

Prefatory Note

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DECEMBER 11, 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) Financial markets remained under severe strain over the intermeeting period. Although there were signs of improvement in some money markets, conditions continued to be poor, spreads were elevated, and year-end pressures emerged. The Treasury's announcement on November 12 that funds from the Troubled Asset Relief Program (TARP) would not be used to purchase securities backed by mortgage-related and other assets elicited a negative price reaction in several financial markets. Intensifying concerns about the financial condition of Citigroup and the potential systemic implications of its failure prompted the U.S. government to intervene to provide financial support. In response to deteriorating conditions in credit markets, the Federal Reserve announced on November 25 the creation of the Term Asset-Backed Securities Loan Facility (TALF) and also a program to conduct large-scale outright purchases of debt issued by housing-related GSEs and mortgage-backed securities (MBS) backed by Fannie Mae, Freddie Mac, and Ginnie Mae. On net, the sharp deterioration in the outlook for economic growth led market participants to mark down substantially the expected path of monetary policy over the intermeeting period, and they now appear to expect a 50 basis point cut in the target federal funds rate at the upcoming FOMC meeting. Yields on nominal Treasuries plunged and TIPS-based measures of inflation compensation declined. In the corporate sector, broad equity price indexes moved lower while risk spreads soared over the intermeeting period. Although issuance of nonfinancial investment-grade bonds was solid in November, speculative-grade debt issuance continued to be nil. Bank lending exhibited broad weakness in November.

Household credit declined in the third quarter. Numerous foreign central banks eased monetary policy considerably amid signs of a worldwide economic slowdown.

Financial Institutions

(2) Investor concerns about the condition of financial institutions mounted over the intermeeting period. Credit default swap (CDS) spreads for U.S. banks widened notably, and their equity prices fell, likely reflecting in part sharp declines in the value of mortgage-related and other assets (Chart 1). Anxiety about the financial condition of Citigroup intensified, especially in the wake of the firm's announcement that it would lay off 52,000 workers and absorb \$17 billion in distressed assets from structured investment vehicles. To support financial market stability, the U.S. government on November 23 entered into an agreement with Citigroup to provide a package of capital, guarantees, and liquidity access.¹ Banking organizations began to take advantage of the FDIC's Temporary Liquidity Guarantee Program, with twelve institutions issuing roughly \$70 billion in bonds under the program (see the box entitled "The FDIC's Temporary Liquidity Guarantee Program").

(3) Other financial institutions also came under pressure over the intermeeting period. CDS spreads for insurance companies remained elevated, possibly reflecting concerns regarding the prospective profitability of these firms as well as declines in the values of their investment portfolios. Equity prices of insurance companies slipped lower, on net, over the intermeeting period. REITs were significantly affected by the deterioration in the commercial mortgage market, and their equity valuations fell and CDS spreads surged. Average returns of hedge funds were negative for a

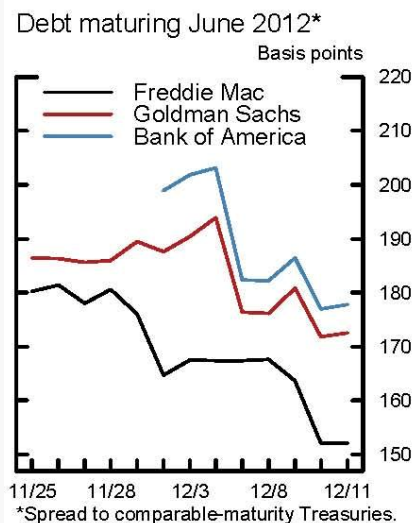
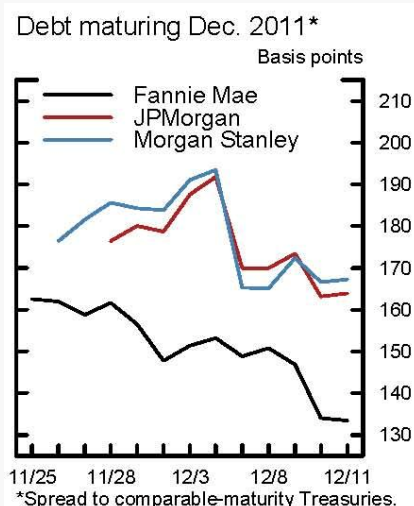
¹ As part of the agreement, the Treasury and FDIC will provide protection against outsized losses on a pool of about \$306 billion in residential and commercial real estate and other assets. Under this arrangement, Citigroup will issue preferred shares to the Treasury and FDIC. In addition and if necessary, the Federal Reserve stands ready to backstop residual risk in the asset pool through a non-recourse loan. Moreover, the Treasury will purchase an additional \$20 billion in Citigroup preferred stock using TARP funds.

The FDIC's Temporary Liquidity Guarantee Program

On October 14, the Federal Deposit Insurance Corporation (FDIC) announced a Temporary Liquidity Guarantee Program (TLGP) to help improve market confidence in the U.S. banking system. An interim rule was published on November 3, and a final rule was released November 21. The TLGP has two components: The Transaction Account Guarantee Program (TAGP) and the Debt Guarantee Program (DGP). The TAGP covers (through December 31, 2009) all balances in noninterest bearing transactions accounts in excess of the deposit insurance limit of \$250,000, as well as certain additional accounts (such as NOW accounts with interest rates of 0.5% per year or less), held at FDIC-insured depository institutions. Demand deposits have soared, registering over 150 percent annualized growth in November, in part because of the TAGP. Reportedly some institutional investors are leaving funds in these accounts rather than earn very low rates in other money markets, particularly the repo market. In addition, some large time deposits—which are not covered by this program—have reportedly been converted to demand deposits to benefit from the guarantee.

The DGP covers certain new senior unsecured obligations issued by FDIC-insured depository institutions and by most of their parent holding companies. The guarantee covers all new debt with maturity over one month, up to a cap based on senior debt outstanding as of September 30, 2008.¹ All guaranteed debt issued by June 30, 2009 is covered until maturity or until June 30, 2012, whichever is sooner. Fees associated with this program range from 50 basis points for debt with maturities of 180 days or less to 100 basis points for maturities beyond 360 days.

¹Eligible instruments consist of federal funds, promissory notes, commercial paper, unsubordinated unsecured notes, and interbank deposits (including CDs, deposits in an International Banking Facility, and Eurodollar deposits). In its final rule, the FDIC excluded obligations with maturities of less than 30 days and will not collect fees against those obligations. The final rule also gives the FDIC discretion to adjust firms' use of the program on a case-by-case basis.



Issuance by firm

	Floating rate	Fixed rate	Total
Amer Exp	2.13	3.50	5.63
B of A	2.25	6.75	9.00
Citi	1.75	3.75	5.50
GE Cap	3.00	3.50	6.50
Goldman	1.08	6.90	7.98
HSBC	0.00	2.00	2.00
JPMorgan	1.50	9.05	10.55
Key	0.25	1.00	1.25
M Stanley	1.35	4.75	6.10
Regions	0.75	2.75	3.00
SunTrust	0.75	2.00	3.00
Wells	3.00	3.00	6.00
Total*	18.40	51.41	69.81*

*Includes a total of €4.75 billion and £600 million from Goldman, JPMorgan, and GE Capital.

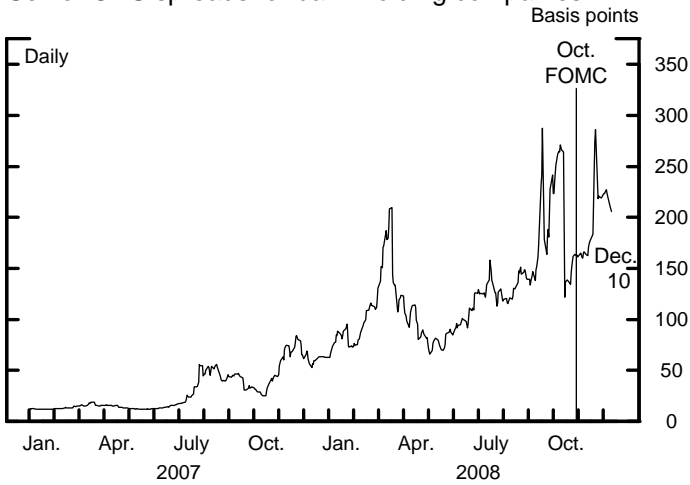
The FDIC's Temporary Liquidity Guarantee Program (cont.)

Initial inclusion in the TLGP was automatic, with eligible institutions having until December 5 to decide whether they wanted to continue participating in the program or to opt out of one or both of the DGP and the TAGP. Virtually all large institutions chose to participate in both components of the TLGP. The FDIC reports that about 800 institutions have opted out of the TAGP and more than 3000 have opted out of the DGP. However, FDIC staff indicate that there has been some confusion regarding participation in the DGP, and these numbers are likely to be revised.

Issuance of debt under the DGP began in late November. As shown in the table on the previous page, eligible institutions have issued about \$70 billion in notes, primarily denominated in U.S. dollars, with maturities ranging from December 2010 to June 2012. Roughly one-third of the issuance has been floating rate. The FDIC estimates that issuance of senior unsecured bank notes under the DGP could eventually total as much as \$500 billion. Debt issued under this program has thus far traded at spreads to Treasuries somewhat wider than those of comparable-maturity agency debt but substantially lower than those of corporate notes not subject to the guarantee. There are some notable differences in spreads on these debt issues across institutions. Moreover, the differences in spreads across firms appear to be correlated with differences in CDS premiums. In part, the difference in yields on guaranteed debt instruments may reflect investor uncertainty regarding the FDIC's payout process in the event of default. Market participants reportedly indicated that, with a significant amount of DGP debt expected to be issued over coming months, and with the Federal Reserve expected to purchase large quantities of agency debt, the difference in spreads between these assets is likely to persist. Nonetheless, DGP debt spreads have generally narrowed since issuance, amid reportedly notable trading volumes as investors have become familiar with the program.

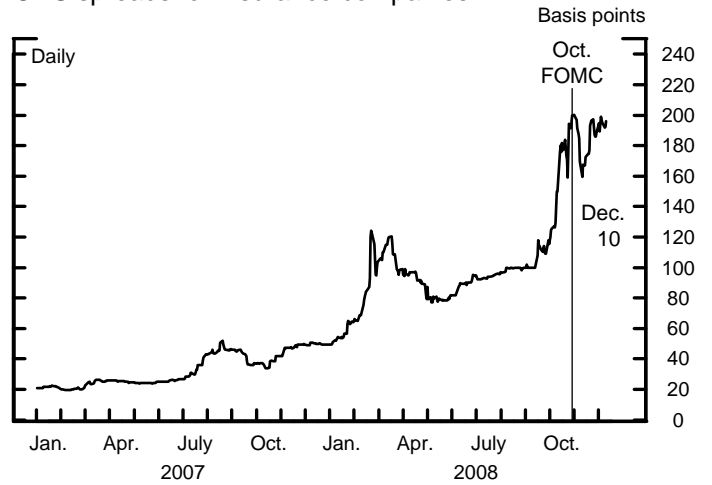
Financial Institutions

Senior CDS spreads for bank holding companies



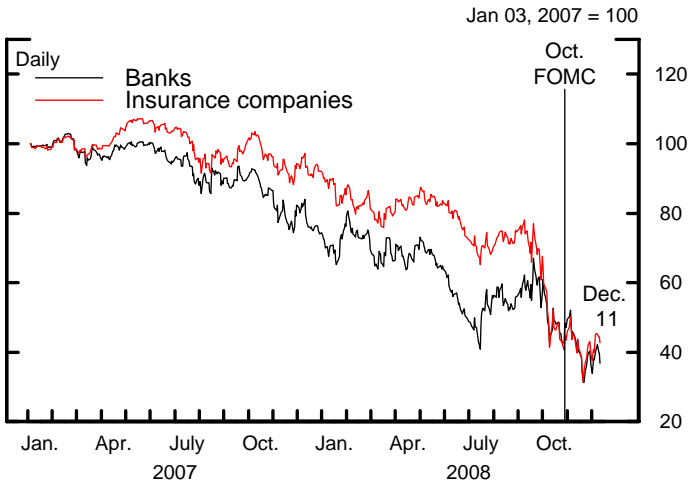
Note. Median spreads for 6 bank holding companies.
Source. Markit.

CDS spreads for insurance companies*



*Median spreads for 59 insurance companies.
Source. Markit.

Bank and insurance ETFs



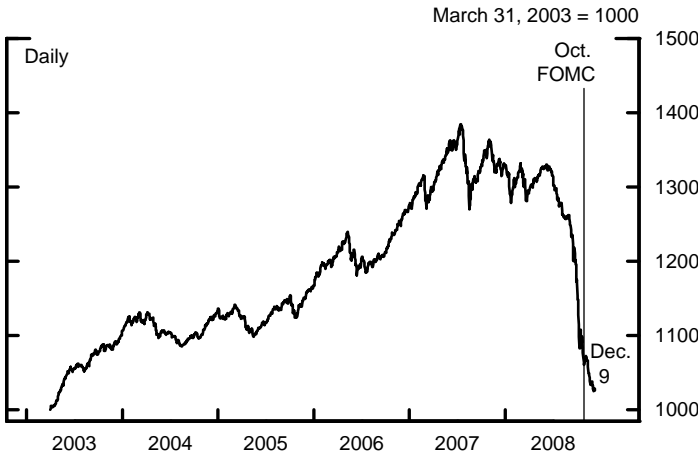
Note. There are 24 banks and 24 insurance companies included.
Source. Bloomberg.

S&P REITs Index



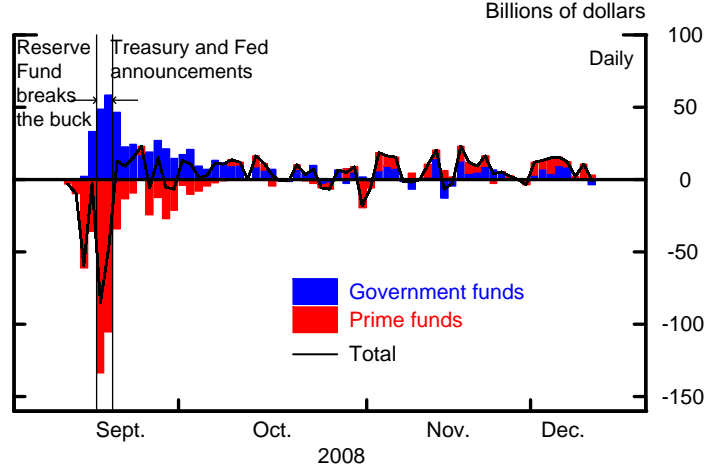
Source. Standard & Poor's.

Global Hedge Fund Index values



Note. The Global Hedge Fund Index tracks net asset values for hedge funds across the industry.
Source. HFR, Inc.

Net flows into taxable money market mutual funds



Source. iMoneyNet.

sixth consecutive month in November, although recent losses were not nearly as large as those in September and October. In the wake of their recent poor performance, hedge funds have reportedly experienced considerable net redemptions, with some estimates suggesting that October outflows equaled about 2 percent of industry assets under management. Further, year-end redemption requests appeared to continue to weigh on the industry. To meet actual and expected redemption requests, hedge funds were said to have liquidated positions, likely exacerbating asset price declines in several markets. Meanwhile, prime money market mutual funds (MMMFs), which had experienced outflows in September and October, posted net inflows over the intermeeting period. The inflows likely reflected an easing of investor concerns about the safety and liquidity of these funds, owing to the Treasury's Temporary Guarantee Program and the support provided by several Federal Reserve facilities.

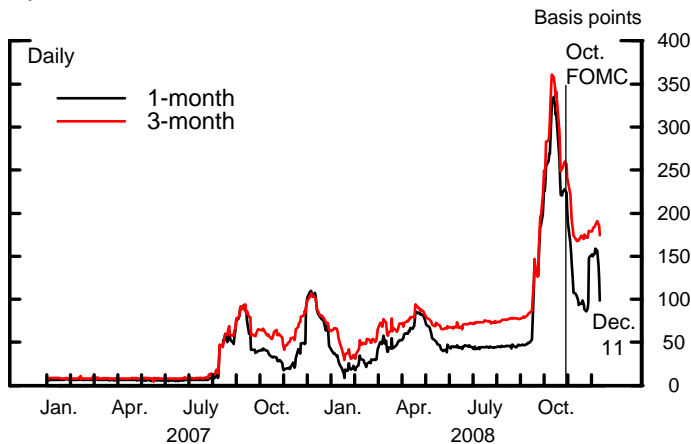
Market Functioning

(4) Money markets remained strained over the intermeeting period, particularly at terms beyond overnight, although there were some signs of improvement. In unsecured interbank funding markets, Libor fixings at most maturities declined notably early in the period and spreads over comparable-maturity overnight index swap (OIS) rates narrowed further from the record levels reached in October (Chart 2). The one-month spread initially jumped as that maturity crossed year-end but has narrowed again in recent days as the Libor fixing declined. Trading in longer-term interbank funding markets reportedly remained thin.

(5) In secured funding markets, conditions continued to be strained over the intermeeting period. Amid high demand for safe investments, the overnight general collateral (GC) repo rate remained very low and fell to around zero late in the intermeeting period. Fails to deliver in the Treasury market came down substantially from the extraordinary levels reached in October and overnight securities lending

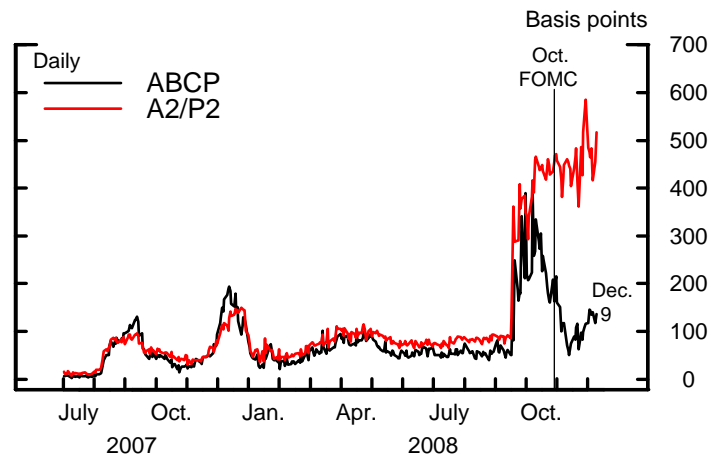
Market Functioning

Spreads of Libor over OIS



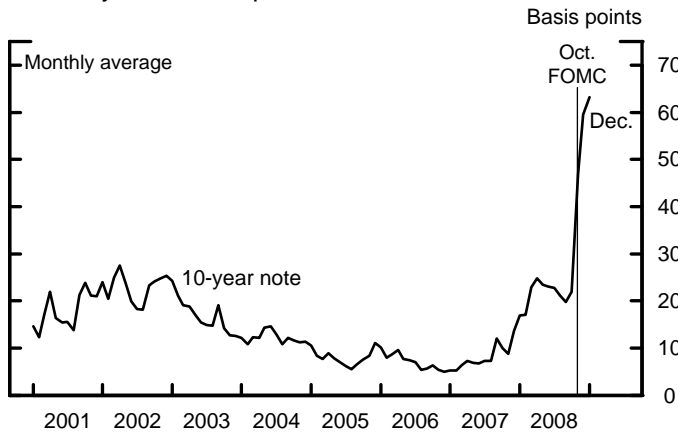
Note. Libor quotes are taken at 6:00 a.m., and OIS quotes are observed at the close of business of the previous trading day.
Source. Bloomberg.

Spreads on 30-day commercial paper



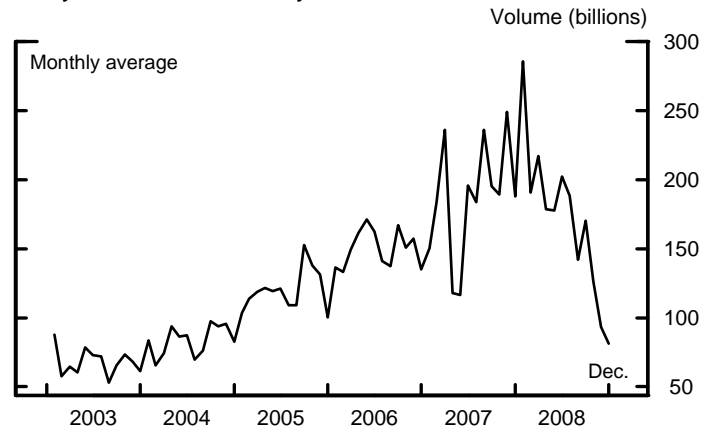
Note. The ABCP spread is the AA ABCP rate minus the AA nonfinancial rate. The A2/P2 spread is the A2/P2 nonfinancial rate minus the AA nonfinancial rate.
Source. Depository Trust & Clearing Corporation.

Treasury on-the-run premium



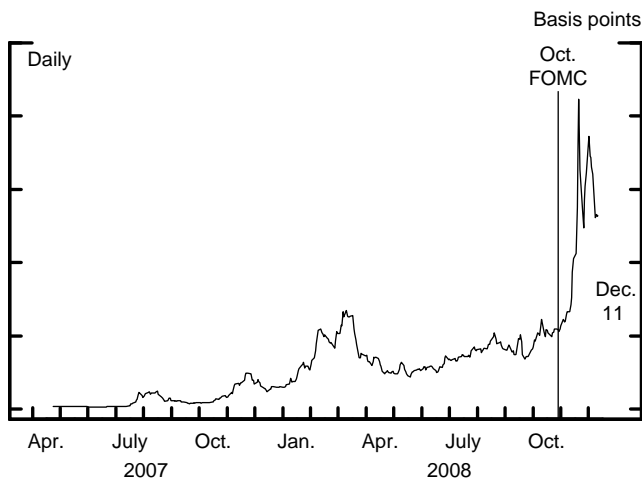
Note. Computed as the spread of the yield read from an estimated off-the-run yield curve over the on-the-run Treasury yield. December observation is the month-to-date average.
Source. Board staff estimates.

Daily on-the-run treasury market volume



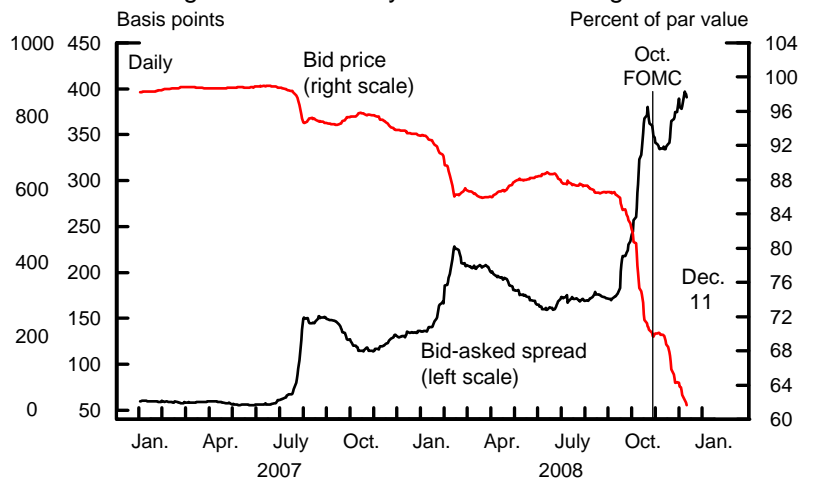
Note. December observation is average for month to date.
Source. BrokerTec Interdealer Market Data.

AAA CMBX Index



Note. Origination date is April 2007.
Source. JPMorgan.

Pricing in the secondary market for leveraged loans



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

from the SOMA portfolio fell sharply, although these declines came against a backdrop of sharply lower transaction volume as investors have reportedly become less willing to lend collateral out of fear that it will not be returned and as some large dealers are reportedly reducing the amount of collateral they are supplying to the market ahead of year-end. However, fails have picked up somewhat in recent days as the GC repo rate reached zero. The low level of SOMA lending may in part be due to a high fee relative to market rates. Demand for safe instruments was also apparent in the Treasury bill market, where yields turned negative at times. During the intermeeting period, the Treasury announced that it would not roll over bills related to the Supplementary Financing Program (SFP), for the stated reason of preserving flexibility in managing debt policy, and uncertainty about supply, combined with a perceived lack thereof, appeared to exacerbate poor conditions in the bill market. Despite the decline in spreads over Treasury GC rates later in the period, strains in markets for repo transactions backed by agency and MBS collateral remained evident, with bid-asked spreads and haircuts very elevated.

(6) In contrast, conditions in the commercial paper (CP) market improved over the intermeeting period, reflecting importantly the recent measures taken by the Federal Reserve in support of this market. Spreads on 30-day A1/P1 financial and asset-backed commercial paper (ABCP) continued to narrow after the Commercial Paper Funding Facility (CPFF) became operational on October 27, although spreads subsequently reversed a portion of the declines as maturities crossed over year-end. By contrast, spreads on A2/P2 paper—which is not eligible for purchase under the CPFF—stayed extremely elevated. The dollar amounts of unsecured financial CP and ABCP outstanding rebounded from their October lows, though this increase was more than accounted for by issuance into the CPFF. As of December 10, credit extended under the CPFF totaled \$311 billion. Credit extended under the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF) fell

by more than half over the intermeeting period, to \$34 billion. Thus far, the Money Market Investor Funding Facility (MMIFF) program has registered no activity. The low demand for credit from the AMLF and MMIFF likely reflects the recent net flows into money market mutual funds, the institutions that the two facilities were designed to support.

(7) Strains remained evident or even intensified in a number of long-term financial markets over the period. The functioning of the market for Treasury coupon securities remained impaired. The on-the-run premium for the ten-year nominal Treasury security surged higher from already elevated levels. Trading volumes in the Treasury market continued to decline and bid-asked spreads were abnormally wide. Liquidity in the corporate bond market was also impaired for speculative-grade bonds, while conditions have improved somewhat in recent months for investment-grade bonds. In the CDS market, liquidity and price discovery apparently remained poor, based on the number of dealers providing quotes and the range of dealer quotes. The announcement by the Treasury on November 12 that TARP funds would not be used to purchase mortgage-related and other assets sparked a sharp decline in various asset prices. The selloff was particularly pronounced in the market for commercial mortgage-backed securities (CMBS), with an index of CDS spreads on AAA-rated CMBS widening 310 basis points, on net, over the intermeeting period. Secondary market prices of syndicated leveraged loans also declined to new record lows and implied spreads on the LCDX index soared to record levels, as hedge funds reportedly unloaded their holdings of leveraged loans and as collateralized loan obligations came under significant pressure. Average bid-asked spreads in the syndicated loan market widened further, on net.

(8) Depository institutions continued to make heavy use of the discount window. Although primary credit outstanding declined somewhat in recent weeks, it stood at \$90 billion as of December 10. Recent TAF auctions, for both 28-day and

84-day credit, were undersubscribed; the size of the auctions had been raised, and the number of bidders remained relatively steady. Overall, credit extended under the TAF increased about \$150 billion to \$448 billion. Bidding was especially light for the two forward TAF auctions conducted over the intermeeting period—each for \$150 billion in short-term credit over year-end. While a number of the Term Securities Lending Facility (TSLF) auctions held over the period were oversubscribed, the two most recent auctions were undersubscribed. Market participants exercised only \$8 billion of the options on \$50 billion of TSLF loans against Schedule 2 collateral on their November 24 exercise date. However, the auction offering \$50 billion in options for 13-day Schedule 2 TSLF loans straddling the year-turn was oversubscribed, with investors reportedly attributing the reception to the current strong demand for Treasury collateral. Use of the Primary Dealer Credit Facility (PDCF) declined significantly over the intermeeting period, falling to \$52 billion on December 10 from \$80 billion on October 28. On November 10, the Treasury and the Federal Reserve announced a restructuring of the support provided to AIG.²

² The Treasury announced that it would purchase \$40 billion of newly issued AIG preferred shares under the TARP, which allowed the Federal Reserve to reduce from \$85 billion to \$60 billion the total amount available under the credit facility established on September 16. Further, the interest rate on that facility was reduced to Libor plus 300 basis points, the fee on undrawn funds was reduced to 75 basis points, and the term of the facility was lengthened from two years to five years. The Federal Reserve also announced plans to restructure its lending related to AIG by extending credit to two newly formed limited liability companies. The first, which will receive a \$22.5 billion loan from the Federal Reserve and a \$1 billion subordinated loan from AIG, will purchase residential mortgage-backed securities from AIG. No credit has yet been extended to this facility. As a result of this facility, the securities lending facility established by the New York Federal Reserve Bank on October 8 will be repaid and terminated. On December 10, the outstanding amount of credit outstanding to AIG, including the original loan arrangement and the securities lending facility, totaled \$57 billion. The second new company will receive a \$30 billion loan from the Federal Reserve and a \$5 billion subordinated loan from AIG and will purchase multi-sector collateralized debt obligations on which AIG has written CDS contracts. As of December 10, \$20 billion in credit had been extended to this facility. CPFF credit to AIG as of December 10 was \$16 billion.

(9) Even though the interest rate paid on excess reserves was raised to the lowest target federal funds rate in place during the reserve maintenance period, the effective funds rate continued to trade soft to the target, likely reflecting the extremely high provision of liquidity through the Federal Reserve's liquidity facilities (see the box "Recent Developments in the Federal Funds Market").

Monetary Policy Expectations and Treasury Yields

(10) The FOMC's decision at its October meeting to lower the target federal funds rate 50 basis points to 1 percent was broadly in line with market expectations and elicited only a modest reaction in financial markets.³ However, economic data releases that suggested a weaker outlook for growth and lower inflation than had been anticipated, along with continued strains in financial markets that weighed on investor sentiment, contributed to a sharp downward revision in the expected path of policy over the period (Chart 3). Responses to the Desk's survey indicate that primary dealers view a 50 basis point reduction in the target federal funds rate as the most likely outcome at the upcoming meeting. Reading policy expectations from federal funds futures and options is not straightforward, as quotes on those instruments reflect expectations that the effective federal funds rate will continue to average below the target for a while (see box "Expected Softness in the Expected Federal Funds Rate"). Federal funds futures indicate that investors expect the effective federal funds rate after the December meeting to be around 30 basis points. Using our standard assumption for term premiums, Eurodollar futures quotes suggest that investors anticipate that the FOMC will begin gradually raising the target federal funds rate in the summer of next year, with the rate expected to reach about 1.55 percent by the

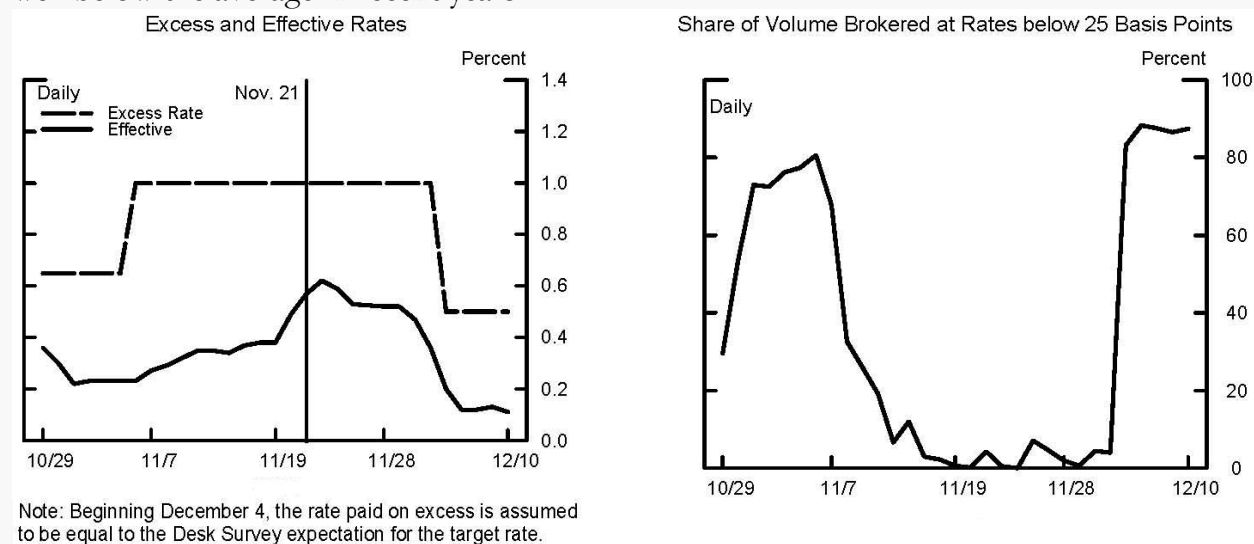
³ The effective federal funds rate averaged 0.34 percent over the intermeeting period amid extraordinary volatility. Over this intermeeting period, the volume of long-term repurchase agreements was unchanged. The desk did not redeem any Treasury securities. On net, the Desk purchased \$2.2 billion in agency securities.

Recent developments in the federal funds market

Trading conditions in the federal funds market over the intermeeting period were influenced by various factors including the rate paid on excess reserve balances (the excess rate), further increases in the level of reserve balances, the finalization of the FDIC's Temporary Liquidity Guarantee (TLG) program, and, more recently, expectations of policy easing in December.

There have been some discernable effects of the excess rate on the federal funds market. Beginning November 6, the Board raised the excess rate to the lowest target rate in effect over the maintenance period. After this change, brokered trades at near-zero rates essentially ceased and the share of federal funds trades brokered at rates below 25 basis points fell from 80 percent to 5 percent by the end of the month. That said, most federal funds trades have still occurred at rates below the excess rate, with a significant portion of such trades involving sellers that were not eligible to receive interest on reserves. While arbitrage by institutions eligible to receive interest on reserves could, in theory, support the funds rate, there are reportedly a number of impediments to this arbitrage. Large-scale purchases of federal funds by eligible institutions could push their leverage ratios below desired levels. Moreover, many sellers reportedly tightened their counterparty credit limits, limiting buyers' ability to arbitrage. Finally, prior to the release of the final rule for the FDIC's TLG program on November 21, some buyers of federal funds were reluctant to arbitrage, given the possibility that they could face a 75-basis-point guarantee fee. The effective rate edged up after the FDIC announced exclusion of federal funds borrowings with maturities of a month or less from coverage under the guarantee program.

However, once the current maintenance period encompassing the upcoming FOMC meeting began on December 4, the effective rate fell. Evidently, market participants have been expecting a cut in the target rate—and thus the excess rate—of at least 50 basis points. In addition, the level of excess reserve balances has increased further, reflecting the expansion of the Federal Reserve's liquidity programs and the runoff of the Treasury's Supplementary Financing Program. Against this backdrop, the share of federal funds trades brokered at near-zero rates jumped, and brokered volumes dropped to \$70 billion, a level well below the average in recent years.



Expected Softness in the Effective Federal Funds Rate

Federal funds have traded appreciably below (or “soft to”) the target in recent weeks, and market participants are likely expecting that this will continue to be the case after the December FOMC meeting, given the large amount of excess reserves currently in the financial system. Consequently, rates implied by federal funds futures, which settle on monthly averages of the effective rate, probably reflect continued expectations for softness, in addition to anticipated changes in the target rate at the December meeting.

Disentangling anticipated softness in the effective rate after the December meeting and expectations for the federal funds rate target established at that meeting is a complicated task for at least two reasons. First, the scope for softness in the funds rate relative to the target could begin to be constrained by the zero bound on nominal interest rates. And second, further increases in reserve balances associated with the expansion of liquidity programs or the runoff of Treasury balances under the Supplementary Financing Program could exert additional downward pressure on the funds rate relative to the target rate.

One simple way to isolate expected softness over the very near term is to assume that market expectations are equal to those of the primary dealers surveyed by the Desk. The table below to the left shows the probabilities assigned by primary dealers in the December 8 survey to various target rates after the December meeting. These probabilities imply that the dealers expect the target rate to be lowered to 50 basis points at the December meeting. Since the expected effective rate implied by federal funds futures after the December meeting is about 30 basis points, this target rate prediction suggests that market participants expect the effective rate to average about 20 basis points below the target in late December. An alternative market-based approach is to look at basis swaps between the prime rate and the effective federal funds rate. Assuming that the prime rate will continue to be set at a level 3 percentage points above the target rate, one can construct an implied path for the target funds rate as shown in column 1 of the table at the bottom right. Comparing this path with the path for the effective funds rate implied by OIS rates (column 2) provides a measure of expected softness (column 3). Although liquidity in this basis swap market is somewhat limited, these calculations suggest that funds rate softness is expected to persist over the next few months but to become less pronounced over time.

Predictions from the dealer survey

Target rate	Probability
100	4%
75	11%
50	63%
25	18%
0	4%

Note. For each target rate, the table shows an average of the probability placed by each of the 16 respondents. Survey responses were due on December 8, 2008.

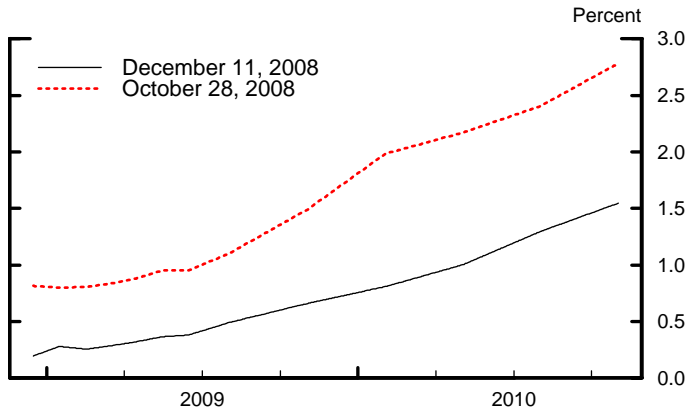
Predictions from basis swaps

Period	Target rate	Effective rate	Softness
Next 3 months	47	23	24
3 months, 3 months ahead	35	29	6

Note. Expected averages over each period with an allowance for term premiums. Figures reflect data as of December 11, 2008.

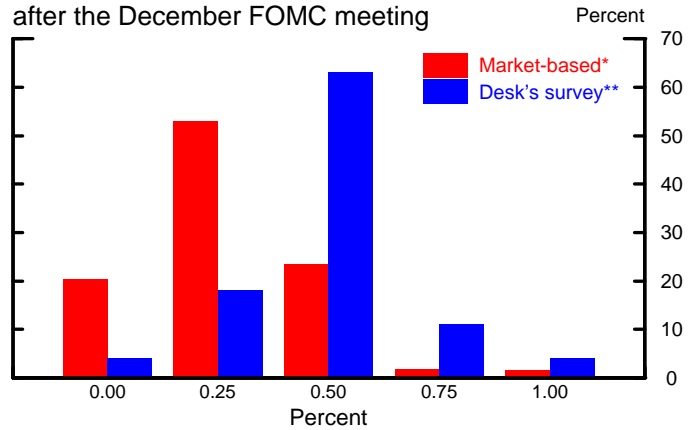
Interest Rate Developments

Expected federal funds rates*



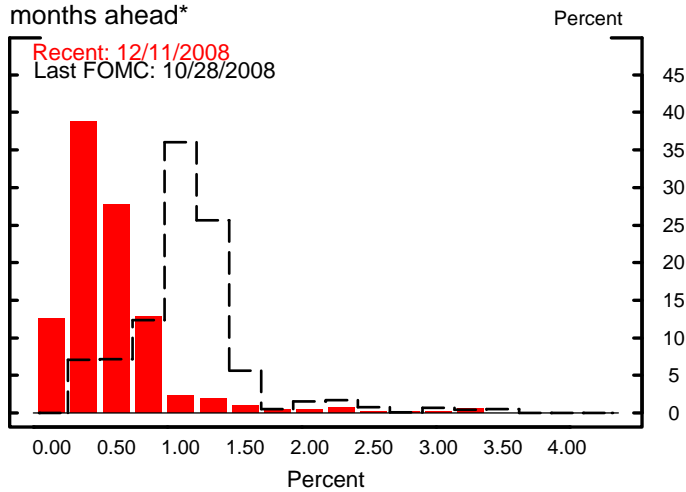
*Estimates from federal funds and Eurodollar futures, with an allowance for term premiums and other adjustments. Source. Chicago Mercantile Exchange and CBOT.

Probability density for the federal funds rate after the December FOMC meeting



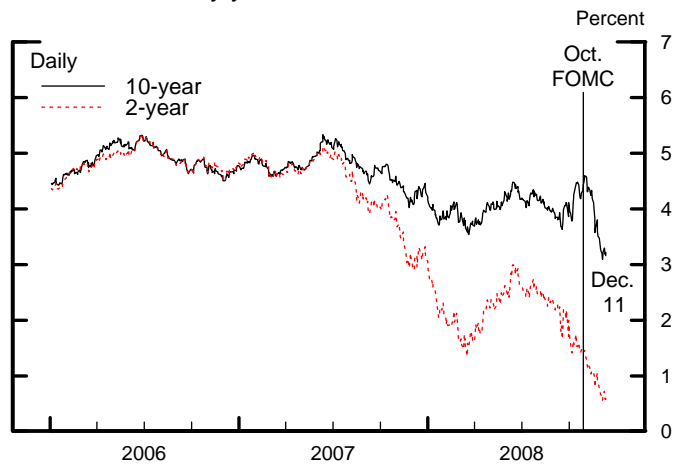
*Probabilities derived from options on federal funds futures are for the effective rate. **Survey of primary dealer economists regarding the target rate conducted on Dec. 8, 2008. Source. CBOT and Federal Reserve Bank of New York.

Implied distribution of federal funds rate six months ahead*



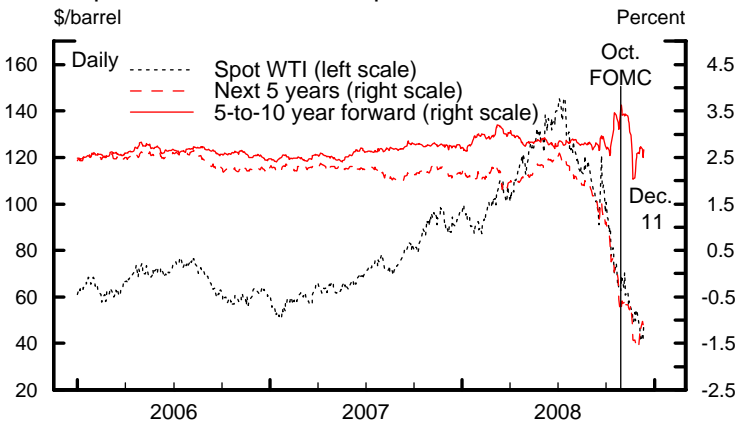
*Derived from options on Eurodollar futures contracts, with term premium and other adjustments to estimate expectations for the federal funds rate. Source. CBOT.

Nominal Treasury yields*



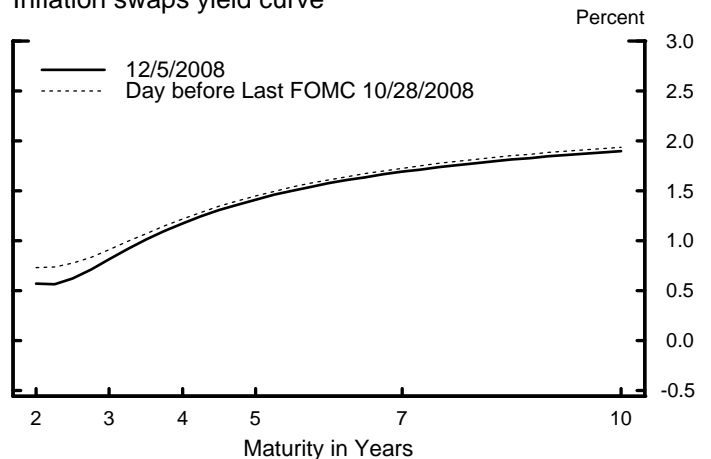
*Par yields from a smoothed nominal off-the-run Treasury yield curve. Source. Board staff estimates.

Oil prices and inflation compensation*



*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.

Inflation swaps yield curve



Source. Barclays, PLC.

end of 2010. However, given the heightened uncertainty about the economic and financial outlook, term premiums may be larger than usual, which would imply that investors are expecting less policy tightening.

(11) In response to the downward revision in the expected policy path and the significantly weaker economic outlook, yields on nominal Treasury securities fell substantially over the intermeeting period amid reports of strong safe-haven flows. Market expectations that the Federal Reserve may begin purchasing longer-term Treasury securities also appeared to push long-term yields lower, especially following the Chairman's speech on December 1 in which he pointed to the possibility of substantial purchases of Treasury or agency securities in open market operations. On net, off-the-run two-year Treasury yields fell 95 basis points to 0.55 percent, while off-the-run ten-year yields dropped 130 basis points to 3.15 percent; the on-the-run ten-year Treasury yield dropped as low as 2.54 percent, its lowest level in more than four decades. TIPS-based inflation compensation over the next five years declined 50 basis points, while inflation compensation five to ten years ahead fell 90 basis points. Although these declines occurred amid sharp decreases in inflation measures and energy prices, they were likely amplified by poor liquidity conditions in TIPS and nominal Treasury markets. In contrast, comparable measures of inflation compensation obtained from inflation swaps were little changed on net, over the intermeeting period. Near-term expectations for inflation from the Reuters/Michigan and Philadelphia Federal Reserve Bank surveys decreased, consistent with the further drop in oil prices, while long-term expectations were unchanged. Primary dealers surveyed by the desk lowered their forecasts notably for core PCE inflation in 2009 but left their long-run forecasts for CPI inflation about the same.

Capital Markets

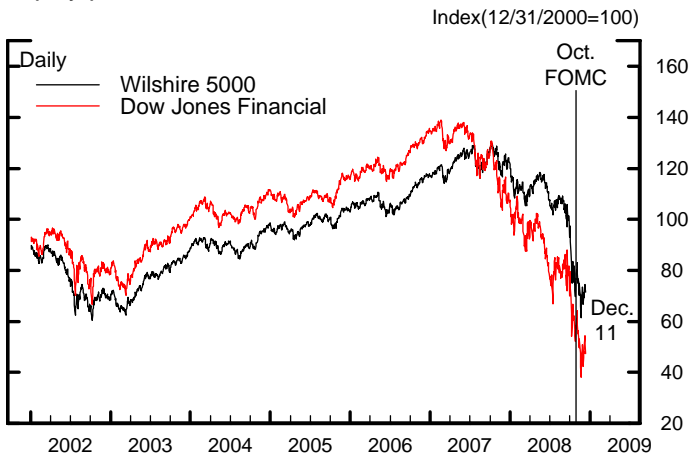
(12) As financial market conditions worsened, investors seemed to grow more concerned about the likelihood of a deep and prolonged recession. Stock prices of financial corporations fell notably, while broad equity indexes declined, on net, amid very high volatility (Chart 4). Led by large profit reductions in the financial sector, operating earnings per share for S&P 500 firms in the third quarter came in about 20 percent below year-earlier levels. For nonfinancial firms, earnings per share rose about 10 percent, owing almost entirely to gains by firms in the oil and gas industry. Looking ahead, analysts marked down substantially their projections for earnings over the coming year for both financial and nonfinancial firms, with double-digit declines in year-over-year profitability now expected for the fourth quarter in nearly every sector. The spread between the twelve-month forward trend earnings-price ratio for S&P 500 firms, and the long-term Treasury yield—a rough gauge of the equity risk premium—continued to be exceptionally elevated. Option-implied volatility of the S&P 500 remained near its recent record levels.

(13) Conditions in corporate debt markets tightened further over the period. Risk spreads on BBB-rated and speculative-grade bonds soared and risk spreads on higher-rated bonds remained extremely elevated. CDS spreads on investment-grade and speculative-grade corporate bonds widened further. Gross issuance of bonds by nonfinancial investment-grade companies continued at a solid pace, but issuance of junk bonds remained at zero. Issuance of leveraged syndicated loans remained extremely weak.

(14) To help reduce the cost and increase the availability of residential mortgage credit, the Federal Reserve announced on November 25 a program to purchase up to \$100 billion in direct obligations of housing-related government-sponsored enterprises (GSEs) and up to \$500 billion in MBS backed by Fannie Mae, Freddie Mac, and Ginnie Mae. Agency debt spreads, which had widened early in the period,

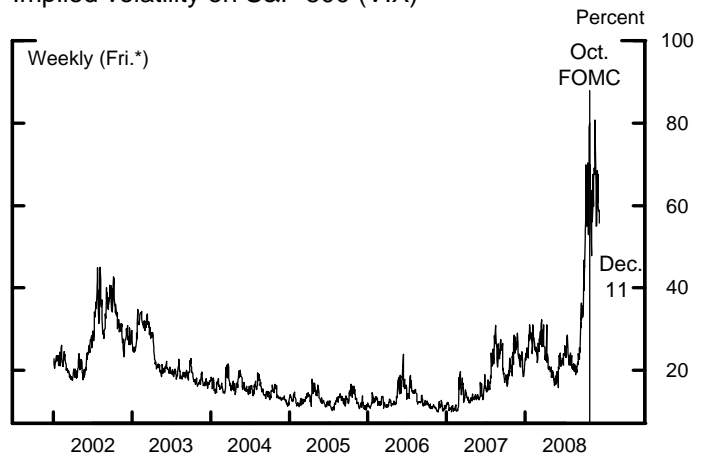
Asset Market Developments

Equity prices



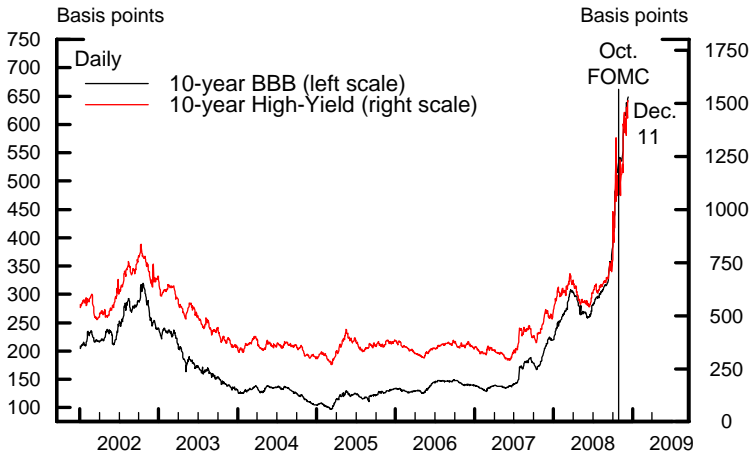
Source: Bloomberg.

Implied volatility on S&P 500 (VIX)



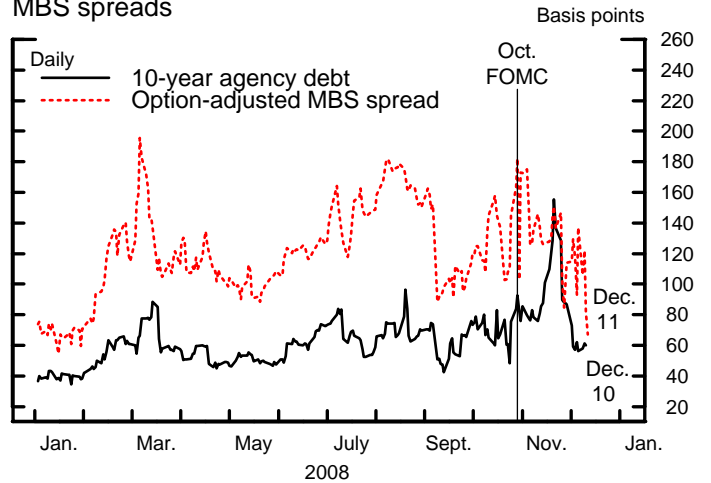
*Latest observation is for most recent business day.
Source: Chicago Board of Exchange.

Corporate bond spreads*



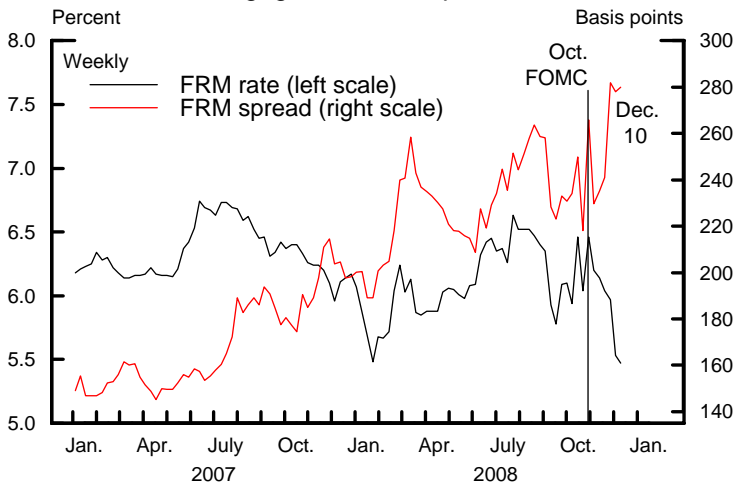
*Measured relative to an estimated off-the-run Treasury yield curve.
Source: Merrill Lynch and Board staff estimates.

Fannie Mae 10-year debt and option-adjusted MBS spreads



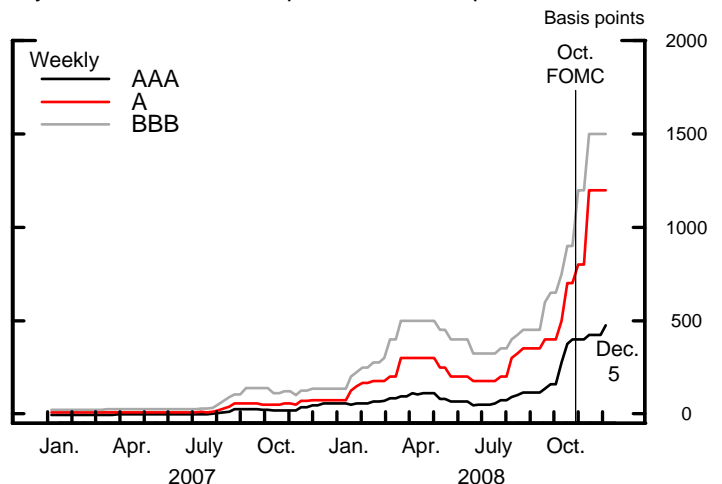
Note: Spreads over Treasuries of comparable maturity.
Source: Bloomberg.

Residential mortgage rates and spreads



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

2-year credit card ABS spreads over swaps



Source: Citigroup.

narrowed sharply on the announcement. Subsequent purchases of agency debt by the Desk were well received and led to a further reduction in agency spreads. On net over the period, agency debt spreads narrowed 35 basis points while option-adjusted spreads on agency MBS declined about 110 basis points. Likely reflecting in part these developments, conditions in the primary residential mortgage market improved. The interest rate on 30-year fixed-rate conforming mortgages declined, on net, about 100 basis points to about 5.5 percent, prompting a notable increase in mortgage refinancing.

(15) To address the tightening of credit conditions for consumers and small businesses, the Federal Reserve also announced on November 25 the creation of the TALF to support the markets for ABS collateralized by student loans, auto loans, credit card loans, and loans guaranteed by the Small Business Administration (SBA).⁴ The facility is expected to be operational by February of next year, and discussions with market participants about operational details of this facility are ongoing.

(16) In the municipal bond market, issuance of longer-term municipal bonds continued to rebound in November from the low levels of the past couple of months even as yield ratios relative to Treasuries continued to surge. Anecdotal reports suggest that the upward moves in yields may owe in part to supply pressures as states and localities seek to refinance their variable-rate demand notes through the issuance of long-term debt. The credit quality of municipal bonds deteriorated further, on net, over the period, likely placing further upward pressure on yields.

⁴ Under this program, the Federal Reserve will lend up to \$200 billion on a non-recourse basis to holders of certain AAA-rated ABS backed by newly and recently originated consumer and small business loans. Using funds from the TARP program, the Treasury will provide \$20 billion of credit protection in connection with the TALF.

Foreign Developments

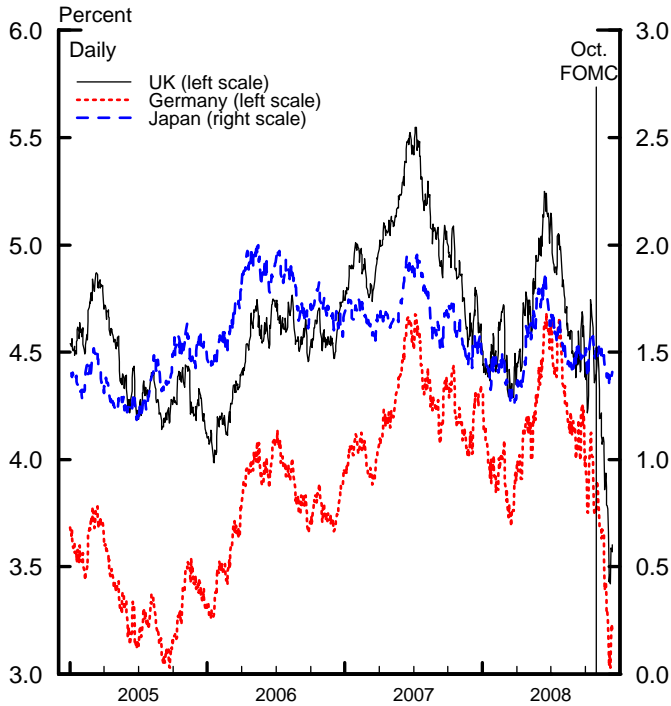
(17) Foreign financial markets continued to fluctuate amid mounting concerns about the ongoing global recession, but movements in equity prices and exchange rates moderated somewhat relative to developments over the preceding few months. Faced with clear evidence of a slowdown in activity and a rapid waning of inflationary pressures, central banks around the world eased policy sharply. The Bank of England lowered its base rate by a total of 250 basis points, the European Central Bank by 125 basis points, and the Swiss National Bank by a total of 200 basis points. The Bank of Japan reduced its target for the overnight call rate by 20 basis points, to 30 basis points. A number of central banks in emerging market economies also eased policy, most prominently the People's Bank of China, which cut its main policy rate from 6.93 percent to 5.58 percent in two separate moves and also lowered reserve requirements. The announcement on October 29 of new reciprocal swap lines with Brazil, Korea, Mexico, and Singapore was well received; since that time, Korea has made two drawings.

(18) Reflecting prospects for lower inflation and accommodative monetary policy for an extended period, ten-year nominal sovereign bond yields, which had been relatively little changed over the previous intermeeting period, dropped sharply in foreign industrial economies, as they did in the United States (Chart 5). Equity indexes in the foreign industrial economies, which suffered very large drops in the previous period, were mixed, declining in many euro area economies and Canada but rising in Japan and the United Kingdom. Equity indexes rose in most emerging markets, in many cases registering double-digit percent increases. Sovereign credit spreads were volatile and remained elevated over the past month.

(19) The major currencies index of the dollar moved down nearly 2 percent, on net, since the October FOMC meeting. Gains against some currencies—especially a 9 percent rise against sterling—were more than offset by declines against the euro and

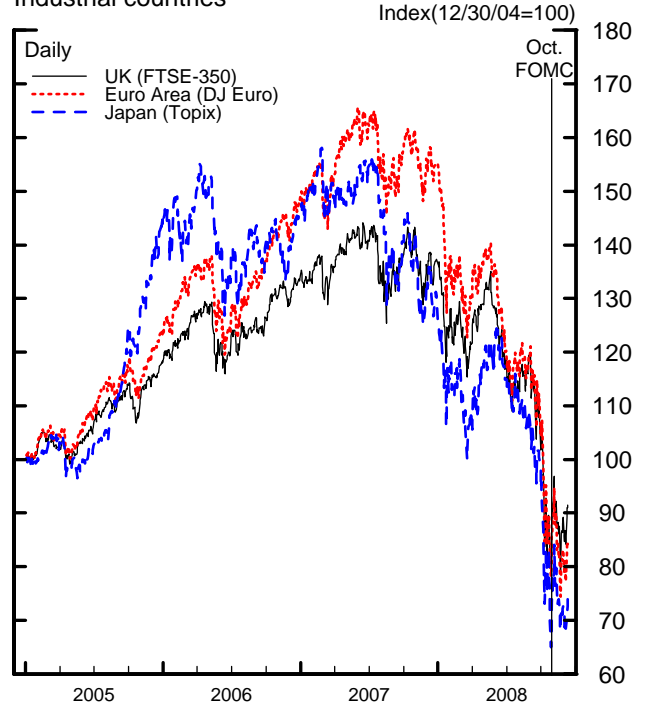
International Financial Indicators

Ten-year government bond yields (nominal)



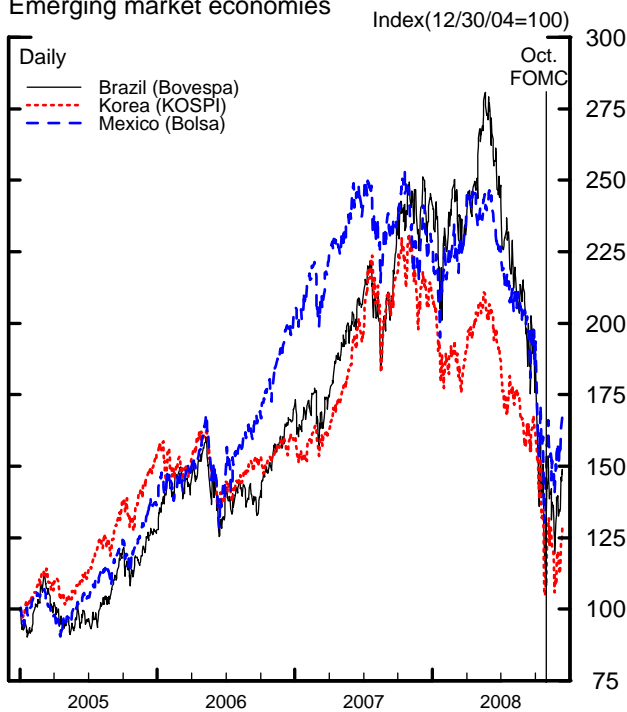
Source. Bloomberg.

Stock price indexes
Industrial countries



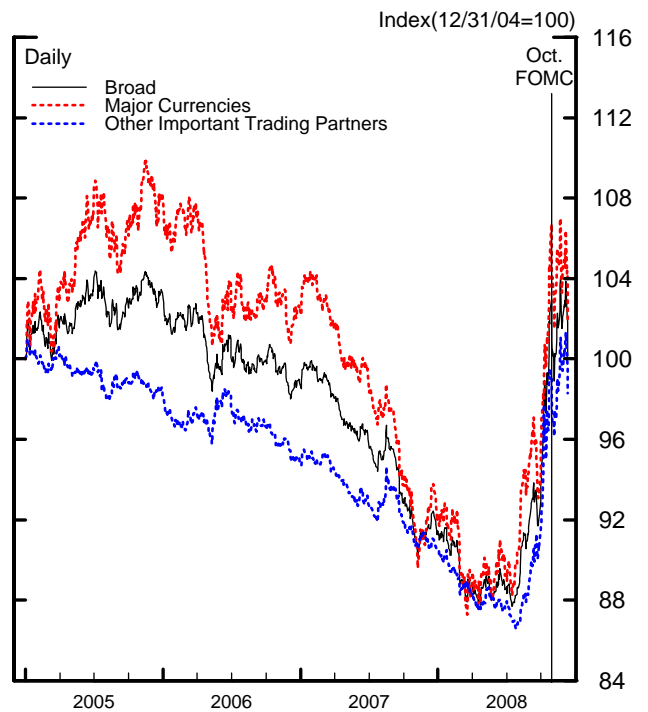
Source. Bloomberg.

Stock price indexes
Emerging market economies



Source. Bloomberg.

Nominal trade-weighted dollar indexes



Source. FRBNY and Bloomberg.

Note. Last daily observation is for December 11, 2008.

yen. The dollar as little changed against the currencies of our other important trading partners over the period, despite large gains against the Brazilian *real*. The dollar was little changed on net against the renminbi; an unusual downtick in the value of the renminbi late in the period, however, spurred concerns that the Chinese government may be planning to guide the currency lower to help boost exports.

Debt and Money

(20) The debt of the domestic nonfinancial sectors is estimated to have expanded at about a 7¼ percent annual rate in the third quarter, somewhat slower than reported in the previous Bluebook, but still notably faster than the pace seen earlier this year (Chart 6). The strength in overall debt growth owes to a surge in borrowing by the federal government related to the Supplementary Financing Program and the TARP. In the nonfinancial business sector, borrowing slowed in the third quarter from its pace earlier in the year. After a sharp increase during the period of severe financial turmoil in October, when businesses reportedly drew down back-up lines of credit at banks, borrowing appears to have fallen back in November. Household debt is now estimated to have contracted in the third quarter, reflecting a likely reduction in home mortgages amid continuing declines in house prices.

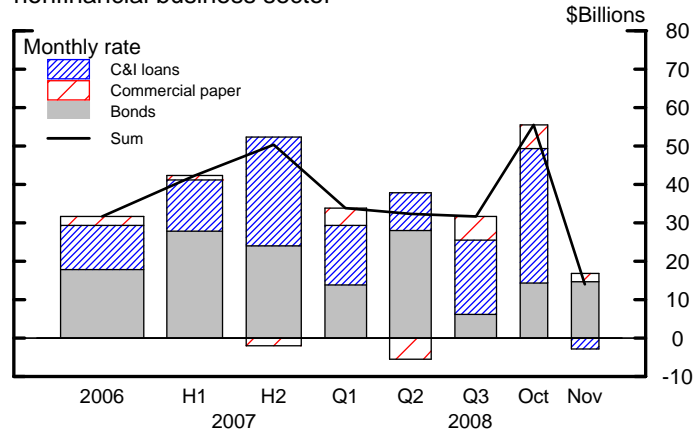
(21) Commercial bank credit exhibited broad weakness in November. Commercial and industrial (C&I) loans declined slightly in November following a surge in October. According to the November Survey of Terms of Business Lending, the average spread on C&I loans—adjusted for changes in nonprice loan terms—increased 25 basis points to its highest level since early 2004, and spreads on higher-risk loans that were not made under previous commitment increased sharply. Growth in consumer loans also tailed off in November, and residential real estate loans continued to decline. Moreover, loans drawn under home equity lines of credit, which had expanded briskly since mid-2007, slowed last month. Banks have reported

Growth of debt of nonfinancial sectors

Percent, s.a.a.r.				
	Total	Business	Household	Government
2007	8.6	13.1	6.8	6.1
Q1	8.3	10.5	7.3	7.1
Q2	8.1	12.9	7.2	3.1
Q3	9.1	14.3	6.1	7.8
Q4	8.0	12.2	5.9	6.0
2008				
Q1	5.3	7.2	3.2	6.7
Q2	3.1	5.6	0.6	4.4
Q3	7.2	2.9	-0.8	28.5

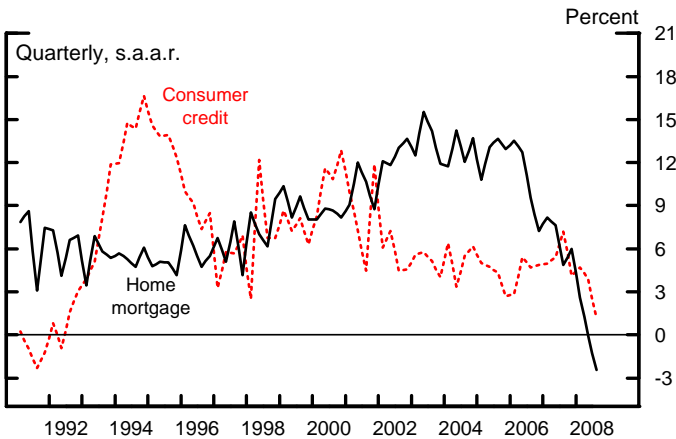
Source. Flow of Funds.

Changes in selected components of debt of nonfinancial business sector*



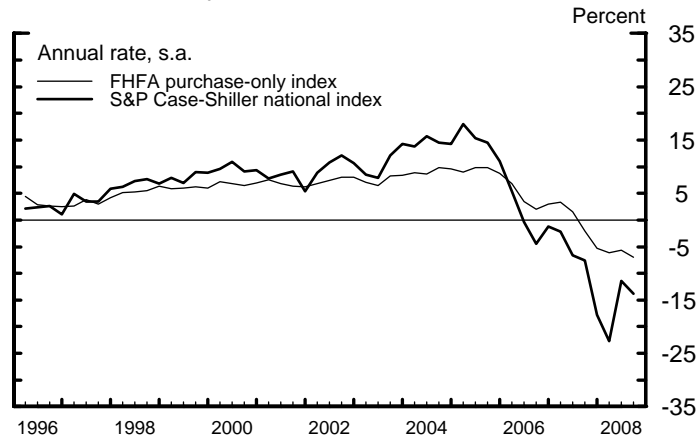
*Commercial paper and C&I loans are seasonally adjusted, bonds are not. Source. Securities Data Company, Depository Trust & Clearing Corporation and Federal Reserve H.8 release.

Growth of debt of household sector



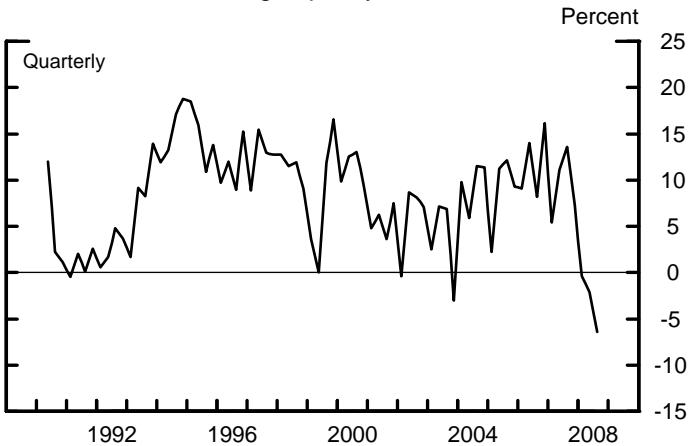
Source. Flow of Funds, Federal Reserve G.19 release.

Growth of house prices



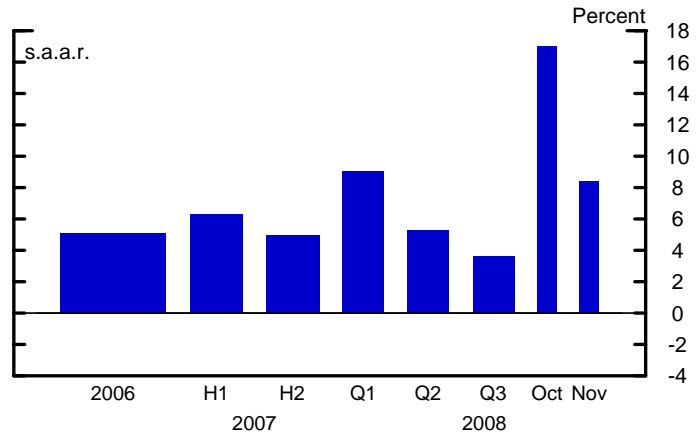
Source. Federal Housing Finance Agency (FHFA), Standard & Poor's.

Growth of total lending capacity



Note: Total lending capacity is the sum of total loans plus unused commitments to make loans. Data for 2008 Q3 are adjusted to remove the effect of JP Morgan Chase's acquisition of Washington Mutual. Source. Call Report.

Growth of M2



Source. Federal Reserve.

tightening lending standards in the Senior Loan Officer Opinion Survey for some time. The tightening of lending standards no doubt contributed to the 6 percent drop (at an annual rate) in the amount of total lending commitments--the sum of total outstanding loans and unused commitments--in the third quarter, which represents the largest decrease in that series since the data on unused commitments became available in the second quarter of 1990.

(22) M2 expanded at an 8½ percent annual rate in November, a significant slowdown from the pace of the previous month. Retail money funds contracted somewhat after a surge in October that reflected safe-haven inflows to Treasury-only funds. The growth of small time deposits slowed somewhat, although their rate of expansion remained quite rapid as banks continued to bid aggressively for these deposits. Liquid deposits showed a moderate expansion in November. Flows into demand deposits, which are covered by the FDIC's new Temporary Liquidity Guarantee Program, were significant and apparently reflected shifts out of savings accounts as well as a redirection of funds by banks' customers away from other money market instruments, given their extremely low interest rates. Currency growth remained strong, likely because of continued solid foreign demand for U.S. banknotes.

Economic Outlook

(23) The staff has again revised down sharply its outlook for economic activity. Conditions in the labor market have deteriorated more steeply than previously thought, the decline in industrial production has intensified, consumer and business spending have dropped further, and financial conditions, on balance, appear to have tightened again. As a consequence, the staff forecast now assumes that the federal funds rate target will be lowered to $\frac{1}{2}$ percent at this meeting and to $\frac{1}{4}$ percent early next year, where it stays for the remainder of the forecast period. Long-term Treasury yields drift up over the forecast horizon from a level that is more than a percentage point lower than in October, as the heavy demand for safe assets moderates when economic activity begins to improve later next year, and as the ten-year window for the Treasury yield extends further beyond the period of very low short-term interest rates anticipated for the next few years. Corporate bond yields decline over the forecast period, as economic conditions eventually improve and risk aversion abates. Mortgage rates, which declined a bit less than Treasury yields over the intermeeting period, drop further to about 5 percent—nearly a percentage point lower than in the October forecast. Equity prices rise at an annual rate of about 12 percent from a level that is approximately 9 percent lower than in October. The foreign exchange value of the dollar is flat in 2009 and declines about 3 percent in 2010. Oil prices, which have dropped about \$29 per barrel over the intermeeting period, rise in line with futures quotes to around \$65 by the end of 2010, a level \$20 per barrel lower than in October. The staff forecast also assumes that a large fiscal stimulus package, amounting to about \$500 billion, is approved by the Congress early in 2009.

(24) Against this backdrop, real GDP is expected to fall at an annual rate of $4\frac{3}{4}$ percent in the current quarter and 3 percent in the first half of 2009, $3\frac{1}{2}$ and 2 percentage points more, respectively, than in the previous projection. Over the remainder of 2009 and in 2010, the economy is forecast to recover slowly. Amid the

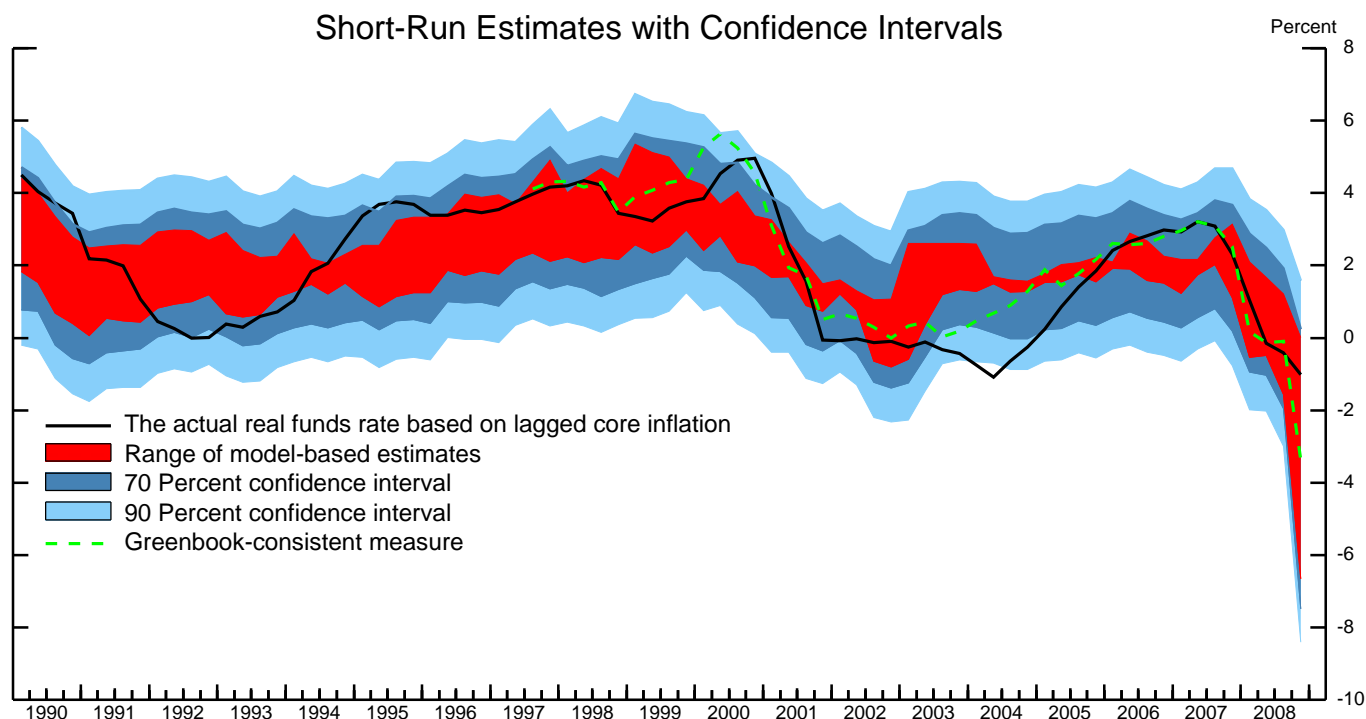
weaker outlook for GDP growth, the unemployment rate is anticipated to rise to $8\frac{1}{4}$ percent in 2010, almost 1 percentage point above the level in the October forecast and $3\frac{1}{2}$ percentage points above the staff's estimate of the NAIRU. Increased slack in resource utilization, diminished pressures from energy and materials prices, a decline in import prices, and some reduction in inflation expectations lead to a further projected moderation in core PCE inflation from 2 percent this year to 1 percent in 2009 and $\frac{3}{4}$ percent in 2010. Overall PCE inflation is projected at $\frac{3}{4}$ percent in 2009 and 1 percent in 2010.

Monetary Policy Strategies

(25) As indicated in Chart 7, the Greenbook-consistent measure of short-run r^* now stands at $-3\frac{1}{2}$ percent, about 30 basis points lower than in the October Bluebook. The further decline in r^* over the intermeeting period primarily reflects the continued decline in equity prices and the widening of credit spreads, as well as the weakness of incoming data on the labor market, motor vehicle sales, consumer spending, industrial production, and business sentiment. Financial and economic developments also explain an extremely steep drop in the estimate of short-run r^* obtained from the small structural model. This measure has moved down about $3\frac{3}{4}$ percentage points since the last Bluebook to about $-6\frac{3}{4}$ percent.⁵ The estimate of short-run r^* from the FRB/US model has fallen 1 percentage point since the previous Bluebook and is now around $-6\frac{1}{4}$ percent. The estimates of short-run r^* span a wide interval, but all except the single-equation estimate are well below the current level of the actual real federal funds rate.

⁵ To a lesser extent, the shift in the r^* from the small structural model also reflects the revision in the current level of the output gap.

Chart 7
Equilibrium Real Federal Funds Rate



Short-Run and Medium-Run Measures

	Current Estimate	Previous Bluebook
Short-Run Measures		
Single-equation model	0.0	1.6
Small structural model	-6.7	-2.9
Large model (FRB/US)	-6.3	-5.4
Confidence intervals for three model-based estimates		
70 percent confidence interval	-7.5 - 0.2	
90 percent confidence interval	-8.4 - 1.6	
Greenbook-consistent measure	-3.4	-3.1
Medium-Run Measures		
Single-equation model	1.7	2.0
Small structural model	1.2	1.0
Confidence intervals for two model-based estimates		
70 percent confidence interval	0.5 - 2.4	
90 percent confidence interval	0.0 - 3.2	
TIPS-based factor model	2.0	2.0
Memo		
Actual real federal funds rate	-1.0	-1.0

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.

(26) Chart 8 depicts optimal control simulations of the FRB/US model using the long-run staff forecast.⁶ In these simulations it is assumed that, in view of potential adverse effects of very low interest rates on financial markets and institutions, the Committee would not wish to lower the target federal funds rate below 25 basis points.⁷ For an inflation goal of either 1½ percent or 2 percent (the left-hand and right-hand sets of charts, respectively), the optimal control simulations prescribe a trajectory for the nominal federal funds rate that hits the lower bound early in 2009 and remains there through 2013, before tightening shortly thereafter. Absent a lower bound to short-term nominal interest rates, the optimal policy would have required a much larger reduction in the nominal federal funds rate, on the order of 5 percentage points in 2009. Under either inflation goal, the unemployment rate is significantly higher for the next few years than in the October Bluebook, rising above 8 percent at the end of 2009 and remaining above the NAIKU through 2012; the path of core inflation is 40 to 80 basis points lower than in the October Bluebook, staying below 1 percent from 2010 onwards, reflecting the much weaker current and projected state of aggregate demand, as well as recent declines in prices of oil and other commodities. These optimal control simulations illustrate how the zero lower bound limits conventional monetary policy: With inflation falling rapidly while the nominal federal funds rate is constrained to a level close to zero, the real interest rates increase, and the corresponding tightening exacerbates weakness in activity and the rise in unemployment. The Bluebook box, “Implications of Nonconventional Policies for Optimal Monetary Policy,” provides an illustration of how nonstandard policy actions could alter the optimal policy path.

⁶ In these simulations, policymakers place equal weight on keeping core PCE inflation close to a specified goal, on keeping unemployment close to the NAIKU, and on avoiding changes in the nominal funds rate.

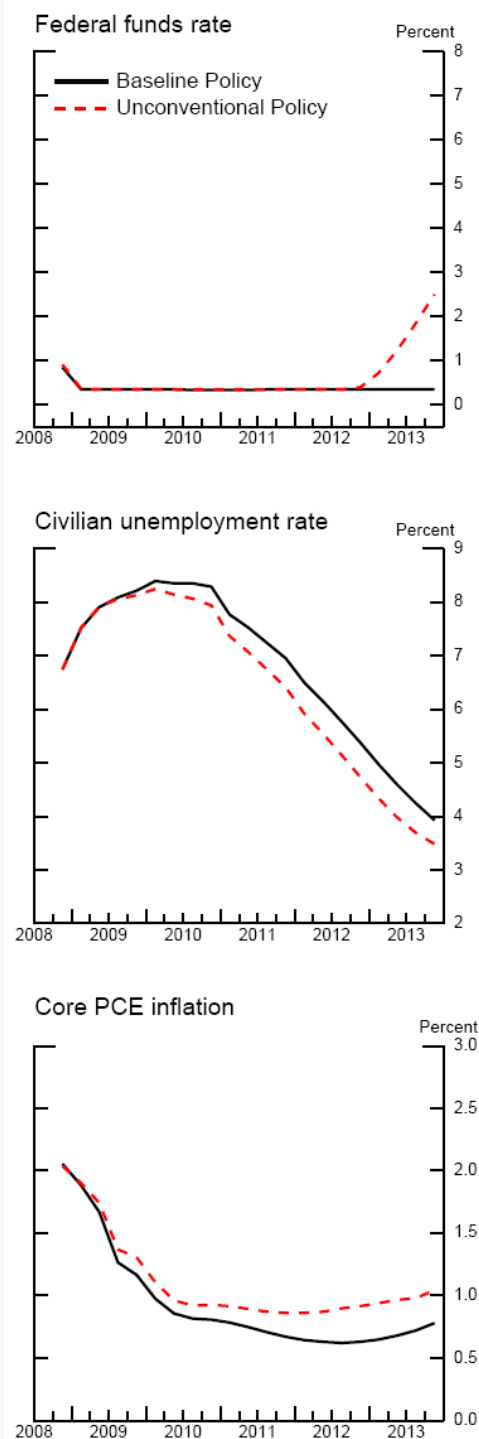
⁷ This assumption differs from the one in the previous Bluebook where the lower bound was set equal to zero. These simulations assume that the actual federal funds rate trades at the target level chosen by the Committee.

Implications of Unconventional Policies for Optimal Monetary Policy

Given the severe deterioration in the economic outlook since the last Bluebook, the optimal control simulations presented in the current Bluebook show the federal funds rate falling to its lower bound early next year and remaining there beyond 2012. These simulations presume that the channels of the monetary transmission mechanism are operating normally; but, as the solid lines in the figures illustrate, the lower bound imposes a considerable constraint on the ability of the optimal policy to provide enough stimulus to generate a robust recovery with a relatively quick return of inflation and unemployment to desired levels.

This baseline policy exercise assumes that the Federal Reserve does not undertake unconventional policies beyond those already incorporated in the Greenbook forecast. However, the exercise can be revised to take account of the estimated effects of a variety of unconventional monetary policy tools, including quantitative easing, targeted purchases of specific securities, and communication strategies aimed at influencing policy expectations. Combining conventional optimal policy adjustments with these nontraditional policy responses should yield better outcomes for activity and inflation.¹

To illustrate such a possibility, the dashed red lines in the Figures show the effects on the optimal policy path and Economic outcomes of assuming that the Federal Reserve engages in more sustained nontraditional policy actions. In this particular simulation, it is assumed that the implementation of such a policy package would lower the level of nominal long-term interest rates—including Treasury rates, mortgage rates, and corporate bond rates—by about 100 basis points from 2009 to 2012, and 50 basis points in 2013, relative to what would occur under conventional optimal policy.



¹ Note 21 in the materials on the zero bound that were sent to the Committee on December 5 (“Gauging the Macro Stimulus from Monetary Policy Communications and Other Tools”) provides a quantitative assessment of unconventional measures, including the effects of fiscal policy actions.

Implications of Unconventional Policies for Optimal Monetary Policy (Cont.)

The reduction in long-term rates boosts aggregate spending directly; it also provides further indirect stimulus through higher corporate equity prices and a lower foreign exchange value of the dollar. In response, the unemployment rate runs $\frac{1}{4}$ to $\frac{1}{2}$ percentage point below its path under conventional policy, and inflation does not fall quite as much. These more favorable macroeconomic conditions, in turn, allow optimal monetary policy to begin to tighten at the end of 2012.

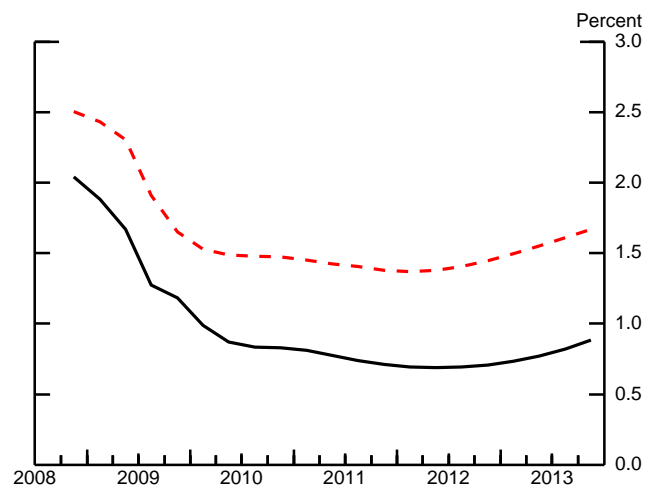
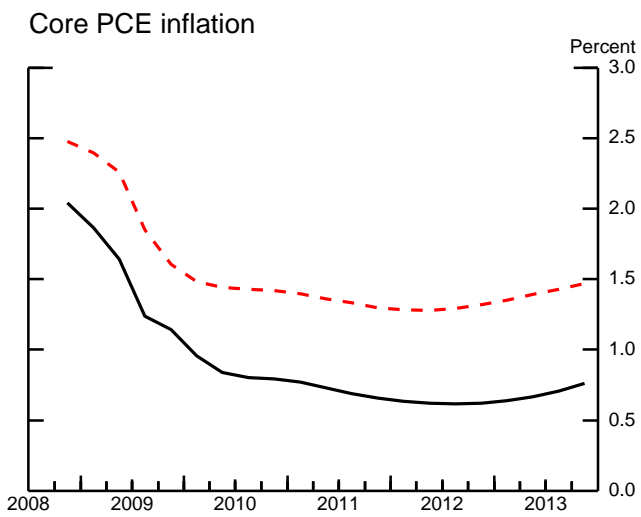
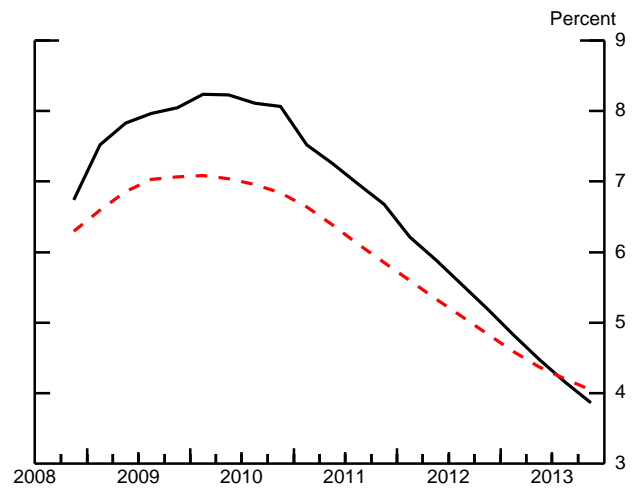
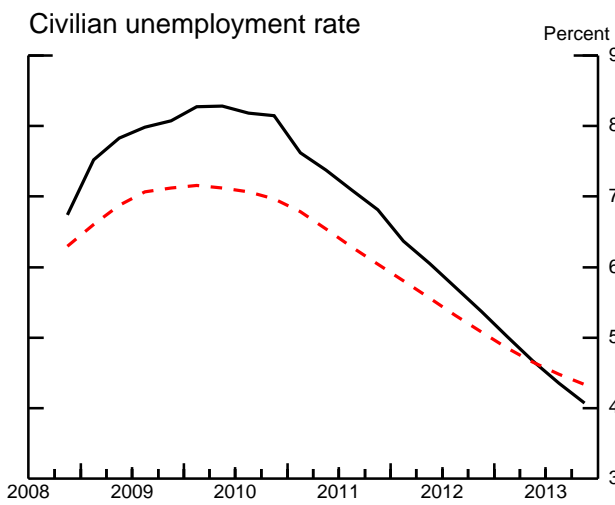
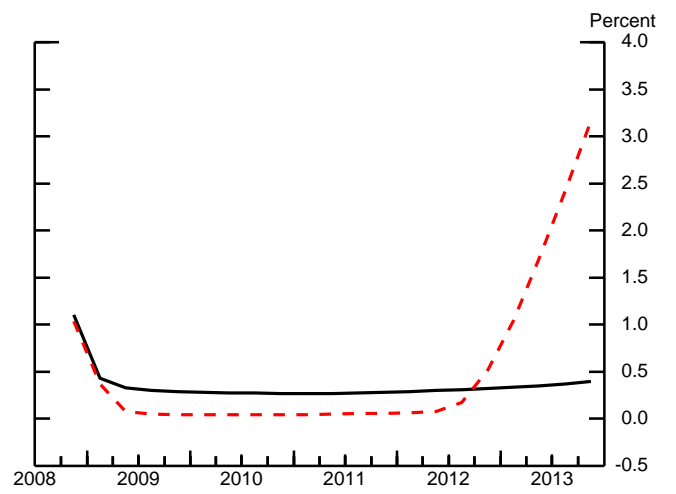
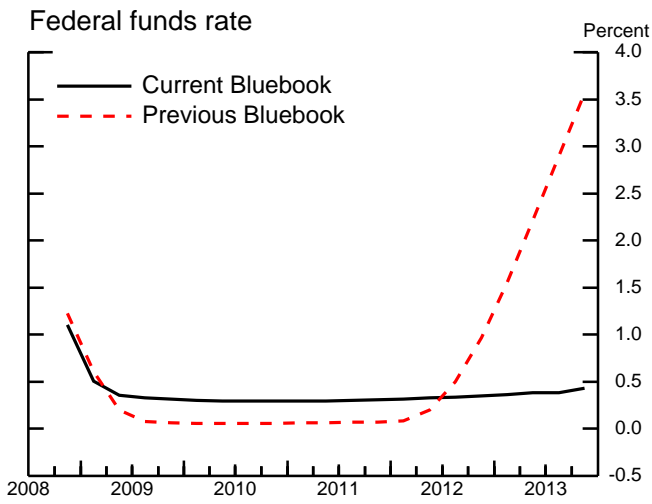
The economic effects of this particular example of unconventional policies are modest, but the estimates are subject to considerable uncertainty. First, it is possible that aggressive actions could, by easing investor concerns about the outlook, lower long-term private interest rates by even more than 100 basis points, although the degree of substitutability across Treasury and private securities is uncertain and smaller effects are also possible. Second, these results are based on a model in which only financial variables respond directly to announcements about future policies; larger stimulative effects might be obtained if the expectations influencing spending decisions and wage-price setting, and not just those influencing financial markets, also responded fully to the implications of the nontraditional policy actions for future economic conditions. Third, more pronounced results might be possible if the nontraditional policy actions were paired with a major fiscal stimulus.

Chart 8

Optimal Policy Under Alternative Inflation Goals

1½ Percent Inflation Goal

2 Percent Inflation Goal



(27) As depicted in Chart 9, the outcome-based policy rule prescribes a funds rate that drops to the 25-basis-point lower bound by 2009Q1 and stays there through 2011 before steadily rising to about 3½ percent by the end of 2013. The trajectory of the funds rate consistent with financial market quotes declines to below 0.50 percent during the first half of 2009 before rising to a plateau of about 2¼ percent starting in 2011.⁸ In contrast to FRB/US simulations with the outcome-based rule, information from financial markets indicates that investors see a relatively high likelihood of policy tightening by the end of 2009.⁹ As shown in the bottom panel of Chart 9, the near-term prescriptions from both the 1993 and 1999 versions of the Taylor rules are significantly lower than those shown in the previous Bluebook, reflecting the weaker path for output and lower projected levels of inflation. The 1993 Taylor rule prescribes setting the funds rate about 1½ percentage point lower than in October; both the first-difference rule and the 1999 Taylor rule prescribe setting the funds rate at its lower bound. The near-term prescriptions from the 1993 Taylor rule are slightly higher than for the other rules because the 1999 Taylor rule and the first difference rule are a bit more sensitive to the output gap.

⁸ The probability of low interest rates may be underestimated because the confidence intervals shown in the top right panel of Chart 9 are computed from interest rate caps with strike prices between 1 percent and 14 percent. Interest rate caps with a strike price below 1 percent are not currently traded.

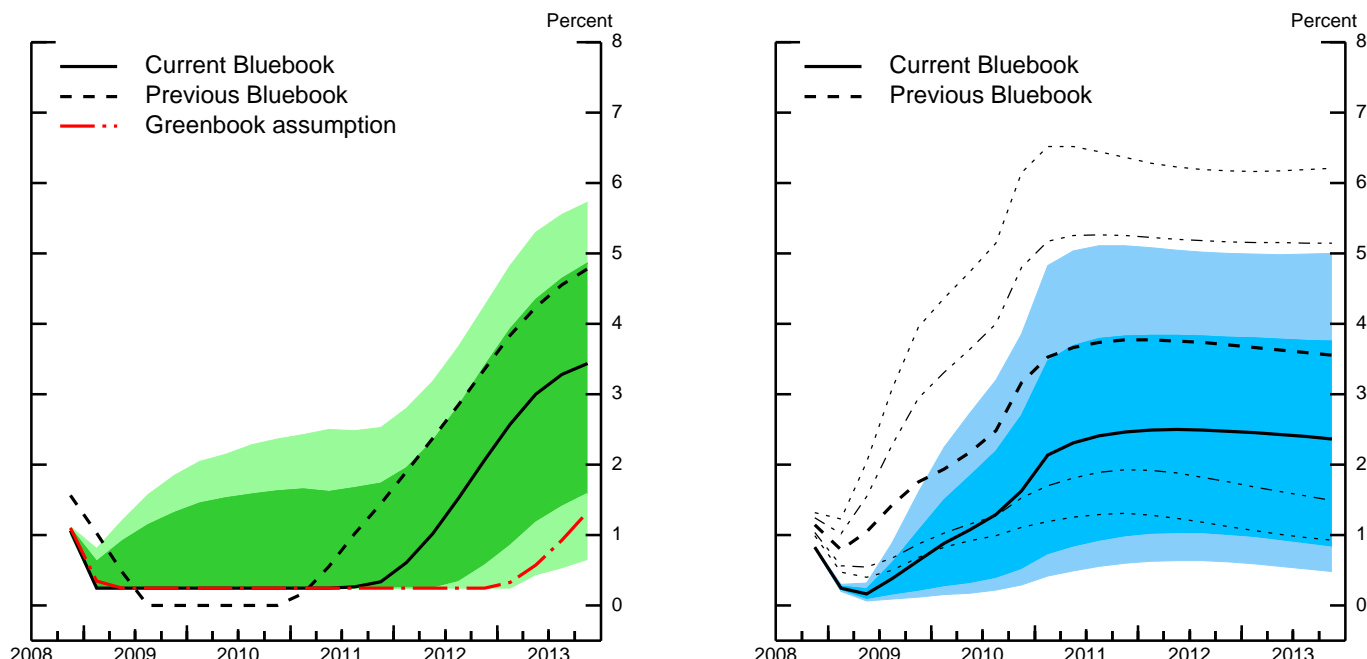
⁹ As noted earlier, given the uncertainty about the economic and financial outlook, reading policy expectations from federal funds futures and options is not straightforward. In particular, the term premium may be larger than usual, which would imply that investors are expecting less policy tightening than what it is shown in Chart 9 (see box “Expected Softness in the Expected Federal Funds Rate”).

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

	1½ Percent Inflation Objective		2 Percent Inflation Objective	
	<u>2009Q1</u>	<u>2009Q2</u>	<u>2009Q1</u>	<u>2009Q2</u>
Taylor (1993) rule	1.65	0.90	1.40	0.65
<i>Previous Bluebook</i>	3.17	2.60	2.92	2.35
Taylor (1999) rule	0.25	0.25	0.25	0.25
<i>Previous Bluebook</i>	1.56	0.66	1.31	0.41
First-difference rule	0.25	0.25	0.25	0.25
<i>Previous Bluebook</i>	0.00	0.00	0.00	0.00
Memo				
		<u>2009Q1</u>	<u>2009Q2</u>	
Estimated outcome-based rule		0.25	0.25	
Estimated forecast-based rule		0.25	0.25	
Greenbook assumption		0.35	0.25	
Fed funds futures		0.26	0.38	
Median expectation of primary dealers		0.50	0.50	

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

Policy Alternatives

(28) This Bluebook presents four alternatives for the Committee's consideration, summarized by the draft statements on the following pages. In view of the sharp deterioration in the economic outlook, the proximity of the zero lower bound on nominal interest rates, and the unconventional policy actions that have already been announced, the content and structure of the proposed alternatives differ substantially from previous Bluebooks. Under Alternative A, the Committee decides not to set a target for the federal funds rate, states that it anticipates that weak economic conditions are likely to warrant funds rates near zero for some time, and makes clear that its main policy tool going forward will be actions that make use of the Federal Reserve's balance sheet. Under Alternative B, the Committee instead announces a target range for the federal funds rate of 0 to $\frac{1}{4}$ percent and states that it will use all available tools to promote the resumption of sustainable economic growth and price stability. Under Alternative C, the target rate is cut 50 basis points to $\frac{1}{2}$ percent and the possibility of a further downward adjustment, should conditions warrant, is left open. Under Alternative D, the federal funds rate target is left unchanged at 1 percent under the view that recent policy actions should help promote acceptable economic growth over time; as in Alternative C, the possibility of future policy easing is left open. In view of the large amounts of reserves being provided by the Federal Reserve's various liquidity facilities, Alternatives C and D recognize that federal funds may trade below the target rate for at least some time. All four alternatives acknowledge that economic activity appears to have slowed further since the last FOMC meeting. Alternatives A, B, and C note that the Committee expects inflation to moderate in coming months and even sees some risk that inflation could drop below levels consistent with price stability; Alternative D uses the same language on inflation as the October statement. To make clear that adjusting the funds rate is not the Federal Reserve's only policy tool in a world of very low interest rates, all four

October FOMC Statement

1. The Federal Open Market Committee decided today to lower its target for the federal funds rate 50 basis points to 1 percent.
2. The pace of economic activity appears to have slowed markedly, owing importantly to a decline in consumer expenditures. Business equipment spending and industrial production have weakened in recent months, and slowing economic activity in many foreign economies is damping the prospects for U.S. exports. Moreover, the intensification of financial market turmoil is likely to exert additional restraint on spending, partly by further reducing the ability of households and businesses to obtain credit.
3. In light of the declines in the prices of energy and other commodities and the weaker prospects for economic activity, the Committee expects inflation to moderate in coming quarters to levels consistent with price stability.
4. Recent policy actions, including today's rate reduction, coordinated interest rate cuts by central banks, extraordinary liquidity measures, and official steps to strengthen financial systems, should help over time to improve credit conditions and promote a return to moderate economic growth. Nevertheless, downside risks to growth remain. The Committee will monitor economic and financial developments carefully and will act as needed to promote sustainable economic growth and price stability.

Alternative A

1. Since the Committee's last meeting, labor market conditions have deteriorated, and the available data indicate that consumer spending, business investment, and industrial production have declined. Overall, the outlook for economic activity has weakened further.
2. Meanwhile, inflationary pressures have diminished quickly. In light of the declines in the prices of energy and other commodities and the weaker prospects for economic activity, the Committee expects inflation to moderate in coming quarters and sees some risk that inflation could decline for a time below rates that best foster economic growth and price stability in the longer term. [In support of its dual mandate, the Committee will seek to achieve a rate of inflation, as measured by the price index for personal consumption expenditures, of about 2 percent in the medium term.]
3. In current circumstances, the Committee judged that it was not useful to set a specific target for the federal funds rate. As a result of the large volume of reserves provided by the Federal Reserve's various liquidity facilities, the federal funds rate has declined to very low levels, and the Committee anticipates that weak economic conditions are likely to warrant federal funds rates near zero for some time.
4. The focus of policy going forward will be to continue to support the functioning of financial markets and stimulate the economy through open market operations and other measures that entail the use of the Federal Reserve's balance sheet. In particular, as previously announced, over the next few quarters the Federal Reserve will purchase large quantities of agency debt and mortgage-backed securities to provide support to the mortgage and housing markets, and it stands ready to expand its purchases of agency debt and mortgage-backed securities as conditions warrant. The Committee is also evaluating the potential benefits of purchasing longer-term Treasury securities. Early next year, the Federal Reserve will also implement the Term Asset-Backed Securities Loan Facility to facilitate the extension of credit to households and small businesses. The Federal Reserve will continue to actively consider ways of using its balance sheet to further support credit markets and economic activity.
5. In related actions, the Board of Governors today approved a 75 basis point decrease in the primary credit rate to 1/2 percent and established interest rates on required and excess reserve balances of 1/4 percent. In approving the reduction in the discount rate, the Board acted on requests submitted by the Federal Reserve Banks of . . .

Alternative B

1. The Federal Open Market Committee decided today to establish a target range for the federal funds rate of 0 to 1/4 percent.
2. Since the Committee's last meeting, labor market conditions have deteriorated, and the available data indicate that consumer spending, business investment, and industrial production have declined. Overall, the outlook for economic activity has weakened further.
3. Meanwhile, inflationary pressures have diminished quickly. In light of the declines in the prices of energy and other commodities and the weaker prospects for economic activity, the Committee expects inflation to moderate in coming quarters and sees some risk that inflation could decline for a time below rates that best foster economic growth and price stability in the longer term.
4. The Federal Reserve will employ all available tools to promote the resumption of sustainable economic growth and to preserve price stability. In particular, as previously announced, over the next few quarters the Federal Reserve will purchase large quantities of agency debt and mortgage-backed securities to provide support to the mortgage and housing markets, and it stands ready to expand its purchases of agency debt and mortgage-backed securities and as conditions warrant. The Committee is also evaluating the potential benefits of purchasing longer-term Treasury securities. Early next year, the Federal Reserve will also implement the Term Asset-Backed Securities Loan Facility to facilitate the extension of credit to households and small businesses. The Federal Reserve continues to consider possible additions to and expansions of its liquidity facilities, as well as other means of using its balance sheet to further support credit markets and economic activity.
5. In a related action, the Board of Governors unanimously approved a 75-basis-point decrease in the discount rate to 1/2 percent. In taking this action, the Board approved the requests submitted by the Boards of Directors of the Federal Reserve Banks of . . . The Board also established interest rates on required and excess reserve balances of 1/4 percent.

Alternative C

1. The Federal Open Market Committee decided today to lower its target for the federal funds rate 50 basis points to ½ percent.
2. Reflecting in part the intensification of the financial strains earlier in the fall, the pace of economic activity has slowed further and the near-term outlook has worsened. Labor market conditions have continued to deteriorate, and consumer spending, business investment, and industrial production have declined.
3. In light of the declines in the prices of energy and other commodities and the weaker prospects for economic activity, the Committee expects inflation to moderate in coming quarters and sees some risk that inflation could decline for a time below rates that best foster economic growth and price stability in the longer term.
4. In these circumstances, the Committee's primary concern is the downside risks to the economy. The Committee will monitor economic and financial developments carefully and will use all available tools to promote the resumption of sustainable economic growth and to preserve price stability.
5. In particular, as previously announced, over the next few quarters the Federal Reserve will purchase large quantities of agency debt and mortgage-backed securities to provide support to the mortgage and housing markets, and it stands ready to expand its purchases of agency debt and mortgage-backed securities as conditions warrant. The Committee is also evaluating the potential benefits of purchasing longer-term Treasury securities. Early next year, the Federal Reserve will implement the Term Asset-Backed Securities Loan Facility to facilitate the extension of credit to households and small businesses. The Federal Reserve continues to consider possible additions to and expansions of its liquidity facilities, as well as other means of using its balance sheet to further support credit markets and economic activity.
6. In a related action, the Board of Governors unanimously approved a 50-basis-point decrease in the discount rate to 1/2 percent. In taking this action, the Board approved the requests submitted by the Boards of Directors of the Federal Reserve Banks of . . .
7. In view of the large volume of reserves provided by the Federal Reserve's various liquidity facilities, the Committee recognizes that the federal funds rate is likely to average somewhat below the ½ percent target.

Alternative D

1. The Federal Open Market Committee decided today to keep its target for the federal funds rate at 1 percent.
2. Reflecting in part the intensification of the financial strains earlier in the fall, the pace of economic activity appears to have slowed further, and the near-term outlook for growth has deteriorated. Moreover, the downside risks are significant. However, policy actions taken in recent months, including reductions in short-term interest rates to very low levels, extraordinary liquidity measures, and official steps to strengthen the financial system, should help over time to improve credit conditions and promote a return to moderate economic growth. As announced previously, the Federal Reserve will purchase a large volume of agency debt and mortgage-backed securities to provide support to the mortgage and housing markets and thus to broader economic activity. Early next year, the Federal Reserve will also implement the Term Asset-Backed Securities Loan Facility to help facilitate the extension of credit to households and small businesses.
3. In light of the declines in the prices of energy and other commodities and the weaker prospects for economic activity, the Committee expects inflation to moderate in coming quarters to levels consistent with price stability.
4. In view of the large volume of reserves provided by the Federal Reserve's various liquidity facilities, the Committee recognizes that the federal funds rate is likely to average significantly below the target rate for some time. The Committee will monitor economic and financial developments carefully in light of recent policy actions and will act as needed to promote sustainable economic growth and price stability.

alternatives point to the recent announcements that the Federal Reserve will purchase large volumes of agency debt and mortgage-backed securities and will implement the Term Asset-Backed Securities Loan Facility (TALF). Alternatives A, B, and C also explicitly refer to the possibility of further using the Federal Reserve's balance sheet to support financial markets and economic activity, including by purchasing Treasury securities.

(29) If the Committee agrees that the economic outlook has deteriorated significantly since the October meeting and thinks that substantial monetary stimulus will be needed to support a recovery in economic activity, it may be inclined to favor **Alternative A** or **Alternative B**. Members may be disappointed by a forecast, such as the one presented in this Greenbook, in which economic activity contracts severely this quarter and in the first half of next year and recovers only slowly after that, even with a federal funds rate at 25 basis points through 2010 and with substantial fiscal stimulus. Accordingly, Committee members may feel that even stronger policy action than what is assumed in the Greenbook will be necessary to promote a return to sustainable economic growth. Regarding the outlook for inflation, the Committee may be concerned that the projected sharp contraction in economic activity, coupled with the striking ongoing decline in the prices of energy and other commodities, may cause inflation to fall to an uncomfortably low level, perhaps even lower than projected in the staff forecast (as in the "Lower Inflation" alternative scenario in the Greenbook). In these circumstances, Committee members may thus wish to take a bold action at this meeting to counter the risk of deflation, and they may also want to presage further expansions of the Federal Reserve's balance sheet.

(30) Against this backdrop, the Committee may decide not to announce a target for the federal funds rate at this meeting and signal instead that its focus has shifted to the use of the Federal Reserve's balance sheet as an especially important policy tool going forward, as in **Alternative A**. The Federal Reserve's balance sheet has already

expanded considerably in recent months and will continue to expand in the immediate future as the Federal Reserve begins to purchase agency debt and mortgage-backed securities in volume, as already announced, and as the TALF becomes operational. Federal funds have often traded below 50 basis points since the October meeting even with the current target of 1 percent. In the last week, with the anticipation of further policy easing at this meeting, federal funds have traded persistently below 10 basis points. Members may thus view a shift away from interest rate targeting and towards balance sheet management as essentially already under way. Committee members may also be mindful that announcing a target that is not possible to achieve may create the impression that Federal Reserve policy is ineffective, even though powerful tools remain at the Committee's disposal to address the deteriorating economic and financial situation.

(31) One such tool is communication. As incorporated in the third paragraph of Alternative A, the Committee could explicitly state that it anticipates that short-term interest rates will remain low for some time. Members may be reluctant to enter into an unconditional commitment because they may feel that such a commitment would be too constraining should they need to tighten policy sooner than now expected. To mitigate this concern, the Committee could phrase the commitment in implicitly conditional terms by indicating its anticipation that “weak economic conditions are likely to warrant federal funds rates near zero for some time,” as suggested in the statement accompanying Alternative A.¹⁰ In addition, if members were concerned that even increased use of the Federal Reserve's balance sheet as a policy tool and a

¹⁰ The Committee may feel that a commitment that is conditioned on too precise a set of events may also be undesirable because, in the future, a need to tighten policy may arise well before those specific events materialize. The proposed sentence makes clear in broad terms that the commitment is not unconditional (because the expectation of very low rates is based on “weak economic conditions”), but at the same time the condition is cast in terms broad enough that it likely will not constrain the Committee's future decisions. The length of the commitment (“for some time”) is described in similarly broad terms for the same reason.

commitment to keep interest rates low for some time might not be sufficient to counter deflationary pressures, the Committee could explicitly state, as indicated in the bracketed sentence, that it will seek to achieve a rate of inflation of about 2 percent in the medium term, in order to buoy inflation expectations. Higher inflation expectations, in turn, would reduce real interest rates and so support economic activity.

(32) The statement suggested for Alternative A begins by acknowledging the further weakening of the outlook for economic activity rather than with a sentence about the federal funds rate. This departure from the standard structure of the FOMC statement is intended both to emphasize that the focus of the Committee has shifted away from the target federal funds rate and to provide a clear rationale for that shift. The second paragraph notes the weakening of inflationary pressures and the risk that inflation could decline for a time below rates that best foster economic growth and price stability. As noted above, members may wish to conclude that paragraph with the sentence, “In support of its dual mandate, the Committee will seek to achieve a rate of inflation, as measured by the price index of personal consumption expenditures, of about 2 percent in the medium term.” By using the words “seek to achieve” and “in the medium term,” the Committee would acknowledge that it may not be possible to maintain inflation at the desired level over the specified period, but the statement would nonetheless signal the Committee’s policy objective. If members were uncomfortable with taking such a step at this meeting, they could simply omit that sentence from the statement. The third paragraph notes the Committee’s decision not to set a specific target for the federal funds rate, acknowledges that the federal funds rate has already declined to very low levels, and states the expectations that federal funds rate will remain near zero for some time. The statement goes on in paragraph 4 to indicate a shift of the Committee’s focus from the target rate to the use of the Federal Reserve’s balance sheet. That paragraph repeats a number of measures

that have already been announced but not (or only partially) implemented, thereby emphasizing that a number of unconventional policy actions are already forthcoming, and foreshadows the possibility that the Federal Reserve will purchase longer-term Treasury securities if conditions warrant. The intention to continue to actively consider policies that employ the Federal Reserve's balance sheet is also explicitly stated in order to clarify that other tools could also be used if needed to support credit markets and economic activity.

(33) While expectations of next week's policy action are difficult to discern from market quotes because of the continued expected softness in the federal funds rate, the Desk's survey suggests that most primary dealers see a 50 basis point reduction in the target federal funds rate as the most likely outcome of the December meeting, and that a majority sees $\frac{1}{2}$ percent as the trough for the target federal funds rate this cycle. As a result, a decision to move away from interest rate targeting and to let federal funds fluctuate somewhere in the vicinity of the zero bound will likely surprise investors. Short-term interest rates will decline, but probably not by much, considering that they are already very low and that federal funds are already trading at rates well below $\frac{1}{4}$ percent. Stock prices may rise if investors read the decision to move away from targeting the level of the federal funds rate and concentrate on use of the balance sheet as underscoring the Federal Reserve's determination to promote a rapid return to sustainable economic growth. The foreign exchange value of the dollar will likely decline somewhat. Judging from the Desk's survey, some market participants may be surprised by the reference to unconventional policies in the statement. And the indication that the federal funds rate could remain near zero for some time could lead investors to mark down their expected path for policy in 2009 and beyond. As a result of these influences, longer-term interest rates should move lower, although the size of that decline may be muted because the purchases of agency and mortgage-backed securities have already been announced and the

Chairman raised the possibility of purchases of large quantities of Treasury securities in a recent speech.

(34) If the Committee shares the staff view that the economic outlook has deteriorated markedly and thinks that, given the circumstances, moving the federal funds rate near the zero bound on nominal interest rates is desirable, but it wants to continue to provide an explicit target for the federal funds rate, then it might choose to establish a target range of 0 to $\frac{1}{4}$ percent as in **Alternative B**. Continuing to set a target that encompasses very low federal funds rates would not compromise the Committee's ability to resort to unconventional policy measures. In addition, some members may be concerned that switching to the use of the Federal Reserve's balance sheet as its main policy tool could delay a return to a more conventional monetary policy based on interest rate targeting because some unconventional policy measures (such as the purchases of long-term assets) may not be easy or cheap to unwind quickly. Consequently, members may feel that maintaining a target range, however low, could be desirable because it may make a return to more traditional monetary policy simpler and more straightforward once economic and financial conditions improve. In addition, Committee members may see the maintenance of a federal funds target as advantageous from a governance perspective, since the determination of the target rate is a prerogative of the Committee, whereas the Committee and the Board both have separate authorities that can be used to affect the composition and size of the Federal Reserve's balance sheet.

(35) Achieving exactly a zero effective federal funds rate may be impossible since there would be no incentive for depository institutions to sell funds without compensation. It may even be undesirable, given the strains that it could put on some financial institutions and financial markets. On the other hand, members may feel that the direct monetary stimulus obtained by bringing the target rate to a very low but positive level, along with the increased flexibility thereby provided to use

nonconventional policy actions, outweighs the associated costs. As in Alternative A, the Committee may also be concerned that the sharp contraction in economic activity and the steep declines in the prices of energy and other commodities may cause inflation to fall to an uncomfortably low level. In such circumstances, conditional on their desire to maintain a federal funds rate target, Committee members may prefer to make that target as low as possible immediately, rather than making a more gradual adjustment, to counter the risk of further severe deterioration in economic and financial conditions.

(36) The rationale section of the statement under Alternative B begins by noting the recent deterioration in economic conditions and in the outlook for economic activity. The statement is also explicit as to the reduction in inflationary pressures and notes the risks that inflation could decline for a time below levels that best foster economic growth and price stability in the longer term. The fourth paragraph makes clear the intention to use all tools at the Committee's disposal to promote the resumption of sustainable economic growth and to preserve price stability. Some of these tools—the already announced purchases of agency debt and mortgage-backed securities, the possible expansion of those purchases, the possibility of beginning to purchase longer-term Treasury securities, the implementation of the TALF, and the possible expansion of other types of liquidity provision and other means of using the Federal Reserve's balance sheet—are also noted.

(37) Given that most market participants appear to expect only a 50 basis point reduction in the target at this meeting, a decision to reduce it instead by at least 75 basis points will come as surprise, but likely not a large one since some investors apparently anticipate that the target will be brought down to $\frac{1}{4}$ percent at the January meeting. As a result, nominal interest rates would likely decline a little, stock prices may increase some, and the foreign exchange value of the dollar may decline modestly. As in Alternative B, market participants may also be surprised by the

reference to unconventional policy measures, and medium- and long-term Treasury yields might edge lower.

(38) The Committee may prefer **Alternative C** for a number of reasons. Members may feel that a substantial policy easing at this meeting is warranted in response to the sharp deterioration of the economic outlook in recent weeks. A 50 basis point cut in the target rate at this meeting may be seen as appropriate, considering that policy has been eased substantially over the last year, that a number of extraordinary liquidity measures have been put in place or are in train, and that mortgage rates have already dropped appreciably in light of the Federal Reserve's recently announced program to purchase agency debt and mortgage-backed securities. The Committee may wish to give the stimulus produced by the combination of all these policies a chance to show its effects, while at the same time leaving open the possibility of a further reduction in the target rate and the implementation of more unconventional policy actions should macroeconomic conditions fail to improve. A reduction in the target rate to $\frac{1}{2}$ percent that is matched by a comparable reduction in the interest rate on excess reserves would likely cause federal funds to trade below the new target. Even so, the Committee may still want to set a target of $\frac{1}{2}$ percent to signal where it would want federal funds to trade once financial conditions begin to improve, some Federal Reserve programs are unwound, and the amount of excess reserves in the system returns to a more normal level.

(39) Alternatively, members may feel that quite forceful policy action is required to counter the sharp deterioration in the economic outlook but at the same time be unwilling to lower the target rate below 50 basis points. Members' reluctance to move to an extremely low target federal funds rate may stem from concerns about the potential for adverse consequences on various financial markets and institutions that such a move could engender. Such a concern may be reinforced by the likelihood that federal funds will trade below the new target until improved financial conditions allow

a substantial reduction in excess reserves in the financial system. Members may also be worried that a very low target for the federal funds rate may itself lead to undesirable increases in inflation expectations. The Committee may thus view $\frac{1}{2}$ percent as a floor for the target federal funds rate and may wish to apply any further monetary stimulus exclusively through unconventional policies, such as purchases of agency and mortgage-backed securities or Treasury securities.

(40) As a third motivation for favoring Alternative C, members may view a decision to reduce the target rate by 50 basis points as an intermediate step towards reaching a level of rates closer to the zero bound at a later date. Such an approach would be consistent with the staff's assumption in the Greenbook projection, the prescriptions of a number of policy rules, and the optimal control simulations with an inflation target of either $1\frac{1}{2}$ or 2 percent described in the monetary policy strategies section of this Bluebook. Even if members are not concerned that a sustained environment of very low interest rates will be particularly harmful to certain financial markets and institutions, they may still believe that making the move toward the zero bound in two steps would be preferable on the grounds that it would allow market participants more time to adjust to a world of near-zero interest rates. In addition, the Committee may feel that such a gradual approach would not be overly costly in terms of its macroeconomic objectives since further monetary stimulus could be provided through additional unconventional policy measures. Finally, an inclination to ease policy 50 basis points at this meeting might be reinforced by the fact that most market participants appear to expect a 50 basis point reduction in the target rate, and Committee members might be reluctant to inject further uncertainty into financial markets at a time when markets remain extremely fragile.

(41) The rationale section of the statement accompanying Alternative C begins by acknowledging that economic activity is contracting in the fourth quarter and by pointing to deterioration in labor markets, household and business spending, and

industrial production. The paragraph on inflation reiterates, as in October, that the Committee expects inflation to moderate because of the weaker economic outlook and the decline in the prices of energy and other commodities, but also, as in Alternatives A and B, that there are risks that inflation will fall to rates below those that would best foster economic growth and price stability. The next paragraph makes clear that downside risks to the economy are the Committee's primary concern and indicates that the Committee "will use all its available tools to promote the resumption of economic growth and to preserve price stability." This wording is intended to leave the door open to, but not promise, a further reduction in the target rate if conditions warrant, while at the same time making it clear that unconventional policy actions are also available. Some of these actions, including the possibility that existing programs may be expanded or new programs may be implemented if appropriate, are cited in the next paragraph. If the Committee viewed Alternative C as a stepping stone to an even lower target federal funds rate, it may wish to add a sentence to signal more clearly to market participants that a further reduction in the target rate may be forthcoming. For example, the fourth paragraph of the statement could conclude by saying that, "The Committee will consider whether further reductions in the target federal funds rate would be beneficial in light of evolving circumstances." On the other hand, if the Committee sees 1/2 percent as a floor below which it is not likely to push the target rate, it may also wish to make its thinking more explicit, for example by adding the clause "Although the Committee believes that further reductions in the target federal funds rate would not be beneficial on balance" immediately before the indication that the Committee will use all of its available tools (which in this case would be referred to as "all other available tools"). The statement concludes with an acknowledgement that federal funds may trade below the target, given the large amounts of excess reserves in the system.

(42) Since most primary dealers see a 50 basis point policy easing as the most likely outcome at this meeting, and since a majority see $\frac{1}{2}$ percent as the trough for the target federal funds rate this cycle, the market reaction to an announcement like that for Alternative C is likely to be muted, with short-term interest rates, equity prices, and the foreign exchange value of the dollar all changing little. The movements in these variables may be a bit more pronounced if the Committee decided to be more explicit regarding its proclivity to move the target rate lower in the future because the uncertainty as to the floor for the target would be removed; any such move, however, is not likely to be major, partly because market participants may expect federal funds to trade quite soft to the target in any case. As in Alternative B, longer-term interest rates may decline a little, but probably not by much, because investors may be somewhat surprised by the language on the use of the Federal Reserve's balance sheet as a means of further supporting credit markets and economic activity.

(43) If the Committee's view of the economic outlook is appreciably more optimistic than the staff's, and, in particular, if members believe that past policy actions, along with those announced but not yet implemented, will be sufficient to return the economy to a path of moderate economic growth before too long, the Committee may wish to leave the target rate unchanged at this meeting as in **Alternative D**. Committee members may have a somewhat more upbeat outlook for 2009 and 2010 than the staff and may believe, for example, that the recovery from the present recession, starting in the second half of next year, will be more robust than anticipated by the staff, as in the "faster recovery" alternative scenario in the Greenbook. In addition, the Committee may think that the policy actions taken recently not only by the Federal Reserve but also by other foreign central banks, the Congress, the Treasury, and the FDIC (including the reduction in policy rates to very low levels, purchases of agency debt and mortgage-backed securities, extraordinary

liquidity measures, official steps to strengthen the financial system, and fiscal stimulus) should be given a chance to work, and that their combined effect could potentially be very large. Indeed members may be mindful that the extent and timing of some of those policies, such as the fiscal package that will ultimately be passed by the Congress, is still unknown. The fiscal package may well turn out to be larger, or implemented sooner, than currently assumed in the staff forecast. (The “bigger fiscal package” scenario in the Greenbook illustrates this possibility.) With that upside risk in mind, the Committee may want to pause at least at this meeting and see whether the economy will show some signs of recovery as these policies begin to take effect. The Committee may also anticipate that, although federal funds are likely to continue to trade below target for a time because of the large amounts of excess reserves currently in the system, an unchanged federal funds rate target provides a better signal of its policy intentions. The Committee may believe that, over time, existing liquidity facilities can be scaled back or eliminated, allowing the federal funds rate to converge back to its target level. Alternatively, members may feel that bringing the target to an unprecedented low level may increase uncertainty, further compromise market functioning, decrease confidence, perhaps boost inflation expectations, and so ultimately be counterproductive. Members may also want to preserve some room to lower the target rate at a later date in order to bolster confidence should further negative shocks hit the economy.

(44) The rationale portion of the statement accompanying Alternative D acknowledges that the pace of economic activity appears to have slowed further and that the near-term outlook has deteriorated. However, the statement notes that the Committee expects the recent policy measures to improve credit conditions and promote a return to moderate growth over time. To underscore that the Federal Reserve has already taken concrete actions in response to the deterioration in the outlook, the remaining part of that paragraph notes that the Federal Reserve will

purchase large amounts of agency and mortgage-backed securities and will implement the TALF early next year. The language on inflation remains unchanged from the October meeting, and the last paragraph acknowledges, as in Alternative C, that federal funds may continue to trade below the target for some time. The statement concludes by noting that the Committee will monitor economic and financial developments and will act as needed to promote its statutory objectives. That declaration, together with the indication of downside risks to the outlook, would likely be seen as signaling that the Committee is open to further reduction in the target rate at upcoming meetings if conditions warrant.

(45) Given current expectations, market participants would likely be extremely surprised if the Committee were to leave the target rate unchanged. Short-term interest rates would probably back up somewhat, although the extent of the increase would likely be moderated by recognition that federal funds would continue to trade below target for some time. Equity prices would drop, and the dollar would appreciate. The absence of any reference to additional means of using the Federal Reserve balance sheet to improve credit and liquidity conditions would likely induce investors to reconsider their views of the likelihood of further purchases of assets by the Federal Reserve, and medium- and longer-term yields would probably move notably higher. Overall, volatility and strains in financial markets would likely increase.

Money and Debt Forecasts

(46) The staff forecast for M2 has changed little since October. After expanding at a 7½ percent rate this year, boosted by the decline in short-term rates and the associated drop in the opportunity cost of holding M2 assets, M2 growth is projected to slow to about 3 percent in 2009 as nominal GDP growth falls and opportunity cost

begins to rise. In 2010, M2 is anticipated to grow at roughly the same rate as in 2009 and about in line with nominal GDP.

(47) Amid sharply curtailed mortgage and consumer credit, household debt is expected to decline about 1 percent in 2009 and to rise just a little in 2010 as credit constraints ease only gradually. Even though overall credit conditions are expected to ease over time, nonfinancial business debt will likely expand at a weak pace next year and in 2010, as capital spending will remain sluggish. Federal debt, which has surged in the second half of 2008 because of government programs aimed at addressing financial market strains, is anticipated to continue to grow at a rapid pace throughout the forecast period. Overall, total domestic nonfinancial debt is projected to expand 4½ percent in 2009 and 4¼ percent in 2010.

Table 2

Bluebook Alternatives

Strictly Confidential Class II FOMC

	M2 Path	Ease 75 bp	Ease 50 bp	Ease 25 bp	No change	Greenbook Forecast*
Monthly Growth Rates						
Jan-08	7.2	7.2	7.2	7.2	7.2	7.2
Feb-08	15.8	15.8	15.8	15.8	15.8	15.8
Mar-08	11.3	11.3	11.3	11.3	11.3	11.3
Apr-08	2.1	2.1	2.1	2.1	2.1	2.1
May-08	1.5	1.5	1.5	1.5	1.5	1.5
Jun-08	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
Jul-08	6.4	6.4	6.4	6.4	6.4	6.4
Aug-08	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Sep-08	15.5	15.5	15.5	15.5	15.5	15.5
Oct-08	17.0	17.0	17.0	17.0	17.0	17.0
Nov-08	8.4	8.4	8.4	8.4	8.4	8.4
Dec-08	9.9	10.1	9.9	9.7	9.5	9.9
Jan-09	6.0	6.6	6.0	5.4	4.8	6.0
Feb-09	4.0	4.4	3.6	2.8	2.0	4.0
Mar-09	3.0	3.0	2.2	1.5	0.7	3.0
Apr-09	2.0	1.8	1.2	0.6	0.0	2.0
May-09	2.0	1.7	1.3	0.8	0.4	2.0
Jun-09	2.0	1.9	1.5	1.1	0.7	2.0
Quarterly Growth Rates						
2008 Q1	9.0	9.0	9.0	9.0	9.0	9.0
2008 Q2	5.3	5.3	5.3	5.3	5.3	5.3
2008 Q3	3.6	3.6	3.6	3.6	3.6	3.6
2008 Q4	12.0	12.0	12.0	12.0	12.0	12.0
2009 Q1	6.4	6.7	6.2	5.7	5.2	6.4
2009 Q2	2.5	2.3	1.7	1.1	0.5	2.5
Annual Growth Rates						
2007	5.7	5.7	5.7	5.7	5.7	5.7
2008	7.7	7.7	7.7	7.7	7.7	7.7
2009	3.0	3.0	2.6	2.2	1.8	3.0
Growth From To						
2007 Q4	Nov-08	7.6	7.6	7.6	7.6	7.6
2007 Q4	Dec-08	7.9	7.9	7.9	7.8	7.9
2008 Q4	Jun-09	4.1	4.2	3.6	3.1	4.1
Nov-08	Jun-09	4.2	4.3	3.7	3.1	4.2
Dec-08	Jun-09	3.2	3.3	2.6	2.0	3.2
2008 Q4	Jun-09	4.1	4.2	3.6	3.1	4.1
2007 Q4	2008 Q4	7.7	7.7	7.7	7.7	7.7
2008 Q4	2009 Q4	3.0	3.0	2.6	2.2	3.0

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

Alternatives for the Directive

(48) Federal funds have traded predominantly around or below $\frac{1}{2}$ percent since the October meeting even with a target rate of 1 percent. Given the provision of large amounts of excess reserves through the liquidity programs that the Federal Reserve has put in place in recent months, and with balance sheet constraints that prevent many depository institutions from exploiting the arbitrage between low federal funds rates and higher interest rates on excess reserves, the funds rate has fallen well short of the target set by the Committee, as discussed in more detail in the “Recent developments in the federal funds market” box. As noted earlier, the proposed statement for Alternatives C and D acknowledge that the same will likely be true in the future, at least so long as the amount of excess reserves in the system remains elevated. If the Committee wanted to maintain a target, potential steps to soak up excess reserves, short of drastically reducing the size of existing liquidity facilities and currency swap agreements with foreign central banks—an option that the Committee presumably would find unappealing—include, in principle, financing existing and potential new liquidity facilities by issuing Federal Reserve bills or by expanding the Special Financing Program (SFP) and thus the size of the Treasury balance at the Federal Reserve. However, the former measure would require authorization by the Congress, and the Treasury is unlikely to take the latter step in the near term because of possible debt-ceiling constraints. Indeed, concerns about the debt ceiling have led the Treasury to reduce over recent weeks the size of the SFP and the associated balances placed at the Federal Reserve. A possible alternative would be for the Federal Reserve to offer depository institutions a term deposit facility in which they could place funds for fixed periods of time and earn interest at a rate above that paid on excess reserves. Balances placed under this facility would not count toward reserve requirements and could not be accessed before their maturity.

The staff has begun to develop plans for such a facility, but its likely effectiveness in putting upward pressure on the federal funds rate is unclear.

(49) If the Committee wants to keep a target for the federal funds rate of either $\frac{1}{2}$ percent as in Alternative C or 1 percent as in Alternative D, and agrees that the options available to drain reserves from the system and enable the Desk to meet the target are either unlikely to materialize or are likely to be otherwise undesirable, it may wish to change the wording of its directive to the Desk to recognize that it does not expect the target to be consistently met given the circumstances. The Committee may wish to include in the directive a sentence similar to that in the public statements that will accompany the policy decisions and explicitly indicate that it recognizes that the federal funds rate may tend to trade below the new target. If it were to choose Alternative C, the Committee may also want to direct the Desk to purchase \$100 billion in housing-related GSE debt and up to \$500 billion in agency-guaranteed MBS, as already announced, and to do so by the end of the second quarter of next year to provide a more specific time frame than the “several quarters” indicated in the November 25 press release. Such a directive is not included under Alternative D because if the Committee were optimistic enough about the outlook to select that alternative, it might not want the desk to complete the full amount of the announced purchases.

(50) Under Alternative B, the Committee would direct the Desk to seek conditions in reserve markets consistent with federal funds trading in a range of 0 to $\frac{1}{4}$ percent. It may also want to direct the Desk to purchase GSE debt and agency-guaranteed MBS over the next intermeeting period, but to leave the Desk ample latitude to vary the timing and pace of such purchases depending on conditions in the market for such securities and on broader mortgage market and housing sector conditions. The Committee may want to reiterate the limits that have already been announced for such purchases.

(51) If the Committee decides not to set a target at all, as in Alternative A, it could specify to the Desk that it has suspended setting a target and that it anticipates that the reserve conditions associated with its open market operations and the liquidity programs put in place by the Federal Reserve will result in federal funds rates near zero. It may also direct the desk to purchase GSE debt and agency-guaranteed MBS over the next intermeeting period, as under Alternative B, and subject to the same limits.

(52) Draft language for the directives is provided below.

Directive Wording

Alternative A: The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. Over the intermeeting period, the Committee directs the Desk to purchase GSE debt and agency-guaranteed MBS, with the aim of providing support to the mortgage and housing markets. The timing and pace of these purchases should depend on conditions in the markets for such securities and on a broader assessment of conditions in primary mortgage markets and the housing sector. By the end of the second quarter of next year, the Desk is expected to purchase up to \$100 billion in housing-related GSE debt and up to \$500 billion in agency-guaranteed MBS. The Committee has suspended setting a target for the federal funds rate, and it anticipates that the reserve conditions associated with its open market operations and the liquidity programs put in place by the Federal Reserve will result in federal funds rates near zero.

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 of 0 to $\frac{1}{4}$ percent. The Committee directs the Desk to purchase GSE debt and agency-guaranteed MBS during the intermeeting period with the aim of providing support to the mortgage and housing markets. The timing and pace of these purchases should depend on conditions in the markets for such securities and on a broader assessment of conditions in primary mortgage markets and the housing sector. By the end of the second quarter of next year, the Desk is expected to purchase up to \$100 billion in housing-related GSE debt and up to \$500 billion in agency-guaranteed MBS.

Alternative C: 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 has established a target for the federal funds rate of $\frac{1}{2}$ percent. In view of the large volume of reserves provided by the Federal Reserve's various liquidity programs, the Committee recognizes that the federal funds rate is likely to average somewhat below the $\frac{1}{2}$ percent target rate. The Committee directs the Desk to purchase GSE debt and agency-guaranteed MBS during the intermeeting period with the aim of providing support to the mortgage and housing markets. The timing and pace of these purchases should depend on conditions in the markets for such securities and on a broader assessment of conditions in primary mortgage markets and the housing sector. By the end of the second quarter of next year, the Desk is expected to purchase up to \$100 billion in housing-related GSE debt and up to \$500 billion in agency-guaranteed MBS.

Alternative D: The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. The Committee has maintained its target for the federal funds rate at 1 percent, but in view of the large volume of reserves provided by the Federal Reserve's various liquidity programs, the Committee recognizes that the federal funds rate is likely to average somewhat below the 1 percent target rate.

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	-1.0	-3.4	-0.8
Lagged headline inflation	-0.9	-3.1	-0.5
Projected headline inflation	0.3	-3.2	-0.6

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	$i_t = 1.20i_{t-1} - 0.39i_{t-2} + 0.19[1.17 + 1.73\pi_t + 3.66(y_t - y_t^*) - 2.72(y_{t-1} - y_{t-1}^*)]$
Forecast-based rule	$i_t = 1.18i_{t-1} - 0.38i_{t-2} + 0.20[0.98 + 1.72\pi_{t+2 t} + 2.29(y_{t+1 t} - y_{t+1 t}^*) - 1.37(y_{t-1} - y_{t-1}^*)]$
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 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.

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