FOMC meeting, and staff estimates of term premiums also moved down. Spreads between the yields on agency debt securities and those on comparable maturity Treasuries narrowed at shorter maturities but were little changed at longer horizons.

Yields on inflation-indexed Treasury securities fell a bit more than those on their nominal counterparts, especially at the five-year horizon. As a result, five-year inflation compensation rose about 0.3 percent to 0.4 percent, possibly owing in part to an increase in energy prices. Five-year inflation compensation five years ahead was little changed over the intermeeting period at around 2.5 percent. Although it has improved of late, poor liquidity in the TIPS market continued to make these readings difficult to interpret. Near-term inflation expectations from the Michigan survey also jumped, but long-term expectations edged down. The primary dealers' median forecast for core PCE inflation was marked up slightly in 2009 to 1 percent, but revised down somewhat to 0.5 percent in 2010.

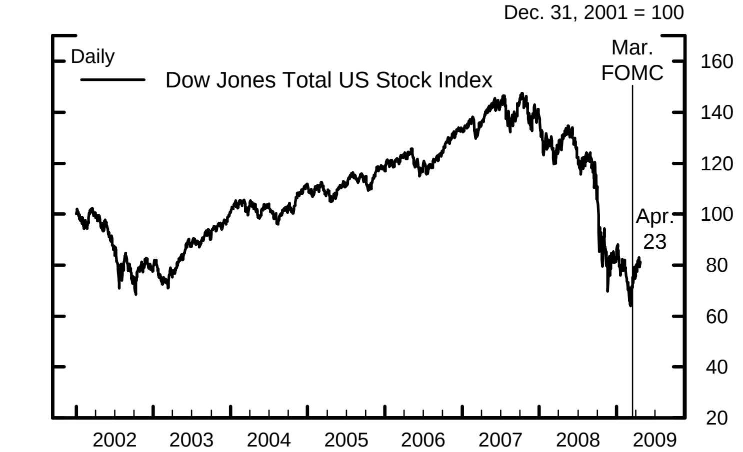
CAPITAL MARKETS

Broad stock price indexes rose notably, on balance, over the intermeeting period, with the Dow Jones U.S. Total Stock Market Index (formerly the Wilshire 5000) up about 10 percent (Chart 4). However, even after this increase, this index is down about 5 percent for the year. Implied volatility in the S&P 500 continued to decline from the exceptionally high levels of last fall, but it remains quite elevated. Early earnings reports from S&P 500 firms combined with analyst estimates suggest that earnings declined about 40 percent in the first quarter relative to the year-earlier period. With the rise in equity prices and downward revisions to the outlook for corporate earnings, the difference between the forward trend earning-price ratio and an estimate of the real long-run Treasury yield—a rough proxy for the equity risk premium—has declined but remains extremely high.

In the corporate bond market, yields and spreads to comparable-maturity Treasury securities moved down over the intermeeting period, with the decline particularly pronounced for below-investment grade firms. Nevertheless, risk spreads for both investment-grade and speculative-grade bonds stayed very high as investors reportedly continue to be concerned about credit quality deterioration and perhaps also cautious about taking on additional risk. Both investment- and speculative-grade CDX indexes declined over the intermeeting period. Bond issuance by nonfinancial corporations remained extremely strong in March. Most of the recent issuance, however, has been by investment-grade firms, as these firms apparently acted to lock in longer-term financing. Some of the proceeds from the bond issuance have reportedly been used to pay down bank loans and commercial paper. In contrast, bond issuance by speculative-grade firms has been modest. Issuance of leveraged loans in the first quarter of 2009 was extremely weak, down nearly 60 percent from the same period of last year; issuance of institutional loans totaled only $2 billion.

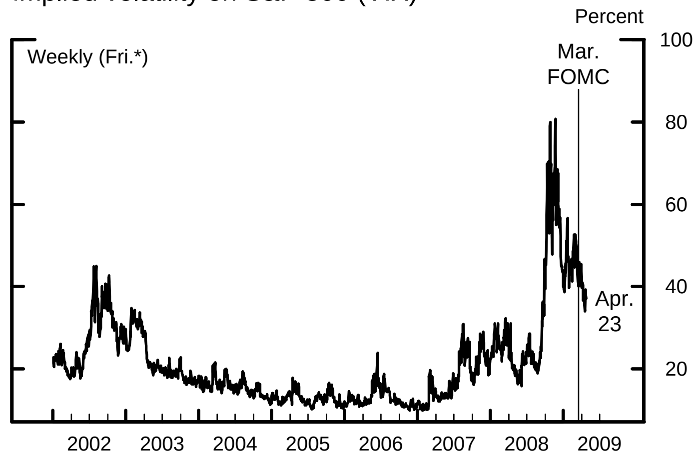
Chart 4
Asset Market Developments

Equity prices



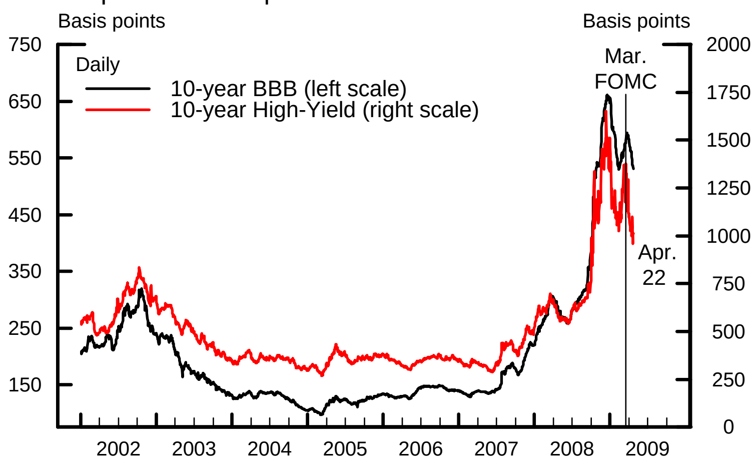
Source. Bloomberg.

Implied volatility on S&P 500 (VIX)



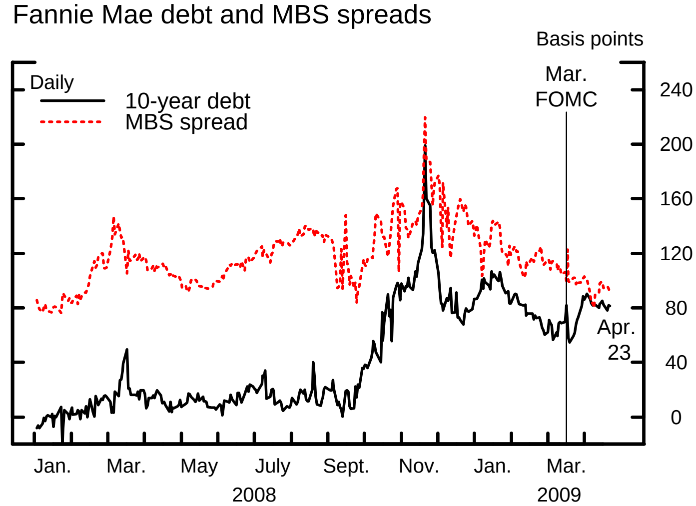
*Latest observation is for most recent business day.
Source. Chicago Board of Exchange.

Corporate bond spreads



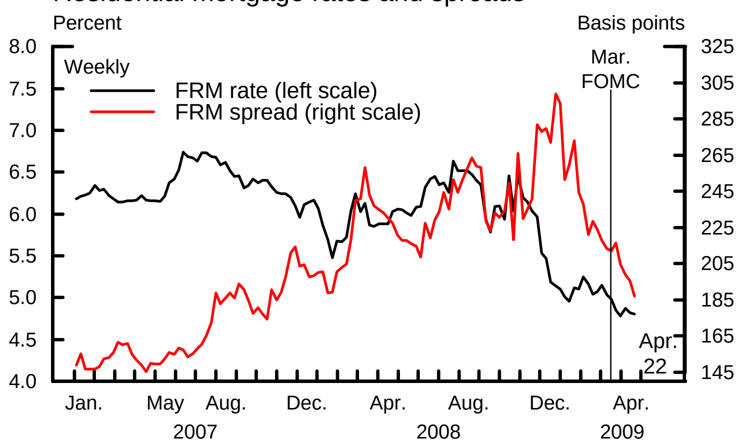
Note. Measured relative to an estimated off-the-run Treasury yield curve.
Source. Merrill Lynch and Board staff estimates.

Fannie Mae debt and MBS spreads



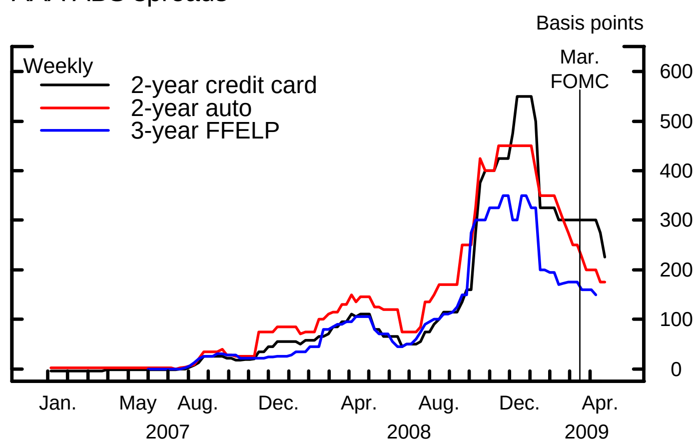
Note. Spreads over swaps of comparable maturity.
Source. Bloomberg.

Residential mortgage rates and spreads



Note. FRM spread is relative to 10-year Treasury.
Source. Freddie Mac.

AAA ABS spreads



Note. Last observation for 2-year auto and credit card ABS spreads is April 24. Last observation for 3-year FFELP is April 10.
Source. For credit card and auto spreads, trader estimates provided by Citigroup. For FFELP spreads, trader estimates provided by Merrill Lynch.

Indexes of CDS spreads on senior AAA-rated CMBS narrowed after the announcement of the PPIP and the expansion of the TALF to include legacy assets. By contrast, indexes of CDS spreads on junior-AAA and lower-rated tranches of CMBS widened as the credit ratings of some of these tranches were lowered owing to increased expected losses.

The interest rate on 30-year fixed-rate conforming mortgages has continued its downward trend and is currently a bit below 5 percent, likely reflecting in part the support provided to the mortgage market by the Federal Reserve through its purchases of agency debt and agency MBS. The low mortgages rates have spurred an increase in refinancing activity. Issuance of mortgage-backed securities by the GSEs picked up notably in February, but issuance of non-agency mortgage-backed securities has continued to be non-existent. The consumer asset-backed securities (ABS) market also saw a pickup in issuance and decline in spreads. These developments may owe in part to the implementation of the TALF program, where the first two subscriptions resulted in about $6.5 billion in loans being extended; however, investors reportedly remain hesitant about participating in this program for some of the same reasons they are wary of the PPIP. A few ABS deals were issued without Federal Reserve support, including one that was eligible for the TALF. Perhaps reflecting in part the improvement in the secondary market, interest rates on consumer loans also generally moved down some.

State and local governments continued to issue a moderate volume of long-term bonds, with higher-rated issuers accounting for the bulk of these offerings. The ratio of yields on long-term municipal bonds to those on comparable-maturity Treasuries continues to be above historic norms.

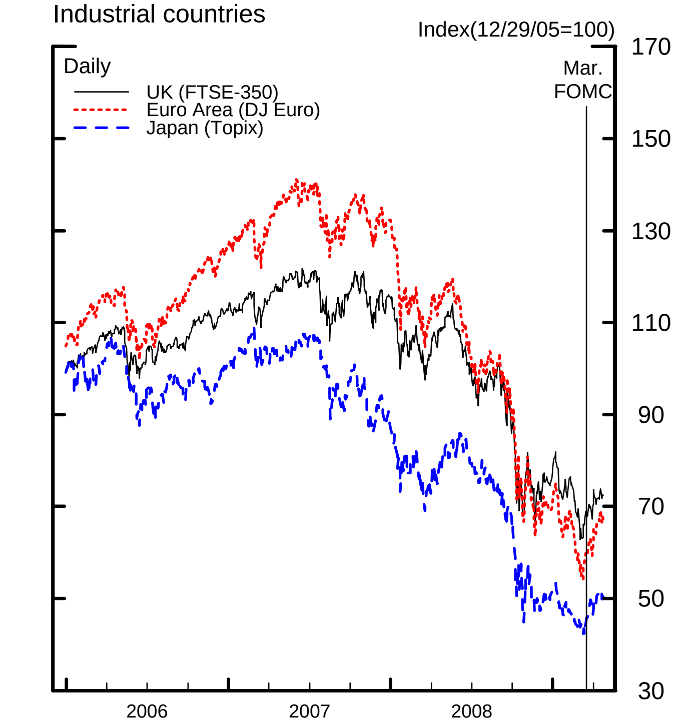
FOREIGN DEVELOPMENTS

Major foreign stock market indexes rose during the intermeeting period, apparently supported by improved market sentiment and boosted by some reports of better-than-expected performance from financial firms in the United States and Europe (Chart 5). Banking sector share prices outperformed broad stock price indexes in Europe. In the United Kingdom, Barclays and Standard Chartered Bank reported a strong start of the year. Barclays also announced that it had passed the FSA's stress test, decreasing the odds that the bank would participate in the U.K. government's Asset Protection Scheme. In contrast, the equity prices of Japanese banks changed little on balance amid worries about the financial condition of some institutions. Credit availability in interbank and other wholesale markets continued to increase modestly in the wake of the optimism that boosted equity markets, with Libor-to-OIS spreads in euros and sterling declining over the period.

Long-term bond yields in the United Kingdom, Canada, and the euro area fell sharply after the FOMC announcement on March 18 but have retraced their declines. On net, German and Canadian ten-year yields changed little, while Japanese and U.K. ten-year yields increased 12 to 45 basis points. These moves in yields, which occurred despite the many central bank actions over the period to loosen monetary policy, reportedly were in response to reduced risk aversion, signs of incipient stabilization in the pace of economic contraction, and concerns about heavy future supply. In particular, U.K. gilt yields increased over the period despite the Bank of England having purchased about £30 billion in gilts since the start of its quantitative easing program on March 11. On April 8, the European Central Bank cut its main refinancing rate 25 basis points to 1.25 percent, less than the expected 50 basis point cut, and deferred a decision regarding any use of unconventional policy tools to its next Governing Council meeting in May. The Bank of Canada halved its key

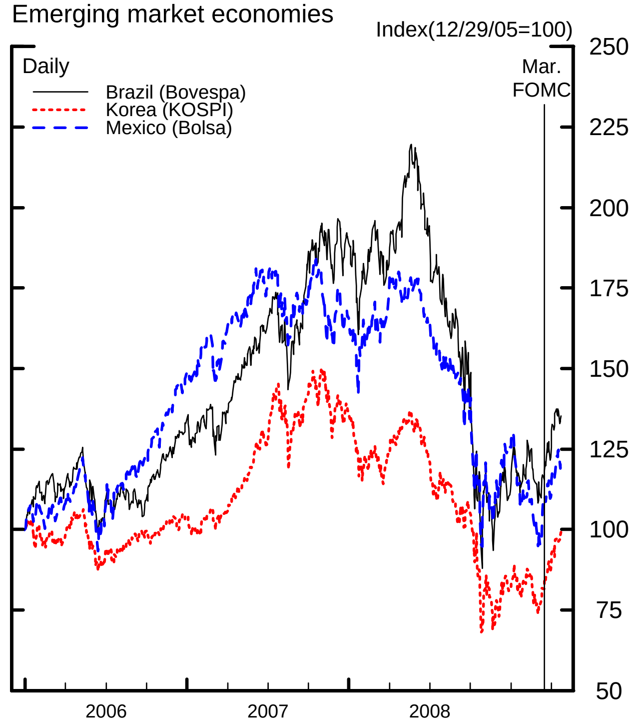
Chart 5
International Financial Indicators

Stock price indexes
Industrial countries



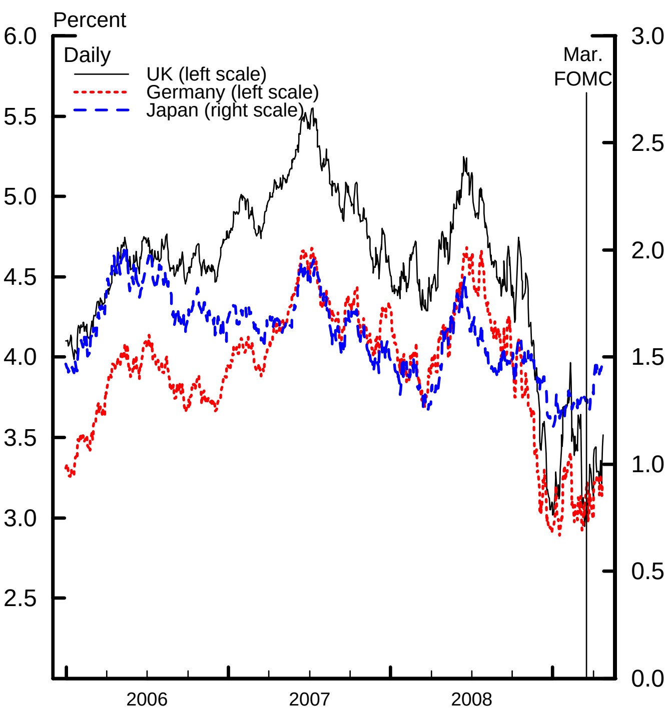
Source. Bloomberg.

Stock price indexes
Emerging market economies



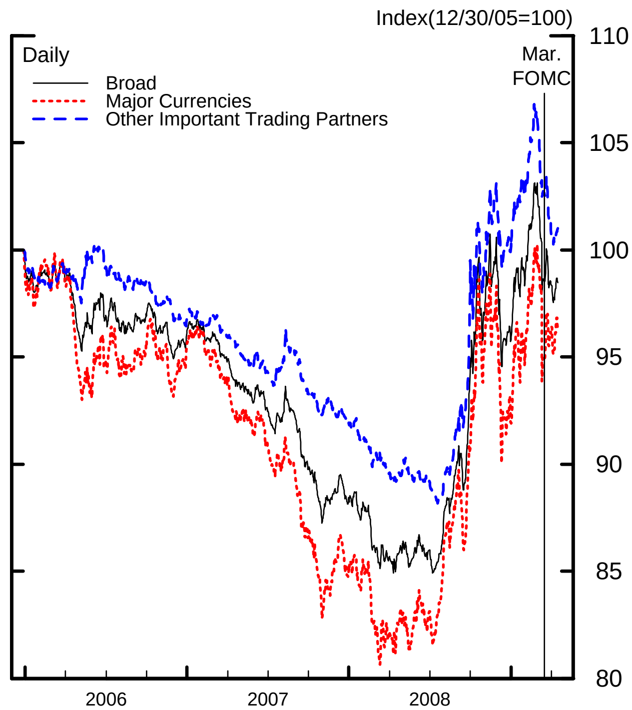
Source. Bloomberg.

Ten-year government bond yields (nominal)



Source. Bloomberg.

Nominal trade-weighted dollar indexes



Source. FRBNY and Bloomberg.

Note. Last daily observation is for April 23, 2009.

overnight interest rate to 25 basis points and indicated that, although it does not anticipate it to be necessary, it would be ready to purchase debt if the outlook of the economy worsened further. Any specific moves would be announced in upcoming policy meetings. The Bank of Japan left its target for the call rate unchanged but expanded some non-traditional policy measures: It increased the size of its monthly purchases of government bonds from ¥1.4 trillion to ¥1.8 trillion and it announced that it will expand its eligible collateral to include municipal debt. Many central banks in emerging market economies have further eased monetary policy. Market participants expect that foreign central banks will continue to ease policy in 2009.

The dollar depreciated sharply in the days following the March FOMC meeting and the smaller-than-expected rate cut by the European Central Bank. The major currencies index of the dollar decreased on net about 1.5 percent during the intermeeting period, as depreciation versus the Canadian dollar, the yen, and sterling more than offset a modest appreciation against the euro. The dollar index for other important trading partners decreased about 2 percent, as reduced risk aversion and the announcements by several developing economies of agreements with the IMF on financing packages improved sentiment towards those regions. Mexico became the first country to seek an arrangement with the IMF under the newly established Flexible Credit Line, and it also drew on its liquidity arrangement with the Federal Reserve. At its April meeting, the G-20 agreed to support a general allocation of SDRs equivalent to $250 billion to increase global liquidity.

Debt, Bank Credit, and Money

Private sector debt appears to have contracted again in the first quarter. The staff continues to estimate that household debt dropped at roughly the same pace in the first quarter of 2009 as it did in the fourth quarter of 2008 (Chart 6). Activity in the mortgage market reflected mostly refinancing, and the staff estimates that household

Chart 6
Debt and Money

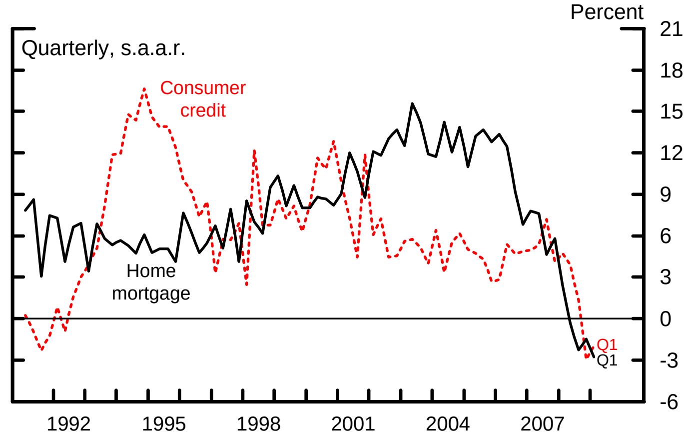
Growth of debt of nonfinancial sectors

Percent, s.a.a.r.

	Total	Business	Household	Government
2007	8.6	13.1	6.6	6.1
2008	5.8	4.8	0.4	17.5
Q1	5.2	7.2	3.0	6.7
Q2	3.1	5.8	0.3	4.4
Q3	8.1	4.1	0.2	28.6
Q4	6.3	1.7	-1.9	26.7
2009				
Q1	4.5	2.2	-2.2	18.3

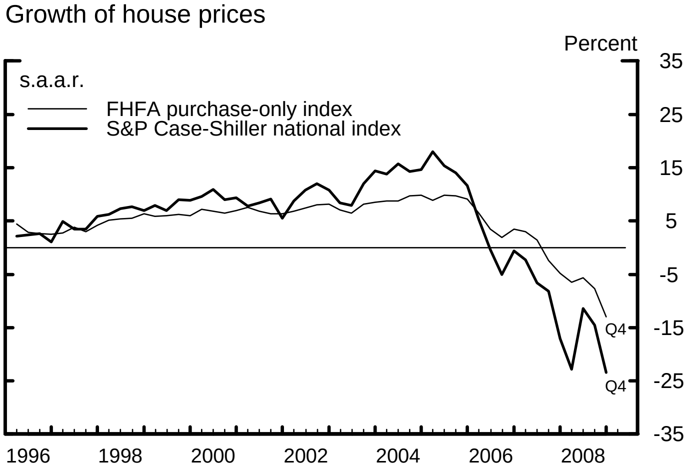
Source. Flow of Funds.

Growth of debt of household sector



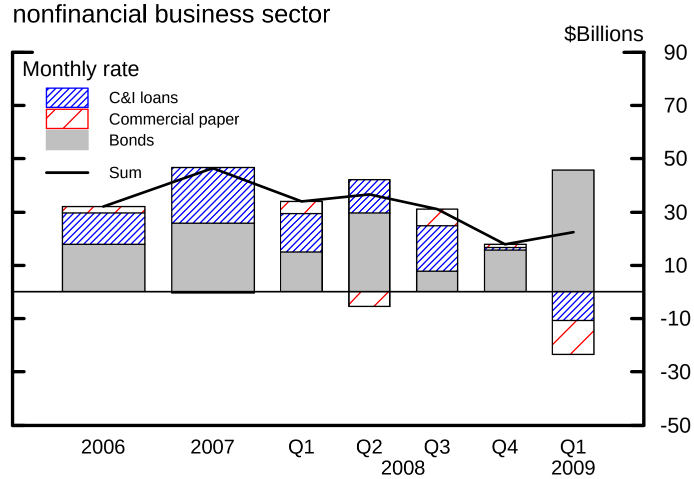
Source. Flow of Funds, Federal Reserve G.19 release.

Growth of house prices



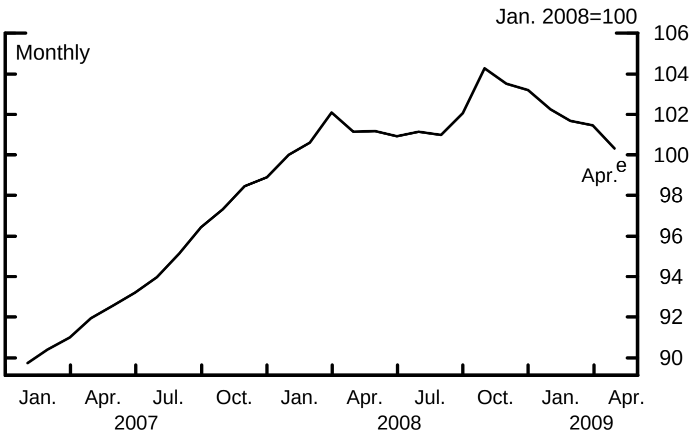
Source. Federal Housing Finance Agency (FHFA), Standard & Poor's.

Changes in selected components of debt of nonfinancial business sector



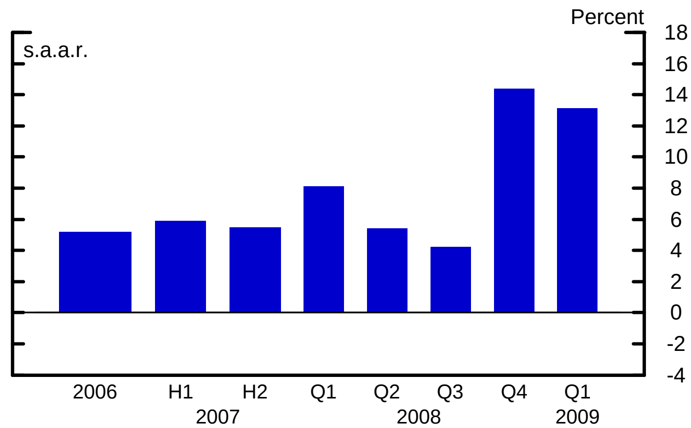
Note. Commercial paper and C&I loans are seasonally adjusted, bonds are not.
Source. Securities Data Company, Depository Trust & Clearing Corporation, and Federal Reserve H.8 release.

Bank credit



e Estimated.

Growth of M2



Source. Federal Reserve.

mortgage debt contracted again in the first quarter, depressed by continued weak housing demand, falling house prices, and writedowns of nonperforming loans. Consumer credit was essentially flat, on net, in the first quarter despite the generally lower interest rates on consumer loans. Nonfinancial business debt growth has been tepid as robust bond issuance was partly offset by declines in commercial paper and bank loans. Amid the ongoing heavy debt issuance by the Treasury, federal debt grew at a more than 20 percent rate in the first quarter.

Commercial bank credit is estimated to have contracted again in March and April. The weakness in bank credit owes importantly to a drop in loans to businesses, as C&I loans fell almost 13 percent at an annual rate in March, reflecting in part paydowns with the proceeds of bond issuance. Commercial real estate loans declined almost 2 percent. The run-off in business loans appears to be continuing in April. Bank lending to households was also weak in the spring. Owing to considerable sales of single-family mortgages to the GSEs, residential mortgage loans on banks' books declined, on balance, in March and the first part of April. Consumer loans held by banks also ran off amid heavy securitization. In contrast, credit extended under revolving home equity lines of credit continued to expand at a robust pace, partly reflecting relatively attractive terms on existing lines.

The Senior Loan Officer Opinion Survey on Bank Lending Practices conducted in April indicated that banks continued to tighten their credit standards and terms on all major loan categories over the past three months. The net fraction of banks that reported tightening their business lending policies, while still elevated, edged down for the second consecutive survey. In contrast, somewhat larger net percentages of banks reported having tightened credit standards on residential mortgages than in the January survey. Banks also reported a further tightening of standards and terms on credit cards and other consumer loans. A large majority of respondents cited a less favorable or more uncertain economic outlook, a worsening of industry-specific problems, and a reduced tolerance for risk as important reasons for the move toward a more stringent lending posture. In a set of special questions, large majorities of domestic and foreign respondents indicated that they expect credit quality for all types of business and household loans to worsen in 2009. Large net fractions of banks also reported a further weakening of demand for most types of loans, with the notable exception of residential mortgages to prime borrowers where demand was reported to have increased.

M2 grew at a rapid clip in March despite the weakness in nominal income. Growth was boosted a few percentage points by large deposits in late February and early March at one commercial bank that were made by a corporate customer in anticipation of executing a take-over bid. Robust expansion in liquid deposits more than accounted for the rise in M2 and was likely fueled by a continued reallocation by households toward safer assets. Retail money market funds and small time deposits contracted in March, probably as a result of the continued decline in rates paid on these assets. Growth of currency was brisk in March, apparently reflecting strong foreign and domestic demand. Consistent with the expansion of the Federal Reserve's balance sheet, total reserve balances also increased in March. Growth in both currency and total reserves contributed to rapid expansion of the monetary base last month.

ECONOMIC OUTLOOK

Information received since the March meeting indicates that the labor market has continued to deteriorate sharply and that business fixed investment has retained considerable downward momentum. Nonetheless, equity prices have rebounded strongly since mid-March, consumer spending appears to have leveled off, and some tentative signs of stabilization have been evident in the housing sector. Looking ahead, the staff forecast is predicated on the assumption that the Federal Reserve will not implement any further liquidity or credit programs beyond those that have already been announced and that it will not further expand its large-scale asset purchase programs. As in March, the staff also assumes that the FOMC will hold the target federal funds rate within its current range through the end of the forecast period. Long-term Treasury yields edge higher over the period as the window over which expected future short-term rates are averaged moves forward and thus encompasses fewer years of near-zero funds rates, but they do so from a level about 15 basis points lower than in the previous forecast. Investment-grade corporate bond yields have moved down about 45 basis points since the March Greenbook and are projected to decline another 140 basis points over the forecast horizon as risk spreads narrow further from their current high readings. Mortgage rates are anticipated to remain at about their current level—which is about 20 basis points lower than in March—over the medium term, reflecting the offsetting influences of a slight continued downward drift in their spread to Treasuries and the projected rise in Treasury yields. Equity prices are projected to increase at an annual rate of 15 percent from a level about 18 percent higher than at the time of the previous forecast, as the equity risk premium moderates gradually.[8] The foreign exchange value of the dollar has declined by close

[8] Note that equity prices rose about 10 percent between the close of the March Greenbook and the March FOMC meeting.

to 3½ percent over the intermeeting period and is assumed to edge lower over the balance of this year and fall by about 2 percent in 2010. Broadly consistent with futures quotes, oil prices move up to $56 per barrel by the end of this year and to $63 per barrel at the end of 2010, levels that are about $8 per barrel higher than at the time of the March Greenbook.

Against this backdrop, real GDP is expected to decline at an annual rate of 1½ percent in the second quarter, a bit more slowly than in the previous forecast. Output is projected to stabilize in the third quarter, and a moderate recovery is expected to get under way late this year. Nevertheless, with GDP growing more slowly than potential output through the first quarter of next year, the unemployment rate is projected to increase to 9¼ percent in the fourth quarter of this year and remain at that level, on average, in 2010. Core PCE prices are expected to rise at a slightly higher rate than previously projected, reflecting higher energy prices and a stronger economic outlook; still, low levels of resource utilization, the lagged effects of large declines in the prices of oil and other commodities, and reductions in core import prices are expected to hold core PCE inflation to 1.2 percent in 2009 and just 0.7 percent in 2010. Headline PCE prices are projected to increase 0.7 percent in 2009 and 1 percent next year.

Looking further ahead, the staff forecasts real GDP to expand about 5 percent per year, on average, from 2011 to 2013, as monetary policy remains stimulative, financial turmoil subsides, and the recovery in residential construction gains momentum. With actual output outpacing its potential by a wide margin, the unemployment rate declines steadily over this period, reaching 4¾ percent (the staff's estimate of the NAIRU) by late 2013. Under the assumption that long-run inflation expectations remain relatively well anchored, the gradual recovery in real activity allows core PCE inflation first to stabilize and then begin to move up slowly to

1.1 percent by 2013. Beyond 2013, monetary policy fosters an extended period of modestly above-average resource utilization in order to bring inflation gradually back to the desired rate of 2 percent. Once this is achieved, the real economy settles into a balanced growth path with trend expansion of about 2¾ percent per year, an unemployment rate of 4¾ percent, and a nominal federal funds rate of about 4¼ percent.

MONETARY POLICY STRATEGIES

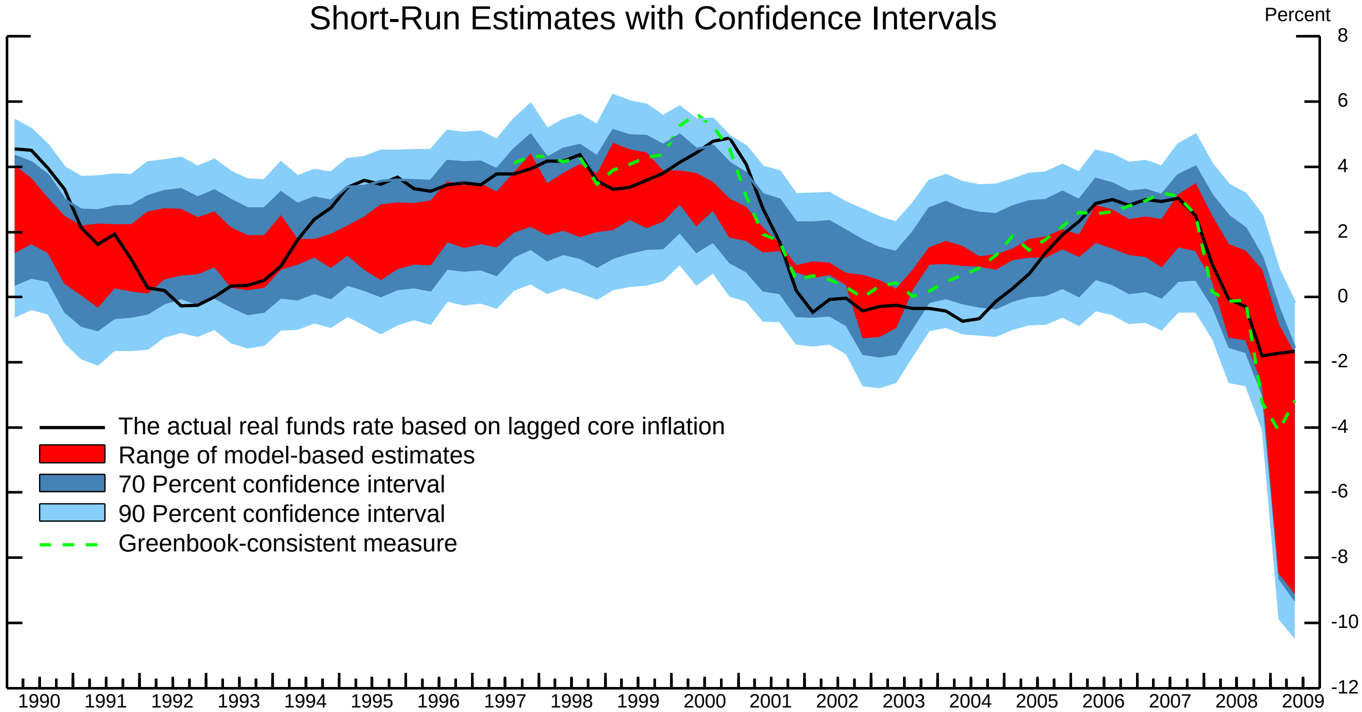
As shown in Chart 7, all of the estimates of short-run *r**—that is, the value of the real federal funds rate that would close the output gap within 12 quarters—have moved up since the March Bluebook. The Greenbook-consistent measure of short-run *r** is currently about -3¼ percent. This estimate has risen about 2 percentage points since March, mainly as a result of the recent increase in equity prices and the depreciation of the dollar. These factors have also pushed up by a similar amount the FRB/US model estimate of short-run *r**, which now stands at about -6¾ percent; this estimate does not incorporate the judgmental estimates of fiscal stimulus or the effects of unconventional monetary policy that are embedded in the Greenbook-consistent measure. (In the estimation of the FRB/US model's short-run *r**, all the exogenous variables are forecasted using simple rules that do not take account of the staff's projection.) Higher equity prices have also boosted the short-run *r** estimate from the small structural model; it is now about -9 percent.[9] Apart from the estimate produced by the single-equation model, all of the estimates are substantially below the actual real funds rate of -1¾ percent; the estimate from the single-equation model, which does not explicitly control for the effects of financial stress or fiscal stimulus, is in line with the actual real rate.

Chart 8 shows the result of optimal control simulations of the FRB/US model that were conducted using the long-run staff forecast as a starting point; in these simulations, the federal funds rate is the instrument of monetary policy. Policymakers

[9] In the estimation of the small structural model, the real bond yield is now based on the 10-year BBB corporate rate, replacing the Moody's BAA corporate rate. The Moody's rate was less affected by the financial crisis than the rates facing most BBB issuers. If the definition had been changed in March, the estimate of short-run r* from the small structural model would have been 1½ percentage points lower than the value shown in the March Bluebook.

Chart 7
Equilibrium Real Federal Funds Rate

Short-Run Estimates with Confidence Intervals



Short-Run and Medium-Run Measures

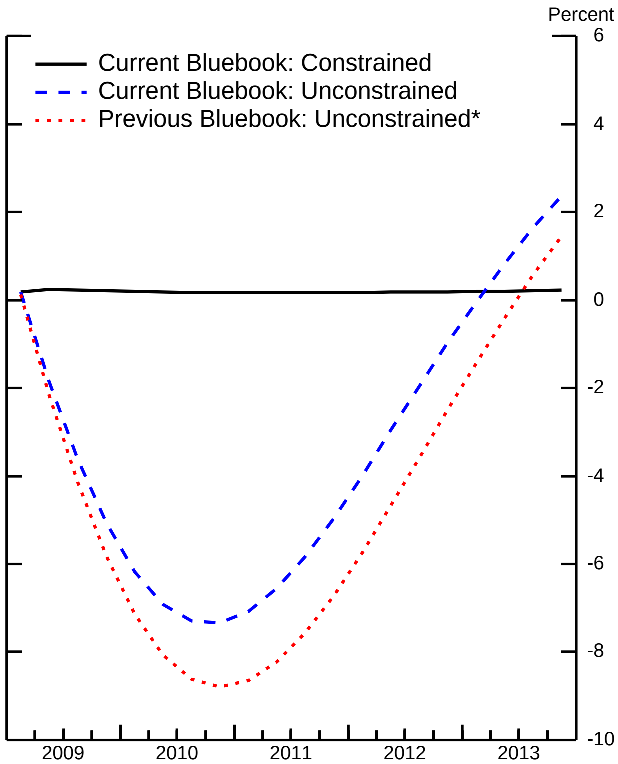
	Current Estimate	*Previous Bluebook*
Short-Run Measures		
Single-equation model	-1.7	*-2.0*
Small structural model	-9.1	*-10.0*
Large model (FRB/US)	-6.7	*-8.6*
Confidence intervals for three model-based estimates		
70 percent confidence interval	-9.3 to -1.6	
90 percent confidence interval	-10.5 to -0.2	
Greenbook-consistent measure	-3.2	*-5.2*
Medium-Run Measures		
Single-equation model	1.5	*1.4*
Small structural model	1.2	*0.3*
Confidence intervals for two model-based estimates		
70 percent confidence interval	0.4 to 2.2	
90 percent confidence interval	-0.2 to 2.9	
TIPS-based factor model	2.0	*2.0*
Memo		
Actual real federal funds rate	-1.7	*-1.4*

Note: Appendix A provides background information regarding the construction of these measures and confidence intervals. The actual real federal funds rate shown is based on lagged core inflation as a proxy for inflation expectation. For information regarding alternative measures, see Appendix A.

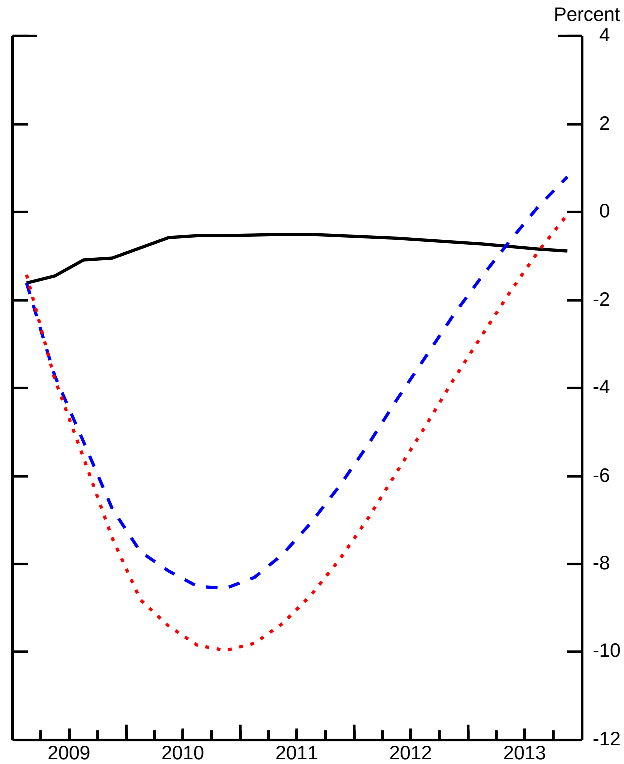
Chart 8

Constrained vs. Unconstrained Monetary Policy
(2 Percent Inflation Goal)

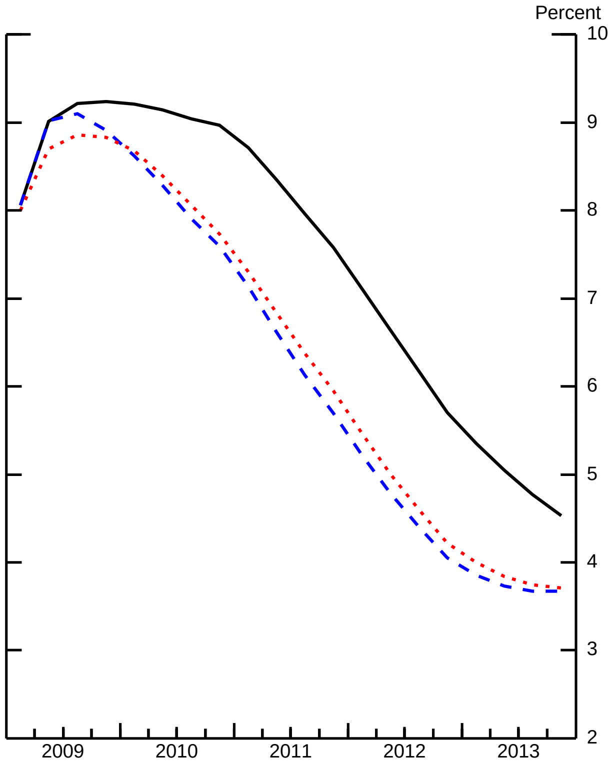
Nominal Federal Funds Rate



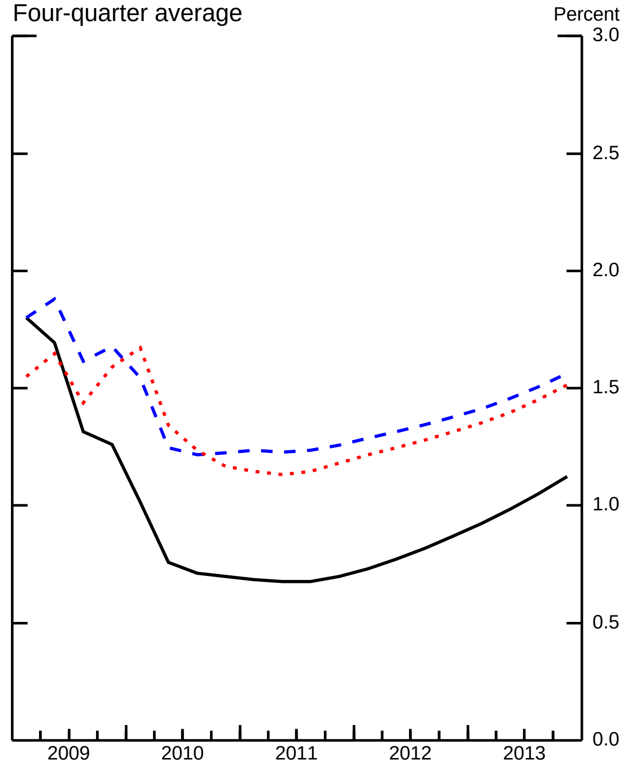
Real Federal Funds Rate



Civilian Unemployment Rate



Core PCE Inflation
Four-quarter average



* The results labeled as "Previous Bluebook" have been generated using the new specification for long-run inflation expectations.

are assumed to place equal weight on keeping core PCE inflation close to an inflation goal of 2 percent, on keeping unemployment close to the NAIRU, and on avoiding changes in the funds rate. As in recent Bluebooks, monetary policy is severely constrained by the zero lower bound in these simulations, and the nominal funds rate remains close to zero through 2013 (black solid lines). As a result, the real funds rate hovers around -1 percent through the entire simulation period. Chart 8 also displays counterfactual results that would be obtained if the zero bound did not constrain the nominal federal funds rate (blue dashed lines). This counterfactual scenario can provide a useful benchmark for considering the stimulus that may be provided by unconventional monetary policy (see box "Policy Paths for Large-scale Asset Purchases"). Under this unconstrained policy, the funds rate falls to -7½ percent late next year, rising back above zero in 2012. The real funds rate decreases to about -8½ percent by the end of 2010. Relative to the constrained case, such a policy places the civilian unemployment rate on a distinctly lower path over the next few years and core PCE inflation on a higher path.[10] These paths for unemployment and inflation are essentially the same as those in March (red dotted lines). The unconstrained prescription for the nominal funds rate in the current Bluebook is above the March path, reflecting the somewhat stronger outlook for aggregate demand now seen by the staff.

As depicted in Chart 9, the outcome-based policy rule prescribes a funds rate at its effective lower bound through the end of 2011. (The midpoint of the Committee's

---

[10] The paths of core PCE inflation under all three policies are markedly different from the ones shown in the previous Bluebook; these differences reflect methodological changes in the specification used to simulate the behavior of long-run inflation expectations. For details, see the memo to the FOMC, "Large-scale Asset Purchases and Inflation Expectations in the FRB/US Model" by David Reifschneider and John Roberts (April 20, 2009). To facilitate the comparison to previous conditions, results under the unconstrained policy for March were regenerated using the new specification.

Policy Paths for Large-scale Asset Purchases

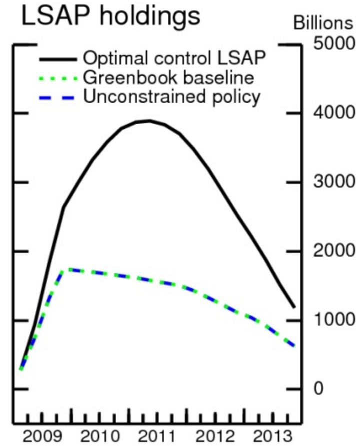
In recent work, the staff has conducted optimal control simulations of the FRB/US model in which large-scale asset purchases (LSAPs) serve as the instrument of monetary policy while the federal funds rate is constrained by the zero lower bound.[1] This box presents an illustrative simulation of an optimal control LSAP policy and then highlights some challenges and sources of uncertainty in specifying the appropriate magnitude and timing of asset purchases.[2]

In this simulation, LSAPs provide stimulus to the real economy by lowering longer-term yields; policymakers aim at keeping unemployment near the NAIRU and inflation near a 2 percent objective, and they prefer not to hold more of these assets on the Federal Reserve balance sheet than usual and not to make large adjustments in asset holdings. The top panel on the right shows simulated paths of longer-term asset holdings acquired by the Federal Reserve through LSAPs, which would normally be zero. Conditional on the staff's economic outlook, the optimal control path of LSAP holdings (black solid line) peaks at almost $4 trillion by early 2011; in subsequent years this path gradually approaches the Greenbook baseline (green dotted line), which goes to zero after 2013.

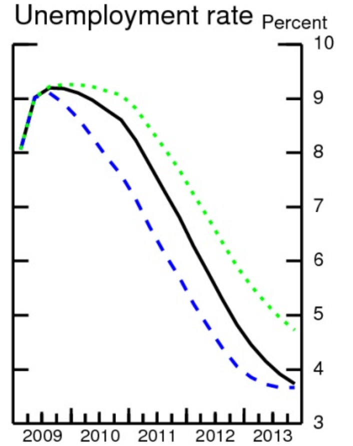
As shown in the lower panels, this more aggressive LSAP path fosters a somewhat faster pace of recovery than in the Greenbook baseline. By the end of 2010, the unemployment rate is about ½ percentage point lower than the baseline while core inflation is somewhat above the staff projection. These LSAP paths are between the baseline outcome and the unconstrained optimal control simulation paths reproduced from Chart 8 (blue dashed line), in which the federal funds rate is allowed to fall below zero and the path of LSAPs is held at the Greenbook baseline.

The scale of purchases in this optimal control simulation of LSAPs is about twice as large as simulations shown in a box in the March Bluebook,[3] while the outcomes for unemployment and inflation are broadly similar. The main reason is a

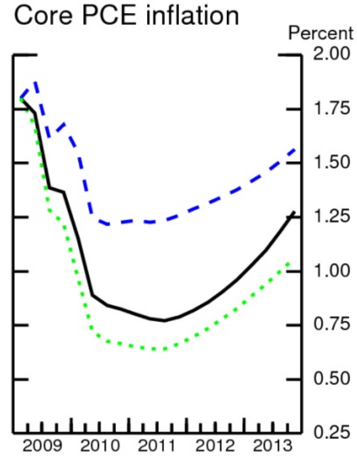
LSAP holdings



Unemployment rate



Core PCE inflation



[1] The memo "Optimal Paths for Large-scale Asset Purchases" by Eileen Mauskopf and Jae Sim, sent to the FOMC on April 20 2009, describes the simulations and underlying assumptions in more detail.

[2] The LSAP simulation shown is the same as the "lower cost" path shown in the box "Large-Scale Asset Purchases and the Economic Outlook" in Part I of the Greenbook.

[3] The simulations in the March Bluebook were based on a given scale of LSAPs of up to $2 trillion without concern for optimal control.

downward revision in the staff's assessment of the likely effects of asset purchases on longer-term yields.[4] In the LSAP simulation shown here, an announcement of purchases over the next two quarters decreases yields by reducing the expected net supply of longer-term debt relative to the total stock of government debt. In light of recent data on interest rate movements, the effect of purchasing a given share of the market for longer-term assets is now estimated to be somewhat lower than assumed in earlier staff work. This estimate is subject to a wide margin of error and could change considerably as additional information is incorporated. Furthermore, actual and projected levels of government debt have surged since late 2008, reducing the expected responses of yields to asset purchases of a given dollar size.

There is also considerable uncertainty concerning how yields are affected by purchases of different categories of assets. In the simulations reported in the March Bluebook, the staff assumed that purchases of MBS and agency debt have larger effects on their own yields than purchases of Treasury securities have on Treasury yields. The data tend to confirm that recent purchases had indeed larger effects on MBS and agency yields, but since their spreads have declined, the staff assumes that the responses of such yields to any future LSAPs would be roughly similar to the effects on longer-term Treasury yields.

Additional considerations add to uncertainty regarding the effect of LSAPs on the economy. One particularly uncertain factor is whether yields are affected primarily by the stock of purchased assets or by the flow of purchases. Another source of uncertainty is the extent to which yields are affected by the announcement of future LSAPs as opposed to their execution. These issues are hard to assess empirically given the very limited data available.

Finally, LSAPs may raise some significant risks that are not incorporated in the staff model or sufficiently captured by assumptions about policymakers' preferences for avoiding large holdings of longer-term securities as well as rapid adjustments in such holdings. For example, financial markets might be disrupted by outsized LSAP purchases or by the heavy sales that might be required if the economy were to recover more rapidly than anticipated. The LSAP simulation shown here requires the Federal Reserve to buy almost half the stock of outstanding longer-term Treasury debt, agency debt, and agency MBS. At this scale, the scope of purchases would have to be extended to the secondary market and off-the run securities and would crowd investors out of the primary market, as net borrowing of the U.S. Treasury is projected to reach only $2.8 trillion over the next two years. Moreover, purchases of the scale shown on the previous page would boost the reserves of depository institutions by up to $4 trillion, putting massive upward pressure on the size of their balance sheets—which currently total only about $15 trillion—at a time when many institutions are seen as having weak capital positions. As a result, depository institutions could pull back from lending even further, potentially offsetting at least a portion of the expansionary effect of the LSAP. Finally, the very large purchases contemplated here expose the balance sheet of the Federal Reserve to considerable interest rate risk, pointing to the possibility of significant capital losses, in particular if large and rapid sales of securities proved necessary to regain control over the federal funds rate.

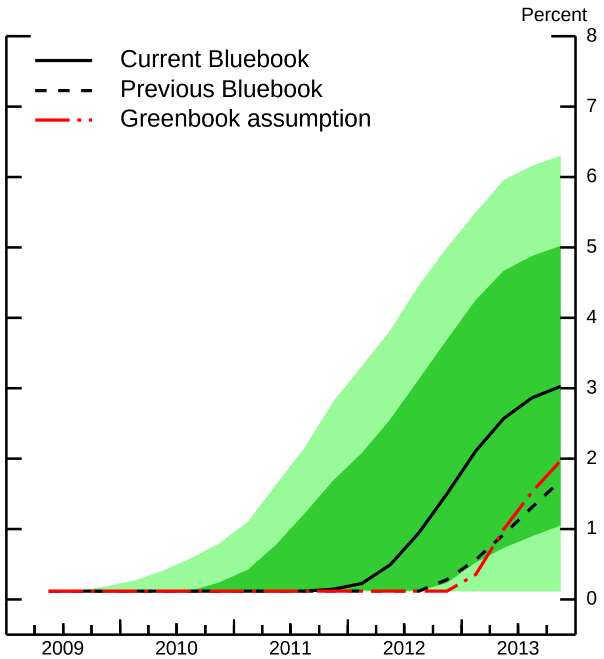
---

[4] The memo "A Preliminary Assessment of the Effects of The Federal Reserve's Large-Scale Asset Purchases on Interest Rates" by Joseph Gagnon, sent to the FOMC on April 23 2009, describes the revised estimates in more detail.

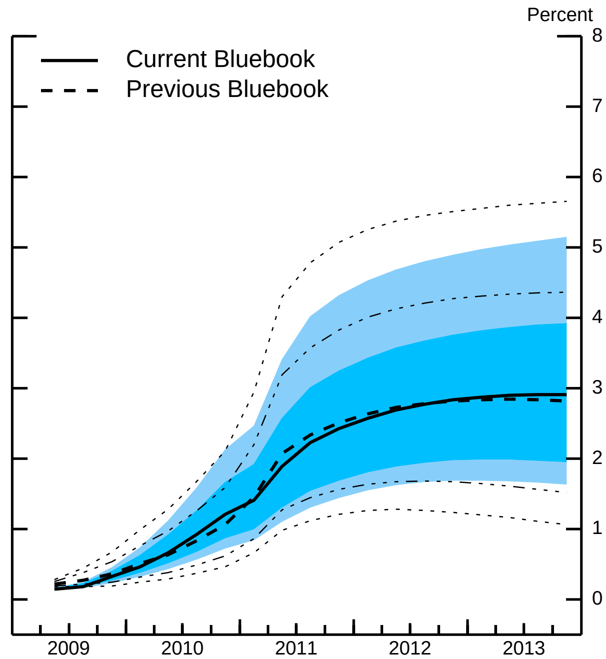
Chart 9

The Policy Outlook in an Uncertain Environment

FRB/US Model Simulations of Estimated Outcome-Based Rule



Information from Financial Markets



Note: In both panels, the dark and light shading represent the 70 and 90 percent confidence intervals respectively. In the right hand panel, the thin dotted lines represent the confidence intervals shown in the previous Bluebook.

Near-Term Prescriptions of Simple Policy Rules

	Constrained Policy		Unconstrained Policy	
	2009Q2	2009Q3	2009Q2	2009Q3
Taylor (1993) rule	**0.29**	**0.13**	**0.29**	**-0.47**
Previous Bluebook	*0.13*	*0.13*	*-0.29*	*-1.14*
Taylor (1999) rule	**0.13**	**0.13**	**-2.91**	**-3.87**
Previous Bluebook	*0.13*	*0.13*	*-3.62*	*-4.77*
First-difference rule	**0.13**	**0.13**	**-1.05**	**-1.94**
Previous Bluebook	*0.13*	*0.13*	*-1.57*	*-2.98*
Estimated outcome-based rule	**0.13**	**0.13**	**-0.79**	**-1.79**
Previous Bluebook	*0.13*	*0.13*	*-1.06*	*-2.39*
Estimated forecast-based rule	**0.13**	**0.13**	**-0.95**	**-2.09**
Previous Bluebook	*0.13*	*0.13*	*-1.28*	*-2.76*

Memo

	2009Q2	2009Q3
Greenbook assumption	0.13	0.13
Fed funds futures	0.17	0.21
Median expectation of primary dealers	0.13	0.13
Blue Chip forecast (April 1, 2009)	0.20	0.20

Note: In calculating the near-term prescriptions of these simple policy rules, policymakers' long-run inflation objective is assumed to be 2 percent. Appendix B provides further background information.

0 to 25 basis point target range is taken as the effective lower bound.) Given the somewhat less sluggish outlook, the federal funds rate begins to increase a couple of quarters earlier than in the March Bluebook.[11] Financial market participants appear to anticipate that the funds rate will rise to 1½ percent by the end of 2010 and subsequently reach a plateau at just under 3 percent. Compared with those shown in the March Bluebook, the confidence intervals around these forecasts, derived from market prices of interest-rate caps, are tighter through 2013.[12]

The lower panel of Chart 9 provides near-term prescriptions of simple policy rules. As shown in the left hand columns, these funds rate prescriptions are generally constrained by the zero lower bound. The right hand columns show the prescriptions implied by these rules if the zero lower bound is not imposed. In this case, the Taylor (1993) rule prescribes a funds rate of about ¼ percent this quarter and -½ percent next quarter. The Taylor (1999) rule prescribes a funds rate close to -3 percent this quarter and -3¾ percent next quarter, reflecting the rule's higher sensitivity to the output gap. The estimated outcome-based and forecast-based rules also prescribe negative nominal federal funds rates for the next two quarters.

---

[11] The procedures used to generate confidence intervals with the FRB/US model have been substantially modified since the last Bluebook, and are now based on a longer and more volatile sample period. By itself, this change generates appreciably wider intervals for forecasts of the federal funds rate. However, this effect is offset for near-term interest rate forecasts by another methodological change to the way the zero lower bound is imposed on the outcome-based policy rule. For further details, see the memo to the FOMC, "Changes in Macroeconomic Uncertainty" by Robert Tetlow and Peter Tulip (April 20, 2009).

[12] Given the uncertainty about the economic and financial outlook, reading policy expectations from federal funds futures and options is not straightforward; in particular, the term premium may be larger than usual. The most recent dealer survey shows that no respondent expects an increase in the target rate before the first quarter of 2010 and that half of respondents anticipate the first rate increase to occur during or after the first quarter of 2011.

POLICY ALTERNATIVES

This Bluebook presents two policy alternatives and a variation on the language of one of the alternatives for the Committee's consideration, summarized by the draft statements on the following pages. Under Alternative A, the Committee would expand its purchases of longer-term Treasury securities to as much as $750 billion and would lengthen the time period over which these purchases would take place to the end of the year. Under Alternative B, the Committee would instead maintain the course of policy announced in March and not make any changes to the planned purchases of long-term assets. Under Alternative B′, the Committee would also stay the course, but in the Committee's statement the purchases would be translated into both an approximate dollar amount per month and an average monthly percentage growth rate of the System's holdings of these assets through the end of the year. All three alternatives introduce language stating explicitly that the Committee's future decisions as to the timing and overall amounts of purchases of long-term assets will depend on the evolution of the economic outlook and on changes in financial conditions. Under all alternatives, the Committee would seek to maintain the federal funds rate within the current range of 0 to ¼ percent and would again communicate its expectation that the federal funds rate is likely to remain at exceptionally low levels for an extended period.

March FOMC Statement

Information received since the Federal Open Market Committee met in January indicates that the economy continues to contract. Job losses, declining equity and housing wealth, and tight credit conditions have weighed on consumer sentiment and spending. Weaker sales prospects and difficulties in obtaining credit have led businesses to cut back on inventories and fixed investment. U.S. exports have slumped as a number of major trading partners have also fallen into recession. Although the near-term economic outlook is weak, the Committee anticipates that policy actions to stabilize financial markets and institutions, together with fiscal and monetary stimulus, will contribute to a gradual resumption of sustainable economic growth.

In light of increasing economic slack here and abroad, the Committee expects that inflation will remain subdued. Moreover, the Committee sees some risk that inflation could persist for a time below rates that best foster economic growth and price stability in the longer term.

In these circumstances, the Federal Reserve will employ all available tools to promote economic recovery and to preserve price stability. The Committee will maintain the target range for the federal funds rate at 0 to 1/4 percent and anticipates that economic conditions are likely to warrant exceptionally low levels of the federal funds rate for an extended period. To provide greater support to mortgage lending and housing markets, the Committee decided today to increase the size of the Federal Reserve's balance sheet further by purchasing up to an additional $750 billion of agency mortgage-backed securities, bringing its total purchases of these securities to up to $1.25 trillion this year, and to increase its purchases of agency debt this year by up to $100 billion to a total of up to $200 billion. Moreover, to help improve conditions in private credit markets, the Committee decided to purchase up to $300 billion of longer-term Treasury securities over the next six months. The Federal Reserve has launched the Term Asset-Backed Securities Loan Facility to facilitate the extension of credit to households and small businesses and anticipates that the range of eligible collateral for this facility is likely to be expanded to include other financial assets. The Committee will continue to carefully monitor the size and composition of the Federal Reserve's balance sheet in light of evolving financial and economic developments.

April FOMC Statement — Alternative A

1. Information received since the Federal Open Market Committee met in March indicates that the economy continues to contract. Job losses, lower housing wealth, and tight credit conditions have weighed on consumer sentiment and spending. Weak sales prospects and difficulties in obtaining credit have led businesses to cut back on inventories and fixed investment. Although the economic outlook has improved modestly since the March meeting, partly reflecting some easing of financial market conditions, the Committee anticipates that economic activity will continue to contract in the near term and that the subsequent recovery could be sluggish.
2. In light of increasing economic slack here and abroad, the Committee expects that inflation will remain subdued. Moreover, the Committee sees some risk that inflation could persist for a time below rates that are most consistent with sustainable economic growth and price stability in the longer term.
3. In these circumstances, the Committee has decided to provide additional monetary stimulus by stepping up its purchases of longer-term securities. To improve conditions in private credit markets, the Federal Reserve has recently begun purchasing longer-term Treasury securities, and the Committee now intends to acquire up to $750 billion of these securities by year-end. The Committee continues to anticipate that the Federal Reserve will purchase up to $1.25 trillion of agency mortgage-backed securities and up to $200 billion of agency debt over the course of this year. The Committee is prepared to make further adjustments to the timing and overall amounts of these purchases of Treasury, agency, and mortgage-backed securities as appropriate in view of the evolving economic outlook and conditions in financial markets. The Committee will maintain the target range for the federal funds rate at 0 to 1/4 percent and anticipates that economic conditions are likely to warrant exceptionally low levels of the federal funds rate for an extended period. The Federal Reserve is facilitating the extension of credit to households and businesses and supporting the functioning of financial markets through a range of liquidity programs. The Committee will continue to carefully monitor the size and composition of the Federal Reserve's balance sheet in light of financial and economic developments.

April FOMC Statement — Alternative B

1. Information received since the Federal Open Market Committee met in March indicates that the economy has continued to contract. Job losses, lower housing wealth, and tight credit conditions have weighed on consumer sentiment and spending. Weak sales prospects and difficulties in obtaining credit have led businesses to cut back on inventories and fixed investment. Although the economic outlook has improved modestly since the March meeting, partly reflecting some easing of financial market conditions, economic activity is likely to remain weak for a time. Nonetheless, the Committee continues to anticipate that policy actions to stabilize financial markets and institutions, fiscal and monetary stimulus, and market forces will contribute to a gradual resumption of sustainable economic growth.
2. In light of increasing economic slack here and abroad, the Committee expects that inflation will remain subdued. Moreover, the Committee sees some risk that inflation could persist for a time below rates that best foster economic growth and price stability in the longer term.
3. In these circumstances, the Federal Reserve will employ all available tools to promote economic recovery and to preserve price stability. The Committee will maintain the target range for the federal funds rate at 0 to 1/4 percent and anticipates that economic conditions are likely to warrant exceptionally low levels of the federal funds rate for an extended period. As previously announced, to provide support to mortgage lending and housing markets and to improve overall conditions in private credit markets, the Federal Reserve will purchase a total of up to $1.25 trillion of agency mortgage-backed securities and up to $200 billion of agency debt by the end of the year. In addition, the Federal Reserve will buy up to $300 billion of Treasury securities by autumn. The Committee stands ready to adjust the timing and overall amounts of its purchases of securities as appropriate in view of the evolving economic outlook and conditions in financial markets. The Federal Reserve is facilitating the extension of credit to households and businesses and supporting the functioning of financial markets through a range of liquidity programs. The Committee will continue to carefully monitor the size and composition of the Federal Reserve's balance sheet in light of financial and economic developments.

April FOMC Statement — Alternative B'

1. Information received since the Federal Open Market Committee met in March indicates that the economy has continued to contract. Job losses, lower housing wealth, and tight credit conditions have weighed on consumer sentiment and spending. Weak sales prospects and difficulties in obtaining credit have led businesses to cut back on inventories and fixed investment. Although the economic outlook has improved modestly since the March meeting, partly reflecting some easing of financial market conditions, economic activity is likely to remain weak for a time. Nonetheless, the Committee continues to anticipate that policy actions to stabilize financial markets and institutions, fiscal and monetary stimulus, and market forces will contribute to a gradual resumption of sustainable economic growth.
2. In light of increasing economic slack here and abroad, the Committee expects that inflation will remain subdued. Moreover, the Committee sees some risk that inflation could persist for a time below rates that best foster economic growth and price stability in the longer term.
3. In these circumstances, the Federal Reserve will employ all available tools to promote economic recovery and to preserve price stability. The Committee will maintain the target range for the federal funds rate at 0 to 1/4 percent and anticipates that economic conditions are likely to warrant exceptionally low levels of the federal funds rate for an extended period. As previously announced, to provide support to mortgage lending and housing markets and to improve overall conditions in private credit markets, the Federal Reserve will purchase a total of up to $1.25 trillion of agency mortgage-backed securities and up to $200 billion of agency debt by the end of the year. In addition, the Federal Reserve will buy up to $300 billion of Treasury securities by autumn. As of the end of March, the Federal Reserve had completed purchases of about $310 billion of this $1.75 trillion total, bringing its portfolio of Treasury and agency securities to $780 billion. The Committee expects its purchases to average about $160 billion per month through year-end, equivalent to an average growth rate for this portfolio of around 20 percent per month over the last nine months of the year. The Committee stands ready to adjust the timing and overall amounts of its purchases of securities as appropriate in view of the evolving economic outlook and conditions in financial markets. The Federal Reserve is facilitating the extension of credit to households and businesses and supporting the functioning of financial markets through a range of liquidity programs. The Committee will continue to carefully monitor the size and composition of the Federal Reserve's balance sheet in light of financial and economic developments.

THE CASE FOR ALTERNATIVE B

If policymakers believe that the Committee has already put in train a substantial amount of monetary stimulus and think that the Federal Reserve's policies, coupled with the effects of the fiscal stimulus approved by the Congress and the implementation of the financial stability plan, will likely suffice to return the economy reasonably promptly to a path of sustainable growth, they could decide to reaffirm the course of policy announced in March, as in **Alternative B**. Mortgage rates have declined substantially since the Committee first announced its intention of purchasing large quantities of agency debt and mortgage-backed securities. Similarly, long-term private yields have declined somewhat, on net, since the March announcement that the Committee would increase its purchases of agency securities and would begin purchasing Treasury securities. The Committee may be of the view that these lower rates are providing stimulus to the economy that is likely to increase in coming months as households and businesses respond with a lag to the lower rates. Indeed, the data received over the intermeeting period suggested some stabilization in consumer spending and housing activity, and the staff has revised up its outlook for growth during the remainder of this year and next year. Against this backdrop, the Committee may see no compelling reason to further expand the size of the Federal Reserve's balance sheet and may prefer instead to observe how the economic situation unfolds before considering an additional expansion of the planned accumulation of longer-term assets. The option of waiting before deciding to acquire even more of those assets may be especially attractive if the Committee is concerned that holdings of long-term assets could prove difficult or costly to unwind when that becomes necessary.

Some of the credit and liquidity facilities that the Federal Reserve put in place to facilitate the extension of credit to businesses and households have seen diminished usage of late. Even though some of the decline in usage may be attributable to government-imposed conditions that are viewed as onerous by borrowers, members may judge that the decline has been largely a reflection of the improvement in financial conditions observed over the intermeeting period. If so, the Committee may see no need to compensate for that reduction with an increase in asset purchases, particularly given that the Federal Reserve balance sheet has expanded since the March meeting. In addition, incoming data have pointed to somewhat higher-than-expected inflation. Members might interpret the latter development as tentative evidence that the downside risk to price stability has diminished slightly amid higher energy prices and less bleak prospects for economic activity, reinforcing the judgment that there is no need for immediate further expansion of asset purchases.

The statement suggested for Alternative B begins by noting that recent information indicates that the economy has continued to contract and that, although the outlook has improved modestly, economic activity is likely to remain weak for a time. Nonetheless, the statement points out that the policy actions taken recently, together with fiscal and monetary stimulus, will contribute to a gradual resumption of sustainable growth. The paragraph characterizing the outlook for inflation is identical to that in March. In the third paragraph, the statement reiterates that the Committee will use all available tools to promote economic recovery and preserve price stability. It also repeats the Committee's expectation that the federal funds target rate is likely to remain at very low levels for an extended period, and it reminds the markets and the public that the FOMC has already decided to purchase large quantities of Treasury and agency securities over the course of the year. The draft statement introduces new language to emphasize that the Committee stands ready to adjust the timing and overall amounts of these purchases as appropriate; this new sentence aims to communicate to the public that monetary policy will be a function of the evolving economic outlook and conditions in financial markets. The statement then mentions that the Federal Reserve is employing a range of other programs to facilitate the extension of credit to households and businesses and to support the functioning of financial markets. As in March, the statement concludes by noting that the Committee will monitor the size and composition of the Federal Reserve's balance sheet in light of economic and financial developments.

The Committee may prefer a description of its large-scale asset purchases that characterizes the path of those purchases in addition to their overall amount. Members might believe, for example, that emphasizing the path of purchases would better communicate the sense that policymakers have a forward-looking plan for the conduct of policy. If so, Committee members may want to adopt a slightly different statement, such as the one suggested under **Alternative B´**. This statement is identical to the one for Alternative B, except that it adds two sentences in the middle of the third paragraph to specify that the Committee expects that the Federal Reserve's holdings of Treasury and agency securities will increase at an average pace of about $160 billion per month over the reminder of 2009, which would be equivalent to an average monthly growth rate of around 20 percent from the end of March through the end of the year.[13] This sentence adds information about the Committee's expectation for the growth of the securities portfolio over time to a statement that maintains the basic structure of those previously released by the Committee.

[13] As of the end of March, there were $782.5 billion of Treasuries, agency debt, and mortgage-backed securities on the Federal Reserve's balance sheet. Of those, $307.2 billion were securities acquired recently under the announced purchase programs. Subtracting that amount from the announced $1.75 trillion of total planned purchases gives $1.443 trillion of those securities that still have to be acquired by year-end. Dividing that amount by nine months (April to December) results in a constant monthly purchase rate of $160.3 billion, or 20.5 percent of the $782.5 billion of initial holdings.

Judging from the Desk's survey of primary dealers, very few market participants appear to expect an expansion in long-term asset purchases or other significant policy actions at this meeting. Accordingly, the market reaction to the release of a statement such as that suggested for Alternatives B or B′ should be muted. Short- and long-term yields, stock prices, and the foreign exchange value of the dollar all should change little.

THE CASE FOR ALTERNATIVE A

If the Committee is concerned that the near-term outlook for economic activity might be worse than that presented in the staff forecast and that the subsequent recovery might be unduly sluggish, it may prefer to apply additional monetary stimulus by expanding its purchases of long-term assets at this meeting, along the lines of **Alternative A**. The Committee may judge that the signs of economic and financial stabilization that were seen over the intermeeting period were quite tentative and that significant uncertainties remain as to the timing and extent of the economic recovery, perhaps along the lines of the "False Dawn" alternative scenario in the Greenbook. Alternatively, the Committee might think that the economic outlook presented by the staff is quite plausible but unacceptably weak. While members may be satisfied that the purchases of agency debt and mortgage-backed securities already in train are having a significant beneficial effect on mortgage rates, they may also view the amount of Treasury purchases announced in March as insufficient to have a substantial effect on private yields, especially in light of the relatively modest net decline in those yields since the March meeting. Indeed, the relatively small decline may have induced members to revise down their estimates of the elasticity of private yields to those purchases and to increase their views of the volume of purchases necessary to produce a given amount of monetary stimulus. In addition, the Committee may be concerned that the effects on interest rates of the purchases of

Treasury securities already planned may be largely offset by the effects of greater issuance of such securities to fund a large projected budget deficit. And members may take comfort from the thought that the potential cost of expanding the balance sheet through additional acquisitions of Treasury securities may not be high since holdings of those securities may be relatively easy to unwind when appropriate, albeit perhaps at a capital loss.

In view of the shallow trajectory of the Term Asset-Backed Securities Loan Facility (TALF) to date and the contraction in some other liquidity facilities, some members might see the need to take additional action at this meeting to maintain a brisk expansion of the Federal Reserve's balance sheet. Members may believe that the recent decline in the usage of some Federal Reserve facilities might not be solely the result of improved financial conditions but rather to a significant degree is a byproduct of increased stigma associated with those programs that reflects the recent conditions imposed on participants in certain government programs. Similarly, members may feel that fears of government actions may undermine the TALF. Members may thus view an increase in the purchases of Treasury securities as appropriate to offset, at least in part, the reduced policy stimulus generated by existing credit facilities. If members are concerned that the economy will continue to contract in the near term and that the recovery will be sluggish, they might also judge that the risks that inflation will persist below rates consistent with price stability remain largely intact even though recent data have pointed to somewhat higher inflation than had been anticipated.

The first paragraph of the statement that accompanies Alternative A is similar to the one for Alternative B, but its description of the economic outlook is more downbeat. It says explicitly that the Committee expects that economic activity will continue to contract in the near term and that the subsequent recovery could be sluggish. Also, it does not refer to the anticipated beneficial effects of previous policy actions and monetary and fiscal stimulus. The paragraph on inflation is virtually identical to the one in the March statement. In the third paragraph, the statement announces that the Committee has decided to provide additional monetary stimulus by stepping up its purchases of Treasury securities to as much as $750 billion by year end—an increase of $450 billion relative to the March decision and an extension of the time period over which these purchases will take place. The rest of the statement is identical to that for Alternative B, including language to communicate the possibility of future adjustments to the timing and overall amounts of purchases of long-term assets in light of the evolving economic outlook and financial market conditions, the maintenance of the current range for the federal funds target rate, the expectation that short-term rates will remain exceptionally low for an extended period, and the references to other liquidity programs and the Committee's intention to monitor the Federal Reserve's balance sheet carefully.

Since market participants reportedly see only small odds that the Committee will announce a further expansion of its securities purchases at this meeting, it is likely that asset prices would move substantially following the release of a statement like that accompanying Alternative A. Treasury and private yields dropped significantly on March 18 after the announcement that the Federal Reserve would purchase $300 billion of Treasury securities and an additional $850 billion in agency debt and mortgage-backed securities. Still, the response of yields to an announcement of additional Treasury purchases might be smaller than previously thought (see box entitled "Policy Paths for Large Scale Asset Purchases"). Even though Alternative A more than doubles the quantity of Treasury purchases announced in March, the immediate response of Treasury and corporate yields may be substantially smaller than the one observed after the release of the March statement because that statement also announced large increases in the purchases of agency securities. Keeping in mind that the uncertainty surrounding any judgments regarding the effects of increased securities purchases on asset prices is very large, the staff estimates that the announcement that the Federal Reserve will purchase an additional $450 billion worth of Treasury securities will push down long-term yields between 20 and 45 basis points immediately after the announcement. Equity prices would likely climb, and the foreign exchange value of the dollar would decrease.

LONG-RUN PROJECTIONS OF THE BALANCE SHEET AND MONETARY BASE

Under the Federal Reserve's current policy approach, the size of the Federal Reserve's balance sheet over the next several years will be driven by the evolution of its assets, specifically, the scale of asset purchases and demand for Federal Reserve liquidity programs and credit facilities. The total amount of liabilities will be determined by the total quantity of assets, and their composition will be determined by the evolution of currency demand and other factors on the liability side with reserve balances determined largely as a residual. Two balance-sheet scenarios are presented here; they differ in their assumptions regarding asset purchases. The *baseline* scenario includes only asset purchases that have already been announced by the FOMC: the Desk purchases a total of $300 billion of Treasury securities, $200 billion of agency securities, and $1,250 billion of agency mortgage-backed securities (MBS) this year. The baseline scenario corresponds to Alternative B in the Policy Alternatives section. In the *expanded purchases* scenario, which corresponds to Alternative A in the Policy Alternatives section, purchases of U.S. Treasuries are increased by $450 billion to $750 billion by the end of the year.

To construct the projections, we had to make assumptions about all components of the balance sheet other than reserve balances, which are the residual item. The foreign central bank liquidity swap lines and the Term Auction Facility (TAF) are assumed to wind down by year-end 2010 and year-end 2011, respectively, as financial markets continue to improve. The Section 13(3) facilities are assumed to be extended beyond October 30, 2009, but they are assumed to run off by the end of 2010 in a fashion similar to the swaps. The assets held by Maiden Lane, Maiden Lane II, and Maiden Lane III are assumed to be sold over time; they reach zero by 2015. In light of the slow initial uptake of the Term Asset-Backed Securities Loan Facility (TALF), the facility is assumed to peak at $500 billion—half of the announced

$1 trillion limit—at the end of 2010: The first phase of TALF makes $100 billion of 3-year loans by the end of 2009; later phases are assumed to make $400 billion of 3-year loans by the end of 2010. For large-scale asset purchases, the baseline path of purchases matches the assumed path in the Greenbook whereas the expanded purchases scenario boosts Treasury purchases; both scenarios assume that the assets purchased are held to maturity. We assume a slower-than-average path for the prepayment of MBS that implies that approximately half of the MBS purchases are still on the balance sheet in 2016. On the liability side of the Federal Reserve's balance sheet, both scenarios assume that currency (Federal Reserve notes) grows at the same rate as the staff forecast for money stock currency through 2010 and thereafter expands at the rate of nominal GDP growth in the extended Greenbook forecast. The Treasury's Supplementary Financing Account is projected to wind down by the end of 2009, and the U.S. Treasury's general account returns to its historical target level of $5 billion over the same period. All other liabilities except reserve balances are assumed to be constant.[14] These projections for liabilities, combined with the assumed path for assets, imply a path for reserve balances under each scenario. In both scenarios, the implied level of reserve balances rises rapidly until late in 2009, then declines until 2015, at which point we assume that the Desk begins conducting open market operations to maintain a level of $25 billion of reserve balances for the rest of the projection period.

Under both scenarios, the Federal Reserve's balance sheet expands rapidly over the course of 2009. For the baseline scenario, the size of the balance sheet reaches $3.4 trillion at the end of 2009 and then declines to a level just below $1.4 trillion in 2015 before beginning to expand again. The composition of assets differs notably from historical patterns. U.S. Treasury securities account for less than one-quarter of

[14] More details on the assumptions are provided in Appendix C.

total assets at the end of 2009, and less than half at the end of the projection period, whereas prior to August 2007, Treasuries accounted for about 90 percent of assets. By the end of the projection period, the alternative path yields the same composition and size of the balance sheet as the baseline scenario.

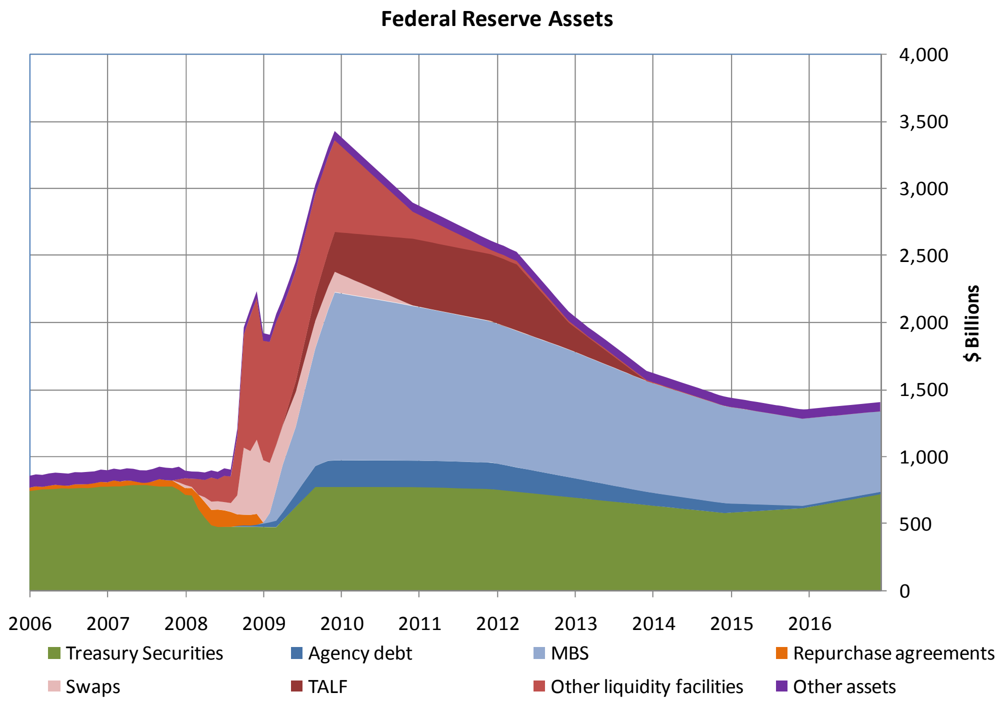
Projections for the monetary base are derived from these balance-sheet projections as the sum of currency in circulation and reserve balances. Under both scenarios, the monetary base expands rapidly in 2009 and into 2010. In the second quarter of 2010, however, as the liquidity facilities are winding down and asset purchases have ceased, the monetary base begins to contract; the base continues to decline until mid-2016, at which point the stabilized level of reserve balances and the continued growth of currency lead to resumed growth in the base.

The extended Greenbook projection shows the target federal funds rate rising from the current 0 to ¼ percent range to 2 percent over the course of 2013. Under the operating procedures employed before the financial crisis, the projected end-of-year level of approximately $426 billion of reserve balances would not have been consistent with a federal funds rate significantly above zero. If the interest rate paid on excess reserve balances becomes an effective floor on the federal funds rate, a higher target rate could be achieved even with quite elevated reserve balances. The experience last autumn, however, suggests that the Desk would likely need to drain reserves through open market operations to get the funds rate significantly above zero. This projection for the balance sheet implicitly assumes that alternative operating procedures can be put in place to achieve the path for the federal funds rate assumed in the Greenbook projection. If no such operating procedures are available, the baseline projection of the balance sheet includes over $600 billion in Treasury securities that in principle could be sold by the end of 2013. In practice, some combination of tools, including reverse repurchase agreements, outright sales of securities, or other strategies, would need to be balanced against potential costs, including possible capital losses experienced by the Federal Reserve or disruption to markets. These projections do not assume the statutory authority to issue Fed bills or a renewal of the Supplementary Financing Program.

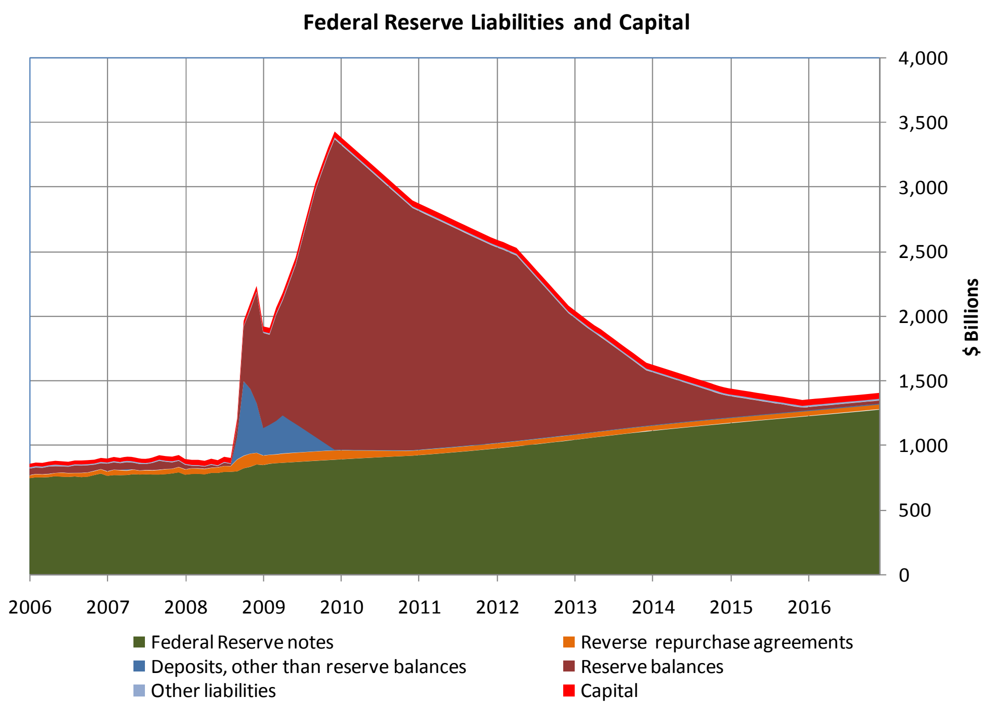
Growth of Monetary Base		
Date	Baseline	Alternative
percent, annual rate		
Monthly		
May-09	123.0	150.0
Jun-09	113.2	135.0
Jul-09	134.9	151.7
Aug-09	121.3	134.6
Sep-09	110.1	121.1
Oct-09	78.7	110.0
Nov-09	73.9	100.7
Dec-09	62.8	86.8
Quarterly		
Q2 2009	50.9	60.1
Q3 2009	135.9	157.2
Q4 2009	93.1	120.2
Q1 2010	10.8	19.9
Q2 2010	-15.9	-13.9
Q3 2010	-16.6	-14.4
Q4 2010	-17.4	-15.1
Annual		
2009	129.2	143.2
2010	30.8	42.1
2011	-13.1	-11.7
2012	-14.5	-14.3
2013	-24.3	-23.7
2014	-18.5	-19.6
2015	-10.4	-18.0
2016	-1.2	-7.8

Note: Growth rates are based on period averages, not seasonally adjusted

Baseline Scenario

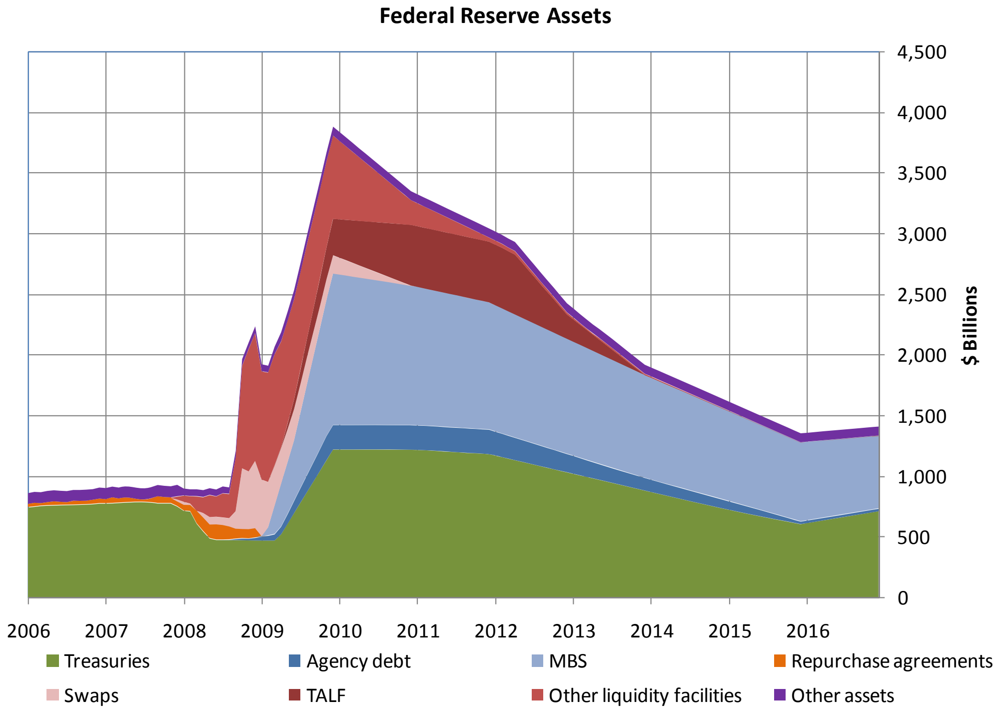


Source: Federal Reserve H.4.1 statistical release and staff calculations.

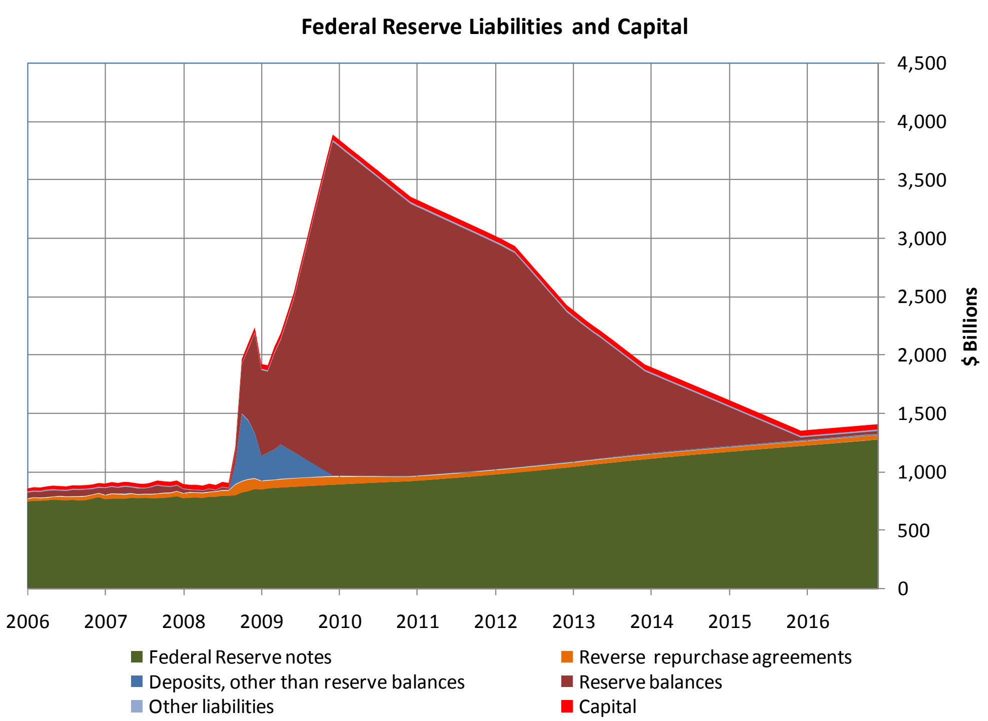


Source: Federal Reserve H.4.1 statistical release and staff calculations.

Expanded Purchases Scenario



Source: Federal Reserve H.4.1 statistical release and staff calculations.



Source: Federal Reserve H.4.1 statistical release and staff calculations.

BANK CREDIT, DEBT, AND MONEY FORECASTS

Bank credit is forecast to decline at about a ¼ percent pace in 2009, largely reflecting weakness in core loans so far this year, and to expand at a 4½ percent rate in 2010 as economic activity is anticipated to pick up. C&I loans are projected to grow only modestly over the remainder of this year and in 2010, reflecting a significant contraction in business fixed investment and weak inventory investment. Real estate loans are likely to run off slightly in 2009 but to grow about 3 percent in 2010 amid a resumption of growth in residential investment. Consumer loans are expected to be about flat in 2009 and to expand at about a 2¼ percent rate in 2010, as growth of personal consumption expenditures and nominal GDP picks up.

Domestic nonfinancial sector debt is expected to expand 4¼ percent in the current quarter, about the same pace as in the first quarter. The level of private-sector debt is forecast to decrease in the second quarter as households pay down debt (on net) and as borrowing by nonfinancial businesses remains soft. Amid weak household spending, falling home prices, and tight terms and standards for bank loans, borrowing by households is expected to remain extremely light through 2010. Similarly, borrowing by nonfinancial businesses is projected to remain sluggish throughout the forecast period, reflecting weak investment spending, borrowing costs that remain relatively high, and tight terms and standards for bank loans. Federal debt will likely continue to expand at a rapid pace through the end of 2010.

M2 is forecast to expand at an annual rate of 3½ percent in 2009, well above the growth rate of nominal GDP, boosted by the lagged effects of declines in opportunity cost and ongoing financial market volatility. In 2010, M2 is expected to decelerate to a 2½ percent annual rate, below nominal GDP growth, as some of the unusually rapid accumulation of M2 deposits that resulted from the financial turmoil unwind to some degree.

Growth Rates for M2
(percent, annual rate)

		Greenbook Forecast*
Monthly Growth Rates		
	Jul-08	7.0
	Aug-08	-3.0
	Sep-08	17.0
	Oct-08	18.3
	Nov-08	7.7
	Dec-08	26.0
	Jan-09	12.4
	Feb-09	4.5
	Mar-09	11.4
	Apr-09	-2.7
	May-09	-0.5
	Jun-09	0.0
	Jul-09	0.0
	Aug-09	0.0
	Sep-09	-1.0
	Oct-09	-0.5
	Nov-09	-0.5
	Dec-09	-0.5
Quarterly Growth Rates		
	2008 Q1	8.1
	2008 Q2	5.4
	2008 Q3	4.3
	2008 Q4	14.3
	2009 Q1	13.1
	2009 Q2	2.0
	2009 Q3	-0.2
	2009 Q4	-0.6
Annual Growth Rates		
	2007	5.8
	2008	8.3
	2009	3.6
	2010	2.4
Growth From	To	
Mar-09	Sep-09	-0.7
2009 Q1	Jun-09	1.5
2009 Q1	Sep-09	0.7

* This forecast is consistent with nominal GDP and interest rates in the Greenbook forecast.
Actual data through March 2009; projections after.

DIRECTIVE

Draft language for the directive is provided below.

ALTERNATIVE A

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to 1/4 percent. The Committee directs the Desk to purchase agency debt, agency MBS, and longer-term Treasury securities during the intermeeting period with the aim of providing support to private credit markets and economic activity. The timing and pace of these purchases should depend on conditions in the markets for such securities and on a broader assessment of private credit market conditions. The Committee anticipates that the combination of outright purchases and various liquidity facilities outstanding will cause the size of the Federal Reserve's balance sheet to expand significantly in coming months. The Desk is expected to purchase up to $200 billion in housing-related agency debt by the end of this year. The Desk is expected to purchase at least $500 billion in agency MBS by the end of the second quarter of this year and is expected to purchase up to $1.25 trillion of these securities by the end of this year. The Committee also directs the Desk to expand the System's purchases of longer-term Treasury securities to up to $750 billion of longer-term Treasury securities. The System Open Market Account Manager and the Secretary will keep the Committee informed of ongoing developments regarding the System's balance sheet that could affect the attainment over time of the Committee's objectives of maximum employment and price stability.

ALTERNATIVE B

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to ¼ percent. The Committee directs the Desk to purchase agency debt, agency MBS, and longer-term Treasury securities during the intermeeting period with the aim of providing support to private credit markets and economic activity. The timing and pace of these purchases should depend on conditions in the markets for such securities and on a broader assessment of private credit market conditions. The Committee anticipates that the combination of outright purchases and various liquidity facilities outstanding will cause the size of the Federal Reserve's balance sheet to expand significantly in coming months. The Desk is expected to purchase up to $200 billion in housing-related agency debt by the end of this year. The Desk is expected to purchase at least $500 billion in agency MBS by the end of the second quarter of this year and is expected to purchase up to $1.25 trillion of these securities by the end of this year. The Desk is expected to purchase up to $300 billion of longer-term Treasury securities by the end of the third quarter. The System Open Market Account Manager and the Secretary will keep the Committee informed of ongoing developments regarding the System's balance sheet that could affect the attainment over time of the Committee's objectives of maximum employment and price stability.

ALTERNATIVE B'

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to ¼ percent. The Committee directs the

Desk to purchase agency debt, agency MBS, and longer-term Treasury securities during the intermeeting period with the aim of providing support to private credit markets and economic activity. The timing and pace of these purchases should depend on conditions in the markets for such securities and on a broader assessment of private credit market conditions. The Committee anticipates that the combination of outright purchases and various liquidity facilities outstanding will cause the size of the Federal Reserve's balance sheet to expand significantly in coming months. The Desk is expected to purchase up to $200 billion in housing-related agency debt by the end of this year. The Desk is expected to purchase at least $500 billion in agency MBS by the end of the second quarter of this year and is expected to purchase up to $1.25 trillion of these securities by the end of this year. The Desk is expected to purchase up to $300 billion of longer-term Treasury securities by the end of the third quarter. The Desk is expected to increase the Federal Reserve's holdings of Treasury and agency securities at an average pace of about $160 billion per month over the remainder of 2009. With the Federal Reserve's holdings of Treasury and agency securities of about $780 billion at the end of March taken as the base, this pace of purchases is equivalent to an average monthly growth rate of securities holdings for the rest of 2009 of around 20 percent. The System Open Market Account Manager and the Secretary will keep the Committee informed of ongoing developments regarding the System's balance sheet that could affect the attainment over time of the Committee's objectives of maximum employment and price stability.

Appendix A: Measures of the Equilibrium Real Rate

The equilibrium real rate is the real federal funds rate that, if maintained, would be projected to return output to its potential level over time. The short-run equilibrium rate is defined as the rate that would close the output gap in twelve quarters given the corresponding model's projection of the economy.
The medium-run concept is the value of the real federal funds rate projected to keep output at potential in seven years, under the assumption that monetary policy acts to bring actual and potential output into line in the short run and then keeps them equal thereafter. The TIPS-based factor model measure provides an estimate of market expectations for the real federal funds rate seven years ahead.

The actual real federal funds rate is constructed as the difference between the nominal rate and realized inflation, where the nominal rate is measured as the quarterly average of the observed federal funds rate, and realized inflation is given by the log difference between the core PCE price index and its lagged value four quarters earlier. For the current quarter, the nominal rate is specified as the target federal funds rate on the Bluebook publication date. For the current quarter and the previous quarter, the inflation rate is computed using the staff's estimate of the core PCE price index. If the upcoming FOMC meeting falls early in the quarter, the lagged inflation measure ends in the last quarter.

Confidence intervals reflect uncertainties about model specification, coefficients, and the level of potential output. The final column of the table indicates the values published in the previous Bluebook.

Measure	Description
Single-equation Model	The measure of the equilibrium real rate in the single-equation model is based on an estimated aggregate-demand relationship between the current value of the output gap and its lagged values as well as the lagged values of the real federal funds rate.
Small Structural Model	The small-scale model of the economy consists of equations for six variables: the output gap, the equity premium, the federal budget surplus, the trend growth rate of output, the real bond yield, and the real federal funds rate.
Large Model (FRB/US)	Estimates of the equilibrium real rate using FRB/US—the staff's large-scale econometric model of the U.S. economy—depend on a very broad array of economic factors, some of which take the form of projected values of the model's exogenous variables.
Greenbook-consistent	The FRB/US model is used in conjunction with an extended version of the Greenbook forecast to derive a Greenbook-consistent measure. FRB/US is first add-factored so that its simulation matches the extended Greenbook forecast, and then a second simulation is run off this baseline to determine the value of the real federal funds rate that closes the output gap.
TIPS-based Factor Model	Yields on TIPS (Treasury Inflation-Protected Securities) reflect investors' expectations of the future path of real interest rates, but also include term and liquidity premiums. The TIPS-based measure of the equilibrium real rate is constructed using the seven-year-ahead instantaneous real forward rate derived from TIPS yields as of the Bluebook publication date. This forward rate is adjusted to remove estimates of the term and liquidity premiums based on a three-factor arbitrage-free term-structure model applied to TIPS yields, nominal yields, and inflation. Because TIPS indexation is based on the total CPI, this measure is also adjusted for the medium-term difference—projected at 40 basis points—between total CPI inflation and core PCE inflation.

Appendix A: Measures of the Equilibrium Real Rate (continued)

Estimates of the real federal funds rate depend on the proxies for expected inflation used. The table below shows estimated real federal funds rates based on lagged core PCE inflation, the definition used in the Equilibrium Real Federal Funds Rate chart; lagged four-quarter headline PCE inflation; and projected four-quarter headline PCE inflation beginning with the next quarter. For each estimate of the real rate, the table also provides the Greenbook-consistent measure of the short-run equilibrium real rate and the average actual real federal funds rate over the next twelve quarters.

Proxy used for expected inflation	Actual real federal funds rate (current value)	Greenbook-consistent measure of the equilibrium real funds rate (current value)	Average actual real funds rate (twelve-quarter average)
Lagged core inflation	-1.7	-3.2	-0.8
Lagged headline inflation	-0.7	-2.9	-0.6
Projected headline inflation	-1.2	-3.1	-0.8

Appendix B: Analysis of Policy Paths and Confidence Intervals

Rule Specifications: For the following rules, i_t denotes the federal funds rate for quarter t, while the explanatory variables include the staff's projection of trailing four-quarter core PCE inflation (π_t), inflation two and three quarters ahead ($\pi_{t+2|t}$ and $\pi_{t+3|t}$), the output gap in the current period and one quarter ahead ($y_t - y_t^*$ and $y_{t+1|t} - y_{t+1|t}^*$), and the three-quarter-ahead forecast of annual average GDP growth relative to potential ($\Delta^4 y_{t+3|t} - \Delta^4 y_{t+3|t}^*$), and π^* denotes an assumed value of policymakers' long-run inflation objective. The outcome-based and forecast-based rules were estimated using real-time data over the sample 1988:1-2006:4; each specification was chosen using the Bayesian information criterion. Each rule incorporates a 75 basis point shift in the intercept, specified as a sequence of 25 basis point increments during the first three quarters of 1998. The first two simple rules were proposed by Taylor (1993, 1999). The prescriptions of the first-difference rule do not depend on assumptions regarding r^* or the level of the output gap; see Orphanides (2003).

Outcome-based rule	$i_t = 1.20 i_{t-1} - 0.39 i_{t-2} + 0.19[1.17 + 1.73\,\pi_t + 3.66(y_t - y_t^*) - 2.72(y_{t-1} - y_{t-1}^*)]$
Forecast-based rule	$i_t = 1.18 i_{t-1} - 0.38 i_{t-2} + 0.20[0.98 + 1.72\,\pi_{t+2\|t} + 2.29(y_{t+1\|t} - y_{t+1\|t}^*) - 1.37(y_{t-1} - y_{t-1}^*)]$
Taylor (1993) rule	$i_t = 2 + \pi_t + 0.5(\pi_t - \pi^*) + 0.5(y_t - y_t^*)$
Taylor (1999) rule	$i_t = 2 + \pi_t + 0.5(\pi_t - \pi^*) + (y_t - y_t^*)$
First-difference rule	$i_t = i_{t-1} + 0.5(\pi_{t+3\|t} - \pi^*) + 0.5(\Delta^4 y_{t+3\|t} - \Delta^4 y_{t+3\|t}^*)$

FRB/US Model Simulations: Prescriptions from the two empirical rules are computed using dynamic simulations of the FRB/US model, implemented as though the rule were followed starting at this FOMC meeting. The dotted line labeled "Previous Bluebook" is based on the current specification of the policy rule, applied to the previous Greenbook projection. Confidence intervals are based on stochastic simulations of the FRB/US model with shocks drawn from the estimated residuals over 1969-2008.

Information from Financial Markets: The expected funds rate path is based on forward rate agreements, and the confidence intervals for this path are constructed using prices of interest rate caps.

Near-Term Prescriptions of Simple Policy Rules: These prescriptions are calculated using Greenbook projections for inflation and the output gap. Because the first-difference rule involves the lagged funds rate, the value labeled "Previous Bluebook" for the current quarter is computed using the actual value of the lagged funds rate, and the one-quarter-ahead prescriptions are based on this rule's prescription for the current quarter.

References:

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

——— (1999). "A Historical Analysis of Monetary Policy Rules," in John B. Taylor, ed., *Monetary Policy Rules*. The University of Chicago Press, pp. 319-341.

Orphanides, Athanasios (2003). "Historical Monetary Policy Analysis and the Taylor Rule," *Journal of Monetary Economics*, vol. 50 (July), pp. 983-1022.

Appendix C: Long-run Projections of the Balance Sheet and Monetary Base

This appendix presents in more detail the assumptions underlying the long-run projections of the Federal Reserve's balance sheet and the monetary base shown in the section entitled "Long-run Projections of the Balance Sheet and Monetary Base."

General assumptions

The projections are constructed at a monthly frequency from May 2009 to December 2016. The few balance sheet items that are not discussed below are assumed to be constant over the projection period at the level reported in the April 16, 2009 Federal Reserve H.4.1 statistical release. The projections for all major assets and liabilities are summarized in the charts and table that follow the bullet points.

Assets

Liquidity and Credit Facilities

- Primary credit remains unchanged over the rest of 2009 and then falls to $1 billion by the end of 2011 and remains at that level thereafter.
- Term Auction Facility (TAF) credit is assumed to decline with improved market functioning and is zero at the end of 2011.
- Foreign central bank liquidity swaps decline with improved market functioning and are zero at the end of 2010.
- Section 13(3) facilities, except for the Term Asset-Backed Securities Loan Facility (TALF), are assumed to be extended beyond October 30, 2009. Credit extended through these facilities declines with improved market functioning and is zero at the end of 2010.
- The TALF, based partly on its slow initial uptake, is assumed to peak at $500 billion, half of the $1 trillion limit. For purposes of these projections, TALF is assumed to consist of two components: TALF 1.0 and TALF 2.0/3.0. TALF 1.0 issues loans with 3-year maturity and reaches $100 billion by the end of 2009. These loans then all mature and the quantity outstanding reaches zero by the end of 2012. TALF 2.0/3.0 has loans with 3-year maturity and reaches $400 billion by the end of 2010. These loans then all mature and the quantity outstanding reaches zero by the end of 2013.

Asset Purchases

- In the baseline scenario, only asset purchases that have already been announced are incorporated. The Desk purchases a total of $300 billion of Treasury debt (by September 2009), $200 billion of agency debt, and $1,250 billion of agency MBS ($500 billion by mid-year). The maturity distribution of the Treasury purchases is based on FRBNY Markets Group internal forecasts. The maturities of most purchases are between two and ten years, with the average being approximately five years. No sales are assumed but maturing securities are redeemed and are not replaced. As a result, total holdings of Treasury debt decline as issues mature. No assumption is made about the maturation of securities previously held in the SOMA portfolio; in other words, they are assumed to be reinvested as they mature. Most of the agency debt being purchased by the Desk is short-term, so holdings of these securities are assumed to mature through time. For MBS, the rate of prepayment is based on rough estimates from the Desk. The historically low coupon on these securities implies a relatively slow prepayment rate. As a result, at the end of 2016, $600 billion of the $1.25 trillion purchased remains on the balance sheet.

- In the alternative scenario, purchases of U.S. Treasuries are increased by $450 billion to $750 billion by the end of the year. No other changes to the assumptions are made and securities mature at the same rate as in the baseline scenario.
- At the end of the projection period, the expansion of currency combined with a runoff of other assets necessitates the resumption of standard open market purchases to maintain reserve balances at a level of $25 billion. It is assumed that the Desk purchases Treasury securities over time to satisfy this need.

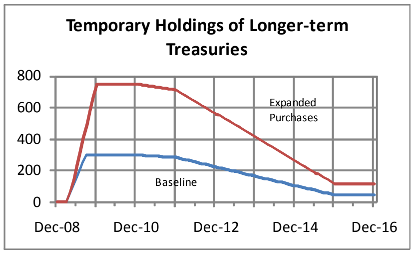
Liabilities

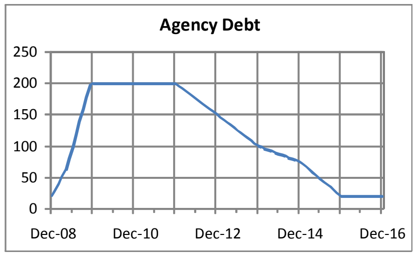
- Currency (Federal Reserve notes in circulation) grows in line with the staff forecast for money stock currency through the end of 2010. From 2010 to the end of the projection period, currency grows at the rate of nominal GDP as implied by the extended Greenbook forecast.
- The U.S. Treasury's general account returns to its historical target level of $5 billion by the end of 2009. This account remains constant at that level over the forecast period.
- The Treasury's Supplementary Financing Account is projected to wind down to zero by the end of 2009, and remain at zero for the remainder of the forecast period.
- Reverse repurchase agreements are expected to decrease to $40 billion by the end of 2010 as foreign official and international accounts move to other investments.
- For most of the projection period, reserve balances of depository institutions are assumed to be determined by the evolution of the assets and other liabilities of the Federal Reserve. As the asset side of the balance sheet contracts, so do reserve balances. When the implied level of reserve balances reaches $25 billion, the Desk is assumed to conduct open market operations to offset the growth of currency to maintain a constant $25 billion dollar level.

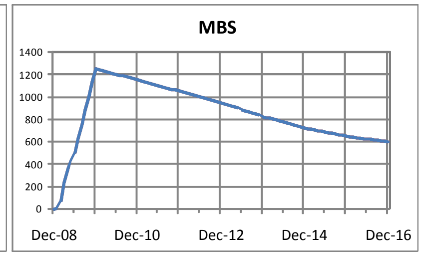
Appendix C: Charts

Individual Balance Sheet Item Profiles

Securities

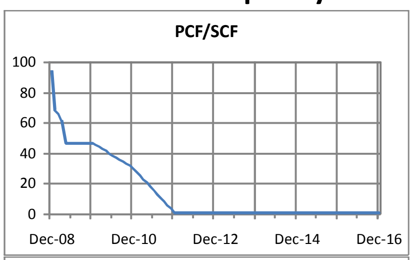


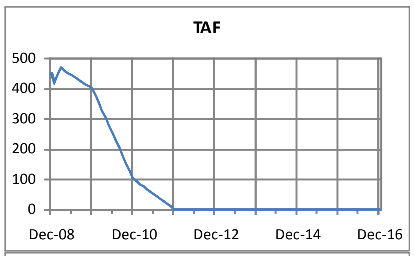


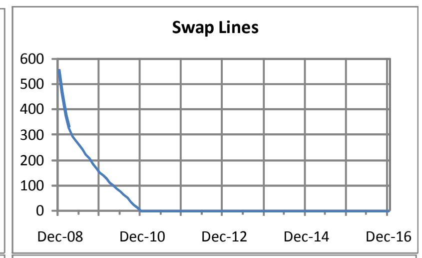


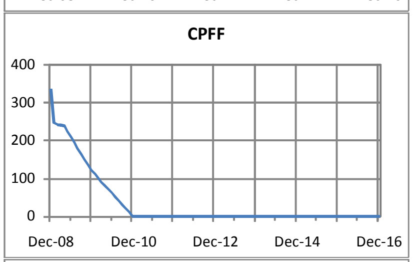
Note: All values are in billions.

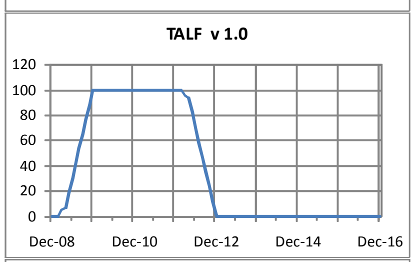
Federal Reserve liquidity and credit facilities

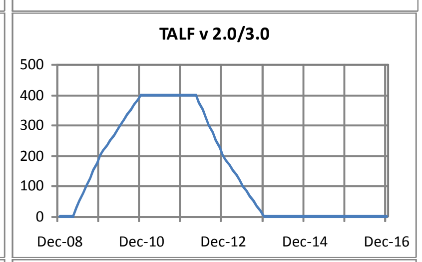


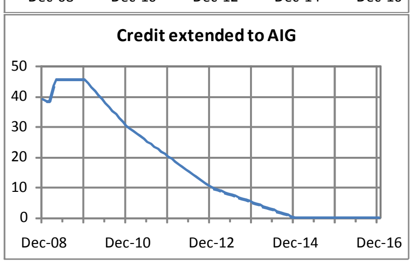


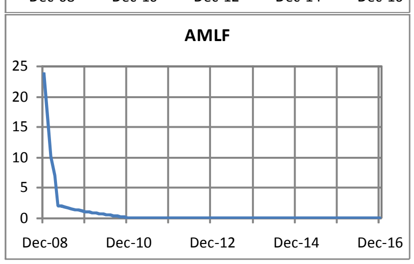


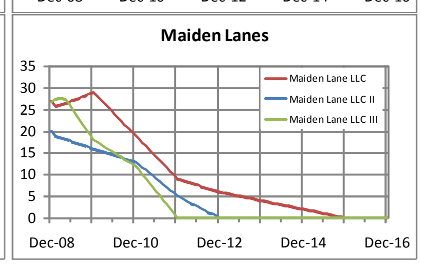






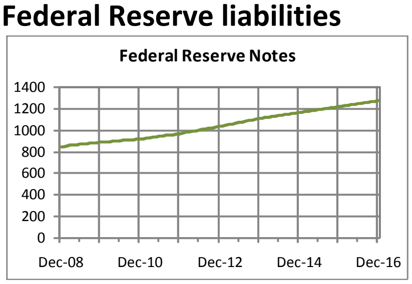


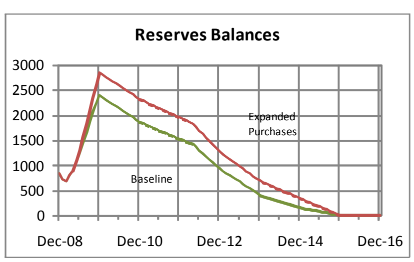


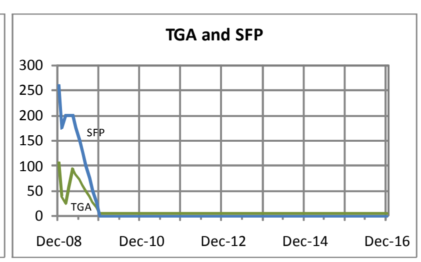


Note: All values are in billions.

Federal Reserve liabilities







Note: All values are in billions.

Appendix C: Table

Federal Reserve Balance Sheet: End-of-Year Projections—Baseline Scenario

	Apr. 15 2009	2009	2010	2011	2012	2013	2014	2015	2016
		End-of-Year							
		$Billions							
Total Assets	2,183	3,430	2,897	2,613	2,085	1,643	1,451	1,355	1,410
Selected assets:									
Liquidity programs for financial firms	809	608	130	1	1	1	1	1	1
Primary, secondary, and seasonal credit	47	47	30	1	1	1	1	1	1
TAF	456	400	100	-	-	-	-	-	-
Foreign central bank liquidity swaps	294	150	-	-	-	-	-	-	-
PDCF	10	10	-	-	-	-	-	-	-
AMLF	2	1	-	-	-	-	-	-	-
Lending though other credit facilities	245	420	500	500	200	-	-	-	-
CPFF	238	120	-	-	-	-	-	-	-
TALF	6	300	500	500	200	-	-	-	-
Support of specific institutions	118	108	74	34	16	9	2	-	-
Credit extended to AIG	45	45	30	20	10	5	-	-	-
Net portfolio holdings of Maiden Lane LLC, Maiden Lane LLC II and Maiden Lande LLC III	72	63	44	14	6	4	2	-	-
Securities held outright	943	2,225	2,125	2,010	1,800	1,565	1,380	1,285	1,340
U.S. Treasury securities	526	775	775	760	700	640	580	615	720
Agency Securities	61	200	200	200	150	75	50	20	20
Mortgage-backed securities	356	1,250	1,150	1,050	950	850	750	650	600
Memo: TSLF	54	54	-	-	-	-	-	-	-
Repurchase agreements	0	-	-	-	-	-	-	-	-
Total Liabilities:	2,137	3,384	2,851	2,567	2,039	1,597	1,405	1,309	1,364
Selected Liabilities									
Federal Reserve Notes in circulation	865	890	921	972	1,038	1,111	1,170	1,224	1,280
Reserve Balances w. Federal Reserve Banks	890	2,401	1,871	1,536	941	426	176	25	25
U.S. Treasury, general account	95	5	5	5	5	5	5	5	5
U.S. Treasury, supplementary financing account	200	-	-	-	-	-	-	-	-
Total Capital	46	46	46	46	46	46	46	46	46

Source: Federal Reserve H.4.1 statistical release and staff calculations