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 03/07/2014.

MARCH 13, 2008

MONETARY POLICY ALTERNATIVES

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

MONETARY POLICY ALTERNATIVES

Recent Developments

Summary

(1) Strains in many financial markets intensified over the intermeeting period as deleveraging increased in scope and depth. Pressures resurfaced in short-term funding markets, with investors growing even more concerned about balance sheet capacity at large financial institutions. In response, the Federal Reserve announced on March 7 and March 11 a set of initiatives to help address term funding pressures. In longer-term corporate markets, both investment- and speculative-grade credit spreads widened markedly over the intermeeting period, and secondary market bid prices for leveraged loans tumbled. Issuance of high-yield debt securities continued to be weak, but investment-grade bond issuance was robust. Equity prices declined, on net, with financial stocks especially hard hit. Spreads of rates on conforming mortgage products over those on comparable-maturity Treasury securities widened significantly, but issuance of agency residential mortgage-backed securities (RMBS) continued to be strong. In contrast, issuance of RMBS backed by nonconforming loans remained near nil. Against the backdrop of tightening financial conditions and a deteriorating economic outlook, market participants lowered their expected path for the federal funds rate and are now virtually certain of at least 50 basis points of easing at the March FOMC meeting.

Money Markets

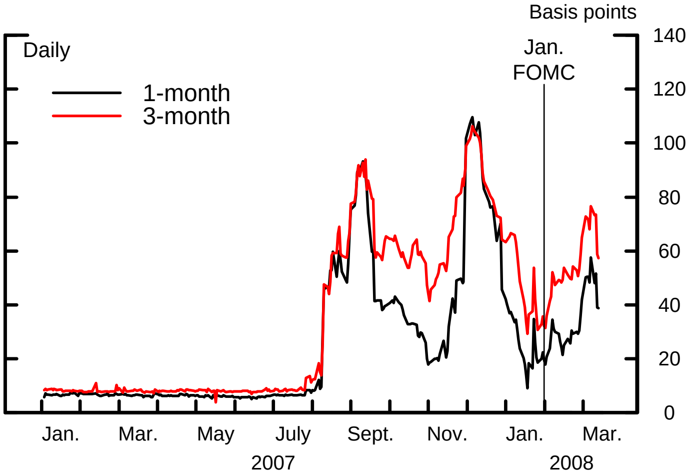
(2) Pressures reemerged in short-term funding markets over the intermeeting period. After having narrowed following the introduction of the TAF and the uneventful turn of the year, spreads of Libor and term federal funds rates over rates on comparable-maturity overnight index swaps (OIS) began widening again, perhaps in anticipation of further

possible writedowns at financial institutions, of potential funding pressures stemming from continued dislocations in markets for structured municipal products, and possibly of the approach of the quarter-end (Chart 1). Consistent with continuing funding pressures, the fifth, sixth, and seventh TAF auctions attracted more demand than the January auctions; the lack of dollar operations by the European Central Bank and the Swiss National Bank in February may have contributed some to the increase in auction participation. In the commercial paper market, spreads of rates on lower-rated nonfinancial unsecured paper over those on AA nonfinancial paper climbed over the intermeeting period. Spreads of rates on AA-rated asset-backed commercial paper (ABCP) over those on AA financial paper have increased by a smaller amount, on net. After having expanded in January, ABCP outstanding decreased some, on balance, over the intermeeting period, while unsecured CP outstanding changed little.

(3) Strains reappeared in the Treasury bill market in recent weeks. Three-month Treasury bill yields declined 93 basis points over the intermeeting period, reflecting the downward revision to the expected path of monetary policy and safe haven flows that were reportedly heavy at times. Signs of dislocation were also prominent in the repo market. Amid robust demand for Treasury collateral, the overnight general collateral repo rate was volatile, often dropping well below the target federal funds rate. In addition, dealers increased haircuts on many securities—particularly for alt-A and subprime MBS but also for agency MBS and even for Treasuries, which had traditionally been perceived as a very safe asset class. Credit limits were also being reportedly reduced as dealers became concerned that some counterparties—especially highly leveraged funds—may not have sufficient capital to weather the current environment of asset price declines, exceptional price volatility, and market illiquidity. Finally, financing rates were increased as dealers passed on elevated funding costs to customers. Tighter lending terms in the repo market resulted in widespread margin calls. Most investors were able to meet them, but some, including a high-profile traded mortgage fund and a medium-sized mortgage lender, were not.

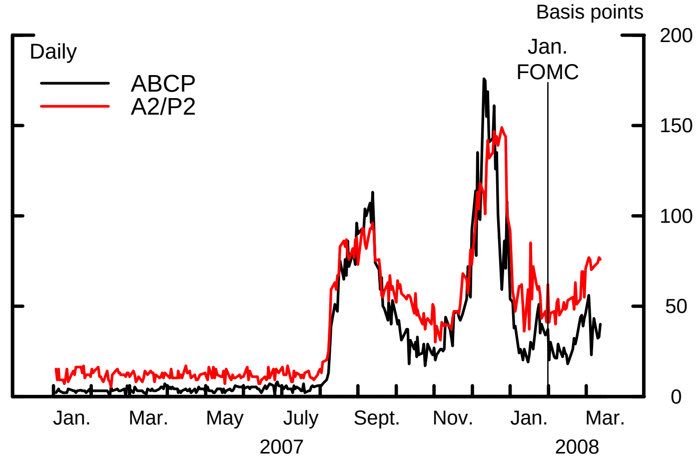
Chart 1
Asset Market Developments

Spreads of Libor over OIS



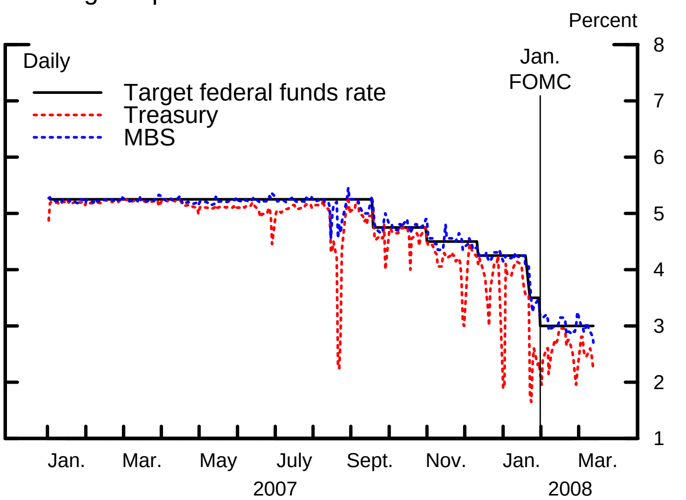
Note. Libor quotes are taken at 6:00 am, and OIS quotes are observed at the close of business of the previous trading day.

Spreads on thirty-day commercial paper



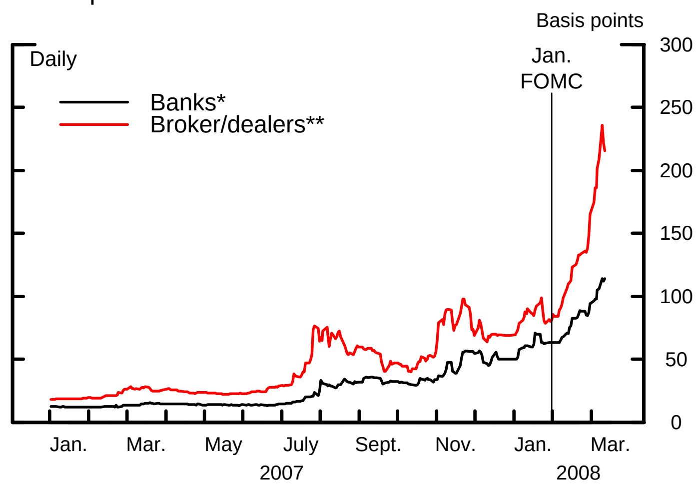
Note. The ABCP spread is the AA ABCP rate minus the AA financial rate. The A2/P2 spread is the A2/P2 nonfinancial rate minus the AA nonfinancial rate. Last observation is for March 12, 2008.

Overnight repo rates



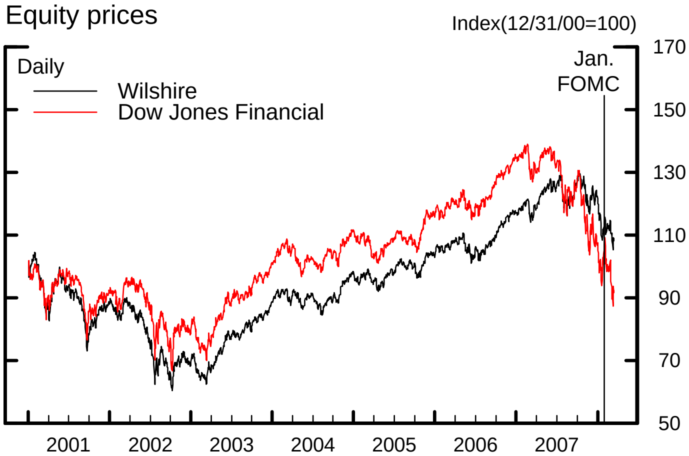
Source. Bloomberg

CDS spreads at selected financial institutions

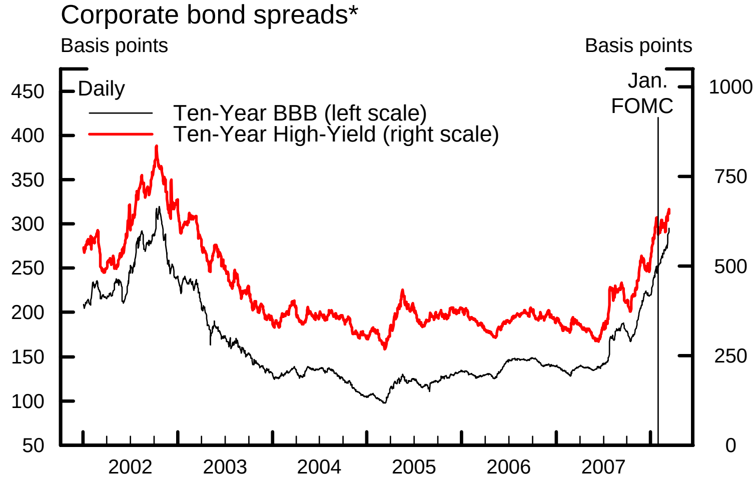


*Median spread of 26 banking organizations.
**Median spread of 10 broker-dealers.
Note. Last observation is for March 12, 2008.

Equity prices



Corporate bond spreads*



*Measured relative to an estimated off-the-run Treasury yield curve.
Note. Last observation is for March 12, 2008.

Meanwhile, lending from the SOMA securities portfolio remained elevated. Likely reflecting in part developments in short-term funding markets, as well as investors' increasing concerns about balance sheet capacity, credit default swap (CDS) spreads for banks and especially for broker-dealers have widened sharply in recent weeks.

(4) In response to strains in the interbank and repo markets, the Federal Reserve announced on March 7 that it would increase the size of the two upcoming TAF auctions, that it would hold such auctions for at least the next six months unless evolving market conditions clearly indicated that such auctions were no longer necessary, and that it would initiate a series of 28-day term repurchase transactions against a single tranche consisting of Treasury, agency, and agency MBS collateral. On March 11, the Federal Reserve announced an expansion of its securities lending program under which primary dealers could borrow Treasury securities for a 28-day period using agency, agency MBS, or AAA-rated private-label MBS as collateral. In addition, the FOMC authorized an increase in its existing temporary reciprocal currency arrangements with the European Central Bank and the Swiss National Bank, and those central banks announced a resumption of dollar auctions for institutions in their jurisdictions. Overall, short-term funding markets showed some early signs of improvement as a result of the Federal Reserve's initiatives. For example, spreads of Libor and term federal funds rates over rates on comparable-maturity OIS reversed some of their earlier increases. (See box "Recent Federal Reserve Initiatives to Address Short-term Liquidity.")

Longer-term Corporate Markets

(5) Broad equity indexes continued to be volatile and ended the period down about 3½ percent on concerns about credit market developments and the implications of negative economic news for corporate earnings. Financial sector stocks were particularly hard hit, declining about 13 percent. The spread between the twelve-month forward trend earnings-price ratio for S&P 500 firms and a real long-run Treasury yield—a rough gauge of the

Recent Federal Reserve Initiatives to Address Short-term Liquidity

Recently, conditions in short-term funding markets, particularly interbank and repurchase agreement (repo) markets, have deteriorated. Increased demand for dollar liquidity led term Libor-OIS spreads, which had narrowed considerably since mid-December, to widen again in mid-February. At the same time, an accelerating pullback from mortgage-related assets and heightened demand for Treasury securities created dislocations and volatility in collateralized lending markets. In response to these developments and general strains in market functioning in a number of financial markets, on March 7, the Federal Reserve announced that it would increase its lending volume through the Term Auction Facility (TAF) and that the Desk would begin a series of 28-day, single-tranche repo transactions. On March 11, the Federal Reserve announced that it would create a new Term Securities Lending Facility (TSLF), and that the FOMC had extended and increased currency swap lines with the European Central Bank (ECB) and the Swiss National Bank (SNB).

To ease pressures in dollar funding markets, the Federal Reserve announced that the total dollar value offered at each March TAF auction would be increased to $50 billion, and stated that, unless market conditions clearly indicated that the auctions were to become unnecessary, it would continue the TAF for at least six months. The first such auction, held on March 10, was well subscribed. The FOMC also authorized an increase to $30 billion in the currency swap arrangement with the ECB and an increase to $6 billion in the arrangement with the SNB. These central banks announced that they would resume auctions on March 25 and that they would continue to provide dollar liquidity for as long as they deemed necessary.

The Federal Reserve also initiated a series of 28-day repos in which dealers are able to deliver as collateral any of the types of securities that are eligible as collateral in conventional operations, and the highest rates bid, regardless of collateral, win the auction. Cumulating to $100 billion, these operations should allow dealers to finance mortgage-backed securities (MBS) more easily, and the first operation, conducted on Friday, March 7, received propositions exclusively for MBS collateral. In addition, the Federal Reserve's new $200 billion TSLF will lend Treasury securities from the SOMA portfolio to primary dealers for a term of up to 28 days against agency debt, agency-backed MBS, and AAA/Aaa-rated private-label MBS. This new facility allows dealers to substitute less-liquid securities for Treasury securities.

To maintain the overnight federal funds rate near the target rate, the Desk must drain an amount of balances that is roughly equal to the reserves provided by the TAF and the single-tranche term repos. The Desk has a variety of tools, including reducing the quantity of other repos outstanding, redeeming Treasury securities, and selling Treasury securities on an outright basis from the SOMA portfolio. Indeed, on March 7, for the first time since 1990, the Desk sold Treasury bills in the open market, and it sold additional bills on March 12. These operations will leave an even greater supply of sought-after Treasury securities at dealers' disposal.

Market participants' response to these initiatives has generally been positive. Dollar Libor-OIS spreads narrowed noticeably in response to the first auction of the expanded TAF. In the cash MBS market, spreads to Treasuries also came in notably, suggesting that the recent and prospective shifts in relative market supply of Treasury securities to other, less liquid assets has promoted market functioning. And on the day of the announcement of the TSLF and the extended currency swap lines, equity markets rallied and interest rates rose reflecting improved sentiment. Apparently, some market participants view these initiatives as a partial substitute to easing of the federal funds rate for the Federal Reserve to address liquidity and market functioning difficulties.

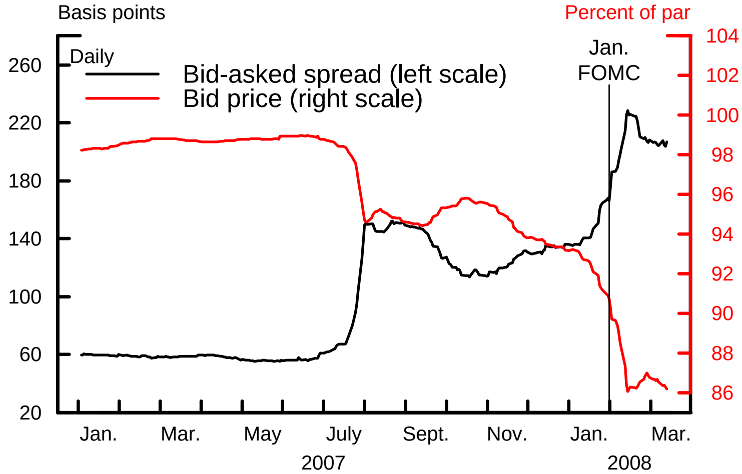
equity risk premium—remained at the upper end of its range over the past two decades. Option-implied volatility on the S&P 500 index continued to be high by historical standards.

(6) In the corporate bond market, yields on both investment- and speculative-grade issues rose markedly over the intermeeting period, even as longer-term Treasury yields declined. As a result, spreads over comparable-maturity Treasury securities widened about 45 and 60 basis points, respectively, and they are now at their highest levels since 2002. The widening in spreads primarily reflected a rise in near-term forward spreads, suggesting increased concerns among investors about prospects for credit quality. CDS spreads rose for nonfinancial firms, but by noticeably less than for financial firms. Issuance of investment-grade bonds was robust in February, but very few high-yield bonds were issued. In the secondary market, liquidity conditions reportedly deteriorated, although trading volumes have increased since late last year. Strains were also apparent in the CDS market, where unusually wide ranges of dealer quotes for the same reference entities suggested that liquidity and price discovery were impaired. While in the second half of last year this problem affected mainly financial institutions, so far this year dealer quotes have been sparse for nonfinancial institutions as well.

(7) In the leveraged loan market, banks reportedly continued to face severe difficulties syndicating to investors previously underwritten loans used to finance large LBO deals, and the pipeline of leveraged loans stayed elevated. Meanwhile, secondary market bid prices for leveraged loans tumbled over the intermeeting period (Chart 2). This sharp price deterioration apparently reflected a combination of factors, including concerns about credit quality, reduced investor interest following the decline in Libor rates, and reported unwinds of positions by leveraged investors and market value collateralized loan obligations (CLOs). Liquidity also apparently deteriorated: The average bid-asked spread on leveraged syndicated loans widened about 40 basis points, to 206 basis points, and it is now well above the peak reached last August. An index of CDS on leveraged syndicated loans (the LCDX index) increased more than 60 basis points, on net. In the CLO market, spreads have

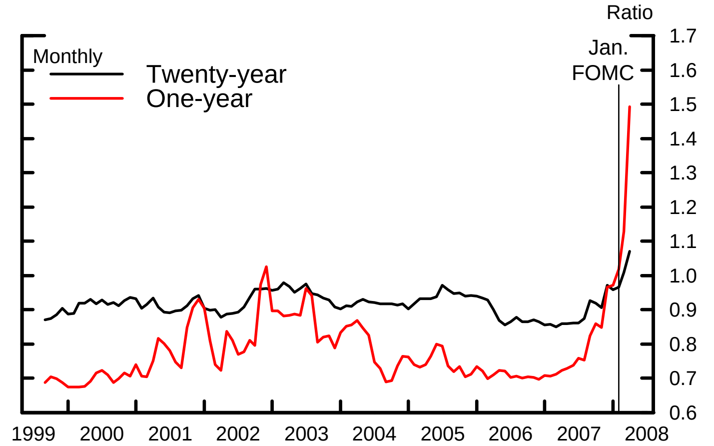
Chart 2
Asset Market Developments

Average bid-asked spread and average bid price on leveraged loans



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

Municipal bond yield ratios



Note. Yields over Treasury.
Source. Bloomberg.

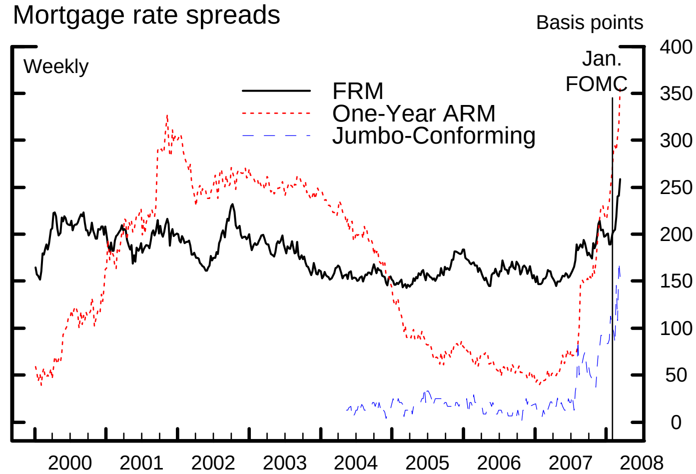
Money market fund flows ($ billions)

Weekly rate

	Total	Tax Exempt	Taxable: Prime	Taxable: Gov
2007:Q1	4.0	0.9	2.9	0.1
2007:Q2	7.8	0.9	4.5	2.5
2007:Q3	25.1	2.0	11.2	11.9
2007:Q4	21.3	3.5	6.9	10.8
2008:Jan.	34.0	1.4	23.9	8.6
2008:Feb.	28.2	-2.3	11.7	18.8

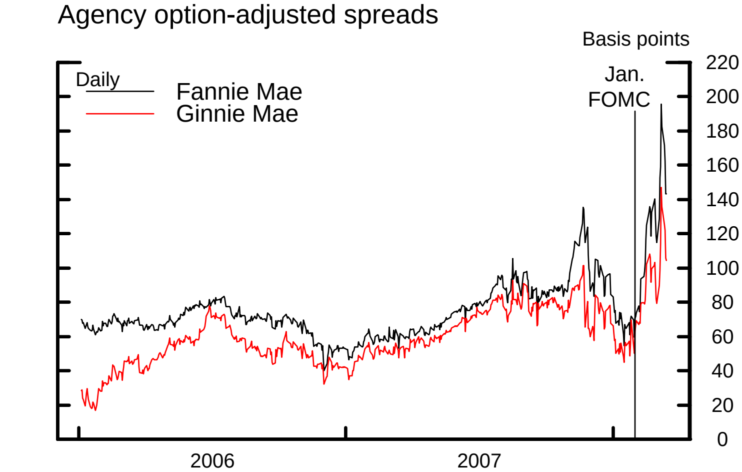
Source. Investment Company Institute.

Mortgage rate spreads



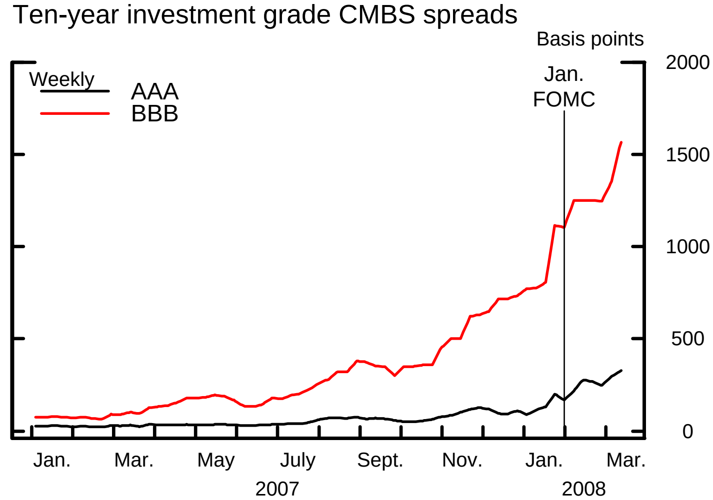
Note. FRM spread relative to ten-year Treasury. ARM spread relative to one-year Treasury. Last weekly observation is for March 12, 2008.
Source. Freddie Mac, Inside Mortgage Finance.

Agency option-adjusted spreads



Note. Spreads over Treasury.
Source. Bloomberg.

Ten-year investment grade CMBS spreads



Note. Spreads over swaps. Last weekly observation is for March 12, 2008.
Source. Morgan Stanley.

widened sharply across the capital structure since the January FOMC meeting and new issuance has remained extremely weak. Likely reflecting the sharp price deterioration in the loan market, prime rate loan funds reportedly continued to experience outflows.

The Municipal Bond Market and Money Market Mutual Funds

(8) Ratios of municipal bond yields to comparable-maturity Treasury yields climbed over the intermeeting period, apparently reflecting investors' concerns about the conditions of financial guarantors and some softening in the fiscal outlook for local and state governments. Issuance of municipal bonds slowed in February. CDS spreads of financial guarantors remained elevated, on balance, even though rating agencies have recently reaffirmed the AAA ratings of the largest two firms.

(9) Concerns about the conditions of financial guarantors had important implications for the functioning of the markets for structured municipal products. In the auction rate securities (ARS) market, many auctions failed as broker-dealers did not step in to support them when investor demand largely vanished in response to concerns about the guarantors, and interest rates reset, often to very high penalty rates. The market for variable-rate demand notes (VRDNs) also experienced unprecedented volatility, apparently prompted in part by the possible effect of financial guarantors' downgrades on liquidity arrangements incorporated in these securities. Reflecting similar concerns, dislocations were significant also in the tender option bond (TOB) market, where unwinds have accelerated in recent weeks.

(10) Tax-exempt money market mutual funds (MMMFs) have reportedly been reducing their holdings of some structured municipal products on perceived weakness in the liquidity provisions supporting these products. Nevertheless, MMMFs overall have continued to experience very large inflows—comparable to those they attracted last August at the beginning of the ongoing turmoil in financial markets—likely reflecting a flight toward

relatively safe assets and perhaps recent policy rate cuts, which reduce the rates available to new fund investors only gradually.

Mortgage Markets

(11) Interest rates on thirty-year fixed-rate conforming mortgages increased 65 basis points over the intermeeting period, while rates on one-year adjustable-rate conforming loans rose 15 basis points. As a result, spreads over comparable-maturity Treasury securities widened markedly. Posted offer rates on thirty-year jumbo mortgages have also increased since the January FOMC meeting, and such credit continued to be difficult to obtain. Issuance of residential mortgage-backed securities (RMBS) backed by nonconforming loans dried up. By contrast, issuance of agency MBS securities stayed strong.

(12) Liquidity conditions for private-label RMBS—especially alt-A securities—worsened significantly starting in mid-February; prices dropped sharply as dealers began imposing much higher haircuts when funding such positions, and some investors were reportedly forced to scale back their holdings. Significant signs of stress were also evident in the agency MBS market. Bid-asked spreads widened, and option-adjusted spreads (OAS) over Treasuries surged to the highest levels in many years, reportedly reflecting in part investor deleveraging amid tighter financing terms and the large supply of securities coming to market. Market participants also pointed to anxiety about the size of GSE losses as a reason for the decline in liquidity in the agency MBS market. However, OAS spreads continued to increase even after Fannie Mae and Freddie Mac released their earnings reports in late February and their regulator announced that it would lift limits on their portfolio growth that it had previously put in place. The increase in the agencies' CDS spreads was also steep over the period. Spreads widened sharply even on Ginnie Mae's MBS, which carry a U.S. government guarantee, pointing to investors' heightened aversion to mortgage products. In recent days, however, agency spreads retraced some of their earlier increases, as investors apparently judged that the Federal Reserve's initiatives could help return some

liquidity to agency mortgage markets. In the market for commercial mortgage-backed securities, issuance continued to be negligible, while spreads over swap rates widened even further over the intermeeting period.

Monetary Policy Expectations and Treasury Yields

(13) With the exception of the announcement of the Term Securities Lending Facility, Federal Reserve actions and communications over the intermeeting period generally elicited only modest market reactions. The FOMC's decision at its January meeting to reduce the target federal funds rate by 50 basis points to 3 percent was widely anticipated.[1] Subsequently, the downward revision to the growth outlook and the upward revision to the inflation outlook contained in the summary of economic projections released with the FOMC minutes apparently did not surprise market participants, and investors reportedly viewed the Chairman's monetary policy testimony at the end of February as in line with recent FOMC communications. However, in response to the Federal Reserve's announcement on March 11, the expected path for policy firmed temporarily, as market participants apparently saw the favorable effects of the expansion of the securities lending program as likely to reduce the need for policy easing. Inflation data releases were disappointing over the intermeeting period, but the softness in real-side economic data, deteriorating financial market conditions, and concerns about some large financial institutions evidently were interpreted by market participants as suggesting that more policy easing than previously foreseen would be forthcoming. On net, market participants now expect the funds rate to decline to about 1.75 percent late this year, about 50 basis points

[1] The effective federal funds rate averaged 2.99 percent over the intermeeting period with elevated volatility, comparable to that seen in recent months. Over the period, the volume of long-term RPs increased $36 billion, primarily reflecting the introduction of the new 28-day, single-tranche RP program. The Desk redeemed $10 billion in Treasury bills and sold $25 billion on an outright basis. The reduction in holdings of Treasury securities offset the provision of balances through the Term Auction Facility and the twenty-eight-day RP program.

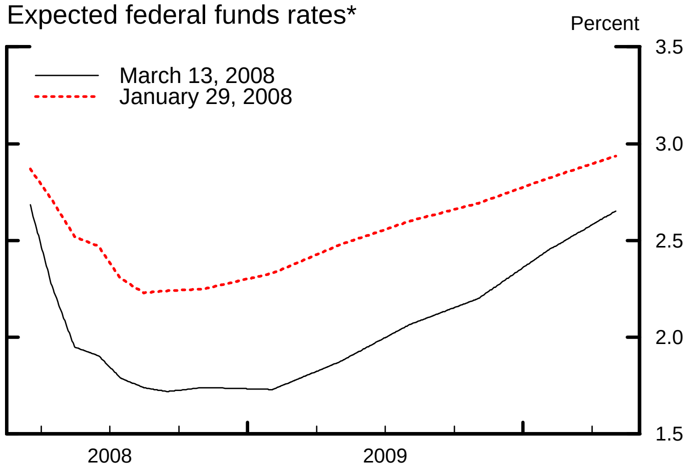
more than at the time of the January meeting (Chart 3). Judging from quotes on federal funds target binary options, investors are now virtually certain of a rate cut of 50 basis points or more at the upcoming FOMC meeting and attach about a 40 percent probability to a half-point of easing. Respondents to the Desk's recent survey of primary dealers—which was conducted before the March 11 announcement—were about evenly split between a 50 and a 75 basis point cut. A majority of the primary dealer economists anticipated the language of the statement released after the upcoming FOMC meeting to be similar to the January 30 statement. On balance, uncertainty about the path for policy remains elevated. The option-implied distributions of the federal funds rate between six and twelve months ahead are now skewed to the downside and show non-negligible odds of very low interest rates.

(14) Yields on two-year nominal Treasury securities dropped 59 basis points, on net, over the intermeeting period; ten-year Treasury yields declined 9 basis points. Liquidity continued to be somewhat impaired in the Treasury coupon market, with bid-asked spreads staying elevated. The spread between yields on on-the-run and off-the-run five- and ten-year Treasury notes remained very wide, at levels not seen since 2002. Trading volumes were exceptionally high in January, but receded in February. The forward term structure of TIPS yields steepened sharply; the decline in real forward rates at short horizons is consistent with the downward revision in the economic outlook.

(15) Forward TIPS-based inflation compensation increased across the term structure over the intermeeting period. Five-year inflation compensation adjusted for carry effects rose 9 basis points amid higher-than-expected inflation data releases and sharp increases in commodity prices including oil, while five-year inflation compensation five years forward moved up 19 basis points. The increase in inflation compensation may reflect in part an increase in inflation expectations and inflation risk premiums. (See box "Long-Run Inflation Expectations and Uncertainty.")

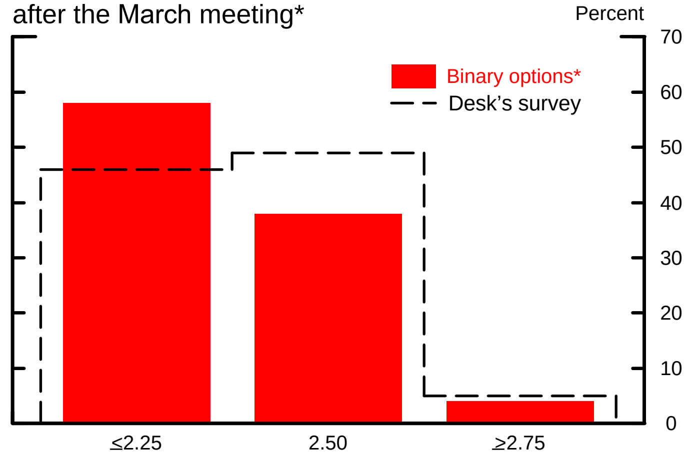
Chart 3
Interest Rate Developments

Expected federal funds rates*



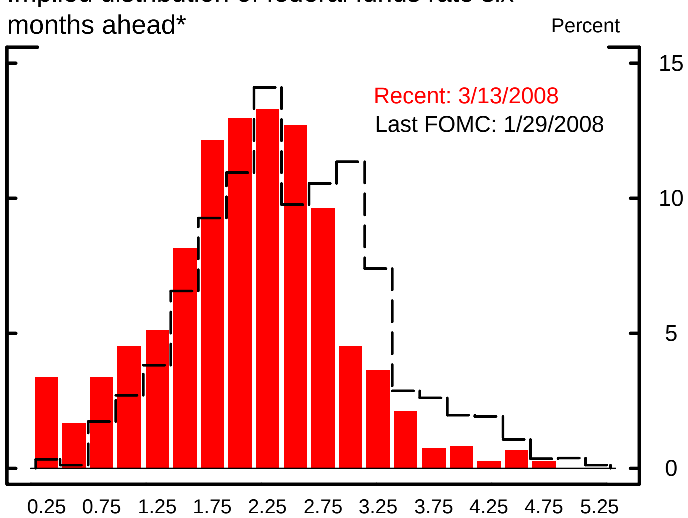
*Estimates from federal funds and Eurodollar futures, with an allowance for term premiums and other adjustments.

Probability density for target funds rate after the March meeting*



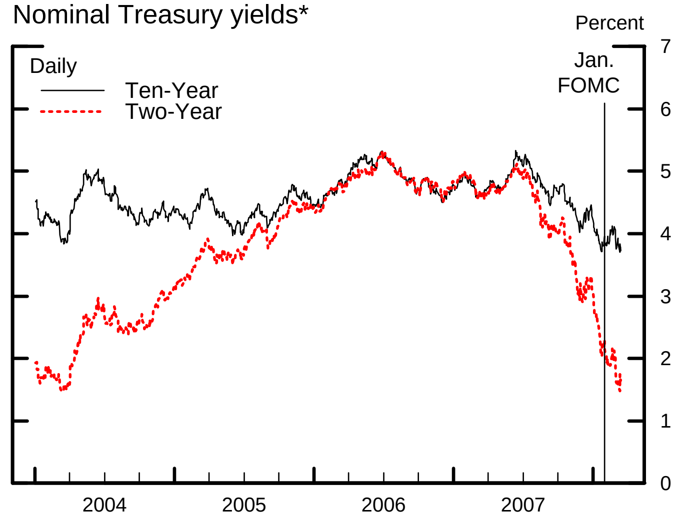
*Derived from binary options on target funds rate after the meeting.

Implied distribution of federal funds rate six months ahead*



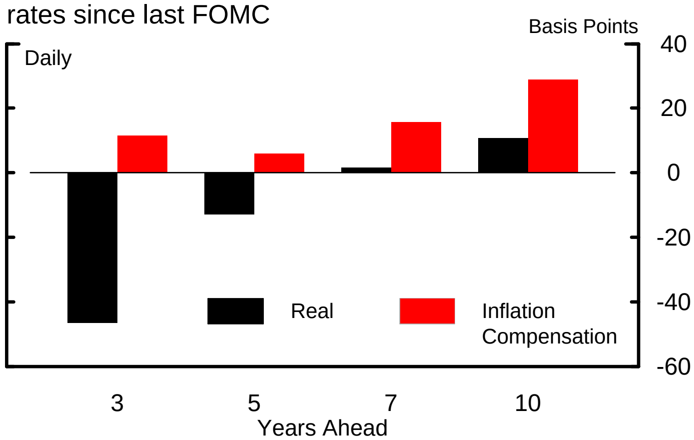
*Derived from options on Eurodollar futures contracts, with term premium and other adjustments to estimate expectations for the federal funds rate.

Nominal Treasury yields*



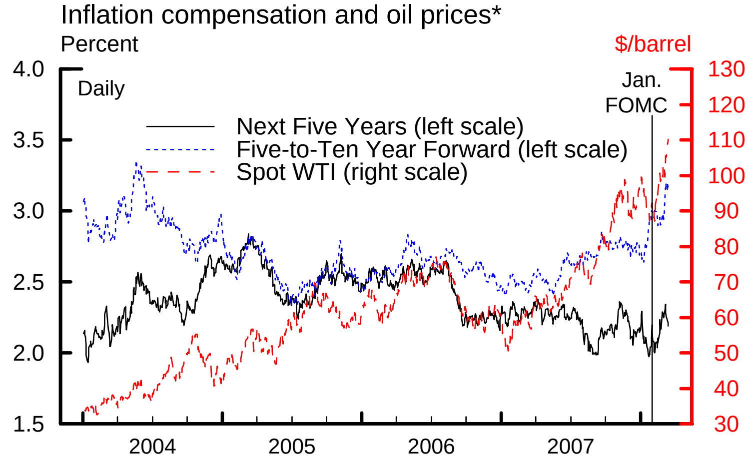
*Par yields from a smoothed nominal off-the-run Treasury yield curve.

Changes in components of implied one-year forward rates since last FOMC



Note. Forward rates are the one-year rates maturing at the end of the year shown on the horizontal axis as implied by smoothed yield curves fitted to nominal and indexed Treasury securities and adjusted for the carry effect.

Inflation compensation and oil prices*



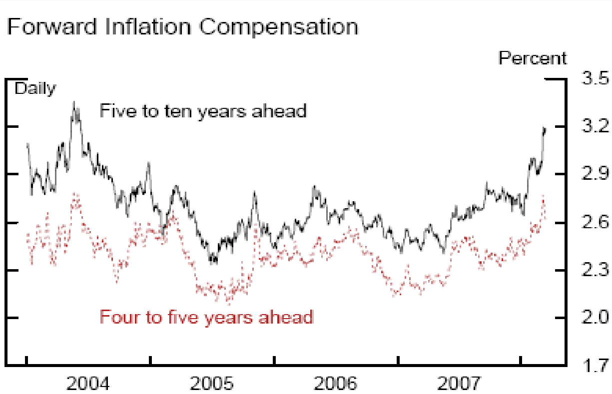
*Estimates based on smoothed nominal and inflation-indexed Treasury yield curves and adjusted for the indexation-lag (carry) effect.

Long-Run Inflation Expectations and Uncertainty

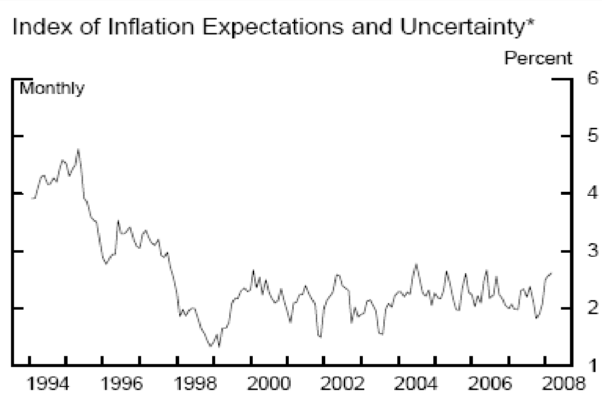
Several financial market and survey-based indicators of long-run inflation expectations and uncertainty have moved up since the start of this year. Most notably, inflation compensation derived from comparing the nominal and TIPS yield curves has risen across the term structure: The four-to-five-year forward rate of inflation compensation has climbed about 15 basis points since the start of the year, and the five-to-ten-year forward rate has increased by almost 50 basis points. About half of the rise in the five-to-ten-year forward rate occurred in narrow windows around the two January FOMC policy announcements, the releases of higher-than-expected consumer and producer price data, and speeches by FOMC participants which emphasized the Committee's concerns about downside risks to growth. The increase in inflation compensation likely primarily reflects some combination of increases in inflation expectations and uncertainty, with the latter leading to higher inflation risk premiums. (To the extent that strains in financial markets have caused investors to prefer the relative liquidity of nominal Treasury securities, this would tend to put downward pressure on their yields and so lower measured inflation compensation. However, if the liquidity effects were especially pronounced at the front end of the nominal yield curve they could act to boost the five-to-ten-year forward rate measure of inflation compensation.)

A number of other indicators also suggest greater nervousness about longer-term inflation prospects. Nine-to-ten-year nominal forward rates have risen to their highest levels since the middle of 2004, perhaps in part reflecting concerns about the inflation outlook. Moreover, dealers report increased investor interest in inflation cap contracts, which offer insurance against inflation rising above a specified high rate, typically between 3½ percent and 4½ percent. Although this market remains very thin, the prices of these caps have reportedly risen in recent months, consistent with higher expected inflation and greater inflation uncertainty. In a similar vein, inflows into inflation-protected bond funds increased sharply in January. By contrast, recent survey measures of expected inflation have been mixed. The February Survey of Professional Forecasters reported increases in both long-run inflation expectations and inflation uncertainty; likewise, the Desk survey of primary dealers in recent months has pointed to an edging up in long-run expected inflation. However, the March Blue Chip Economic Indicators and the February Reuters/University of Michigan Survey showed little change in longer-run inflation expectations since the start of the year, although the Michigan survey does suggest that long-run inflation expectations have moved up since the autumn.

All measures of inflation expectations and inflation uncertainty are imperfect and noisy. As a result, a more reliable guide to developments in underlying inflation concerns may be gained by considering the common movement in a range of measures. An index of inflation expectations and uncertainty, constructed as the first principal component of fourteen different inflation indicators, declined sharply during the period of disinflation in the 1990s and has since remained in a relatively narrow range. The indicators employed include TIPS-based inflation compensation, survey measures of expectations, and survey measures of inflation uncertainty and the dispersion of expectations. Although the index remains within the range seen over the past ten years or so, it has moved up since the start of the year. This development is consistent with the staff's assessment that although longer-term inflation expectations still appear reasonably well anchored, concerns about future inflation have increased somewhat in recent months.



Note. Estimates based on smoothed nominal and inflation-indexed Treasury yields.



* Measured as the first principal component of fourteen forward-looking inflation indicators.

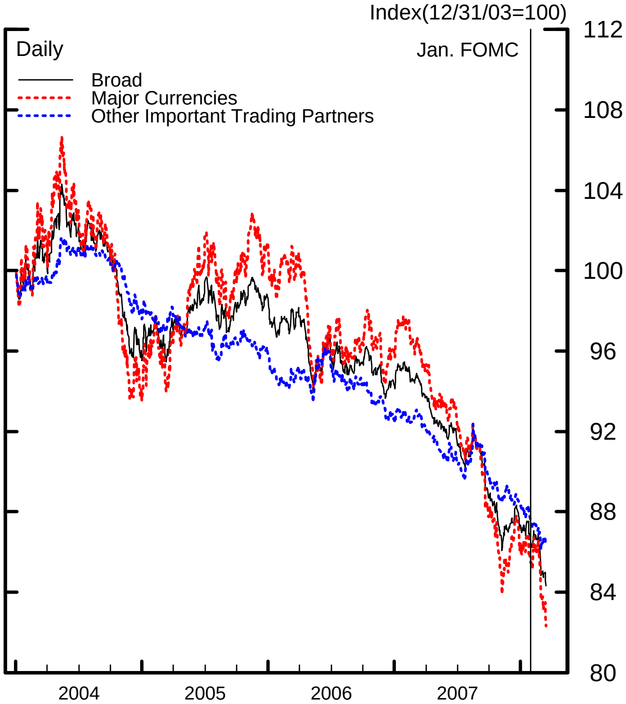
Foreign Developments

(16) European interbank term money markets showed less evidence of stress during most of the intermeeting period than did U.S. markets. Although Libor-OIS spreads for both euro and sterling moved up, on balance, the net increases were less than those in dollar term markets. Earlier discontinuation of dollar auctions by the European Central Bank (ECB) and Swiss National Bank (SNB) may have driven some European borrowers into U.S. markets and contributed to higher dollar spreads. On March 11, in actions coordinated among G10 central banks, the ECB and SNB announced that they would resume their dollar auctions and increase their size, consistent with the expansion of their currency swap lines with the Federal Reserve. Also as part of the coordinated actions, the Bank of England and the Bank of Canada announced measures designed to address strains in term money markets in their own currencies. Following the announcements, Libor-OIS dollar spreads declined, but European spreads showed little reaction. Trading conditions in the FX swap market continued to be somewhat strained during the intermeeting period. The outstanding amount of European asset backed commercial paper (ABCP) continued to decline over the intermeeting period and is now roughly half what it was as the beginning of the current financial turmoil.

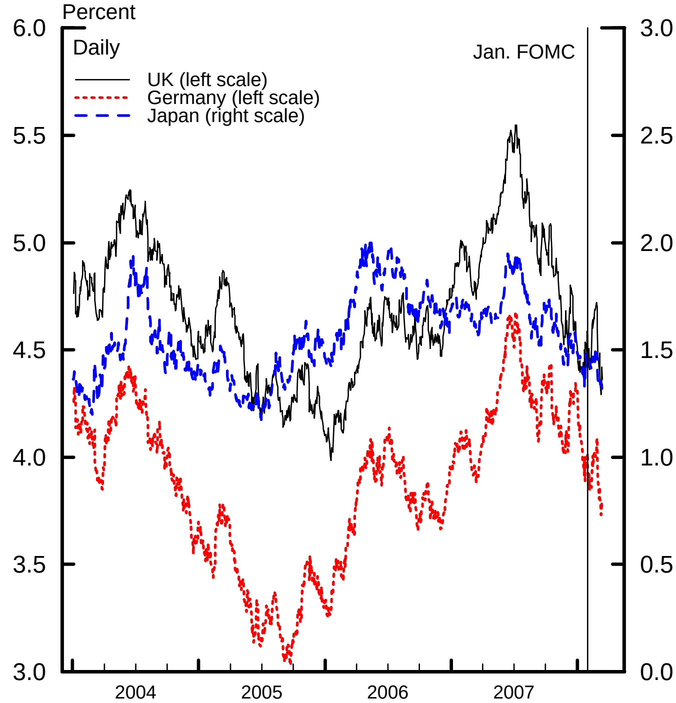
(17) The trade-weighted foreign exchange value of the dollar against major currencies moved down about 3½ percent, on balance, over the intermeeting period amid growing concerns about distress in U.S. financial markets, cumulating signs of weakness in the U.S. economy, and increasing expectations of further aggressive action by the Federal Reserve (Chart 4). News on foreign economic developments—as well as assessments of the health of foreign financial markets and institutions—tended to be less negative. Yields on two-year euro-area government securities declined noticeably less than did comparable yields on two-year U.S. Treasuries (only about 20 basis points versus roughly 60 basis points for U.S. yields). Yields on long-term government securities in advanced foreign economies declined 10 to 40 basis points. The dollar dropped more than 5 percent against the euro and yen, but

Chart 4
International Financial Indicators

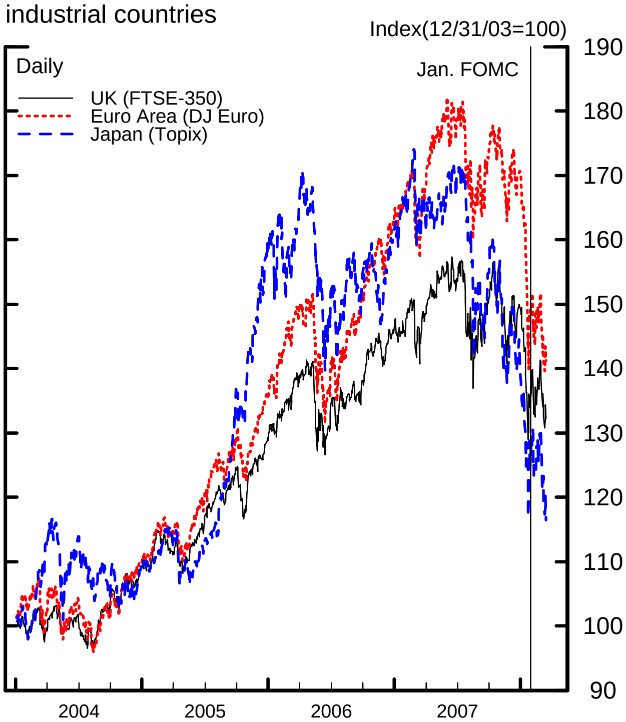
Nominal trade-weighted dollar indexes



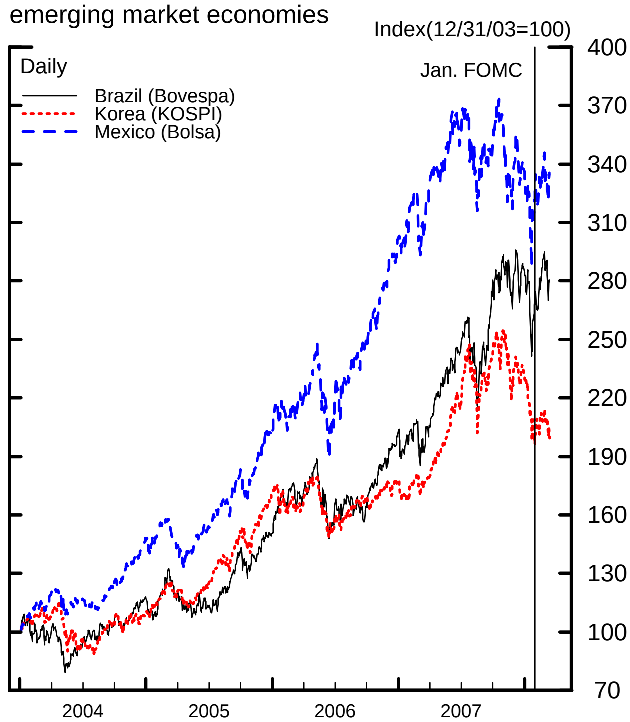
Ten-year government bond yields (nominal)



Stock price indexes
industrial countries



Stock price indexes
emerging market economies



only about 2 percent versus sterling and 1 percent against the Canadian dollar. Both the Bank of Canada and the Bank of England lowered policy rates (by 50 and 25 basis points, respectively) during the period. The Bank of Japan and the European Central Bank left policy rates unchanged, and ECB officials highlighted their concerns about intensifying inflationary pressures.[2] Headline share price indexes registered widespread declines of 1 to 5 percent in Europe and Japan, and financial stocks experienced steeper falls, including a 15 percent price decline for Japanese bank stocks. Most major emerging markets continue to be relatively unscathed by the financial turmoil and the growing worries about global economic growth. Though risk spreads on emerging market sovereign debt widened somewhat and stock prices in some emerging market economies experienced modest declines, share prices moved up in Mexico, Brazil, Korea, and Thailand. The dollar fell on balance about 1¼ percent against an index of currencies of our other important trading partners.

Debt and Money

(18) Domestic nonfinancial sector debt is estimated to be expanding at an annual rate of about 5¼ percent in the current quarter, a marked slowdown from the pace recorded in the fourth quarter of last year (Chart 5). Growth of nonfinancial business debt is projected to moderate to a rate of 5½ percent this quarter, as the previously torrid growth of C&I loans has slowed substantially—damped in part by significantly weaker M&A activity—and as funding in both the high-yield bond market and the leveraged loan market has come nearly to a halt—especially for large LBO deals. In the household sector, mortgage debt growth is expected to decelerate further to about 3½ percent in the first quarter, held down by falling house prices, declining home sales, and tighter credit conditions for most types of loans. Consumer credit growth is projected to expand roughly 3 percent this quarter.

[2] There were no foreign official purchases or sales of dollars by reporting central banks in industrial countries during the intermeeting period.

Chart 5
Debt and Money

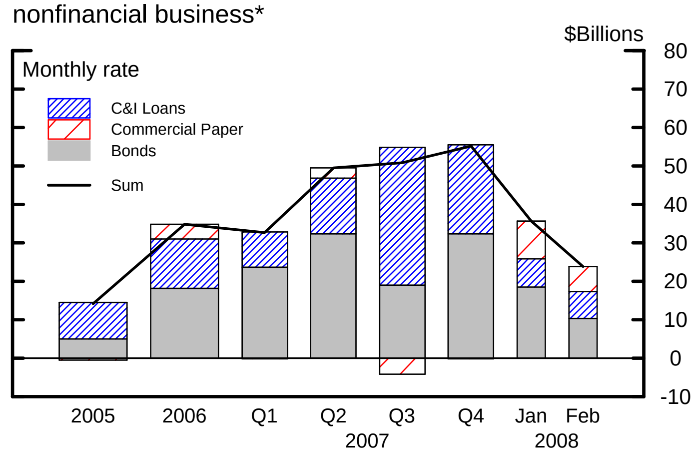
Growth of debt of nonfinancial sectors

Percent, s.a.a.r.

	Total	Business	Household
2006	8.7	9.6	10.2
2007	8.1	11.6	6.8
Q1	7.9	9.5	6.8
Q2	7.1	10.9	7.2
Q3	8.8	12.0	6.8
Q4	7.7	12.0	5.6
2008 Q1p	5.2	5.5	3.6

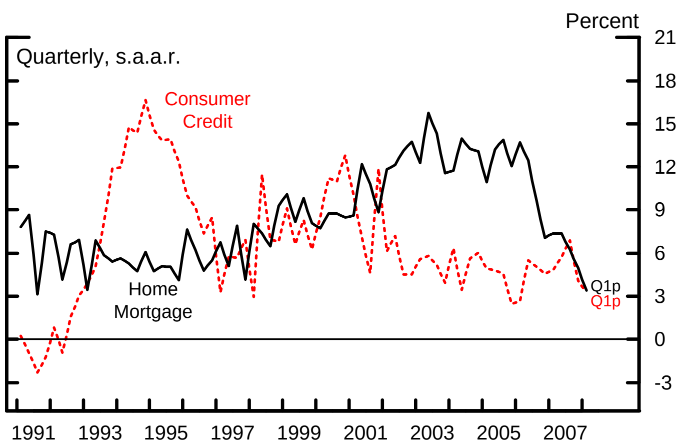
p Projected.

Changes in selected components of debt of nonfinancial business*



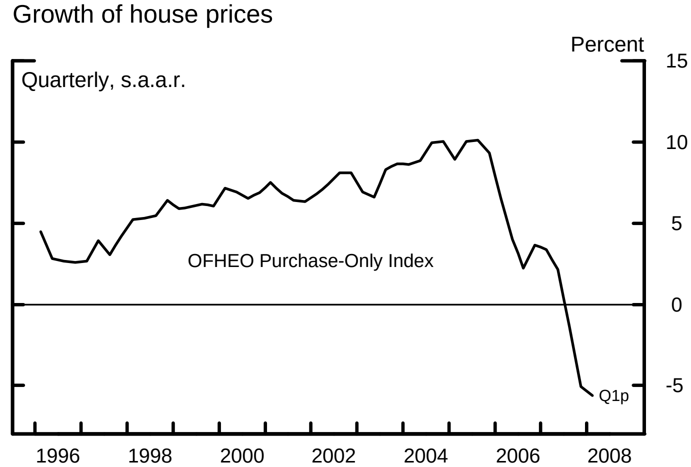
*Commercial paper and C&I loans are seasonally adjusted, bonds are not.

Growth of debt of household sector



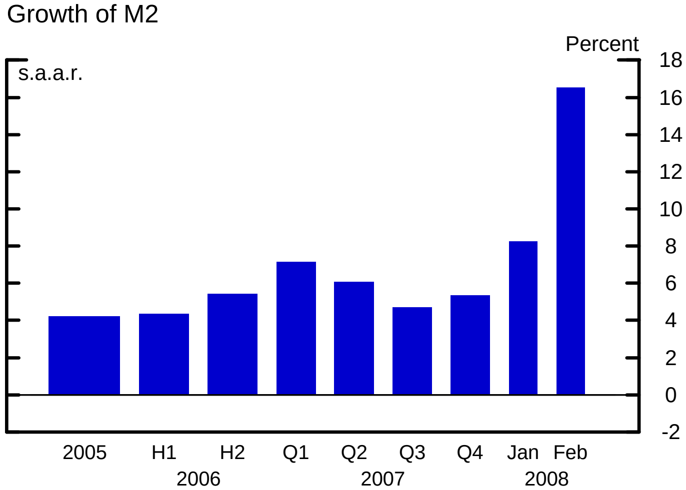
p Projected.

Growth of house prices

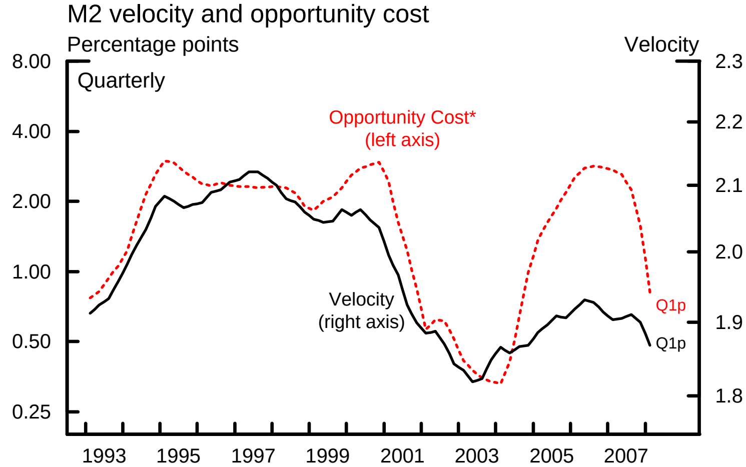


p Projected.

Growth of M2



M2 velocity and opportunity cost



*Two-quarter moving average.
p Projected.

(19) M2 advanced at a rapid 12½ percent annual rate, on average, in January and February. Likely reflecting continued demand for safety and liquidity, retail money funds grew at a 61 percent pace in February. Liquid deposits also accelerated noticeably in February, as the opportunity cost of holding these assets has fallen in recent months. With several thrift institutions offering aggressive deposit rates to attract funding, growth in small time deposits picked up in January, although it moderated in February. After three months of contraction reflecting weak demand from overseas investors, currency expanded moderately in February. In recent quarters, the opportunity cost of holding M2 has fallen steeply while the velocity of M2 has declined only slightly, bringing these variables closer to their historical relationship.

Economic Outlook

(20) The staff has marked down appreciably its outlook for growth in 2008 in response to steeper-than-anticipated declines in home prices, a sharp deterioration in business and consumer sentiment, a marked softening of labor markets, higher oil prices, and a further tightening of credit conditions. As a consequence, the forecast now assumes that the Committee will ease policy 50 basis points at this meeting, another 50 basis points in April, and 25 basis points at the June meeting, and then maintain the funds rate at 1¾ percent through the end of 2009. With that path for policy, longer-term Treasury yields have been revised down about 10 basis points over the rest of this year and 25 basis points in 2009. The overall contour for long-term interest rates, however, is similar to that projected in January, with the yield on the ten-year Treasury note edging up as the ten-year window moves past the especially low short-term interest rates this year and next. Stock prices rise at an annual rate of about 6¼ percent over the remainder of this year from a starting point that is a bit lower than anticipated in the previous forecast and are expected to climb at an annual rate of 11¼ percent next year as the equity premium starts to decline toward more normal levels in response to dissipating macroeconomic risks; because the staff pushed back the assumed beginning of the decline in the equity premium by a few quarters, equity prices at the end of 2009 are about 6 percent lower than in the previous Greenbook. The trade-weighted dollar is assumed to depreciate at a 4¼ percent average annual rate over the remainder of 2008 and about 3 percent in 2009. In line with futures quotes, the price of West Texas intermediate crude oil is expected to average about $102 per barrel over the forecast period, about $15 per barrel higher than in the previous Greenbook.

(21) Against this background, real GDP is projected to contract at about a ½ percent rate during the first half of this year; subsequently, fiscal stimulus and the lagged effects of monetary policy easing engender a gradual recovery, with real GDP projected to expand at a ¾ percent rate in the second half of 2008. For 2008 as a whole, real GDP is

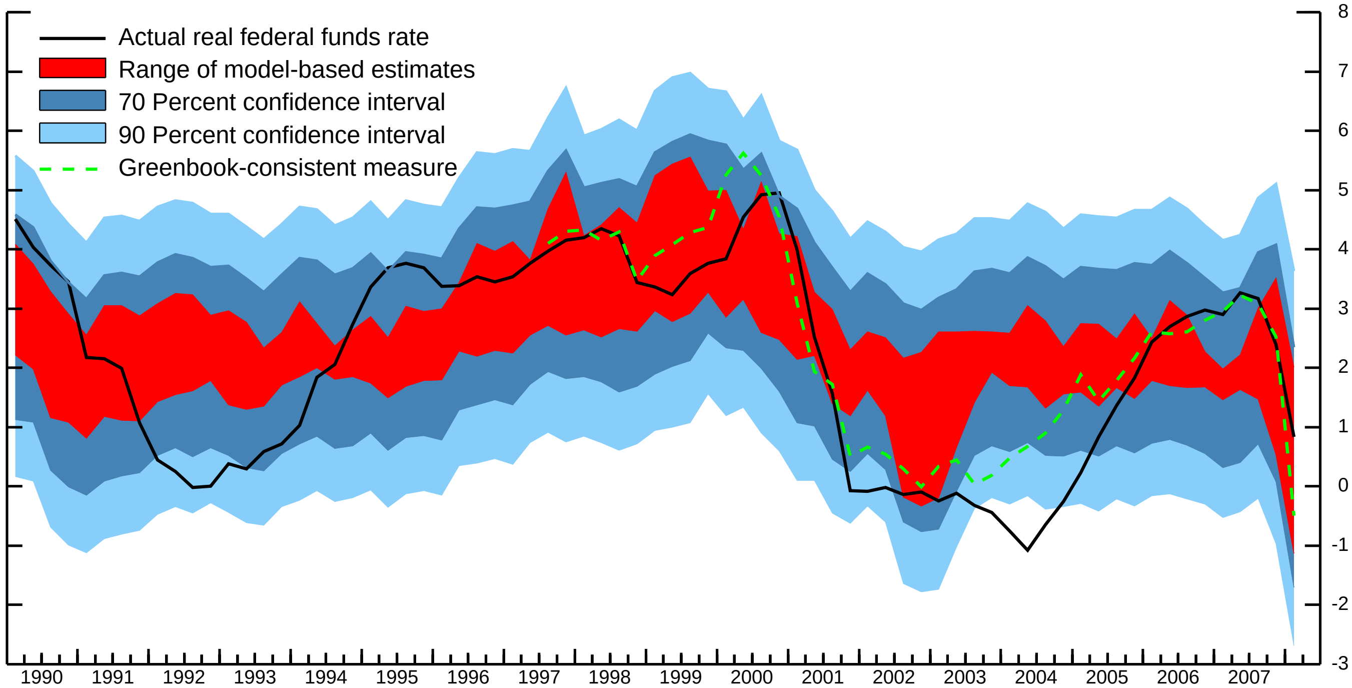
projected to be essentially flat, a downward revision in the rate of growth of almost 1½ percentage points relative to the January forecast. With the contractionary effects of higher oil prices and financial turmoil waning, economic growth picks up to about 3 percent in 2009, about ¾ percentage point above the staff's estimate of the rate of expansion of potential GDP. As a consequence of economic weakness over the next several quarters, the unemployment rate rises to almost 5¾ percent by the end of 2008—a full percentage point above the staff's estimate of the NAIRU—and then declines to 5½ percent by the end of 2009. The forecast for total PCE inflation during the first half of this year has been revised up substantially, from around 2½ percent to about 4 percent, largely reflecting higher oil prices. However, the assumed flattening out of energy and other commodity prices, combined with the expected deceleration in import prices and persistent slack in product and labor markets, pushes headline inflation down to about 1¾ percent by the third quarter of this year. The path for core PCE inflation is a bit above the January projection, mainly owing to elevated recent monthly readings on inflation and some assumed deterioration in the public's expectations of future inflation. All told, the staff expects core PCE inflation to average 2¼ percent this year and a bit below 2 percent in 2009.

Update on Monetary Policy Strategies

(22) Since the January Bluebook, the Greenbook-consistent and FRB/US model-based estimates of short-run *r** have declined sharply and now stand at -0.5 and -0.1 percent, respectively (Chart 6). These measures are now about 1¼ percent below our measure of the current real federal funds rate. These substantially lower estimates reflect the downward revision to the staff's outlook for aggregate demand. In the small structural model, the recent declines in stock and house prices, coupled with higher spreads on corporate debt, also prompted a sharp decline in short-run *r**; that estimate now stands at -1.1 percent. In contrast, the estimate obtained from the single equation model remains

Chart 6
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	2.0	*2.3*
Small structural model	-1.1	*0.7*
Large model (FRB/US)	-0.1	*0.9*
Confidence intervals for three model-based estimates		
70 percent confidence interval	-1.7 - 2.3	
90 percent confidence interval	-2.7 - 3.6	
Greenbook-consistent measure	-0.5	*0.8*
Medium-Run Measures		
Single-equation model	2.2	*2.3*
Small structural model	1.7	*1.9*
Confidence intervals for two model-based estimates		
70 percent confidence interval	1.0 - 2.9	
90 percent confidence interval	0.5 - 3.7	
TIPS-based factor model	2.0	*2.0*
Memo		
Actual real federal funds rate	0.8	1.4

Note: Appendix A provides background information regarding the construction of these measures and confidence intervals.

positive and has shifted down only 30 basis points; this measure depends only on current and lagged values of the output gap and not on financial conditions or other leading indicators of aggregate demand.

(23) Chart 7 depicts optimal control simulations of the FRB/US model using the staff's extension of the Greenbook forecast beyond 2009. In these simulations, policymakers place equal weights on keeping core PCE inflation close to a specified goal, on keeping unemployment close to the long-run NAIRU, and on avoiding changes in the nominal federal funds rate.[3] For an inflation goal of 1½ percent (the left-hand set of charts), the simulation prescribes a nominal federal funds rate that declines to around 2¼ percent by late next year and then rises toward 3¾ percent by the end of 2012. With an inflation goal of 2 percent (the right-hand set of charts), the optimal funds rate falls more sharply, dipping to near 1¼ percent by the end of 2009 before rising to about 4 percent by 2012. Under either inflation goal, for the next two years these prescriptions are around 100 basis points lower than those shown in the previous Bluebook, mainly reflecting the much weaker outlook for aggregate demand in the current forecast, as manifested in upward revisions to the unemployment rate paths from 2008 through 2010. Despite this additional slack, the paths for core inflation are also above those shown in the January Bluebook, reflecting unexpectedly high readings on inflation, recent increases in the prices of oil and imported goods, and signs that inflation expectations may have moved up a bit relative to the time of the last meeting.

(24) The outcome-based monetary policy rule prescribes a funds rate path that declines to around 2 percent by the fourth quarter of this year, then fluctuates between 2 and 3 percent over the next several years (Chart 8). Through the end of 2009, this projection is, on average, around 100 basis points lower than the trajectory in the January

---

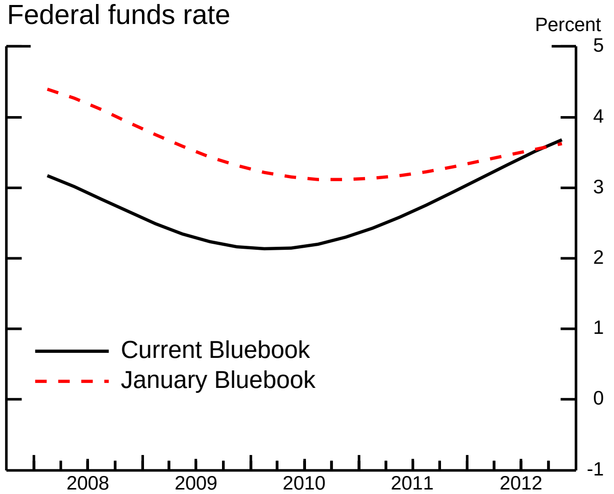
[3] In conducting these simulations, policymakers and participants in financial markets are assumed to understand fully the forces shaping the economic outlook (as summarized by the extended Greenbook projection), whereas households and firms form their expectations using more limited information.

Chart 7

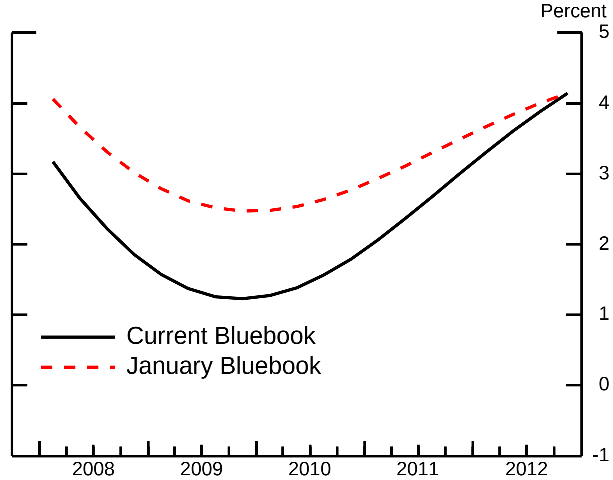
Optimal Policy Under Alternative Inflation Goals

1½ Percent Inflation Goal

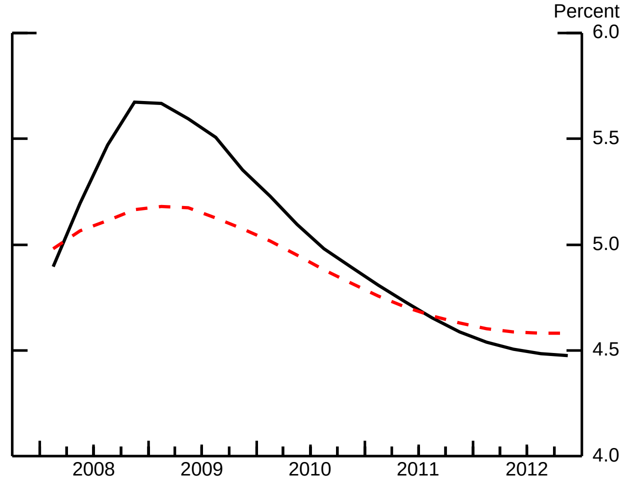
Federal funds rate



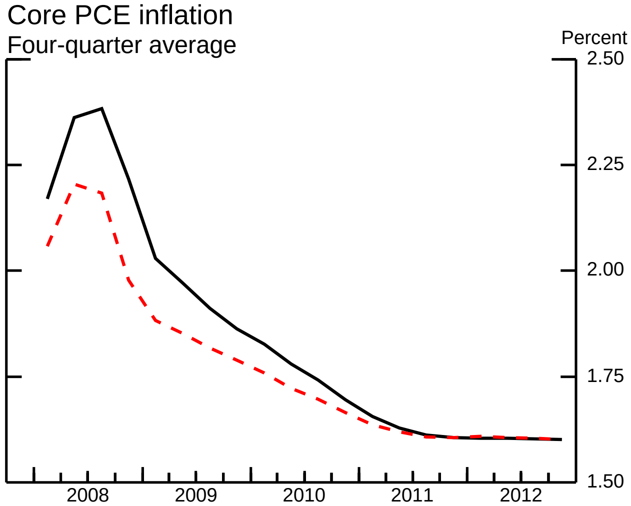
2 Percent Inflation Goal



Civilian unemployment rate



Core PCE inflation
Four-quarter average



Four-quarter average

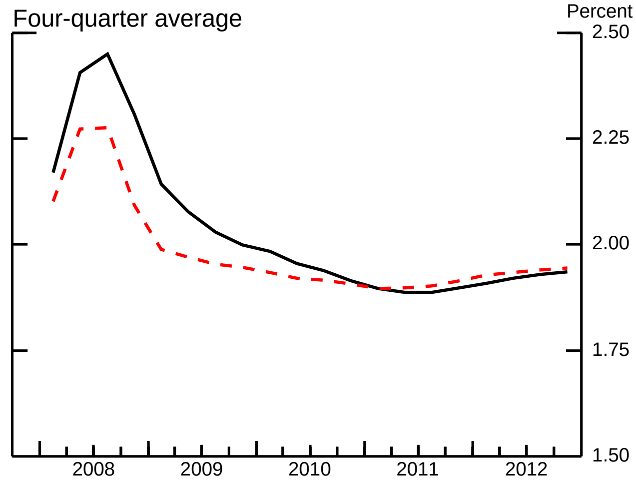
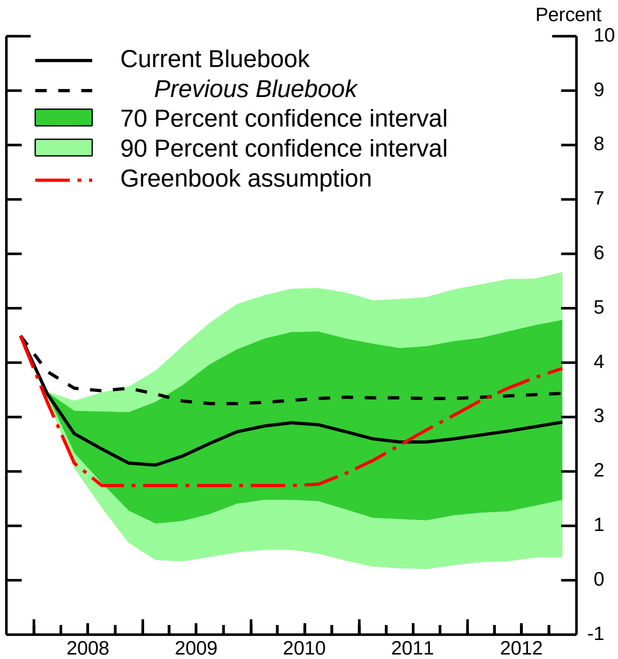


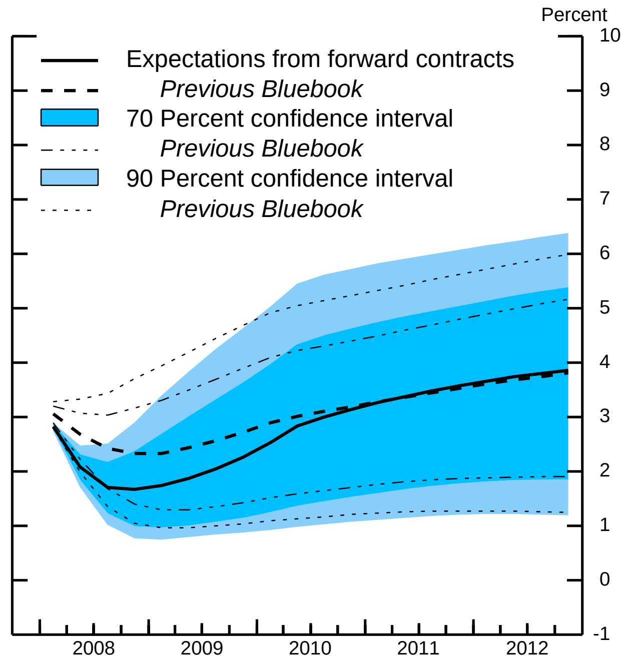
Chart 8

The Policy Outlook in an Uncertain Environment

FRB/US Model Simulations of Estimated Outcome-Based Rule



Information from Financial Markets



Near-Term Prescriptions of Simple Policy Rules

	1½ Percent Inflation Objective		2 Percent Inflation Objective	
	2008Q2	2008Q3	2008Q2	2008Q3
Taylor (1993) rule	**4.3**	**4.2**	**4.0**	**3.9**
Previous Bluebook	*4.4*	*4.4*	*4.2*	*4.1*
Taylor (1999) rule	**3.6**	**3.4**	**3.4**	**3.1**
Previous Bluebook	*4.1*	*4.0*	*3.9*	*3.8*
Taylor (1999) rule with higher r*	**4.4**	**4.1**	**4.1**	**3.9**
Previous Bluebook	*4.9*	*4.8*	*4.6*	*4.5*
First-difference rule	**2.8**	**2.8**	**2.5**	**2.3**
Previous Bluebook	*4.4*	*4.5*	*3.9*	*3.8*

Memo

	2008Q2	2008Q3
Estimated outcome-based rule	2.6	2.4
Estimated forecast-based rule	2.5	2.1
Greenbook assumption	2.2	1.7
Fed funds futures	2.0	1.8
Median expectation of primary dealers	2.0	1.8

Note: Appendix B provides background information regarding the specification of each rule and the methodology used in constructing confidence intervals and near-term prescriptions.

Bluebook. According to financial market quotes, investors anticipate that the funds rate will decline to around 1¾ percent by the end of this year and then progressively rise to slightly below 4 percent by the end of 2012. The confidence intervals on interest rate caps indicate some odds of a funds rate as low as 1 percent by the end of 2008. The near-term prescriptions from the simple policy rules proposed by Taylor (1993, 1999) are lower than those shown in January Bluebook, but remain well above the current target rate and the prescriptions of the estimated outcome-based rule. These higher prescriptions presumably reflect that these rules do not include a lagged interest rate, and also that they do not take into account current financial market pressures and other forward-looking information captured by market expectations and the staff forecast.

Short-Run Policy Alternatives

(25) This Bluebook presents four policy alternatives for the Committee's consideration, summarized by the draft statements in Table 1. The underlined text shown in red highlights the changes from the January 30 statement, which appears on the page following the table. Alternative A cuts the federal funds rate target 75 basis points to 2¼ percent; Alternative B cuts the target 50 basis points to 2½ percent; Alternative C lowers the target 25 basis points to 2¾ percent; and Alternative D leaves the target federal funds rate at 3 percent. As usual, the Committee could consider combining an action from any one policy alternative with portions of the statement from more than one alternative.

(26) Should the Committee share the staff's assessment of the underlying forces shaping the economy and judge that the monetary stimulus already in the pipeline is inadequate to foster a sufficiently timely resumption of moderate economic growth, it may want reduce the target federal funds rate 50 basis points at this meeting as in **Alternative B**. Even with the 50 basis point reduction in the target federal funds rate on January 30, some FOMC participants noted at that meeting that they anticipated that further easing would be necessary to support aggregate demand. Moreover, economic and financial news

Table 1: Alternative Language for the March 18, 2008 FOMC Announcement

	Alternative A	Alternative B	Alternative C	Alternative D
Policy Decision	1. The Federal Open Market Committee decided today to lower its target for the federal funds rate 75 basis points to 2-1/4 percent.	The Federal Open Market Committee decided today to lower its target for the federal funds rate 50 basis points to 2-1/2 percent.	The Federal Open Market Committee decided today to lower its target for the federal funds rate 25 basis points to 2-3/4 percent.	The Federal Open Market Committee decided today to keep its target for the federal funds rate at 3 percent.
Rationale	2. Recent information indicates that the outlook for economic activity has weakened further and that downside risks persist. Growth in consumer spending has slowed and labor markets have softened. Financial markets remain under considerable stress, and the tightening of credit conditions and the deepening of the housing contraction are likely to continue to weigh on economic growth.	Recent information indicates that the outlook for economic activity has weakened further and that downside risks persist. Growth in consumer spending has slowed and labor markets have softened. Financial markets remain under considerable stress, and the tightening of credit conditions and the deepening of the housing contraction are likely to continue to weigh on economic growth.	Growth in consumer spending has slowed and labor markets have softened. Financial markets remain under considerable stress, and the tightening of credit conditions and the deepening of the housing contraction are likely to continue to weigh on economic growth. Recent policy actions should help to promote moderate growth over time, but downside risks to growth remain.	Growth in consumer spending has slowed, labor markets have softened, and financial markets remain under considerable stress. Although downside risks to growth remain, recent policy actions should help to promote moderate growth over time.
	3. Inflation has been elevated, and some measures of inflation expectations have risen. The Committee expects inflation to moderate in coming quarters, reflecting a projected leveling-out of energy and other commodity prices and an easing of pressures on resource utilization. Still, uncertainty about the inflation outlook has increased. It will be necessary to continue to monitor inflation developments carefully.	Inflation has been elevated, and some measures of inflation expectations have risen. The Committee expects inflation to moderate in coming quarters, reflecting a projected leveling-out of energy and other commodity prices and an easing of pressures on resource utilization. Still, uncertainty about the inflation outlook has increased. It will be necessary to continue to monitor inflation developments carefully.	Inflation has been elevated, and upward pressure on inflation could result from several factors, including further increases in energy, commodity, and other import prices. Although the Committee expects inflation to moderate in coming quarters, the upside risks to the outlook for inflation have increased. The Committee will continue to monitor inflation developments carefully.	Inflation has been elevated, and upward pressure on inflation could result from several factors, including further increases in energy, commodity, and other import prices. Although the Committee expects inflation to moderate in coming quarters, the upside risks to the outlook for inflation have increased. The Committee will continue to monitor inflation developments carefully.
Assessment of Risk	4. Today's policy action, combined with those taken earlier, should help to promote moderate growth over time and to mitigate the risks to economic activity. However, the Committee judges that the downside risks to growth outweigh the upside risks to inflation. The Committee will act in a timely manner as needed to promote sustainable economic growth and price stability.	Today's policy action, combined with those taken earlier, should help to promote moderate growth over time and to mitigate the risks to economic activity. However, downside risks to growth remain. The Committee will continue to assess the effects of financial and other developments on economic prospects and will act in a timely manner as needed to address those risks.	The Committee judges that the risks to growth outweigh the risks to inflation, particularly in light of stresses in financial markets. The Committee will continue to assess the effects of financial and other developments on economic prospects and will act in a timely manner as needed to address the evolving risks.	The Committee will continue to assess the effects of financial and other developments on economic prospects and will act in a timely manner as needed to promote price stability and sustainable economic growth.

January 30, 2008 Statement

1. The Federal Open Market Committee decided today to lower its target for the federal funds rate 50 basis points to 3 percent.

2. Financial markets remain under considerable stress, and credit has tightened further for some businesses and households. Moreover, recent information indicates a deepening of the housing contraction as well as some softening in labor markets.

3. The Committee expects inflation to moderate in coming quarters, but it will be necessary to continue to monitor inflation developments carefully.

4. Today's policy action, combined with those taken earlier, should help to promote moderate growth over time and to mitigate the risks to economic activity. However, downside risks to growth remain. The Committee will continue to assess the effects of financial and other developments on economic prospects and will act in a timely manner as needed to address those risks.

during the intermeeting period strongly suggests that the outlook for economic growth is weakening: Strains in financial markets have intensified, and incoming data indicate that growth in consumer spending is flagging and labor markets are slackening, and the tightening of credit conditions now appears to be interacting with the deteriorating macroeconomic outlook in a mutually reinforcing cycle. The Greenbook-consistent measure of the equilibrium real funds rate is about 1¼ percentage points below the level of the current real rate, suggesting that considerable further easing is necessary to bring output back to its potential over the medium term. Moreover, the Committee might see the risks around the staff's outlook as skewed to the downside, given the absence of convincing signs of a bottoming in the housing market and the possibility of a sharp further worsening of financial market conditions. At the same time, however, the short-run tradeoff between economic activity and inflation apparently has deteriorated, and policymakers' confidence that inflation will decline might have been eroded by the recent run-up in energy and other commodity prices, the fall in the exchange value of the dollar, and the rise in measures of inflation compensation. In these circumstances, the Committee might be concerned that additional aggressive policy easing may trigger increases in inflation expectations that could be costly to reverse. In view of such concerns, the Committee might believe that more than 50 basis points of easing before long may be warranted but might be reluctant to make that full adjustment at this meeting.

(27) The rationale section of the statement accompanying Alternative B would begin by noting the deterioration in the outlook for economic activity, pointing specifically to the softening in consumer expenditures and labor markets. The statement would also point out that financial markets remain under considerable stress and that the tightening of credit conditions, coupled with the deepening of the housing contraction, is likely to weigh on economic growth in the near term. The paragraph on inflation would note that the Committee expects inflation to moderate in coming quarters assuming "a projected leveling-out of energy and other commodity prices and an easing of pressures on resource

utilization." This alternative would highlight the risks that attend the Committee's expectation regarding the trajectory for inflation by indicating that "uncertainty about the outlook for inflation has increased" and would note that the Committee "will continue to monitor inflation developments carefully." The final paragraph would repeat the assessment of risks from the January statement.

(28) Investors place roughly even odds on both 50 basis point and 75 basis point reductions in the target federal funds rate at this meeting. As a result, adoption of Alternative B would likely cause near-term policy expectations to move somewhat higher. Equity prices might decline, and yield spreads on private-debt instruments over those on Treasuries could widen, should market participants conclude that monetary policy was not being eased sufficiently promptly to cushion adequately the weakness in economic activity. Any such adverse effects, however, would likely be tempered by the Committee's acknowledgment that the downside risks to growth remain and that the Committee is prepared to act in a timely manner to address those risks, a communication that would likely be interpreted as indicating that members are still predisposed to ease policy further. Given the smaller-than-expected policy move and the indication in the statement of greater concern about inflation risks, market participants could mark down their inflation expectations slightly. Any move in the foreign exchange value of the dollar would likely be relatively small. However, in light of impaired trading conditions in many markets and investors' increasingly skittish attitudes, even small policy surprises have the potential to generate an outsized reaction in financial markets.

(29) If the Committee judges that the news on economic activity and financial markets since the January meeting has appreciably undermined the outlook for the economy and is reasonably confident that inflation will moderate, it might prefer to move more aggressively to promote growth and mitigate downside risks by cutting the funds rate 75 basis points at this meeting, as in **Alternative A**. Despite the five policy moves over the past six months, the substantial downward revision to the Greenbook forecast suggests

that significantly more easing than previously foreseen may be required to stave off a severe deterioration in macroeconomic conditions. Indeed, in light of the rapidly eroding financial situation in recent weeks, policymakers might see an even weaker outlook than in the Greenbook that would ultimately require even more policy easing than assumed in the staff forecast. Alternatively, policymakers might see the cumulative 125 basis points of easing assumed in the staff forecast as likely to prove necessary to restore output to its potential, but might prefer to deliver the easing in a more rapid manner than in the staff forecast, in order to arrest the deterioration in investor sentiment currently afflicting financial markets. The downside risks around the growth outlook might be particularly worrisome, given the steeper-than-expected declines in house prices and the intensification of strains in financial markets. In such circumstances, the Committee might view the odds of an intensifying adverse feedback cycle—that is, a worsening of the macroeconomic situation generating further distress in financial markets and among financial institutions, thereby prompting a further tightening in the supply of credit and so putting further downward pressure on real activity—as having risen appreciably over the intermeeting period (a possibility suggested by the Greenbook scenario, "Greater Housing Correction with More Financial Fallout"). Members might also find the case for a 75 basis point cut to be persuasive if they would be willing to tolerate a somewhat higher path for inflation than in the staff forecast in order to respond more aggressively to the prospect of significant weakness in output. Instead, members might be more optimistic about the outlook for inflation than the staff. For example, with the unemployment rate seen as likely to rise markedly, policymakers might anticipate that workers will become particularly concerned about job security, a situation that could restrain wage demands and reduce cost pressures by more than assumed in the baseline forecast (a possibility suggested by the "Worker Insecurity" scenario in the Greenbook).

(30) The two paragraphs in the rationale portion of the statement associated with Alternative A are identical to those in Alternative B. However, the assessment of risks

differs from that in Alternative B by noting explicitly the risks to both growth and inflation. Alternative A also indicates that the Committee "judges that the downside risks to growth outweigh the upside risks to inflation" and that the FOMC is prepared to act in a timely manner as needed to "promote sustainable economic growth and price stability."

(31) With market participants putting significant odds on both 50 basis point and 75 basis point cuts at this meeting, selection of Alternative A would likely leave short- and intermediate-term interest rates a little lower. Market participants would probably interpret such an aggressive interest rate cut, together with the indication that downside risks to growth predominate, as suggesting that the Committee is inclined to further policy easing. This combination might bolster market confidence, causing equity prices to rise and credit spreads on corporate debt to narrow some. However, longer-term yields might move higher if market participants became concerned that the Committee was underestimating inflation risks or was more willing to tolerate higher rates of inflation going forward than earlier anticipated.

(32) If the Committee believes that the economic outlook has weakened but is concerned that aggressive further policy easing amid unfavorable inflation readings could increase the likelihood of a rise in longer-term inflation expectations, it may wish to lower the funds rate target by just 25 basis points at this meeting, as in **Alternative C**. In particular, this alternative might be favored if the factors underlying the recent increase in inflation were viewed as likely to be more persistent than envisaged in the staff's projection. In light of recent data, the Committee might see the short-run tradeoff between economic activity and inflation as having worsened to a greater extent than judged by the staff and believe that the scope for monetary policy to provide stimulus to growth while applying adequate restraint to inflation has decreased noticeably. Such a deterioration in the short-run tradeoff between economic activity and inflation could reflect in part an increase in inflation expectations, as illustrated in the Greenbook's "More Inflationary Pressures" scenario. The difficulty of reliably detecting shifts in inflation

expectations may bolster the case for this alternative, especially if the Committee perceives an upward drift of such expectations as being very costly to unwind.

(33) The statement accompanying Alternative C would explicitly acknowledge that the upside risks to inflation have increased by pointing to recent unfavorable readings on inflation and by emphasizing the factors that could potentially exert upward pressure on inflation going forward. As under Alternative B, the statement would point out that members expect "inflation to moderate in coming quarters," but would conclude that "the upside risks to the outlook for inflation have increased." The rationale paragraph for this alternative would also state that "recent policy actions should help to promote moderate growth over time, but downside risks to growth remain." The risk assessment would reflect the Committee's judgment that "the risks to growth outweigh the risks to inflation, particularly in light of stresses in financial markets," and the statement would end by noting that the Committee "will act in a timely manner as needed to address the evolving risks."

(34) A decision to adopt Alternative C would come as a significant surprise to the financial markets. Investors would presumably revise up sharply their expectations for the path of policy over the next few quarters, leading to an increase in short- and intermediate-term interest rates. At the same time, long-term nominal Treasury yields would likely rise by less or could even fall if investors concluded that the FOMC had a lower tolerance for inflation than they had previously thought. With real rates higher, equities would fall, credit spreads on corporate debt would widen, strains in financial markets would intensify, and the foreign exchange value of the dollar could rise.

(35) If the Committee believes that economic growth is likely to resume an acceptable pace before long and that inflation is on a higher trajectory than in the Greenbook, it might prefer to leave the stance of policy unchanged, as in **Alternative D**. Although measures of consumer and business sentiment have declined, the Committee might view the data on final demand as only a bit weaker than expected

and judge that financial turmoil, while posing significant risks, is likely to have less of an effect on aggregate demand than anticipated by the staff. Moreover, monetary policy has been eased considerably and substantial fiscal stimulus has been enacted, factors that are likely to provide a significant boost to aggregate demand in coming quarters. Accordingly, policymakers might prefer to wait for additional information about the extent of that boost before making any further policy adjustments. In addition, given the recent run-up in energy and other commodity prices, the drop in the foreign exchange value of the dollar, and the apparent slight increase in long-term inflation expectations, the Committee might now see it as increasingly unlikely that inflation will decline at an acceptable pace and might believe that the upside risks to inflation have risen unacceptably. A pause at this juncture might be particularly appealing to policymakers who prefer a more distinct downward tilt to the trajectory for inflation over the next few years than that shown in the Greenbook, such as that illustrated by the optimal-control simulation with an inflation goal of 1½ percent.

(36) The first paragraph of the rationale portion of the statement associated with Alternative D would acknowledge that economic activity has been weak and that financial markets remain under considerable stress. It would also state that although "downside risks to growth remain, recent policy actions should help to promote moderate growth over time." The rationale portion pertaining to the outlook for inflation would be identical to that in Alternative C. The risk assessment section in Alternative D would stress that the Committee "will act in a timely manner as needed to promote price stability and sustainable economic growth."

(37) Given the expectations embedded in financial market prices of further substantial policy easing at this meeting, a decision to adopt Alternative D would stun market participants, leading to a sharp upward revision of their short-term outlook for the path of policy and a significant increase in short-term interest rates. Despite the indication in the announcement that recent policy actions should help to promote moderate growth

over time, investors would likely become gravely concerned about the economic outlook, a development that would cause credit spreads on corporate debt to widen substantially, market functioning to deteriorate further, equity prices to tumble, and longer-term nominal yields to decline.

Money and Debt Forecasts

(38) Under the Greenbook forecast, M2 is projected to grow 9 percent this year, a pace of expansion that significantly exceeds that of the nominal GDP. The sharp decline in velocity reflects the projection of a continued shift in the composition of households' portfolios toward safe and liquid monetary assets at the expense of capital market instruments in response to ongoing financial turmoil and the substantial fall in the opportunity cost of M2 assets resulting from monetary policy easing. In 2009, M2 growth is projected to drop to 5½ percent—roughly in line with growth in nominal GDP—reflecting the leveling off in the opportunity cost and the assumed return of more normal conditions in financial markets.

(39) Growth of domestic nonfinancial sector debt is expected to slow to an annual rate of around 4¾ percent on average over the forecast horizon, down notably from the growth of 8 percent in 2007. In the household sector, falling house prices and weak residential investment continue to dampen mortgage borrowing over the forecast horizon. Consumer credit is also projected to slow notably, reflecting weak household spending on durable goods and tighter standards and terms on consumer loans. With M&A and share repurchase activity diminishing significantly, business borrowing is expected to slow sharply. State and local borrowing throttles back, reflecting the anticipated drop in issuance for both long-term capital projects and advance refundings; in addition, the ongoing difficulties of major bond insurers are expected to restrain municipal bond issuance somewhat this year. The projected widening of the unified budget deficit—

Table 2
Alternative Growth Rates for M2
(percent, annual rate)

		75 bp Easing	50 bp Easing	25 bp Easing	No change	Greenbook Forecast*
Monthly Growth Rates						
	Jun-07	2.8	2.8	2.8	2.8	2.8
	Jul-07	4.0	4.0	4.0	4.0	4.0
	Aug-07	8.2	8.2	8.2	8.2	8.2
	Sep-07	4.9	4.9	4.9	4.9	4.9
	Oct-07	4.4	4.4	4.4	4.4	4.4
	Nov-07	5.4	5.4	5.4	5.4	5.4
	Dec-07	5.9	5.9	5.9	5.9	5.9
	Jan-08	8.3	8.3	8.3	8.3	8.3
	Feb-08	16.5	16.5	16.5	16.5	16.5
	Mar-08	9.1	8.9	8.7	8.5	8.9
	Apr-08	7.6	7.0	6.4	5.8	7.0
	May-08	9.5	8.7	7.9	7.1	9.5
	Jun-08	5.9	5.2	4.5	3.7	6.8
Quarterly Growth Rates						
	2007 Q1	7.1	7.1	7.1	7.1	7.1
	2007 Q2	6.1	6.1	6.1	6.1	6.1
	2007 Q3	4.7	4.7	4.7	4.7	4.7
	2007 Q4	5.3	5.3	5.3	5.3	5.3
	2008 Q1	9.4	9.4	9.4	9.4	9.4
	2008 Q2	9.2	8.7	8.2	7.7	9.1
Annual Growth Rates						
	2007	5.9	5.9	5.9	5.9	5.9
	2008	8.3	7.9	7.6	7.2	8.9
	2009	5.2	5.2	5.2	5.2	5.5
Growth From	To					
Feb-08	Jun-08	8.1	7.5	6.9	6.3	8.1
2007 Q4	Mar-08	10.0	10.0	9.9	9.9	10.0
2007 Q4	Jun-08	9.1	8.8	8.4	8.1	9.2

* This forecast is consistent with nominal GDP and interest rates in the Greenbook forecast.

reflecting in part borrowing to fund the economic stimulus package—boosts federal debt growth to an average of about 8 percent over this year and next.

Directive and Balance of Risks Statement

(40) Draft language for the directive is provided below.

Directive Wording

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 in the immediate future seeks conditions in reserve markets consistent with MAINTAINING/INCREASING/reducing the federal funds rate AT/to an average of around ________ ~~3~~ percent.

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.

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 five variables: the output gap, the equity premium, the federal budget surplus, the trend growth rate of output, and the real bond yield.
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 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), while the third is a variant of the Taylor (1999) rule with a higher value of r^*. 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	$i_t = 2 + \pi_t + 0.5(\pi_t - \pi^*) + (y_t - y_t^*)$
Taylor (1999) rule with higher *r**	$i_t = 2.75 + \pi_t + 0.5(\pi_t - \pi^*) + (y_t - y_t^*)$
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 1986-2005.

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.