Prefatory Note

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

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OCTOBER 23, 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 came under extraordinary stress over the intermeeting period. Markets were roiled by the bankruptcy of Lehman Brothers (which occurred just before the September FOMC meeting), the difficulties at AIG, the closing of Washington Mutual, and the forced sale of Wachovia. Those events intensified already heightened concerns about the condition of other U.S. financial institutions and about the impact of financial developments on the broader economy. Against this backdrop, investors pulled back further from risk taking; as a consequence, funding markets for terms beyond overnight essentially ceased to function for a time and still remain severely impaired, yields and spreads on money market instruments and corporate bonds shot up, secondary market prices for leveraged syndicated loans plunged, and equity prices registered steep declines amid extremely high volatility. Financial markets abroad experienced similar swings.

(2) In response, the Federal Reserve, the Department of the Treasury, the Federal Deposit Insurance Corporation (FDIC), the Securities and Exchange Commission, and many foreign central banks and governments took an unprecedented series of policy initiatives over the intermeeting period. Sentiment in credit markets seemed to improve somewhat late in the period, and there was a modest recovery in liquidity in bank funding markets after the U.S. and foreign governments announced they would inject capital into their banking systems and guarantee selected liabilities of banking organizations in their jurisdictions. However, markets generally remain extremely illiquid and volatile, and investors are still quite skittish.

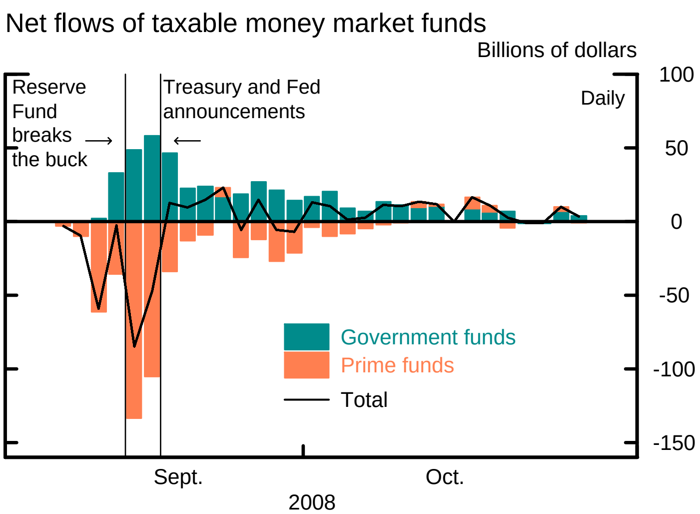
(3) On net over the intermeeting period, market participants marked down substantially the expected path of monetary policy, with some of the decline occurring after the intermeeting cut in the target federal funds rate on October 8, and they now foresee an additional rate cut at the October 28-29 meeting. Short-term nominal Treasury yields fell amid heavy flight-to-quality flows, while longer-term yields rose, reportedly in response to expectations of increased Treasury issuance to finance various government initiatives. Issuance of corporate debt slowed further amid the unfavorable market conditions, and nonfinancial businesses drew heavily on existing lines of credit at banks. The dollar appreciated against all major foreign currencies except the yen.

Financial Institutions

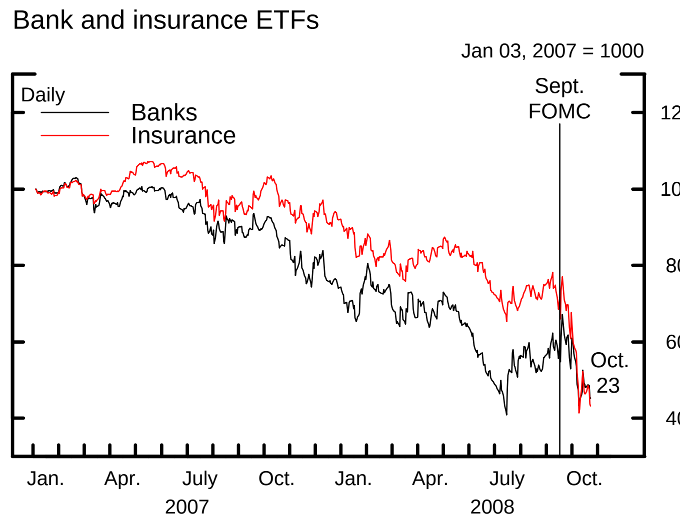
(4) Investor sentiment deteriorated early in the intermeeting period in reaction to the bankruptcy of Lehman Brothers and the rapid deterioration in the financial condition of AIG.[1] These developments precipitated losses at other financial entities, including prime money market mutual funds (MMMFs). Prominently, one of these—the Reserve Primary Fund—"broke the buck" on September 16, triggering rapid and widespread outflows from other prime MMMFs and inflows into those holding predominantly Treasury securities (Chart 1). Prime funds responded to the surge in redemptions by reducing their purchases of commercial paper and other short-term assets, causing significant strains in these markets. Meanwhile short-term Treasury bill yields plummeted amid sharp inflows into Treasury-only MMMFs. Intense

[1] On September 16, the Federal Reserve announced the establishment of a liquidity facility that would provide up to $85 billion in credit to assist AIG in meeting its obligations as they come due. This facility has a 24-month term, with interest accruing on the outstanding balance at a rate of three-month Libor plus 850 basis points, and is collateralized by all the assets of AIG and of its primary non-regulated subsidiaries. On October 8, the Federal Reserve announced an additional program under which it will lend up to $37.8 billion to finance investment-grade, fixed-income securities held by AIG. These securities had been previously lent by AIG's insurance company subsidiaries to third parties.

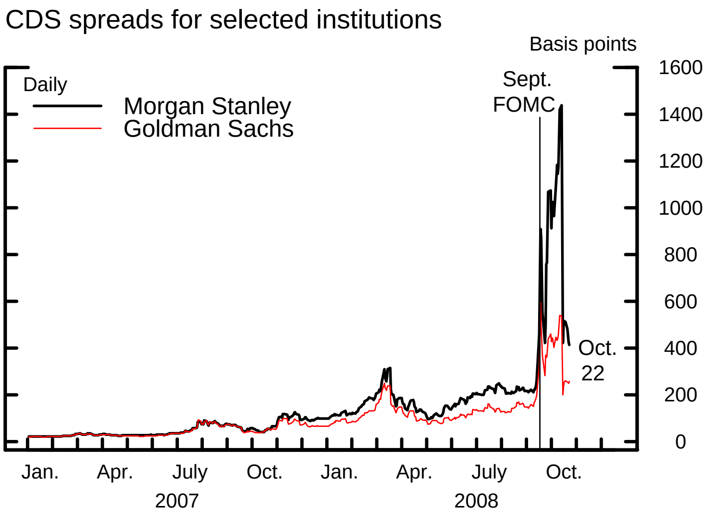
Chart 1
Financial Institutions



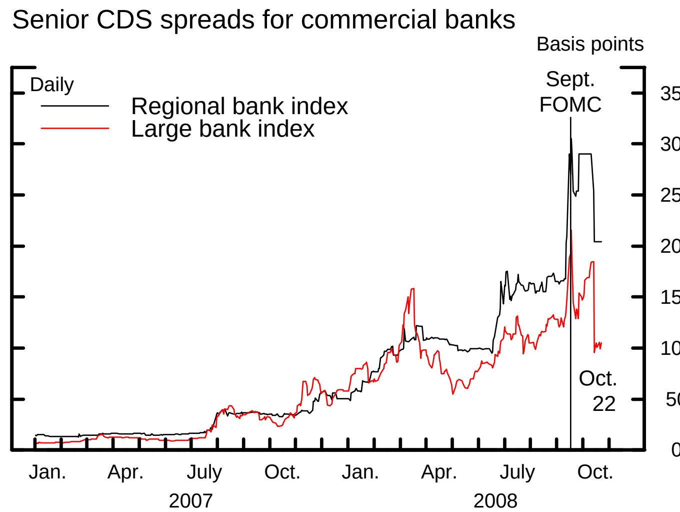
Source. iMoneyNet.



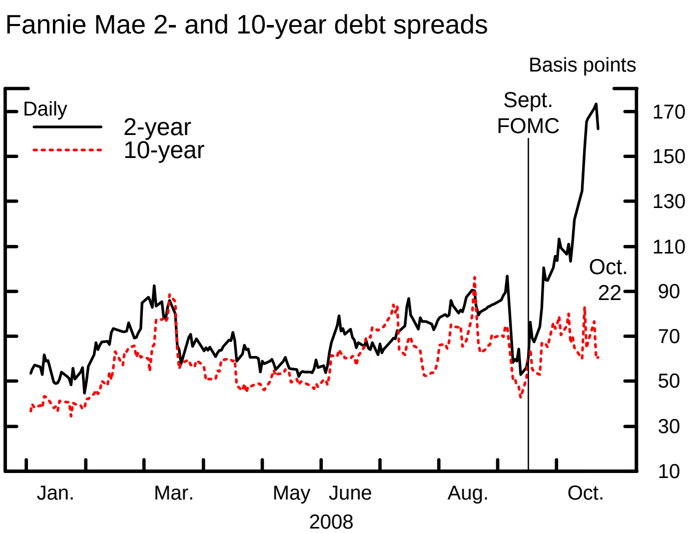
Note. There are 24 banks and 24 insurance companies included.
Source. Bloomberg.



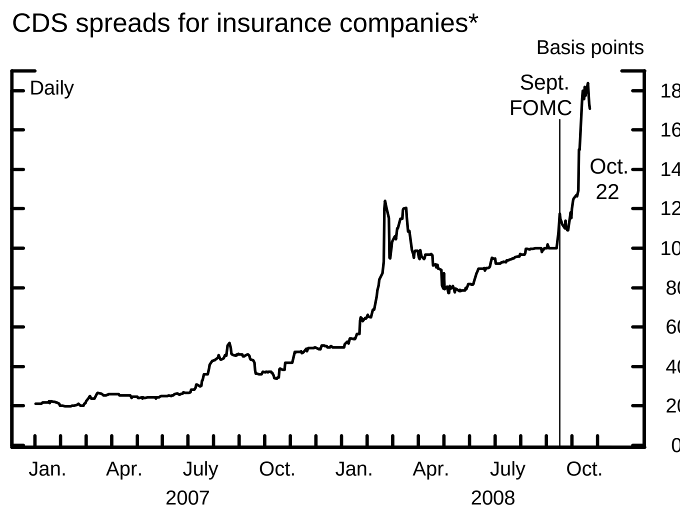
Source. Markit.



Note. Median spreads for 7 regional and 5 large commercial banks.
Source. Markit.



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



*Median spreads for 58 insurance companies.
Source. Markit.

demands among investors to hold Treasury securities and increased counterparty concerns reportedly led to a substantial scaling back of activity among traditional securities lenders in the Treasury market, contributing to strains in the Treasury repo and cash markets that were evidenced by a very high volume of fails-to-deliver. Redemptions from prime MMMFs slowed after the Treasury established a temporary guarantee program for balances held in MMMFs and the Federal Reserve announced its Asset-Backed Commercial Paper Money Market Mutual Fund Lending Facility (AMLF) on September 19, although outflows continued until early October.[2] Use of the AMLF to finance purchases of asset-backed commercial paper (ABCP) ramped up quickly to about $150 billion by early October but has diminished substantially of late. Further, to support a private-sector initiative designed to provide liquidity to MMMFs, on October 21 the Federal Reserve announced the creation of the Money Market Investor Funding Facility (MMIFF).[3]

(5) Difficulties also intensified at a number of depository institutions. The FDIC's decision to resolve the failure of Washington Mutual (WaMu) on September 25 in a manner that imposed significant losses on senior and subordinated debt holders led investors to mark down their expectations of government support for unsecured non-deposit liabilities, undermining the ability of some other banking organizations—including Wachovia, at the time the fourth-largest U.S. bank by assets—to obtain funding. On September 29, to avoid serious adverse effects on economic

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[2] Under the AMLF, the Federal Reserve extends non-recourse loans at the primary credit rate to U.S. depository institutions and bank holding companies to finance their purchases of high-quality ABCP from money market mutual funds, thereby assisting money funds that hold such paper in meeting demand for redemptions from investors.

[3] Under the MMIFF, the Federal Reserve will provide senior secured funding to a series of special purpose vehicles to finance their purchase of certain money market instruments from eligible investors. Eligible assets will include certificates of deposit, commercial paper, and bank notes issued by highly rated financial institutions with remaining maturities of 90 days or less. Eligible investors will include U.S. MMMFs and over time may include other U.S. money market investors.

conditions and financial stability, the Secretary of the Treasury, on the recommendation of the FDIC and the Federal Reserve and in consultation with the President, invoked the systemic risk exception to facilitate the sale of Wachovia's banking operations to Citigroup. Under this arrangement, the FDIC committed to absorb losses beyond a certain level on a portion of Wachovia's loans. However, this agreement was subsequently voided when Wells Fargo and Wachovia signed a merger agreement in a transaction that required no financial assistance from the FDIC.

(6) Other financial institutions experienced heightened stress during the intermeeting period, most notably Morgan Stanley and several major hedge funds. Morgan Stanley was buffeted by uncertainty about whether Mitsubishi UFJ Financial Group would close its $9 billion purchase of a 21 percent interest in the firm, a transaction that was finally confirmed on October 13. More recently, investor concerns about hedge funds intensified after news surfaced of poor performance at Citadel and after Highland Capital Management announced that it was closing two funds that had experienced asset value declines in excess of 30 percent this year.

(7) The equity prices of banks and insurance companies were extremely volatile and posted steep declines on net over the intermeeting period, in part reflecting a marked deterioration in the outlook for profits. CDS spreads of Goldman Sachs and Morgan Stanley soared in the wake of Lehman Brothers' collapse. Those spreads narrowed sharply after the two firms converted their nonblank depository institutions into commercial banks and were granted bank holding company status by the Federal Reserve and following news of capital investments by Berkshire Hathaway and Mitsubishi UFJ Financial Group in Goldman Sachs and Morgan Stanley, respectively. CDS spreads for commercial banks were also volatile but moved down substantially in response to news of the Treasury's Capital Purchase Program and the FDIC's guarantee of selected bank liabilities, ending the intermeeting period about 85 basis points lower. Meanwhile, short-term agency debt spreads widened to well above pre-

conservatorship levels, reportedly because investors perceived the guarantee of agency debt to be weaker than the FDIC's guarantee of senior unsecured bank debt. In addition, some market participants registered concerns that the credit quality of the GSEs could be impaired if they were required to purchase large volumes of subprime mortgage assets. CDS spreads for insurance companies also surged over the intermeeting period.

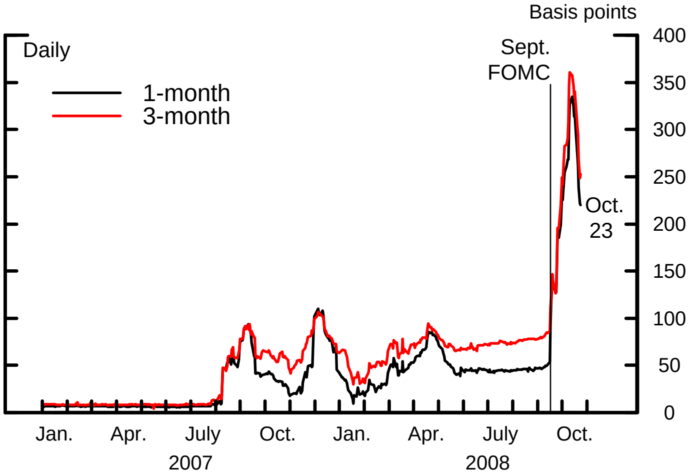
Market Functioning

(8) Short-term funding markets came under considerable stress amid heightened concerns about counterparty credit risk. Conditions in unsecured interbank funding markets worsened, with spreads of Libor over comparable-maturity overnight index swap (OIS) rates rising to unprecedented levels and with very little trading taking place at terms beyond overnight (Chart 2). Strains increased even in overnight funding markets, as overnight Libor rose to about 340 basis points above the federal funds rate target in early October and overnight federal funds traded within an unusually wide range, partly reflecting tiering across institutions. Conditions in very short-term funding markets improved significantly after the European Central Bank (ECB), the Bank of England (BoE), and the Swiss National Bank (SNB) initiated a series of unlimited fixed-rate dollar auctions, and governments in a number of countries, including the United States, announced plans to inject capital into banking institutions and to guarantee some bank liabilities. Libor fixings declined about 415, 230, and 100 basis points for overnight, one-week, and one-month maturities, respectively, starting on October 9. Conditions in markets for unsecured funding for longer terms also improved, but trading reportedly remains very sparse.

(9) Conditions in secured funding markets were also quite poor. The overnight general collateral repo rate and short-dated Treasury bill yields traded near zero for most of the period amid heavy demand for safe investments. Those low rates

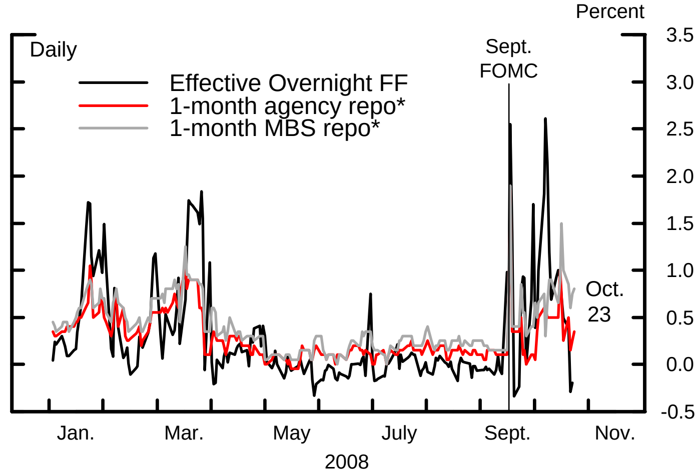
Chart 2
Market Functioning

Spreads of Libor over OIS



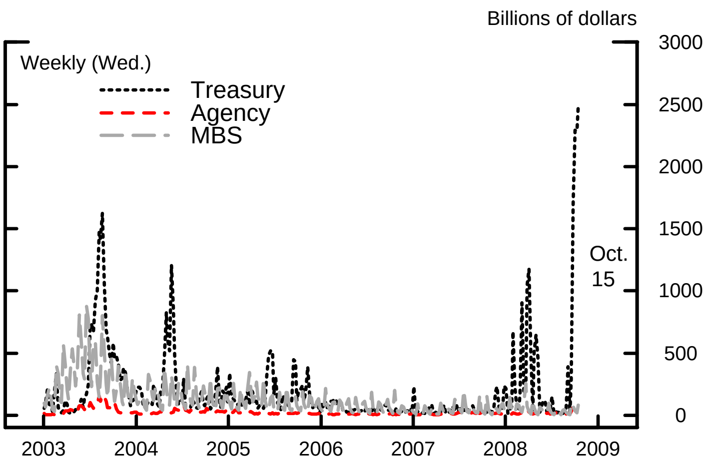
Note. Libor quotes are taken at 6:00 am, and OIS quotes are observed at the close of business of the previous trading day.
Source. Bloomberg

Spreads over Treasury GC repos



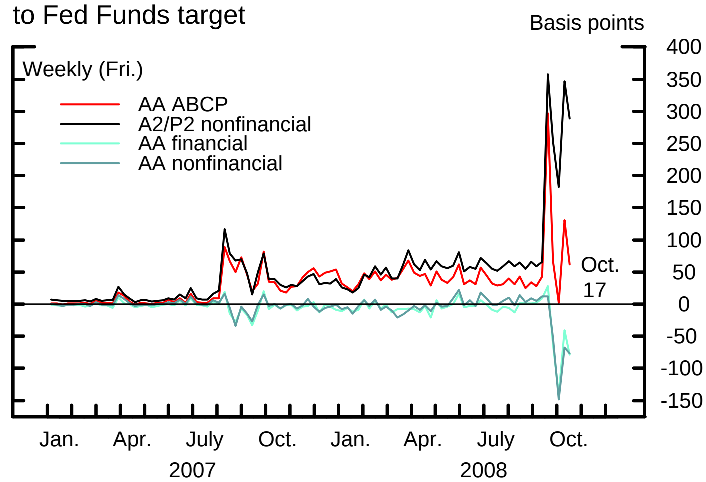
*Spread over 1-month Treasury GC repo.
Source. Bloomberg, New York Fed.

Fails to deliver



Source. FR2004.

Overnight new issue spreads to Fed Funds target



Source. DTCC.

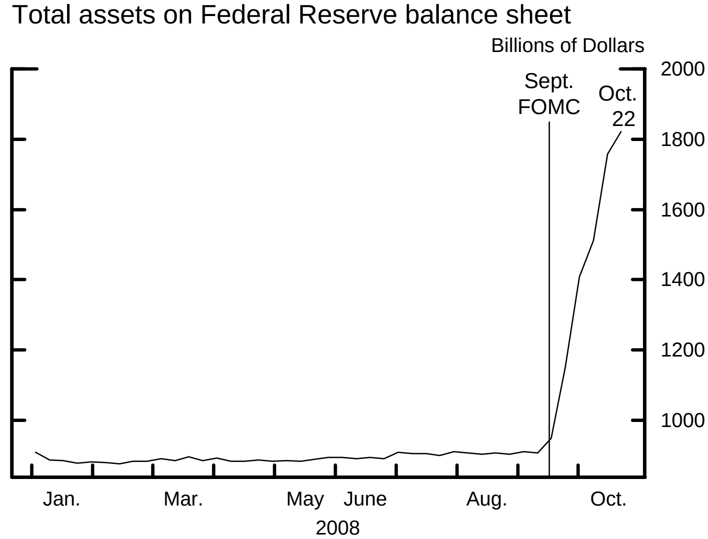
Selected items from Federal Reserve balance sheet

Billions of dollars

Item	Level (Oct. 22)	Change from Sept. 15
Primary Credit	108	85
TAF	263	113
PDCF	102	61
AMLF	108	108
Loans to AIG	90	76
Selected other Assets*	518	417
Deposits of D.I.s	227	123
Supplementary Financing Account	559	559

*Includes assets denominated in foreign currencies, including foreign currency holdings that are part of reciprocal swap arrangements with foreign central banks.

Total assets on Federal Reserve balance sheet



occurred despite issuance by the Treasury of over $500 billion in new bills under the Supplementary Financing Program (SFP). Overnight lending of securities from the System Open Market Account (SOMA) portfolio and fails-to-deliver soared to record highs. To address strains in the Treasury market, the Federal Reserve introduced temporary changes in its securities lending program, including a reduction in the fee structure and an increase in per-dealer borrowing limits. In addition, the Treasury increased its issuance by reopening several notes that were experiencing severe demand imbalances in the market. These measures, however, had only a modest effect on Treasury market trading conditions. Heightened strains were also evident in the markets for repo transactions backed by collateral other than Treasury securities. Rates on agency mortgage-backed security (MBS) repos were especially volatile, and haircuts applied to a wide range of repo collateral reportedly increased over the past few weeks from already elevated levels. Trading in these non-Treasury repo markets remained essentially confined to overnight maturities.

(10) Conditions in the commercial paper (CP) market continued to be strained, as net redemptions of shares in prime MMMFs and concerns among money managers about credit quality and liquidity cut into the demand for CP, making issuance difficult. As a result, spreads of ABCP and lower-rated CP rates to the target federal funds rate widened sharply, and amounts outstanding in the financial sector continued to trend down. In response to these developments, the Federal Reserve announced the establishment of the AMLF, the Commercial Paper Funding Facility (CPFF), and the MMIFF.[4] Reportedly, some improvements in CP market functioning started to

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[4] On October 7, the Federal Reserve authorized the creation of the CPFF to provide a liquidity backstop to U.S. issuers of commercial paper through a special purpose vehicle (SPV) that will purchase three-month unsecured and asset-backed CP from eligible issuers through the primary dealers. The Federal Reserve will provide overnight financing to the SPV under the CPFF at the target federal funds rate and will be secured by all of the assets of the SPV. The Federal Reserve will also be secured by any excess spread and fees that

surface in recent days, perhaps because investors gained comfort from the FDIC guarantee of some CP issued by banking organizations and also from the announcement of details of the CPFF, which will become operational on October 27.

(11) The functioning of the CDS market remained far from normal. Judging from the wide range and declining frequency of dealer quotes, both liquidity and price discovery was impaired over recent weeks, especially for contracts involving financial firms. The bankruptcy of Lehman Brothers created another significant credit event in the CDS market and added to stress generated by the placement of Fannie Mae and Freddie Mac into conservatorship. Nonetheless, auctions held to determine the settlement prices for CDS contracts written on the two GSEs and on Lehman Brothers, which were conducted on October 6 and October 10, respectively, were successful in facilitating the settlement of a significant number of credit derivative trades on these institutions. The functioning of longer-term corporate debt markets also deteriorated over the intermeeting period. Staff estimates of bid-asked spreads in the bond market rose sharply, and in the secondary market for leveraged syndicated loans, the average bid-asked spread surged nearly 200 basis points to an unprecedented level of 373 basis points in mid-October.

(12) Depository institutions' use of the primary credit facility was elevated over the intermeeting period, with primary credit outstanding totaling $108 billion as of October 22. The 28-day Term Auction Facility (TAF) auction held on September 22 was heavily bid, with a stop-out rate of 3.75 percent, more than 50 basis points above one-month Libor. The first 84-day TAF auction that offered $150 billion was announced and conducted on October 6; the auction was undersubscribed and stopped out at the minimum bid rate of 1.39 percent, perhaps because banks did not have sufficient time to post additional collateral ahead of the auction. The 28-day

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accumulate in the SPV. Additional details regarding the CPFF were provided on October 14.

TAF auction held on October 20, however, also was not fully subscribed and stopped out at the minimum bid rate.[5] The ten Term Securities Lending Facility (TSLF) auctions conducted over the intermeeting period—three for Schedule 1 and seven for Schedule 2 collateral—saw very high demand and stop-out rates that were well above the corresponding minimum fee rates. Dealers mentioned challenging repo market conditions and elevated spreads in collateralized markets as possible explanations for the strong participation. On September 24, dealers exercised about $47 billion of the nearly $50 billion of TOP options for TSLF loans spanning the September quarter-end. The use of the Primary Dealer Credit Facility (PDCF) also surged over the intermeeting period, and PDCF outstandings were $102 billion as of October 22—nearly three times the level observed in March and April in the wake of the Bear Stearns collapse. As of October 22, credit extensions under the AMLF totaled $108 billion, but little new net credit has been extended since October 1. Credit outstanding to AIG stands at about $90 billion. All told, the sharp increase in liquidity provision had a marked impact on the size and the composition of the Federal Reserve balance sheet.

(13) Beginning with the reserve maintenance periods starting October 9, the Federal Reserve has paid interest on required reserve and excess balances. Nevertheless, partly because of the extremely high provision of liquidity through the Federal Reserve's liquidity facilities, the effective federal funds rate has been well below the FOMC's target, with a substantial amount of trading at rates below the

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[5] On October 6, the Federal Reserve boosted the sizes of both the 28-day and 84-day TAF auctions to $150 billion each. These increases will eventually bring the maximum amount outstanding under the regular TAF program to $600 billion. In addition, the sizes of the two forward TAF auctions—announced on September 29 and scheduled to be conducted in November to extend credit over year-end—were increased to $150 billion each, so that a maximum of $900 billion of TAF credit will potentially be outstanding over year-end.

interest rate paid on excess balances.[6] However, federal funds futures rates rose following the announcement on October 22 that the Federal Reserve had increased the rate it would pay on excess balances beginning the following day.[7] (See the box "Early Experience with Interest on Reserves.")

Monetary Policy Expectations and Treasury Yields

(14) The intensification of the financial turmoil, the further impairment of the functioning of funding markets, and a much weaker economic outlook led investors to revise down their expected path for the federal funds rate in the near term and to place considerable odds on at least a 25 basis point rate cut at the October 28-29 FOMC meeting (Chart 3). The FOMC's decision to leave its policy rate unchanged at 2 percent at the September meeting took some market participants by surprise and led them to scale back their expectations of policy easing over the next year. However, policy expectations shifted down in response to the 50 basis point intermeeting cut by the FOMC in coordination with other foreign central banks on October 8, as market participants were reportedly somewhat surprised by the decision and interpreted the language of the accompanying statement as suggesting that further easing was likely. The reaction to both policy actions was soon overshadowed, however, by market concerns about the financial sector and the economic outlook.

(15) Options on federal funds futures suggest that investors currently place high odds on the FOMC lowering the federal funds target at the October 28-29 meeting,

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[6] The effective federal funds rate averaged 1.28 percent over the intermeeting period. The intraday standard deviation of the funds rate, at about 75 basis points, was extremely elevated by historical standards and more than double the level observed in March. Over this intermeeting period, the volume of long-term repurchase agreements declined $10 billion, and on September 18 the Desk redeemed the full amount of maturing Treasury bill holdings, $3.3 billion, to draw reserve from the banking system.

[7] Previously the rate on excess balances had been set at the lowest federal funds rate target established by the FOMC during the reserve maintenance period minus 75 basis points. Under the revised rule the rate will be set to the lowest target rate minus 35 basis points.

Early Experience with Interest on Reserves

The Emergency Economic Stabilization Act accelerated the Federal Reserve's authority to pay interest on balances held by or on behalf of depository institutions at Reserve Banks. This interest began accruing on October 9. The payment of interest on excess balances should reduce depository institutions' incentives to sell federal funds at rates below the rate paid on excess. To date, the results of this policy change have been mixed, although some evidence suggests that interest on reserves might become a more effective tool over time.

The rate paid on excess balances has not established a hard floor to the federal funds rate. Initially, this rate was set equal to the lowest targeted federal funds rate for the maintenance period less 75 basis points, resulting in a rate of 75 basis points. From October 9 to October 22, an average of 35 percent of brokered federal funds trades transacted at rates below 75 basis points. However, the share of brokered trades at rates near zero has declined substantially. Fannie Mae and Freddie Mac, two large net sellers of funds in the market, are not eligible to receive interest on the balances they hold and are reportedly selling funds at rates below 75 basis points. In addition, some small depository institutions have also been selling funds at rates below 75 basis points. Some of these institutions may believe that their correspondent banks will not pass on interest earned on excess balances and thus are willing to sell federal funds at rates below the rate paid on excess balances. To foster trading at rates closer to the target rate, the Board narrowed the spread between the target federal funds rate and the rate paid on excess balances to 35 basis points effective October 23.

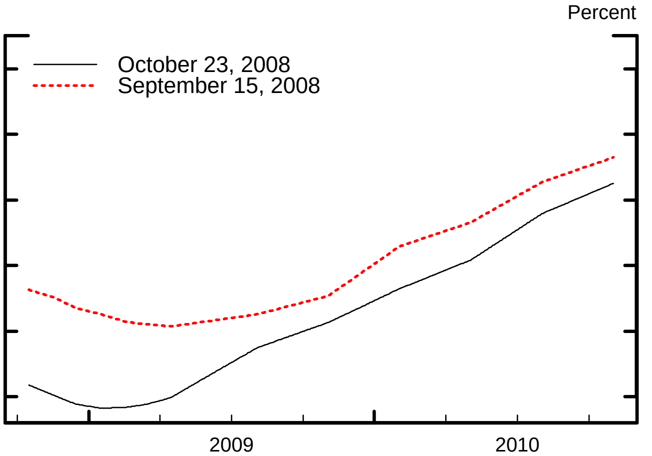
Market participants may still be adapting to the new system. In principle, arbitrage should keep market rates close to the rate paid on excess balances if enough institutions that are eligible to receive interest were to bid for the funds of ineligible institutions. Indeed, a couple of large banks are apparently doing so now and in some volume, and this pattern may strengthen over time. In addition, correspondent banking agreements may be restructured in light of the payment of interest to respondent banks. Some respondent institutions are reportedly considering terminating their correspondent relationships and holding balances directly with the Reserve Banks.

One potentially related development is a significant decline in the volume of brokered transactions in the federal funds market. With the extraordinary level of balances in the system, and the ability to earn significant interest on an essentially risk-free asset, the incentive for institutions to trade in the overnight market may have diminished.

Chart 3

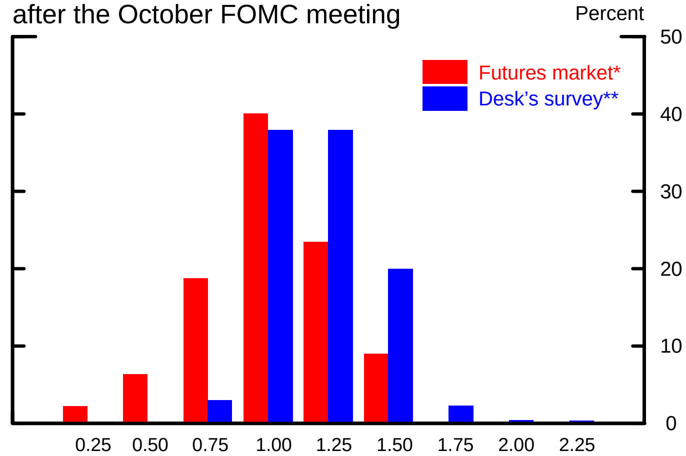
Interest Rate Developments

Expected federal funds rates*



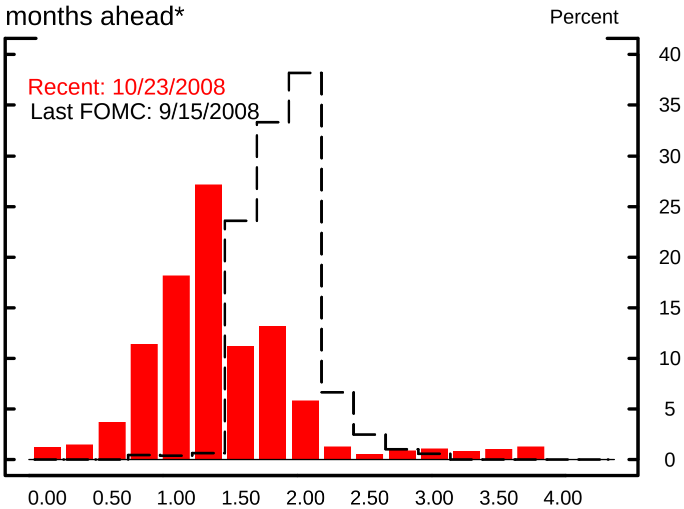
*Estimates from federal funds and Eurodollar futures, with an allowance for term premiums and other adjustments.

Probability density for target funds rate after the October FOMC meeting



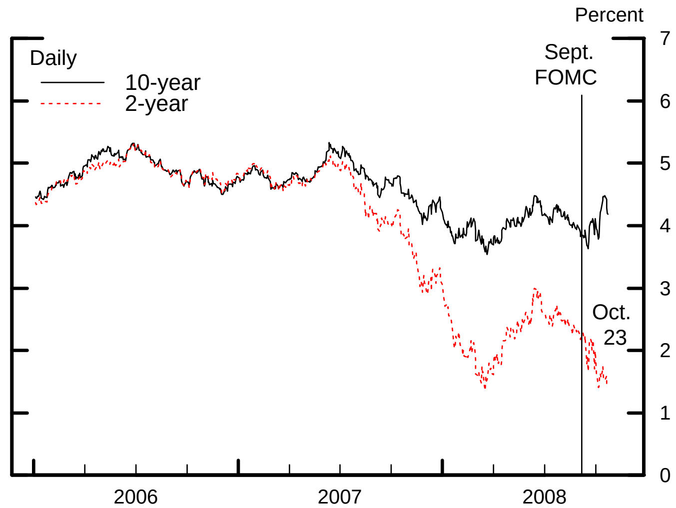
*Derived from options on federal funds futures.
**Survey of primary dealer economists on Oct 21, 2008.

Implied distribution of federal funds rate six months ahead*



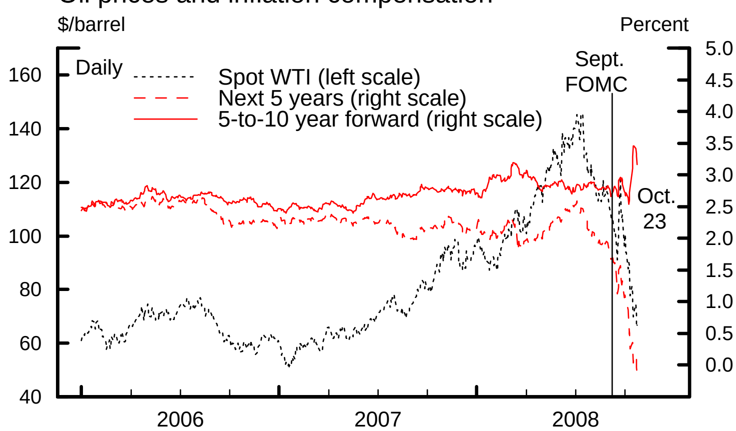
*Derived from options on Eurodollar futures contracts, with term premium and other adjustments to estimate expectations for the federal funds rate.

Nominal Treasury yields*



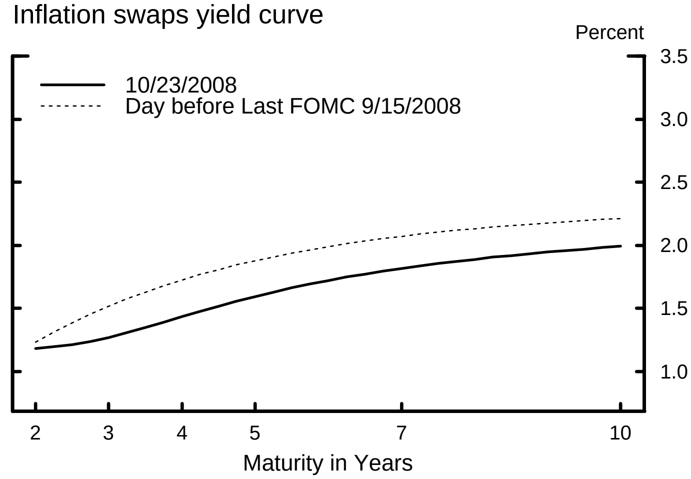
*Par yields from a smoothed nominal off-the-run Treasury yield curve.

Oil prices and inflation compensation*



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

Inflation swaps yield curve



assigning odds of roughly 25, 40, and 20 percent, respectively to a 25, 50, and 75 basis point rate cut, and about 10 percent odds to no change in the policy rate. However, these probabilities may be distorted to some extent by expectations that the effective funds rate will continue to trade below the target for a while. Responses to the Desk's primary dealer survey on October 20—which were not affected by this factor although they may now be somewhat stale—indicate that dealers place 38 percent probabilities on a 25 and 50 basis point rate cut, a 3 percent probability on a 75 basis point rate cut, and a 20 percent probability on no change. Further ahead, futures quotes suggest that investors expect the FOMC to begin tightening by the spring of 2009, with the federal funds rate returning to a level of about 1.5 percent by the end of 2009 and 2.75 percent by the end of 2010. However, these estimates may also be distorted; term premiums resulting from heightened market volatility and poor functioning in other financial markets may be substantially higher than currently assumed by the staff, which would imply a lower long-term trajectory for the expected funds rate. Uncertainty about the federal funds rate six months ahead increased over the intermeeting period, as indicated by the widening of the option-implied probability distribution at this horizon.

(16) Two-year nominal Treasury yields declined 36 basis points on net over the intermeeting period amid heavy safe-haven demand and in response to the downward shift in policy expectations and the economic outlook. In contrast, ten-year nominal yields rose 50 basis points, likely reflecting expectations for increased Treasury issuance to finance federal government asset purchases and other activities, and perhaps also increased uncertainty about the future course of interest rates, which may have boosted term premiums. Standard measures of inflation compensation based on differences between nominal and inflation-indexed Treasury yields were extremely volatile over the intermeeting period. On net, inflation compensation over the next five years fell about 147 basis points, while it rose 41 basis points five to ten years

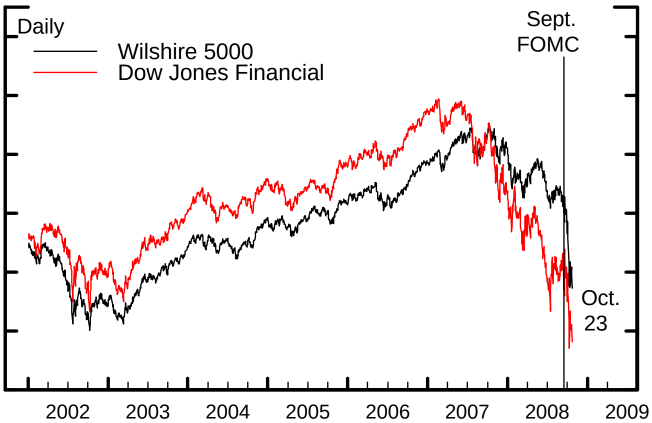
ahead. Inferences about inflation expectations from these figures should be made cautiously, however, as market yields were likely heavily affected by large increases in liquidity premiums in TIPS yields and by supply effects on nominal Treasury yields. Measures of inflation compensation obtained from inflation swaps, by contrast, posted modest declines across the term structure and appeared more consistent with the mixed changes in inflation expectations in the Reuters/Michigan survey and the roughly $25 per barrel decrease in the price of crude oil over the intermeeting period. In addition, respondents to the Desk's survey expect a lower rate of CPI inflation from five to ten years ahead.

Capital Markets

(17) As the financial turmoil intensified and the economic outlook deteriorated over the intermeeting period, broad equity price indexes dropped substantially on net amid very high volatility (Chart 4). Stock price declines were widespread across sectors. Financial firms notably underperformed for most of the period, although they recently moved back more closely in line with broad indexes. With the earnings reporting season just getting under way, analysts currently expect earnings per share for the S&P 500 to be about 3 percent lower than year-ago levels, pulled down mostly by decreases at financial firms. For the roughly 75 percent of publicly traded banking organizations that have reported earnings to date (excluding three financial institutions that will be acquired in the near term—Merrill Lynch, Wachovia, and Sovereign), third-quarter earnings were slightly negative. Weak third-quarter results were attributed to write-downs on security holdings and to continued loan loss provisioning to offset increased credit losses on a variety of loans. In contrast, earnings at nonfinancial firms are expected to come in about 12 percent above year-ago levels, with gains largely accounted for by the oil and gas sectors. Looking ahead, analysts marked down their projections for earnings over the coming year significantly

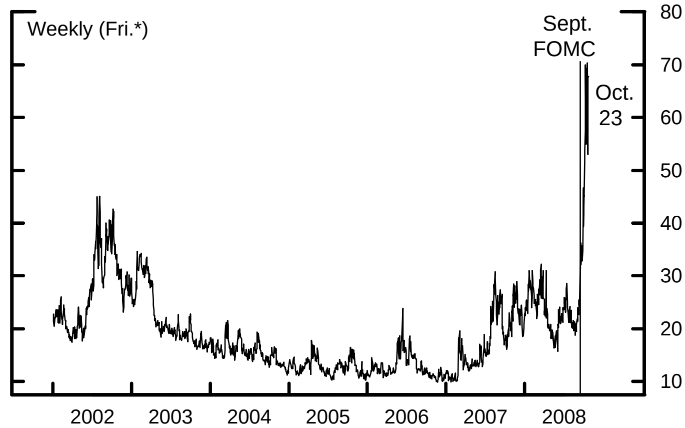
Chart 4
Asset Market Developments

Equity prices



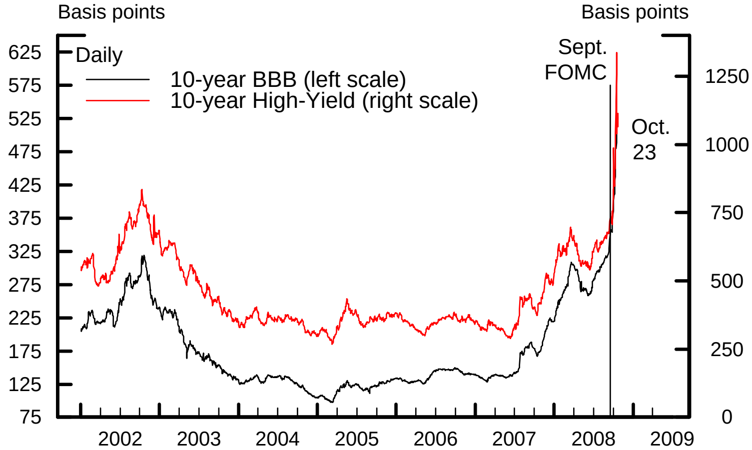
Source. Bloomberg.

Implied volatility on S&P 500 (VIX)



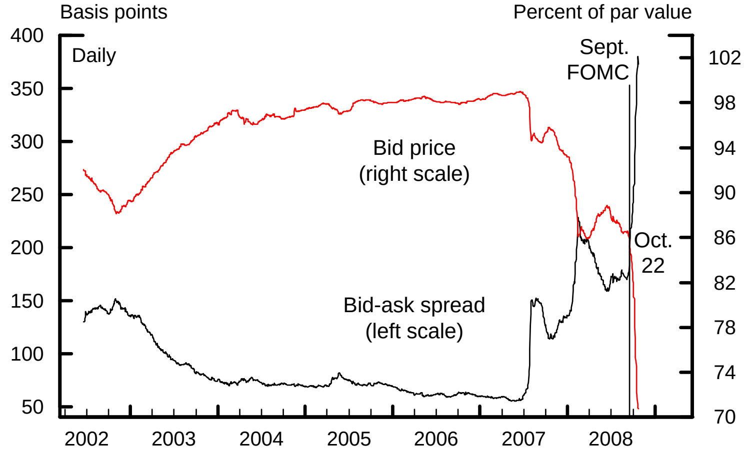
*Latest observation is for most recent business day.
Source. Chicago Board of Exchange.

Corporate bond spreads*



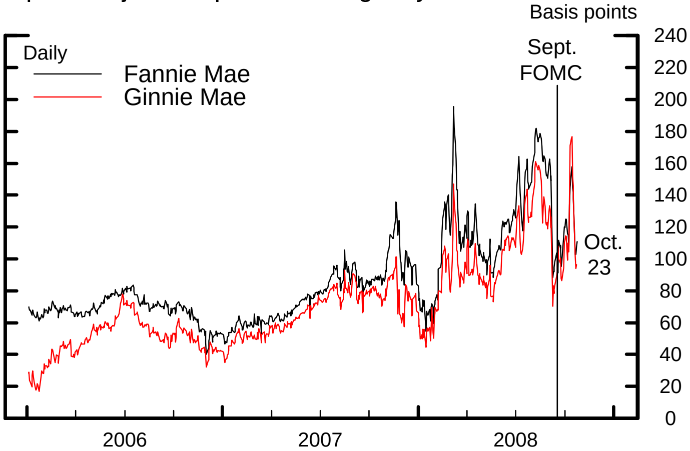
*Measured relative to an estimated off-the-run Treasury yield curve.
Source. Merrill Lynch.

Pricing in the secondary market for leveraged loans



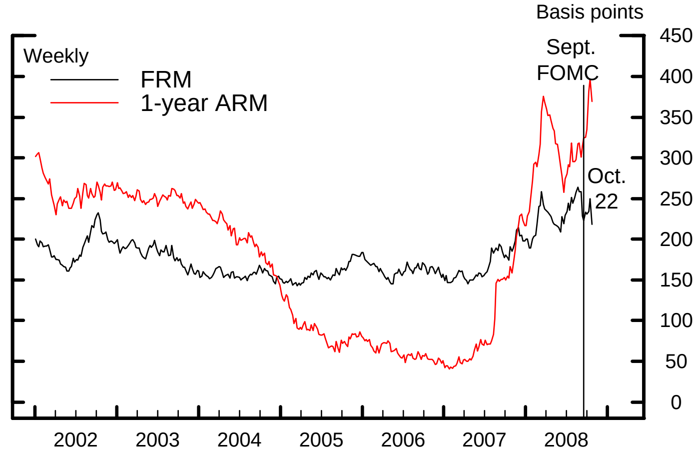
Source. LSTA/LPC Mark-to-Market Pricing.

Option-adjusted spreads on Agency MBS



Note. Spreads over Treasury.
Source. Bloomberg.

Residential mortgage rate spreads



Note. FRM spread relative to 10-year Treasury. ARM spread relative to 1-year Treasury.
Source. Freddie Mac.

for both financial and nonfinancial firms. Option-implied volatility on the S&P 500 surged to a record level, well above its previous high in 1998, and the spread between the twelve-month forward trend earnings-price ratio for S&P 500 firms and the real long-term Treasury yield—a rough gauge of the equity premium—reached the highest level since the start of the series in 1982.

(18) Conditions in corporate debt markets tightened further over the intermeeting period. Risk spreads on investment- and speculative-grade bonds soared to historically high levels. The increases appeared to reflect upward revisions to expected losses as well as a further widening of already elevated risk premiums. Gross bond issuance by investment-grade nonfinancial firms has been moderate, and issuance of speculative-grade bonds has been nil. Conditions in the leveraged syndicated loan market also deteriorated sharply over the period. In particular, the secondary market average bid price plunged an unprecedented 15 points, to nearly 70, reportedly due to heavy sales by hedge funds and unwinds of total return swaps and market-value collateralized loan obligations. The implied spread on an index of loan credit default swaps (the LCDX) almost doubled, on net, to about 800 basis points over the period. Finally, hedge fund performance continued to deteriorate over the past few weeks, with the Global Hedge Fund Index tumbling more than 10 percent.

(19) The interest rate on 30-year fixed-rate conforming mortgages increased, on net, about 50 basis points to almost 6.5 percent in mid-October. The mortgage rate had nearly returned to the very elevated levels seen just before Fannie Mae and Freddie Mac were taken into conservatorship in early September, but has reversed most of that rise over the past week. MBS spreads were extremely volatile amid reportedly poor trading conditions. Meanwhile, interest rates on nonconforming jumbo mortgages remained extremely high. Delinquency rates for prime and subprime mortgages increased further. Issuance of Fannie Mae and Freddie Mac MBS in September increased slightly but remained below the pace seen in the first

half of the year, while issuance by Ginnie Mae has stayed elevated; the Federal Reserve purchased $14.5 billion in agency discount notes over the intermeeting period. Issuance of asset-backed securities (ABS) collateralized by consumer credit declined notably in the third quarter, at least partly as a result of historically high spreads.

(20) Conditions in the municipal bond market deteriorated substantially in recent weeks, although there appears to have been some improvement recently. Variable-rate demand notes and tender option bonds reportedly were put back to liquidity providers, who in turn sold the underlying long-term bonds in the secondary market, putting pressure on prices and market functioning. Amid the resulting unfavorable climate, issuance of longer-term municipal bonds slowed markedly in September and early October. The credit quality of municipal bonds also deteriorated in the third quarter, and the number of downgrades far outpaced the number of upgrades. Yield ratios on municipal bonds spiked to record levels, although the short-term ratio retraced somewhat in the last few days of the period.

Foreign Developments

(21) The unfolding financial crisis affected financial markets across the globe over the intermeeting period, intensifying in Europe and spreading to markets in the emerging market economies as well. Spreads over OIS rates of term sterling and term euro rates rose sharply from their already elevated levels following the collapse of Lehman Brothers and difficulties at AIG, although the increase was less pronounced than in comparable dollar markets. To address the growing global strain in dollar funding markets, the Federal Reserve progressively increased the sizes of its reciprocal currency swap lines with foreign central banks and boosted the number of central bank counterparties (Australia, Japan, Canada, United Kingdom, Sweden, Norway, and Denmark were added). Late in the period, in connection with these swap

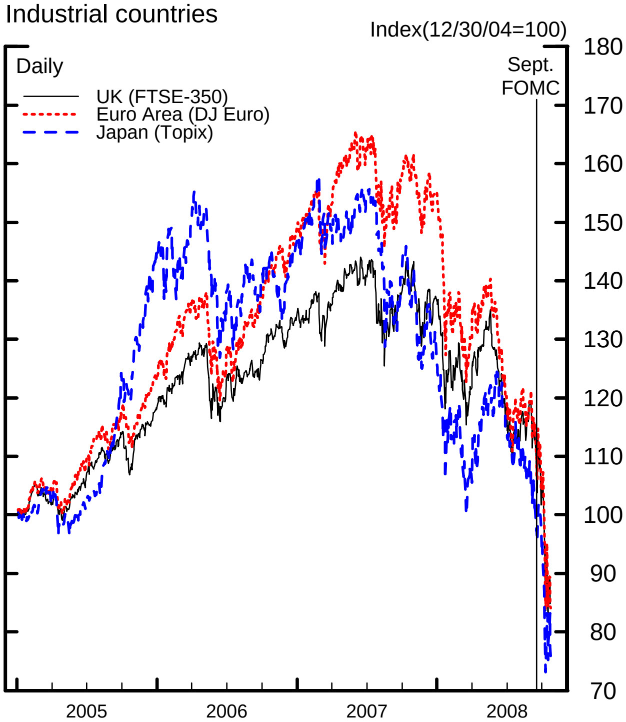
arrangements, the European Central Bank, the Bank of England, the Swiss National Bank, and the Bank of Japan began to conduct auctions of dollar liquidity with 7-day, 28-day, and 84-day maturities at pre-announced fixed interest rates, with funding being made available to fully meet the quantities demanded by borrowers in possession of eligible collateral. Additionally, the Swiss National Bank announced plans to draw on its swap line to help finance up to $60 billion in purchases of assets from a major Swiss bank.

(22) In early October, amid declines in confidence and increasingly constricted access to funding, several high-profile banks in Europe were on the verge of failure, prompting nationalizations and capital injections by their respective governments. A pullback from risk in virtually all advanced and emerging market economies had induced plunges in stock prices, sharp swings in exchange rates, large increases in risk spreads, and an almost complete seizing-up of credit markets (Chart 5). Subsequently, authorities in many foreign industrial countries, as well as in the United States, announced a series of measures of unprecedented scale and scope designed to support the banking system and restore the functioning of credit markets. Since these announcements, conditions in short-term funding markets, as evidenced by Libor to OIS spreads, have improved somewhat. Equity prices initially moved up in most markets, but they continued to swing wildly thereafter as investors focused on the risks of global recession. On net, over the intermeeting period, equity indexes in most advanced and developing countries declined 20 percent or more. Interest rates on sovereign bonds in industrial countries exhibited substantial volatility, and nominal yield curves steepened as two-year yields declined while ten-year yields were mixed. In developing countries, sovereign credit spreads rose sharply, leading several countries to postpone scheduled sales of debt.

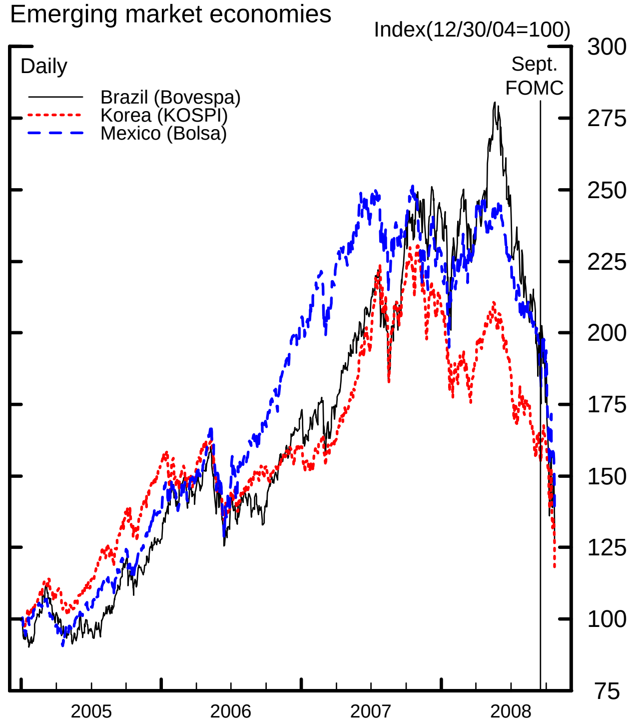
(23) The major currencies index of the dollar rose sharply over the period, increasing 9 percent on net, as the dollar appeared to benefit from the global decrease

Chart 5
International Financial Indicators

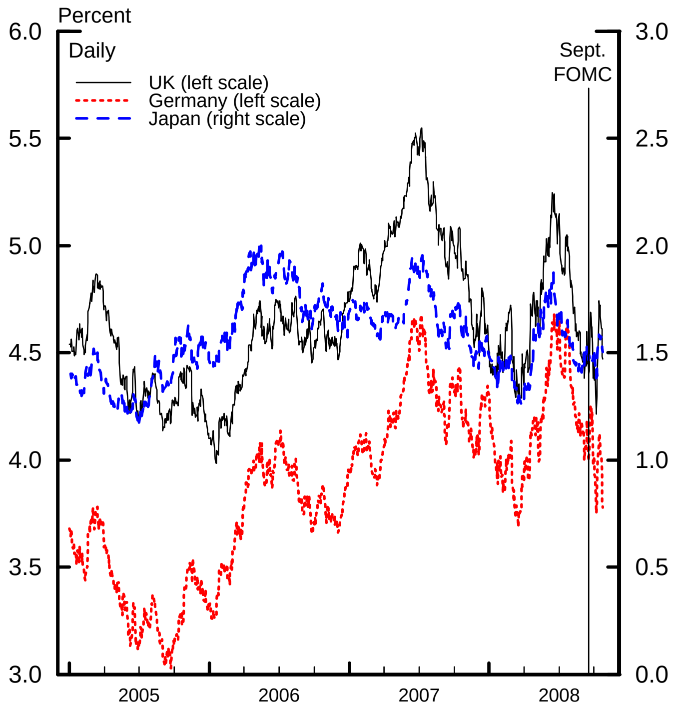
Stock price indexes
Industrial countries



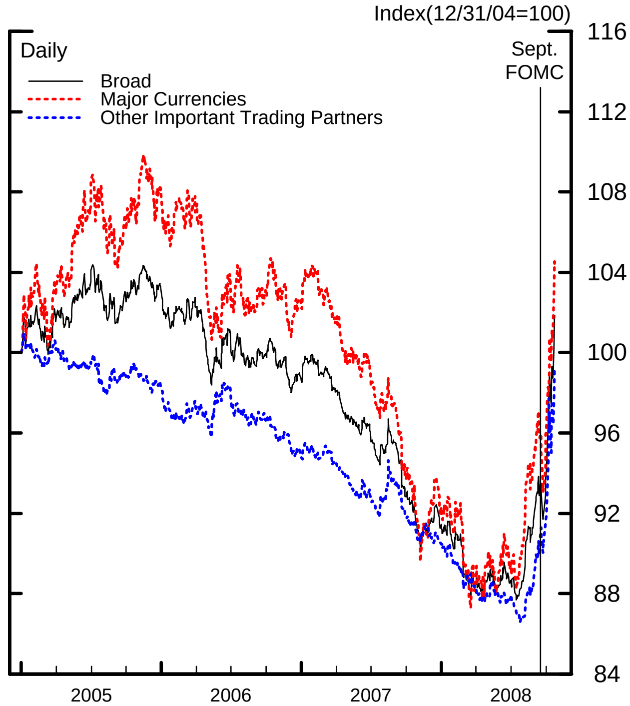
Stock price indexes
Emerging market economies



Ten-year government bond yields (nominal)



Nominal trade-weighted dollar indexes



Note. Last daily observation is for October 23, 2008.

in risk appetite. An exception was the dollar's 7 percent depreciation versus the yen, which apparently reflected a rapid unwinding of yen carry-trade positions. Implied volatilities in most currency pairs rose to multi-year highs, making hedging currency risk far more costly. The dollar appreciated 9 percent against the currencies of our other important trading partners over the period. Most notably, the dollar rose about 25 percent against the Brazilian *real* and the Mexican peso, and 21 percent versus the Korean won, despite reports of heavy intervention sales of dollars by the monetary authorities of these countries. The dollar's especially sharp increase against the currencies of emerging market economies likely reflected investors' pulling back from risk, although in some cases sharp declines in commodity prices likely also contributed to the weakening of those currencies.

Debt and Money

(24) The debt of domestic nonfinancial sectors is projected to have expanded at a 9 percent annual rate in the third quarter, almost twice as fast as the average pace in the first half of the year and 5 percentage points greater than the pace reported in the previous Bluebook (Chart 6). The pickup was attributable almost entirely to increased borrowing by the federal government related to the Supplemental Financing Program and the TARP. In contrast, the rate of debt growth in the business and household sectors is estimated to have slowed. As already noted, in the nonfinancial business sector, investment-grade bond issuance was moderate and speculative-grade bond issuance was nil, perhaps due to extremely high interest rates and risk spreads. By contrast, commercial paper outstanding rose despite the extremely impaired market conditions. In the leveraged loan market, institutional issuance reportedly continued to be very weak. Household debt continued to slow as falling house prices weighed on mortgage borrowing and the weakness in consumption spending trimmed consumer credit growth.

Chart 6
Debt and Money

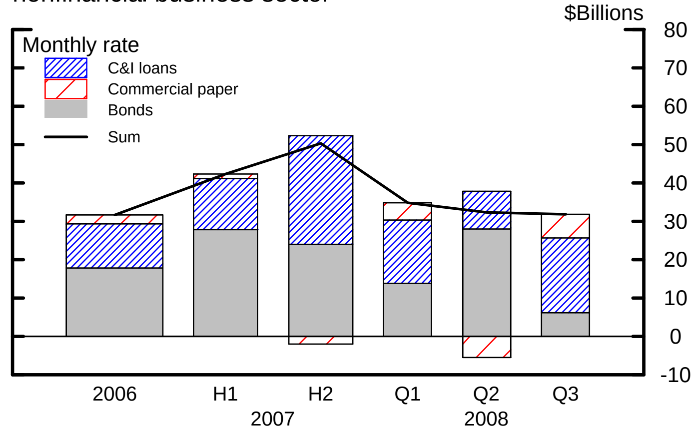
Growth of debt of nonfinancial sectors

Percent, s.a.a.r.

	Total	Business	Household	Government
2007	8.6	13.0	6.8	6.1
Q1	8.1	10.4	7.0	7.1
Q2	8.0	12.8	7.2	3.1
Q3	9.1	14.2	6.2	7.8
Q4	8.1	12.1	6.1	6.0
2008				
Q1	5.4	7.4	3.3	6.7
Q2	3.5	5.7	1.4	4.4
Q3 p	8.9	5.3	0.5	29.7

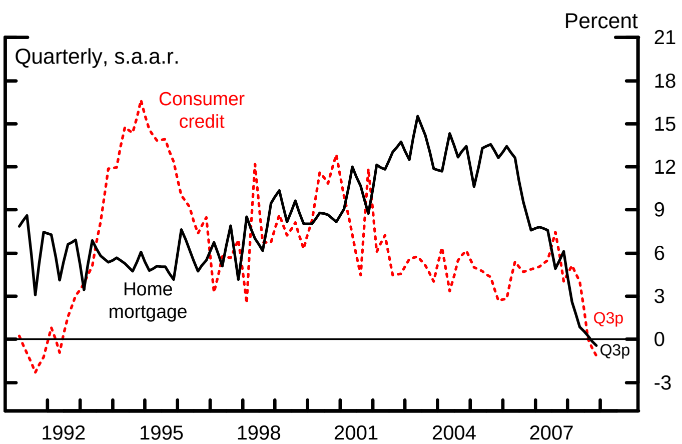
p Projected.

Changes in selected components of debt of nonfinancial business sector*



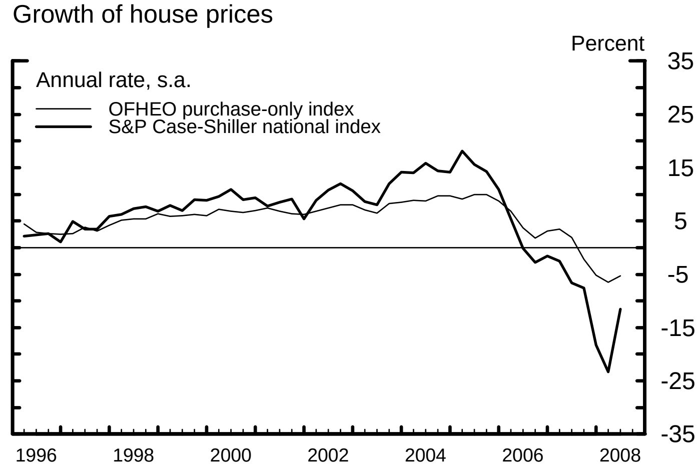
*Commercial paper and C&I loans are seasonally adjusted, bonds are not.

Growth of debt of household sector



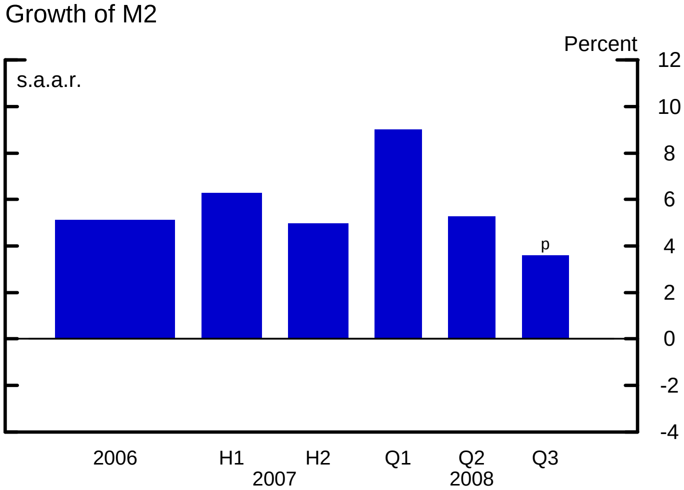
p Projected.

Growth of house prices



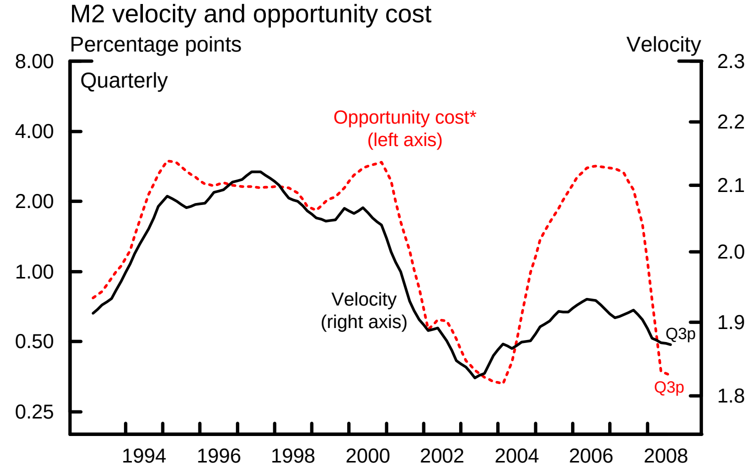
Source. Office of Housing Enterprise Oversight (OFHEO), Standard & Poor's

Growth of M2



p Preliminary.

M2 velocity and opportunity cost



*Two-quarter moving average.

p Projected.

(25) Commercial bank credit surged in mid-September, boosted by increases in "other loans," banks' holdings of securities, and commercial and industrial (C&I) loans. The "other loans" category saw a marked increase in unplanned overdrafts by a wide range of customers, including money fund complexes, as well as draws on lines of credit by financial firms, consistent with the stress in funding markets. Commercial banks' acquisition of a large volume of non-agency and non-Treasury securities likely reflected in part purchases of CP stimulated by the AMLF program. The increase in C&I loans was reportedly due mostly to draw downs on pre-existing lines of credit; however, some respondents to the Senior Loan Officer Opinion Survey indicated that they had also increased loans not made under previous commitment. Very large fractions of the surveyed banks reported having tightened terms and standards on a broad range of loan types for both businesses and households.

(26) M2 expanded at a rapid 15½ percent annual rate in September and is estimated to have accelerated further to a 17 percent pace in October. Liquid deposits surged in September reflecting, in part, robust expansions in the deposits of broker-dealers, trusts, and corporate customers at a few large banks. Small time deposits increased sharply in September and are set to post dramatic gains in October, as banks and thrifts reportedly continued to bid aggressively for these deposits. By contrast, liquid deposits slowed almost to a halt this month. Retail money funds were about flat in September but appear to be expanding briskly in October. Currency growth picked up in September and has risen further in October, apparently reflecting increased domestic and foreign demand. Overall, money growth may be being boosted by some reallocation of household assets toward safer instruments; stock and bond mutual funds, for example, have registered substantial runoffs over recent weeks.

Economic Outlook

(27) The staff has marked down sharply its outlook for economic growth in the second half of 2008 and in 2009. Consumer outlays, housing starts, and business investment in equipment and structures all have been weaker than we projected in September. Moreover, financial turmoil has intensified, and banks further tightened credit terms and standards for households and businesses in the third quarter. As a consequence, the forecast now assumes that the Committee will lower the target federal funds rate 50 basis points at this meeting, 25 basis points at the December meeting, and another 25 basis points at the January meeting. The target funds rate is assumed to remain at ½ percent through mid-2010 and then begin a gradual ascent. Long-term Treasury yields are projected to be flat over the next two years. Although yields would tend to rise over time as the maturity window moves through the period of low short-term rates prevailing over the next few years, we assume that this effect will be offset as market participants revise down their policy expectations toward the path incorporated in our baseline forecast. Fixed mortgage rates and corporate bond yields are projected to decline as economic conditions gradually improve and the extreme aversion to risk-taking recedes. Stock prices rise at a 12 percent annual rate in 2009 and 2010 from a starting point that is 23 percent lower than in the previous forecast; this path implies that the equity premium narrows significantly but remains at historically high levels over the next two years. The real trade-weighted dollar is projected to depreciate nearly 3 percent in 2009 and almost 4 percent in 2010. In line with futures quotes, the price of West Texas intermediate crude oil is expected to rise slowly from $74 per barrel in the current quarter to $83 per barrel by the end of 2010, a level that is almost $25 per barrel lower than in the September forecast.

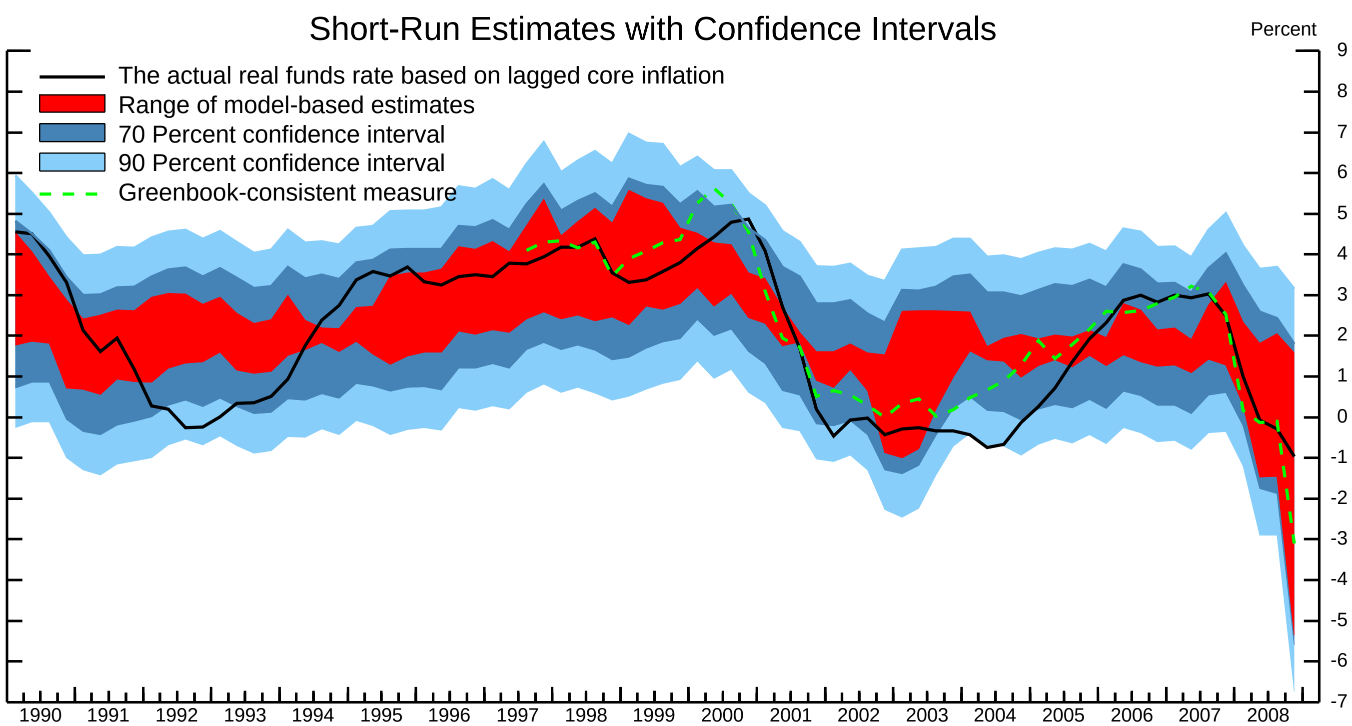
(28) Against this backdrop, the projected path for output follows a notably lower trajectory than in the last forecast; real GDP is now estimated to have contracted at an annual rate of 1 percent in the third quarter of 2008 and is projected to decline at

average annual rates of about 1¼ percent in the current quarter and 1½ percent in the first quarter of 2009. Over the remainder of 2009, GDP is projected to grow at an annual rate of only ¼ percent, held down by tight lending standards and strained financial conditions that improve only slowly. In 2010, as financial strains continue to ebb, GDP expands at its potential growth rate of 2¼ percent. As a consequence of the economic weakness through the end of next year, the unemployment rate rises to 7¼ percent by the end of 2009, about 2½ percentage points above the staff's estimate of the NAIRU. This substantial amount of slack, coupled with a lower path for energy prices, leads to a marked deceleration in prices. Core PCE inflation, which is projected at an annual rate of 2¼ percent in the current quarter, moderates to 1½ percent in 2009 and 1¼ percent in 2010. The recent drop in energy prices should cause overall consumer prices to fall at an annual rate of 2¼ percent in the current quarter; overall prices increase about 1½ percent on average.

Monetary Policy Strategies

(29) As shown in Chart 7, the Greenbook-consistent measure of short-run *r** has been revised down about 2¾ percentage points since the September Bluebook. It now stands at about -3 percent, several percentage points below its value at the previous cyclical trough in mid-2003. The magnitude of the downward shift since the last Bluebook reflects the sharp deterioration in the staff's outlook for aggregate demand: The severity of strains in domestic financial markets has translated into a marked fall in equity prices, higher corporate bonds rates, and tighter credit conditions for households and businesses; and the intensification of global financial market turmoil, a higher dollar and weaker foreign activity have led to less favorable prospects for the demand for U.S. exports. The estimate of short-run *r** from the small structural model—which incorporates these financial pressures only through the effects of a wider equity premium—has moved down about 110 basis points since the

Chart 7
Equilibrium Real Federal Funds Rate



Short-Run and Medium-Run Measures

	Current Estimate	*Previous Bluebook*
Short-Run Measures		
Single-equation model	1.6	*2.0*
Small structural model	-2.9	*-1.8*
Large model (FRB/US)	-5.4	*-1.7*
Confidence intervals for three model-based estimates		
70 percent confidence interval	-5.6 - 1.8	
90 percent confidence interval	-6.7 - 3.2	
Greenbook-consistent measure	-3.1	*-0.3*
Medium-Run Measures		
Single-equation model	2.0	*2.1*
Small structural model	1.0	*1.7*
Confidence intervals for two model-based estimates		
70 percent confidence interval	0.5 - 2.6	
90 percent confidence interval	0.0 - 3.5	
TIPS-based factor model	2.0	*2.0*
Memo		
Actual real federal funds rate	-1.0	*-0.4*

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

last Bluebook to around -3 percent. By comparison, the estimate of short-run *r** from the FRB/US model—which incorporates shifts in other risk premiums as well as the effects of shocks to foreign demand—has fallen about 375 basis points since the September Bluebook and is now at -5.4 percent. The actual real federal funds rate has declined about ½ percentage point since the last meeting, reflecting the Committee's policy action on October 8, and now stands at -1 percent.

(30) Chart 8 depicts optimal control simulations of the FRB/US model using the long-run Greenbook forecast beyond 2010.[8] These simulations impose a lower bound of zero on the nominal funds rate and abstract from any potential stimulus from non-standard policy tools (see box on "Possible Constraints on Monetary Policy at Very Low Nominal Interest Rates"). 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 federal funds rate that declines to the zero lower bound by mid-2009 and remains at that rate through mid-2012. Optimal policy is significantly constrained by the zero lower bound in these simulations; indeed, the funds rate would fall much further if the zero lower bound were not imposed on the optimal control policy.[9] Because monetary policy is unable to provide adequate stimulus over the next several years, the unemployment rate rises to around 7 percent next year and remains above the NAIRU through 2012. Given the persistence of this slack, core PCE inflation troughs near 1¼ percent in early 2012. Under either inflation objective, the economy is still not in equilibrium after five years, and further adjustments in policy are needed to ensure that inflation ultimately settles down at the desired rate and output returns to its balanced-growth path.

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

[9] See the Greenbook box on "The Federal Funds Rate in the Staff's Projections."

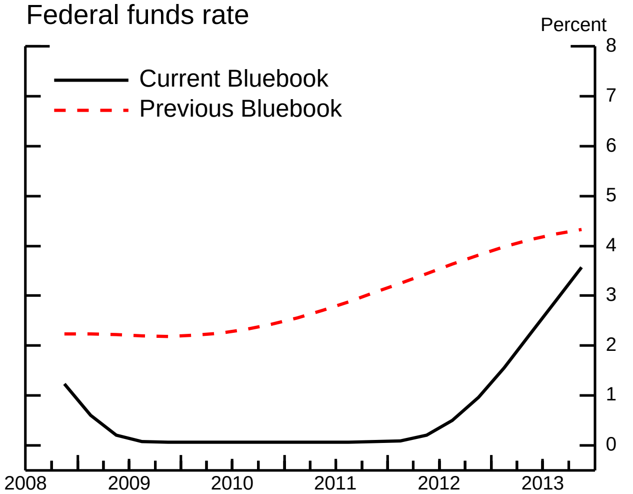
Chart 8

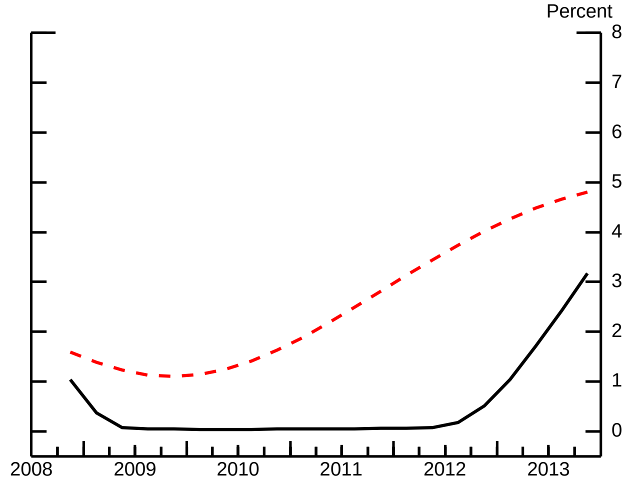
Optimal Policy Under Alternative Inflation Goals

1½ Percent Inflation Goal

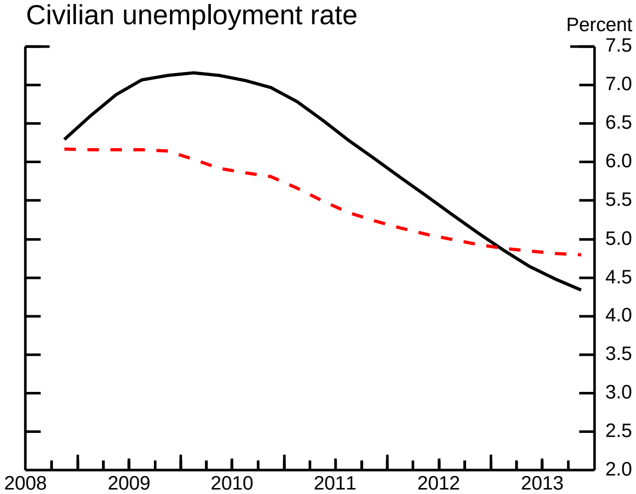
2 Percent Inflation Goal

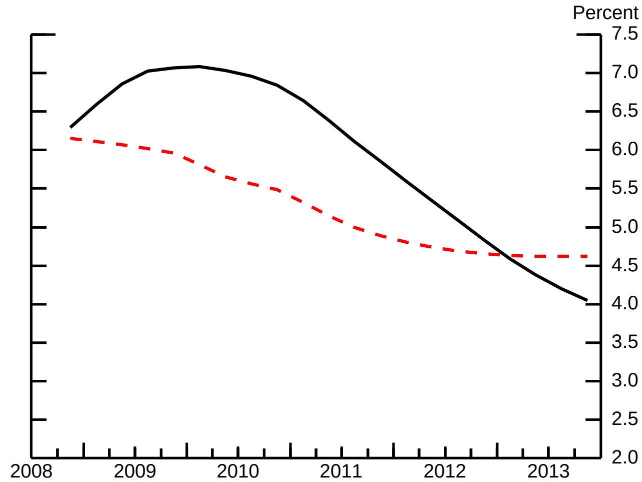
Federal funds rate



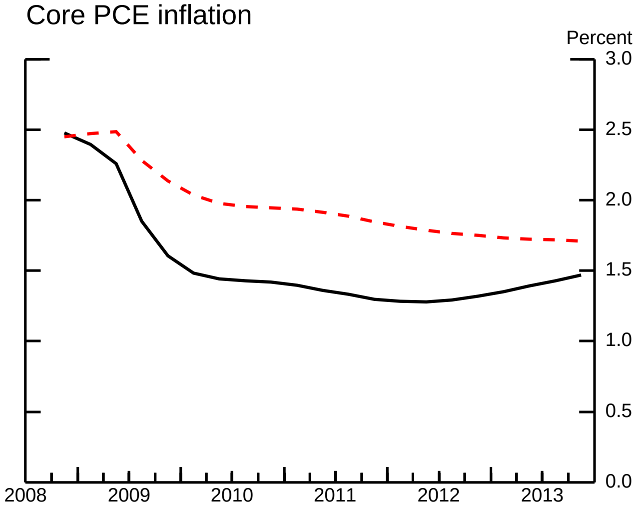


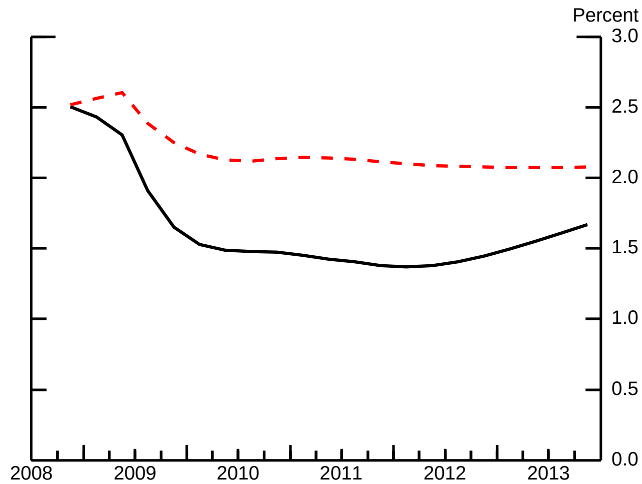
Civilian unemployment rate





Core PCE inflation





Possible Constraints on Monetary Policy at Very Low Nominal Interest Rates

Given the recent sharp deterioration in the economic outlook, the Committee may see a real possibility of substantial further easing of monetary policy in coming quarters, with the federal funds rate falling to record lows.[1] For example, under the staff's baseline outlook, optimal control simulations of the FRB/US model bring the funds rate to zero and maintain that rate into 2012 (Chart 8), while the empirical outcome-based rule prescribes a zero funds rate from mid-2009 to late 2010 (Chart 9); indeed, the funds rate would become negative in those simulations if a lower bound of zero were not imposed.

The lower bound on short-term nominal interest rates arises from the fact that investors can always choose to hold currency, which pays a zero interest rate, instead of other financial assets. In principle, this lower bound could be slightly negative, because holding large amounts of cash incurs storage and security costs that reduce its effective rate of return below zero. In practice, however, a target of zero percent for the federal funds rate might well be associated with slightly positive effective rates, reflecting compensation for risk in interbank lending. In Japan, for example, the one-week interbank rate was typically at a few basis points from March 2001 to July 2006—a period when the Bank of Japan kept the overnight call rate at zero—while the magnitude of occasional spikes was limited by the discount rate, which was maintained a notch higher at 10 basis points.

Reducing the funds rate to very low levels could have significant effects on the functioning of various financial markets and institutions and might well trigger substantial structural changes, especially if very low rates were maintained for a substantial period. Transactions volumes in money markets likely would diminish significantly. Yields on assets held in money market mutual funds might not be high enough to cover the overhead costs of managing those funds. In the short run, funds might have to waive those management fees, and over time the industry might need to move to an explicit fee structure analogous to that already in effect for some types of deposits at commercial banks. Given that overnight interest charges would not provide any incentive to deliver on promised Treasury securities, fails-to-deliver in the Treasury market would likely become increasingly pervasive. Such developments could initially prove disruptive but might eventually lead market participants to incorporate explicit penalties for failures to deliver.

Even when the setting of the nominal interest rate is constrained by the zero lower bound, a central bank can use other tools to provide monetary stimulus. One such approach, known as *quantitative easing*, involves the injection of additional liquidity into the banking system beyond that required for keeping the overnight interbank rate at zero. However, the evidence from the Japanese experience with quantitative easing—in which excess reserves expanded from a negligible quantity in early 2001 to about five times the level of required reserves by late 2003—suggests that this approach may have little or no effect on bank lending, although it may have provided some stimulus by exerting downward pressure on the yen. A more promising approach might be to aim at reducing term and risk premiums on various financial assets by purchasing those assets in sufficiently large quantities. Event studies suggest that large changes in the relative supply of securities have had economically significant effects on their yields.

[1] The effective federal funds rate was about ¾ percent for a few months in 1954 and again in 1958.

(31) As depicted in Chart 9, given the staff's forecast the outcome-based policy rule prescribes a funds rate that drops to the zero bound by mid-2009 and stays there through 2010 before steadily rising to about 4¾ percent by the end of 2013. Over much of the period, this trajectory is substantially lower than the one currently embedded in financial market quotes, under which the funds rate declines to 0.75 percent in 2009Q1 before rising to a plateau of about 4 percent starting in 2011. Stochastic simulations of the FRB/US model using the staff's baseline outlook and the outcome-based rule indicate a very high probability that the funds rate hits and stays at the zero bound between mid-2009 and the end of 2010.[10] In contrast, information from interest rate caps indicates that investors see a relatively high likelihood of substantial monetary policy tightening starting in the second half of 2009.[11]

(32) As shown in the bottom panel of Chart 9, the near-term prescriptions from the Taylor (1993, 1999) rules are markedly lower than in the previous Bluebook, reflecting the pronounced widening of the output gap and improved readings on core inflation. While these rules depend solely on the current output gap and the rate of core inflation that has occurred over the past year, the first-difference rule depends on three-quarter-ahead forecasts for output growth and core inflation; hence, for either inflation goal, this rule prescribes a declining funds rates trajectory that reaches the zero bound by the first quarter of 2009.

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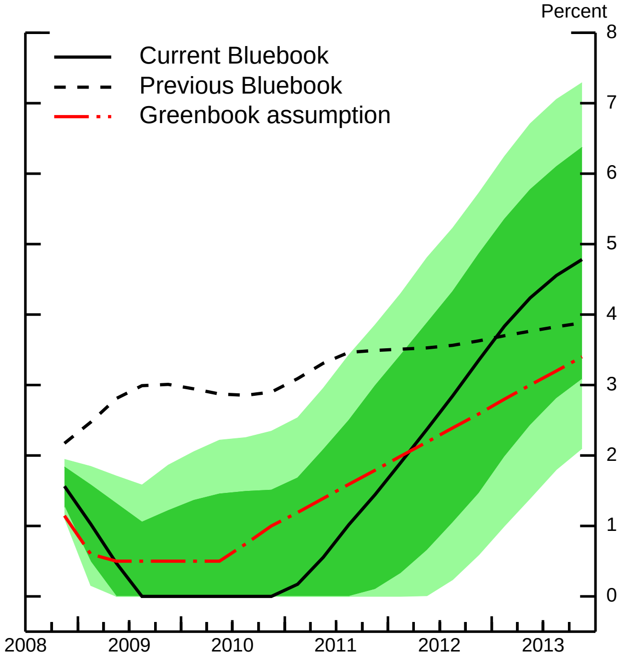
[10] The stochastic simulations of the FRB/US model also incorporate the zero bound constraint on the nominal funds rate, and hence the 70 and 90 percent confidence intervals are truncated at zero from the second half of 2009 through mid-2012.

[11] 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.

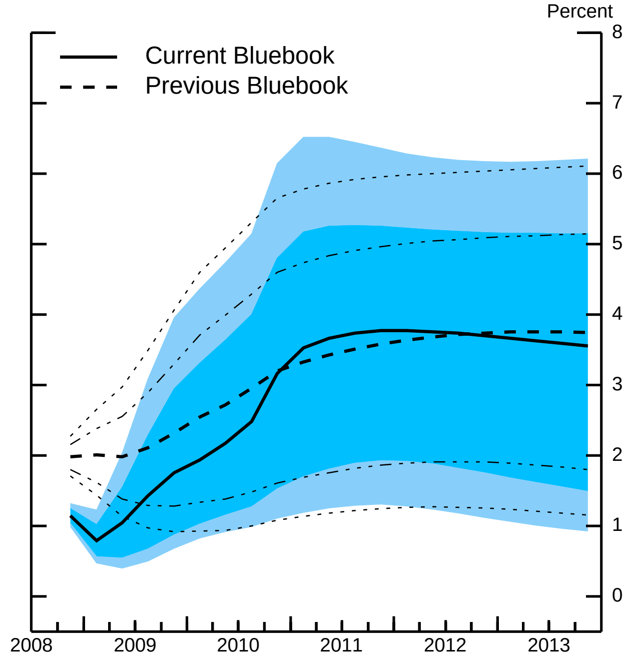
Chart 9

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	
	2008Q4	2009Q1	2008Q4	2009Q1
Taylor (1993) rule	**3.8**	**3.2**	**3.5**	**2.9**
Previous Bluebook	*4.3*	*4.2*	*4.1*	*4.0*
Taylor (1999) rule	**2.6**	**1.6**	**2.4**	**1.3**
Previous Bluebook	*3.7*	*3.5*	*3.5*	*3.3*
First-difference rule	**0.6**	**0.0**	**0.3**	**0.0**
Previous Bluebook	*2.0*	*2.2*	*1.8*	*1.7*

Memo

	2008Q4	2009Q1
Estimated outcome-based rule	1.7	1.3
Estimated forecast-based rule	1.3	0.5
Greenbook assumption	1.2	0.6
Fed funds futures	1.0	1.0
Median expectation of primary dealers	1.0	1.0

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

(33) This Bluebook presents three alternatives for the Committee's consideration, summarized by the draft statements in Table 1. Under Alternative A the federal funds rate target is cut 50 basis points to 1 percent; under Alternative B the federal funds rate target is cut 25 basis points to 1¼ percent; and under Alternative C the federal funds rate target is left unchanged at 1½ percent. All three alternatives begin by noting the deterioration in financial conditions and the weakened economic outlook. Alternatives B and C note the plethora of recent policy actions around the world, suggesting that these actions will help to promote a return to moderate economic growth; Alternative A includes no language to soften its negative view of the outlook for economic activity. With respect to inflation, Alternatives A and B express confidence that inflation will moderate in coming quarters to levels consistent with price stability, whereas Alternative C retains the phrasing from the statement following the intermeeting cut on October 8, which acknowledges reduced upside risks to inflation without commenting on its likely future path.

(34) If the Committee believes that further monetary policy accommodation is appropriate given the deterioration in the economic outlook, but wishes to adjust policy relatively gradually, it may want to reduce the target federal funds rate 25 basis points at this meeting as in **Alternative B**. Even if members have not revised down their forecast for economic activity as much as the staff, they may still believe that easing is called for. In view of the negative tone of the recent economic data, the worsening of financial conditions since mid-September, and the reduction of inflationary pressures implied by the large drop in energy prices and the outlook for significant economic slack, members may view the 50 basis point intermeeting move in early October as only a partial step toward suitably balancing the risks to the outlook and think that that action should be augmented with a further policy adjustment at this meeting. At the same time, members may be less pessimistic about

Table 1: Alternative Language for the October 29 FOMC Announcement

	October 8 Statement	Alternative A	Alternative B	Alternative C
Policy Decision	1. The Federal Open Market Committee has decided to lower its target for the federal funds rate 50 basis points to 1½ percent.	The Federal Open Market Committee decided today to lower its target for the federal funds rate 50 basis points to 1 percent.	The Federal Open Market Committee decided today to lower its target for the federal funds rate 25 basis points to 1¼ percent.	The Federal Open Market Committee decided today to keep its target for the federal funds rate at 1½ percent.
Rationale	2. The Committee took this action in light of evidence pointing to a weakening of economic activity and a reduction in inflationary pressures. Incoming economic data suggest that the pace of economic activity has slowed markedly in recent months. 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.	The outlook for economic activity has weakened, and downside risks to growth appear to have increased. Consumer spending and industrial production have declined 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.	The pace of economic activity appears to have slowed markedly, owing importantly to a decline in consumer expenditures. 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.	Reflecting in part the intensification of financial market turmoil, the outlook for economic activity has weakened. Consumer spending and industrial production have declined in recent months. However, policy actions taken in recent weeks, including 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.
	3. Inflation has been high, but the Committee believes that the decline in energy and other commodity prices and the weaker prospects for economic activity have reduced the upside risks to inflation.	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.	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.	Inflation has been high, but the Committee believes that the declines in the prices of energy and other commodities and the weaker prospects for economic activity have reduced the upside risks to inflation.
Assessment of Risk	4. The Committee will monitor economic and financial developments carefully and will act as needed to promote sustainable economic growth and price stability.	The Committee will monitor economic and financial developments carefully and will act as needed to promote sustainable economic growth and price stability.	Policy actions taken in recent weeks, including 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, significant 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.	In these circumstances, the Committee's primary concern is the downside risks to growth. The Committee will monitor economic and financial developments carefully in light of the recent policy actions and will act as needed to promote sustainable economic growth and price stability.

the outlook than the staff for several reasons and hence believe that more limited policy action than assumed in the Greenbook is appropriate. For example, they may believe that financial conditions will improve sooner than assumed by the staff, as in the Greenbook's "More Rapid Financial Recovery" scenario. Or, they may think that passage of a second fiscal stimulus package is likely and perhaps that such a package could be larger or more potent than those presented in the Greenbook's "Fiscal Stimulus" scenarios. Although these Greenbook alternative scenarios indicate that more policy easing would still be desirable, they might suggest less urgency to take further large steps. Alternatively, should the Committee share the staff's downbeat economic outlook but see a near-term reversal of policy as costly, members might view a series of gradual steps as more prudent than one or two large moves because there is considerable uncertainty surrounding the outlook, particularly concerning the effects of the many official actions recently implemented.

(35) The rationale section of the statement accompanying Alternative B would begin by noting the deterioration in the outlook for economic activity, pointing specifically to the softening in consumer spending. The statement would also point out that financial market strains have intensified and that the resulting tightening of credit conditions is likely to impose additional restraint on spending. The paragraph on inflation would note that recent declines in the prices of energy and other commodities, along with greater prospective economic slack, should cause inflation to moderate to levels consistent with price stability. (See the box "Likely Market Interpretation of Price Stability Language.") The change in wording, from reduced upside risks in the October 8 statement to an expected moderation of inflation in the language for Alternative B, suggests that Committee members have become much more confident that inflation will decline. The final paragraph would note the numerous policy steps already taken in recent weeks to increase liquidity in financial markets, strengthen financial systems around the world, and promote economic

growth. While indicating that these actions should support economic activity going forward, the statement also notes that they have not eliminated downside risks. The statement concludes with the final sentence of the October 8 statement, highlighting the Committee's intention to act as needed in support of its objectives.

Likely Market Interpretation of Price Stability Language

Based on the historical record, markets are likely to interpret a statement that says "the Committee expects inflation to moderate … to levels consistent with price stability" as implying future inflation rates in the range of 1 to 2 percent, with a central tendency most likely above the middle of that range but not extending all the way to 2 percent.

Markets likely will be guided by the Committee's previous statements concerning the outlook for inflation. In June 2003, when 12-month core PCE inflation was around 1¼ percent, the central tendency of FOMC participants' projections for overall inflation in 2003 was 1¼ to 1½ percent and the central tendency for inflation in 2004 was 1 to 1½ percent. The statement from the June 2003 FOMC meeting expressed concern about the possibility of "an unwelcome substantial fall in inflation … from its already low level." Based on this statement markets might conclude that inflation as low as 1¼ percent, or possibly 1 percent, is consistent with FOMC participants' interpretation of price stability but that inflation below 1 percent is not.

In November 2007, when the FOMC first published three-year-ahead economic projections, the range of FOMC participants' forecasts of inflation in 2010 was 1.5 to 2 percent; the central tendency was 1.6 percent to 1.9 percent. The language introducing these projections noted that participants' inflation projections were "importantly influenced" by their judgments regarding "the measured rates of inflation consistent with the Federal Reserve's dual mandate to promote maximum employment and price stability." At that time, no special factors were noted to suggest that inflation in 2010 might not have converged to levels consistent with price stability. In the July 2008 Monetary Policy Report, the range of FOMC participants' projections for inflation in 2010 was 1.6 percent to 2.1 percent, with a central tendency of 1.8 percent to 2.0 percent. At that time, the Report noted that "inflation in 2010 was also judged likely to continue to run a bit above the levels that most participants saw as consistent with the price stability objective."

(36) According to the Desk's survey on October 20, primary dealers assigned roughly 40 percent probabilities to both 25 basis point and 50 basis point cuts in the federal funds target at this meeting, with a 20 percent probability of no change. The

mean of dealers' expectations for the target funds rate was 1.2 percent, which is slightly above the rate of 1.1 percent implied by federal funds futures contracts at the time of the Desk's survey. Because futures contracts refer to the effective funds rate rather than the target rate, the difference between the dealer expectations and the futures rate may reflect the possibility that federal funds will continue to trade below the target in coming weeks;[12] it is likely that at the time of the Desk's survey, both dealers and futures market participants expected a cut in the target funds rate of about 30 basis points. However, over subsequent days, rates on federal funds futures contracts closing after the October meeting have declined another 10 basis points amid investor concerns about the economic outlook, and they now suggest expectations of about 40 basis points of easing at the upcoming meeting. Thus, a 25 basis point cut to 1¼ percent would leave the target federal funds rate somewhat above current market expectations. Nevertheless, the clear shift in the statement language away from concern about inflation risks and toward an emphasis on growth risks would likely lead investors to anticipate further rate cuts, and this alternative appears broadly consistent with readings for the funds rate at the end of the year that are implied by futures markets. As a result, our best estimate is that adoption of Alternative B would have only small effects on prices of financial assets.

(37) If the Committee, like the staff, has marked down significantly its assessment of economic prospects and now sees an immediate and substantial policy response as appropriate, it may want to reduce the target federal funds rate 50 basis points at this meeting, as in **Alternative A**. Recent economic data releases have been almost all weaker than anticipated, with consumer outlays down sharply. Moreover, financial conditions have deteriorated substantially since the September meeting: Equity prices fell sharply over the intermeeting period; mortgage rates moved higher;

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[12] The October 22 announcement of a decrease in the spread between the target federal funds rate and the rate of interest paid on excess reserve balances had little apparent effect on futures rates.

corporate bond yields jumped; and the October Senior Loan Officer Opinion Survey shows that extraordinarily high percentages of banks tightened standards and terms on loans to businesses and households over the past three months. With regard to inflation, the latest news on commodity prices and inflation expectations, in conjunction with the appreciation of the dollar in recent months and the likelihood of a marked increase in economic slack, provides substantial assurance that inflation will moderate. Even if the Committee has not marked down its outlook for the economy as much as the staff, it may view the downside risks as having increased. Moreover, with the Greenbook-consistent measure of the equilibrium real funds rate having dropped about 2 percentage points below the level of the current real rate, even a less pessimistic outlook than the Greenbook's could be consistent with a considerable further reduction in the target federal funds rate.

(38) The rationale section of the statement for Alternative A highlights the recent deterioration in financial and economic conditions, with specific references to weak consumer spending and industrial production and to the slowdown in foreign economic growth. As under Alternative B, the section also points out the likely future spending restraint implied by the further tightening of financial conditions. The discussion of inflation would be identical to that under Alternative B, noting the reasons to expect a moderation of inflation to levels consistent with price stability. The assessment of risk would emphasize the Committee's readiness to act as needed to promote growth.

(39) A 50 basis point cut is near the high end of market expectations for policy easing at this meeting. Moreover, the statement language suggests that the Committee is prepared to reduce rates further, and thus market participants would presumably lower their expected trajectory for the federal funds rate over the next few quarters. Short- and intermediate-term interest rates would probably drop noticeably. Long-term interest rates might decline modestly, though if market participants interpret the

statement as a sign that the Committee is underestimating inflation risks, long-term rates could rise. The effect on equity prices would depend on whether markets are comforted by the prospect of more monetary ease or concerned by the gloomy assessment of the outlook and risks.

(40) If the Committee believes that the economic outlook has not deteriorated as much as in the staff forecast or that there is still a significant risk that inflation will not moderate as expected, it might prefer to leave the stance of policy unchanged, as in **Alternative C**. Although recent readings on real activity have been very weak, a wide range of monetary and other policy measures have been implemented recently, and members may feel that a gradual improvement of financial conditions could be in train. Indeed, many yield spreads have been narrowing and liquidity measures have been improving gradually in recent days, albeit from highly strained levels. If this process continues in coming weeks, the cumulative improvement in financial conditions could be substantial. Also, the Committee may place a high probability on a major new fiscal stimulus package being enacted soon; no fiscal package was factored into the staff's projection. Moreover, members may be skeptical of the staff projection of a sharp reduction in inflation, perhaps feeling that it is based on assumptions that may prove to be overly optimistic. For example, the Committee may not have confidence in the sharply lower trajectory for energy prices suggested by futures markets; energy prices are highly volatile and futures market quotes over the past few years have been unreliable guides to subsequent developments. And some members may not put much stock in the notion that slack in labor and product markets will restrain future price pressures, but may instead worry that a very low funds rate will fuel rising inflation expectations, as illustrated in the Greenbook's "Faster Inflation" scenario. Indeed, members may want to see several months of lower data on inflation and inflation expectations before they feel comfortable with further reductions in the policy target.

(41) The first part of the rationale portion of the statement associated with Alternative C would acknowledge the recent deterioration in economic and financial conditions. The second part would point to the wide range of recent policy actions, noting that they should help to promote growth over time. The discussion of the outlook for inflation would be essentially identical to that in the October 8 statement, which focused on a reduction in upside risks rather than a material reduction in the modal forecast. Finally, the risk assessment under Alternative C begins by stating that the balance of risks has shifted toward downside risks to growth. The section concludes with a modification of the risk assessment of the October 8 statement, pointing to the possible effects of past policy actions as something the Committee will be watching particularly closely.

(42) Given the high odds embedded in financial market prices of at least a 25 basis point cut at this meeting, a decision to adopt Alternative C would surprise market participants, leading to an appreciable upward revision of their short-term outlook for the path of policy and probably an increase in short-and intermediate-term interest rates. Equity prices would likely fall, perhaps substantially. Financial market strains would probably increase and private yields would rise.

Money and Debt Forecasts

(43) M2 is projected to grow at a 7½ percent annual rate this year, significantly above the rate anticipated in September and faster than the projected growth rate of nominal GDP. The major factor behind rapid growth of M2 this year is the decline in short-term interest rates and the associated drop in the opportunity cost of holding M2 assets. A portfolio shift toward safe and liquid assets may also be playing a role. M2 is projected to decelerate to a pace of roughly 3 percent in 2009 and 2010, reflecting weak growth in nominal GDP in 2009 and a rising opportunity cost in 2010.

(44) Debt growth in the private sector is expected to be weak over the next two years. Household debt is projected to be essentially flat in 2009 and to expand only a little in 2010, held down by falling home prices and tighter bank lending terms and standards. Nonfinancial business debt is projected to grow at a moderate rate, down sharply from rapid growth rates in recent years, also restrained in part by tight credit conditions. By contrast, debt is projected to grow rapidly in the government sectors, as the economic slowdown damps revenues, and as financing needs related to the TARP, Treasury's assistance to the GSEs, and higher expected losses at the FDIC boost federal debt substantially in 2009 and 2010. Overall, domestic nonfinancial debt is projected to grow 2¾ percent in 2009 and 4¼ percent in 2010, a very subdued pace by historical standards.

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

		50 bp Ease	25 bp Ease	No Change	Greenbook Forecast*
Monthly Growth Rates					
	Apr-08	2.1	2.1	2.1	2.1
	May-08	1.5	1.5	1.5	1.5
	Jun-08	-0.3	-0.3	-0.3	-0.3
	Jul-08	6.4	6.4	6.4	6.4
	Aug-08	-1.5	-1.5	-1.5	-1.5
	Sep-08	15.6	15.6	15.6	15.6
	Oct-08	17.1	17.1	17.1	17.1
	Nov-08	7.0	6.6	6.2	7.0
	Dec-08	6.8	6.0	5.2	7.0
	Jan-09	4.4	3.6	2.8	5.0
	Feb-09	2.8	2.1	1.4	4.0
	Mar-09	1.5	1.0	0.5	3.0
Quarterly Growth Rates					
	2008 Q2	5.2	5.2	5.2	5.2
	2008 Q3	3.6	3.6	3.6	3.6
	2008 Q4	11.4	11.2	11.0	11.4
	2009 Q1	4.6	3.8	3.1	5.2
Annual Growth Rates					
	2007	5.7	5.7	5.7	5.7
	2008	7.5	7.5	7.4	7.5
	2009	2.0	1.7	1.4	2.8
	2010	3.2	3.2	3.2	3.0
Growth From	To				
Oct-08	Mar-09	4.5	3.9	3.2	5.2

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

Directive

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

Directive Wording

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, the Committee in the immediate future seeks conditions in reserve markets consistent with MAINTAINING/INCREASING/reducing the federal funds rate AT/to an average of around ________ 1½ percent.

Appendix A: Measures of the Equilibrium Real Rate

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

The actual real federal funds rate is constructed as the difference between the nominal rate and realized inflation, where the nominal rate is measured as the quarterly average of the observed federal funds rate, and realized inflation is given by the log difference between the core PCE price index and its lagged value four quarters earlier. For the current quarter, the nominal rate is specified as the target federal funds rate on the Bluebook publication date. For the current quarter and the previous quarter, the inflation rate is computed using the staff's estimate of the core PCE price index. 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	-3.1	-0.9
Lagged headline inflation	-2.8	-3.2	-0.9
Projected headline inflation	0.1	-2.7	-0.4

Appendix B: Analysis of Policy Paths and Confidence Intervals

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

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

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