

Prefatory Note

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SEPTEMBER 11, 2008

MONETARY POLICY ALTERNATIVES

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

MONETARY POLICY ALTERNATIVES

Recent Developments

Summary

(1) Measures of financial market stress intensified on net over the intermeeting period, reflecting heightened concern about the condition of U.S. financial institutions. Late in the period, while news that Fannie Mae and Freddie Mac had been placed into conservatorship reduced some uncertainty and eased strains in some financial markets, concerns about other institutions intensified. On net, the concerns about financial institutions, a less optimistic outlook for economic growth, and a substantial fall in oil prices led investors to push back the anticipated onset of monetary policy tightening, with policy seen as possibly easing a bit in the near term and then remaining on hold well into next year. Nominal Treasury yields declined, consistent with the change in policy expectations and the softer economic outlook, and TIPS-based measures of inflation compensation moved lower at all horizons. Broad equity price indexes were about unchanged on balance over the intermeeting period. Yields on investment-grade corporate bonds dropped less than those on comparable-maturity Treasury securities and those on speculative-grade bonds edged up, leaving spreads wider. Borrowing by nonfinancial business corporations slowed. The dollar appreciated against many currencies, reportedly reflecting a more pronounced downward revision in investors' outlook for growth abroad than for growth in the U.S.

Financial Institutions

(2) Investors continued to focus on major financial institutions and the possible implications of strains on these firms for credit availability and the macroeconomic

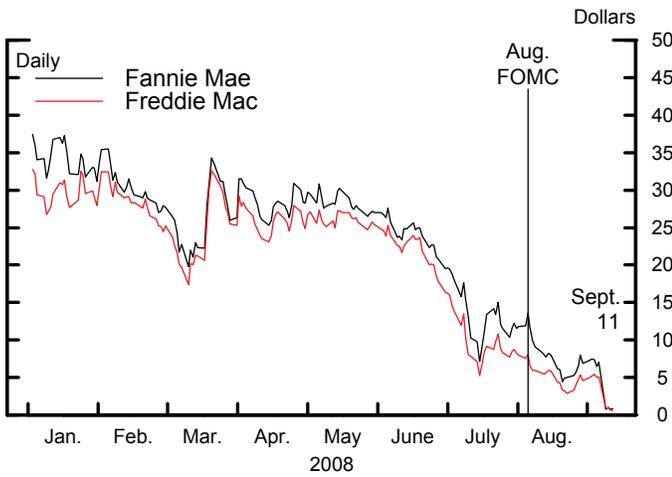
outlook. Fannie Mae and Freddie Mac were a particular focus of attention. After the Treasury and the Federal Housing Finance Agency announced the placement of these companies into conservatorship, their stock prices dropped sharply (Chart 1). In contrast, spreads on senior and subordinated agency debt narrowed as investors became confident that the Treasury would support Fannie's and Freddie's obligations, and option-adjusted spreads on agency mortgage-backed securities (MBS) plunged. (See the box "Market Effects of Conservatorship for Fannie Mae and Freddie Mac.")

(3) At a number of other financial institutions, difficulties continued and even intensified. Equity prices of U.S. investment banks were quite volatile over the intermeeting period, moving lower on concerns about writedowns of mortgage-related assets, and CDS spreads on these entities widened noticeably. Developments at Lehman Brothers attracted considerable attention. Analysts speculated that the firm would take significant additional writedowns of mortgage-related assets in the current quarter, and, towards the end of the period, Lehman announced that a \$3.9 billion loss was likely for the third quarter, that it expected to spin off its commercial real estate assets, and that it planned to sell a majority stake in its asset-management unit. Lehman's share price has dropped sharply, as market participants awaited news regarding a possible a capital injection or sale of the firm.

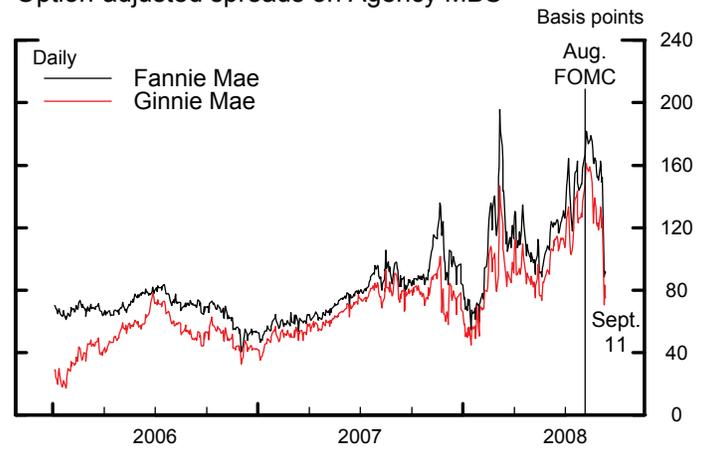
(4) Investors also appeared to be worried about conditions at depository institutions. Although bank stocks rose on the announcement of the conservatorship of Fannie Mae and Freddie Mac—evidently on the view that the Treasury's actions would bolster mortgage markets and credit markets more broadly—they were down modestly on net over the intermeeting period. Moreover, CDS spreads on subordinated debt at bank holding companies widened again, reaching levels not seen since March. Market participants also grew more concerned about regional banks' credit losses, and the already-elevated CDS spreads on these entities rose a bit further. Three commercial banks failed over the intermeeting period, bringing the total

Chart 1 Financial Institutions

GSE common stock prices

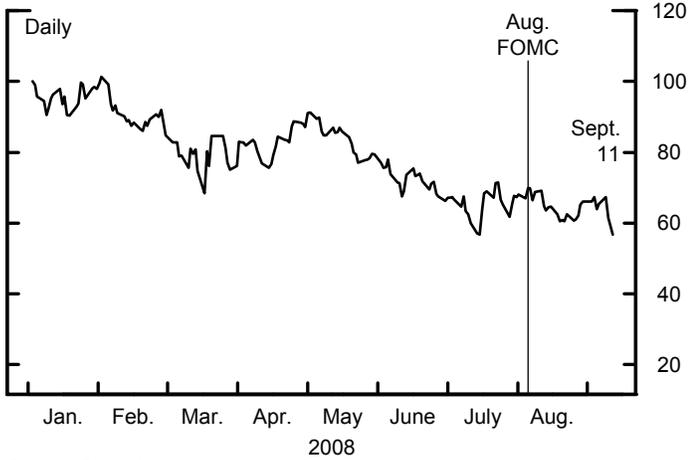


Option-adjusted spreads on Agency MBS



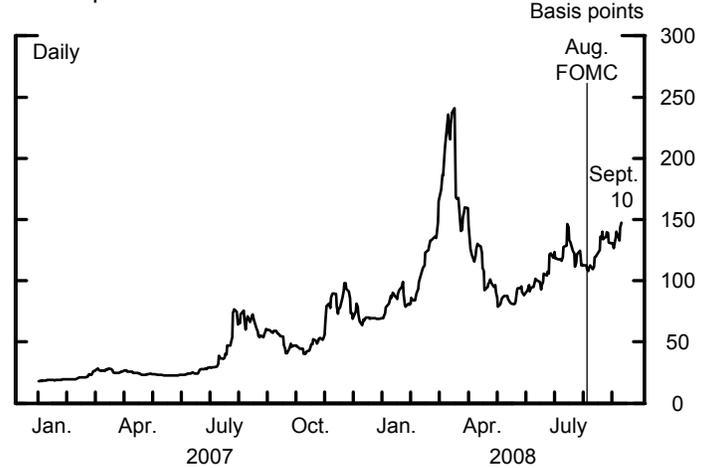
Note. Spreads over Treasury.
Source. Bloomberg.

S&P 500 Investment Bank and Brokerage Index



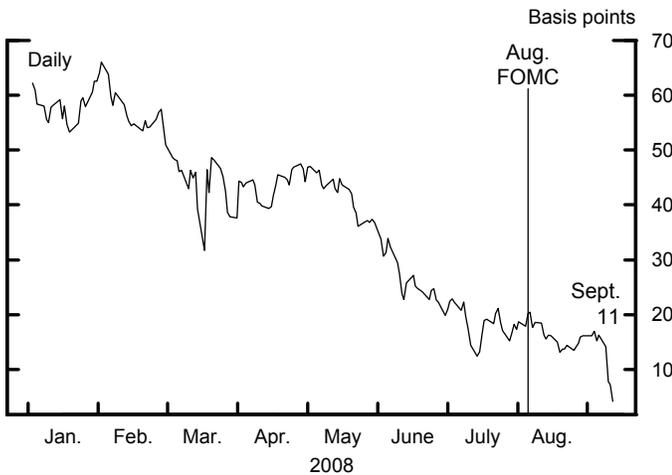
Source. Bloomberg.

CDS spreads for investment banks

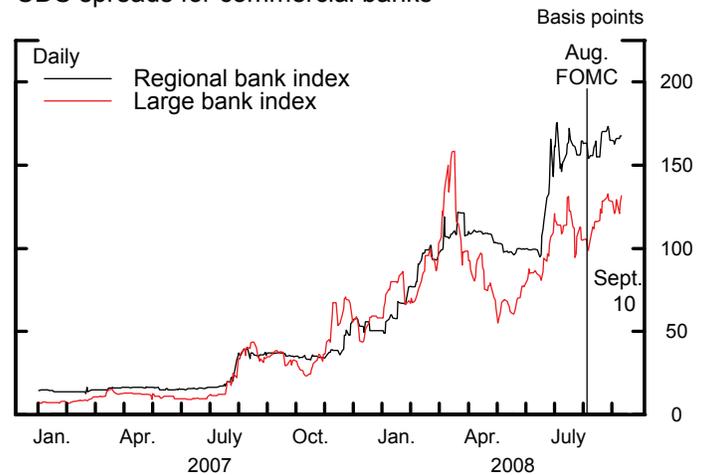


Note. Median spread for 10 investment banks.
Source. Markit.

Lehman Brothers stock price



CDS spreads for commercial banks



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

Market Effects of Conservatorship for Fannie Mae and Freddie Mac

On September 7 the Federal Housing Finance Agency (FHFA) placed Fannie Mae and Freddie Mac into conservatorship. In conjunction with this action, the Treasury Department established agreements to acquire up to \$100 billion of new senior preferred stock from each firm. The Treasury will receive \$1 billion of senior preferred stock in each GSE initially (without compensation) and will make subsequent purchases as necessary to ensure that the GSEs maintain a positive net worth. The Treasury also obtained warrants to purchase new shares of common stock at a “nominal” price, representing up to 79.9 percent of the common shares of each firm on a fully-diluted basis. Dividends on the common and existing preferred stock of Fannie and Freddie have been terminated, and holders of common and existing preferred stock will absorb any future losses before the Treasury sustains losses on senior preferred stock. In addition, the Treasury created two new temporary programs to support housing finance through the end of 2009. The first new program is a secured lending facility under which the Treasury may extend credit to Fannie Mae, Freddie Mac, and the Federal Home Loan Banks. The second consists of direct purchases of GSE MBS by the Treasury, at its discretion, based on developments in the capital and housing markets.

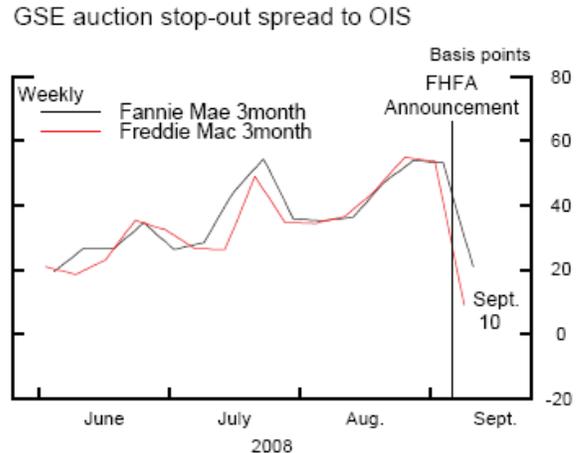
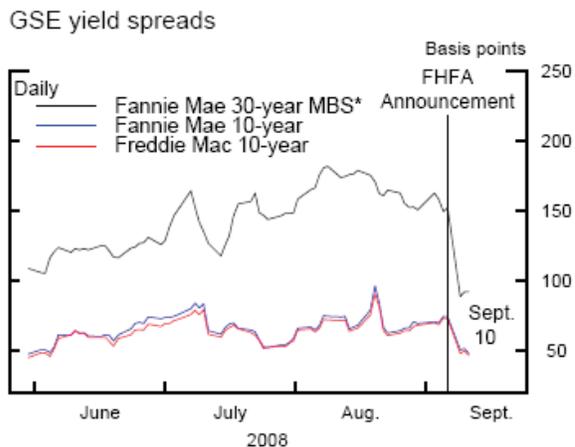
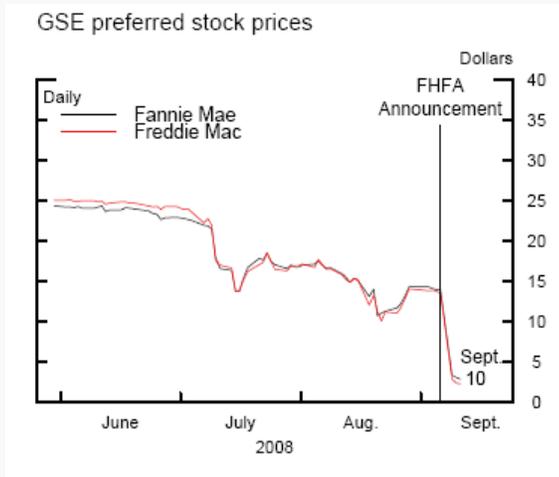
On the day following the announcement, broad equity price indexes in the United States and abroad rallied, with the S&P 500 index rising about 2 percent. Treasury yields and the foreign exchange value of the dollar were little changed. The government’s actions were viewed as positive news for the financial sector, and the S&P 500 bank sub-index rose nearly 4 percent on the day after the announcement.

However, prices of common and preferred stock in Fannie Mae and Freddie Mac fell as much as 90 percent on the day after the announcement. Supervisory data suggest that 23 depository institutions with roughly \$20 billion in assets would be significantly affected by a write-off of Fannie and Freddie common and preferred stock. The federal banking agencies issued a joint statement that they are prepared to work with such institutions to develop capital-restoration plans.

Spreads between yields on the two GSEs’ ten-year senior bonds and those on ten-year Treasury notes narrowed about 25 basis points, and spreads on their subordinated debt narrowed more than 200 basis points. The two-year note issued by Fannie Mae this week attracted heavy demand, but market participants indicated that liquidity in the secondary market for GSE debt remains somewhat lower than normal. Option-adjusted spreads on MBS guaranteed by Fannie and Freddie dropped more than 60 basis points on the day after the announcement. Yields on new fixed-rate conforming mortgages dropped about 20 basis points and trended down further over the next two days. The stopout rates at Freddie Mac’s auction of three- and six-month notes held on the day after the announcement declined about 45 basis points relative to OIS rates. In the repo market, spreads on agency and

agency MBS repos over Treasury general collateral repos were little changed for short maturities, but agency repo spreads reportedly fell somewhat for maturities beyond one month.

The International Swaps and Derivatives Association declared that the conservatorship announcement constitutes a “credit event” for CDS written on Fannie’s and Freddie’s debt, and it is likely to be the largest credit event in the history of the CDS market in terms of the notional value of outstanding contracts. Trading in existing contracts has halted, and, for those who choose to participate, an auction to determine the cash settlement value of CDS contracts on the two GSEs is expected to be held in early October. Uncertainty surrounding the settlement of these contracts is reported to have been a factor behind the reduced liquidity of GSE debt this week.



Note. Spreads over Treasury.
 *option-adjusted.

number of failed banks in 2008 to 11. In addition, the FDIC announced that the number of banks on its problem bank list jumped by almost a third from the first to the second quarter, and now stands at 117 institutions. (See the box “Recent Developments at Commercial Banks.”) Some evidence of strains at thrift institutions was also evident over the intermeeting period, with developments at Washington Mutual garnering particular attention. Washington Mutual’s share price plummeted and its CDS spread widened markedly amid reports that market participants expect further losses at the firm. The condition of corporate credit unions (CCUs) also came under scrutiny, as several large CCUs have unrealized losses on securities in their investment portfolios that exceed their regulatory capital; concerns about the solvency of some of these firms have impaired their ability to obtain short-term funding, particularly in the commercial paper market.

Monetary Policy Expectations and Treasury Yields

(5) The FOMC’s decision at its August meeting to leave the target federal funds rate unchanged at 2 percent had been broadly anticipated. The accompanying policy statement, which many market participants interpreted as essentially balanced with respect to upside risks to inflation and downside risks to growth, was also in line with expectations. Accordingly, the expected path for policy was little changed in the wake of the announcement, and the response in broader financial markets was minimal.¹ Over the remainder of the intermeeting period, market reactions to speeches by FOMC members and the release of the minutes of the August FOMC meeting were also muted. Markets generally shrugged off incoming economic data. Instead, market participants took direction from the pressures on the condition of a number of major

¹ The effective federal funds rate averaged 1.99 percent over the intermeeting period. The volatility of the funds rate, though it remained slightly elevated by historical standards, was lower than it had been over the last several intermeeting periods. Over this intermeeting period, the volume of long-term repurchase agreements was unchanged and the Desk did not redeem any Treasury securities.

Recent Developments at Commercial Banks

The profitability of U.S. commercial banks declined sharply in the second quarter of 2008. Industry return on assets fell to about 0.4 percent at an annual rate, its lowest level in more than 15 years. Substantially higher provisions for loan losses accounted for most of the decline in profitability in the second quarter, and writedowns of the values of other assets—including securities, leveraged loans, goodwill, and leveraged lease transactions—also reduced reported earnings.

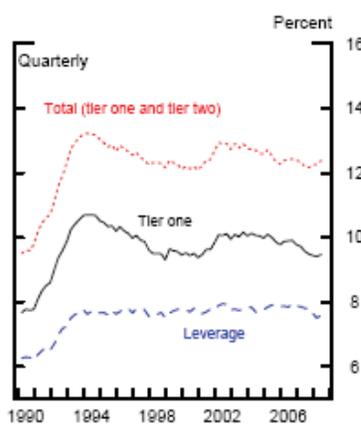
Significant losses at several large commercial banks contributed importantly to the drop in profitability and prompted their bank holding company parents to raise capital in order to shore up the banks’ regulatory capital ratios. Partly as a result of those equity infusions, regulatory capital ratios for the industry as a whole have remained well above the thresholds required for well-capitalized banks.

Despite the rapid pace of loan-loss provisioning, the ratio of loan-loss reserves to net charge-offs—a rough gauge of reserve adequacy—has fallen to its lowest level in more than two decades. Moreover, the overall delinquency rate at commercial banks is still trending up significantly—it reached its highest level since the end of 1993 in the second quarter—as the performance of residential mortgages and construction and land development loans continues to deteriorate sharply. Consequently, loan-loss provisions will likely remain elevated for some time, dampening bank profits. Given this adverse outlook for profitability, and with the macroeconomic and financial outlook quite uncertain, banking organizations may continue to find it costly to raise additional capital going forward.

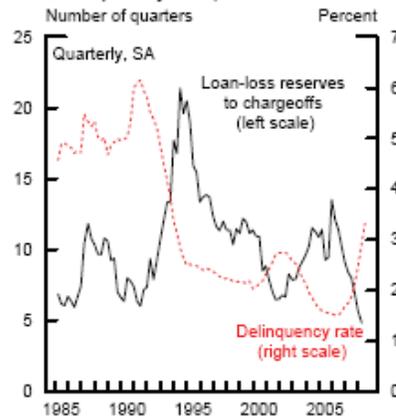
Return on assets by bank size



Regulatory capital ratios



Reserve adequacy and delinquency rate, all loans

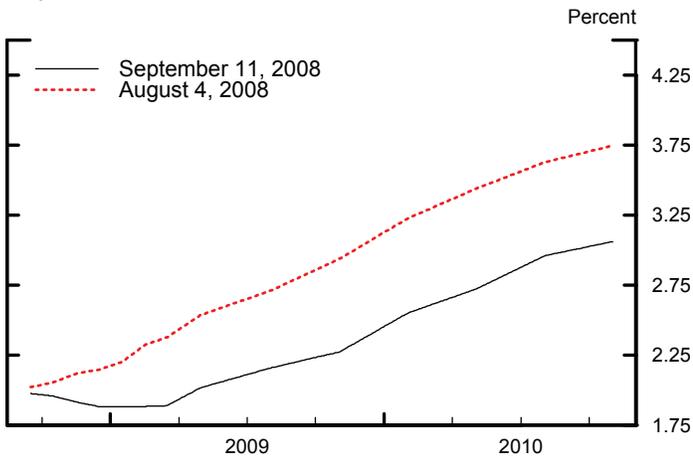


financial institutions and the associated concerns about the economic outlook, and marked down their expected path for policy significantly, on net. Futures quotes now suggest an expected path of the funds rate that is then flat at 2 percent through at least the middle of 2009, with a modest probability of easing through the end of this year. Subsequently, the path rises to about 3 percent by the end of 2010, a level more than 60 basis points below that anticipated at the time of the August meeting (Chart 2). Judging from options on federal funds futures contracts, investors place high odds on an unchanged target at next week's FOMC meeting, as do respondents to the Desk's policy survey. Option-implied measures of uncertainty about the federal funds rate six and twelve months ahead moved lower.

(6) Two-year nominal Treasury yields declined 30 basis points over the intermeeting period and ten-year yields moved down about 35 basis points. (See the box "Treasury Yields and Probability of Low GSE Share Prices.") Five-year inflation compensation fell 50 basis points, while five-year inflation compensation five years forward dropped 6 basis points. The most recent survey measures of short-term inflation expectations from both the Michigan Survey and the Survey of Professional Forecasters were also lower than previous readings: The drops in short-term expectations likely reflected the sharp decline in oil prices, as well as the softer economic outlook, with greater economic slack presumably now foreseen by the market. On balance, respondents to the Desk's primary dealer survey revised up their forecasts for near-term core PCE inflation, but their average forecasts for 2009 were unchanged. Long-term survey measures of inflation expectations were unchanged from previous readings and dealer forecasts for headline CPI inflation from five to ten years ahead were also little changed. However, the dispersion of long-term inflation forecasts in the Survey of Professional Forecasters declined a bit.

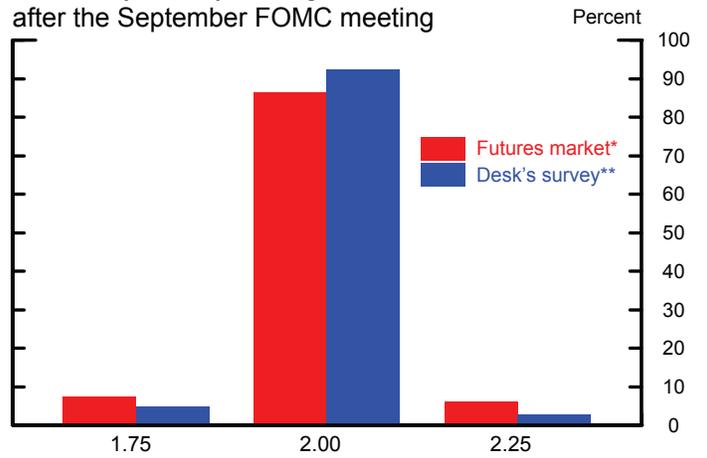
Chart 2 Interest Rate Developments

Expected federal funds rates*



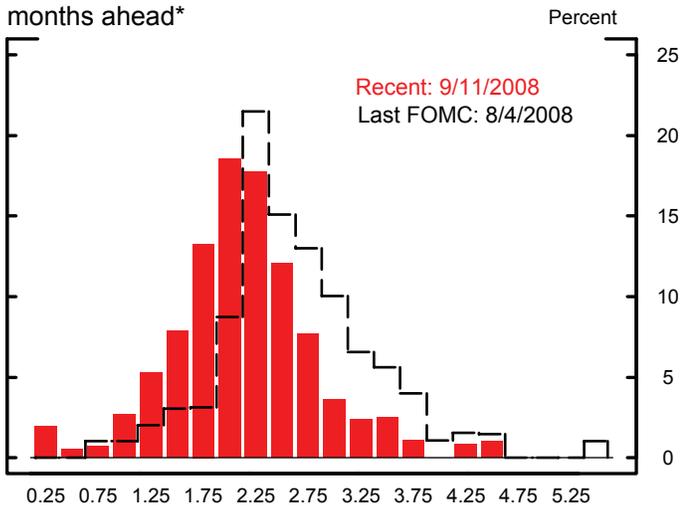
*Estimates from federal funds and Eurodollar futures, with an allowance for term premiums and other adjustments.

Probability density for target funds rate after the September FOMC meeting



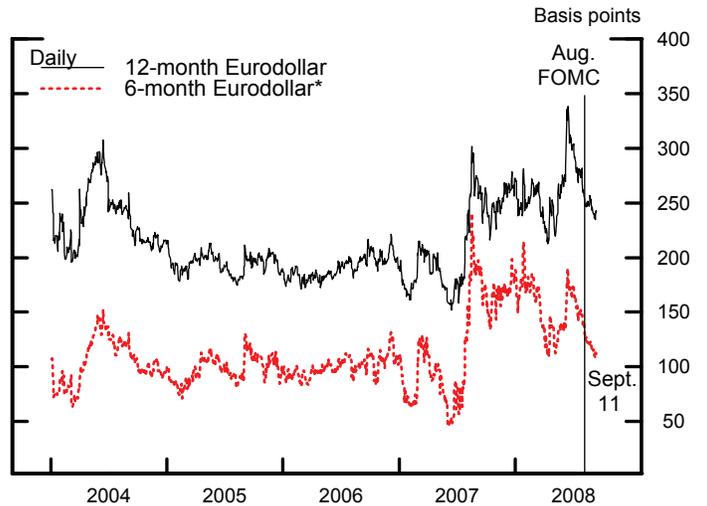
*Derived from options on federal funds futures.
**Survey of primary dealer economists on Sept 8, 2008.

Implied distribution of federal funds rate six months ahead*



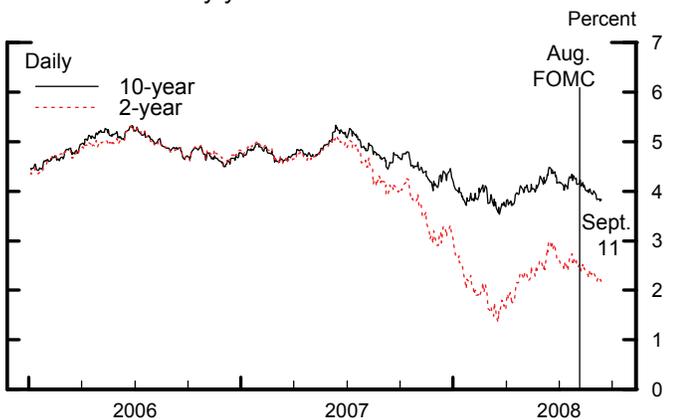
*Derived from options on Eurodollar futures contracts, with term premium and other adjustments to estimate expectations for the federal funds rate.

Implied volatilities



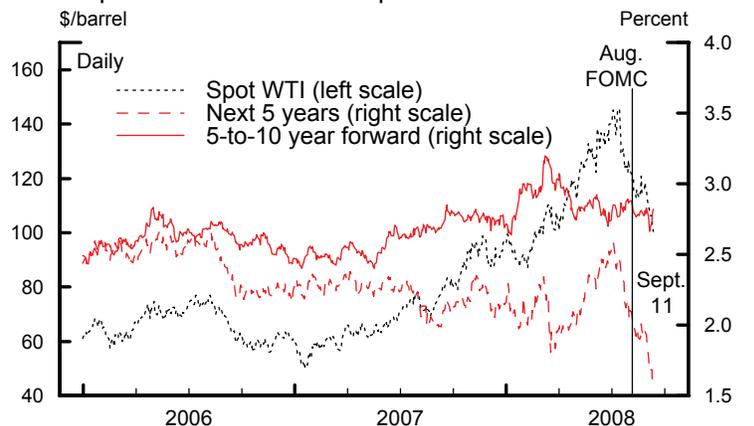
*Width of a 90 percent confidence interval computed from the term structures for the expected federal funds rate and implied volatility.

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.

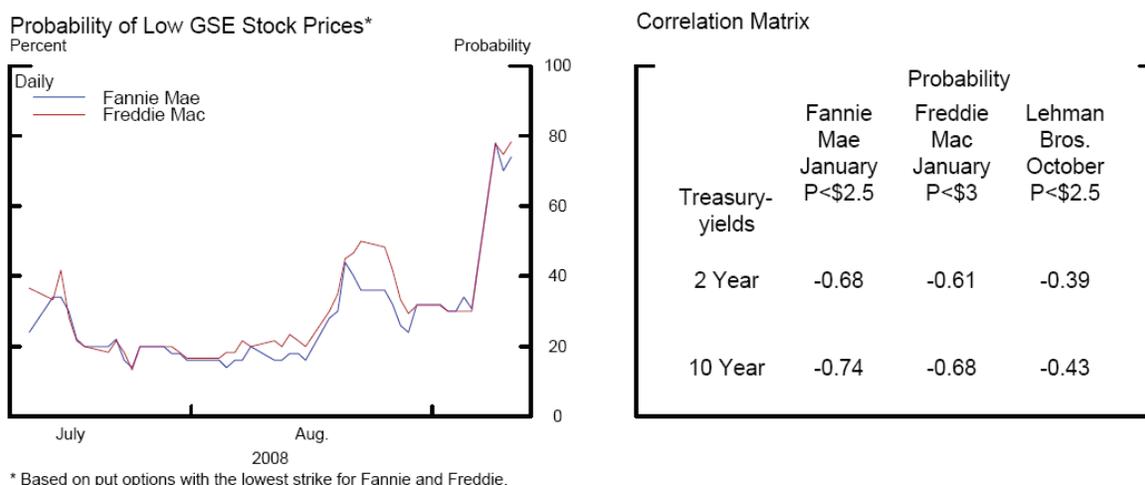
Treasury Yields and the Probability of Low GSE Share Prices

Over the intermeeting period, uncertainty about the capital positions of the GSEs and speculation about the timing and structure of potential government intervention to support the firms induced investors to reassess the prospects for the two agencies and for financial stability. The chart below shows market-implied probabilities that the share prices of Fannie Mae and Freddie Mac would fall to very low levels over the next few months, calculated from put options on Fannie Mae and Freddie Mac shares expiring in January.¹ These estimated probabilities fell in mid-July after the Treasury asked Congress to pass legislation that would authorize it to inject capital into the agencies and the Federal Reserve Board authorized the Federal Reserve Bank of New York to lend to the firms if necessary. The probabilities seesawed during the second half of August amid heightened uncertainty about the conditions of the GSEs and prospects for government intervention. On September 8, when the stock prices of both Fannie Mae and Freddie Mac collapsed following the announcement that the two GSEs would be put into conservatorship, the probabilities shot up.

The table shows correlations between movements in these probabilities and two- and ten-year Treasury yields over the intermeeting period. All of these correlations are negative and statistically significant.² Although such correlations do not indicate causation, these results suggest that investor sentiment about the prospects for Fannie Mae and Freddie Mac and, given their systemic importance, for the broad financial sector, may have been an important driver of Treasury yields of late. The negative correlation appeared to break down on Monday as Treasury yields did not decline following the conservatorship announcement, likely because the GSEs' stock prices no longer reflect information about mortgage credit availability, given the structure of the government's intervention.

¹ Specifically, the chart shows the probabilities that the stock prices of Fannie Mae and Freddie Mac will be below the lowest strike available (constant at \$2.5 and \$3 respectively) on January 16, 2009.

² As shown in the table, estimates of the probability of low share prices for Lehman Brothers also showed negative and significant correlations with Treasury yields.



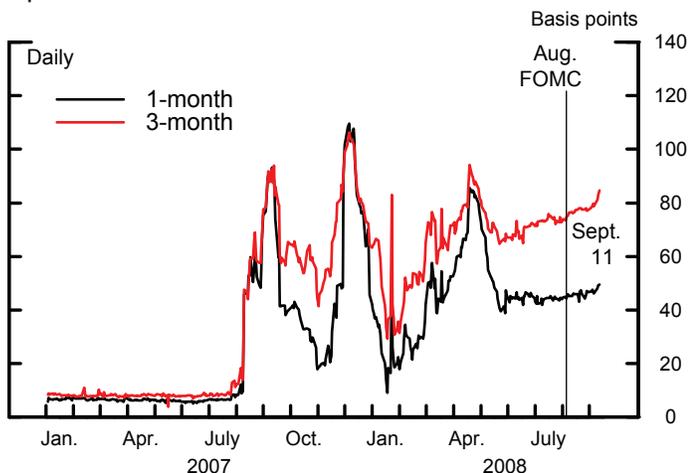
Money Markets

(7) Interbank funding markets remained strained over the intermeeting period as banks reportedly continued to shy away from lending term funds. The spread of one-month Libor over comparable-maturity OIS rates rose modestly and the three-month spread widened a bit more (Chart 3). Amid poor liquidity, rates on six-month and one-year Libor—reference rates for a wide variety of contracts, including floating-rate mortgages—rose over the intermeeting period, while comparable-maturity OIS rates fell, leaving spreads at record levels. Depositories continued to bid aggressively at the Term Auction Facility (TAF) auctions held during the intermeeting period. In particular, while demand was elevated for both of the 84-day TAF auctions, with stop-out rates just below three-month Libor, demand at the second auction was reportedly damped by institutions' desire to reserve the eligible collateral for later auctions covering year-end. On average, depository institutions' use of overnight primary credit was about unchanged at a high level over the intermeeting period, while term primary credit continued to rise. Total primary credit outstanding currently stands at a near-record \$23.5 billion.

(8) Foreign money market conditions deteriorated a bit over the intermeeting period. Spreads between three-month sterling Libor and OIS rates widened more than 10 basis points as U.K. house prices continued to fall and concerns about valuations of asset-backed securities intensified. Spreads of euro Libor to OIS were little changed, but the demand for funding apparently remained substantial. The first few ECB and Swiss National Bank (SNB) auctions of 84-day U.S. dollar funds were significantly oversubscribed, and the two 28-day dollar auctions held by the ECB and SNB also drew substantial bids. Following statements by ECB Council Members expressing concern that some participants might be taking advantage of the ECB's broad collateral rules, the ECB announced several changes effective February 2009, including substantial increases in its haircuts on asset-backed securities.

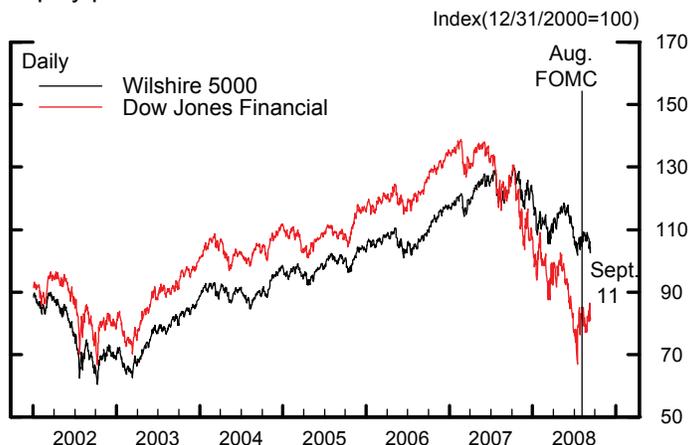
Chart 3 Asset Market Developments

Spreads of Libor over OIS

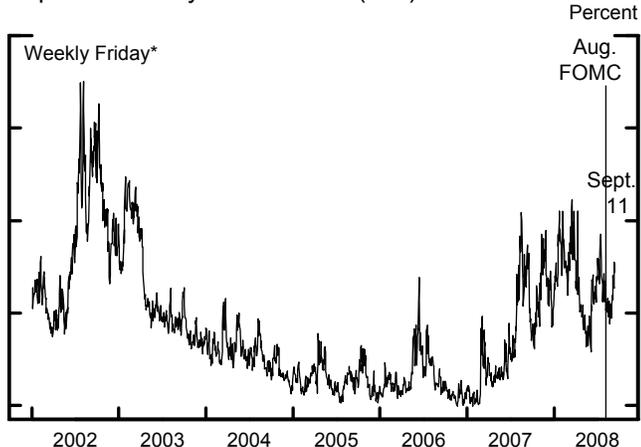


Note. Libor quotes are taken at 6:00 am, and OIS quotes are observed at the close of business of the previous trading day.

Equity prices

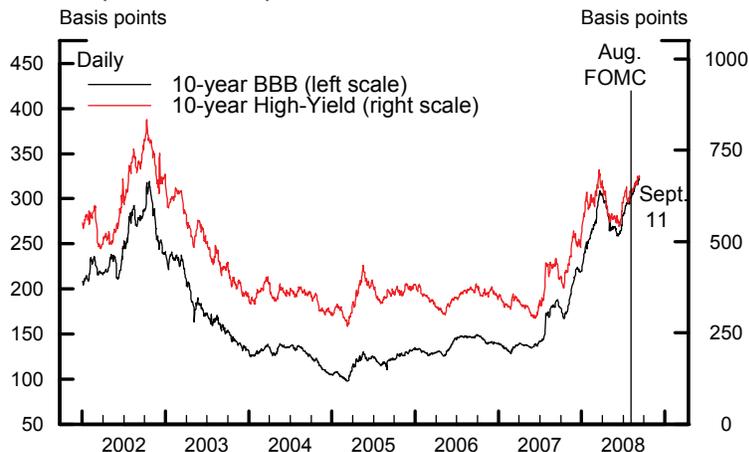


Implied Volatility on S&P 500 (VIX)



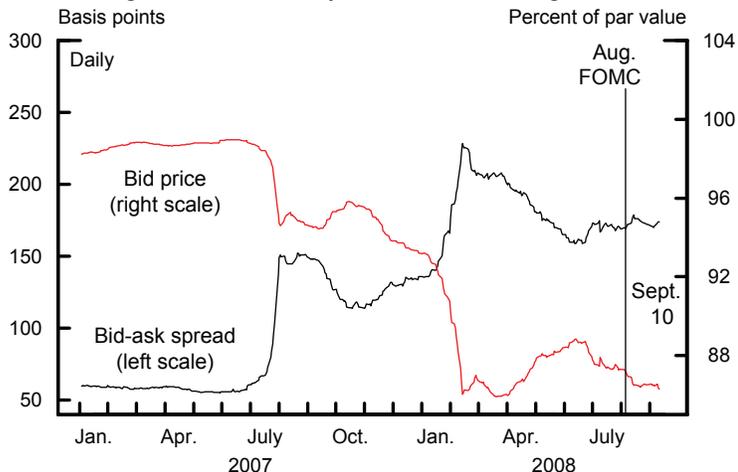
*Latest observation is for most recent business day.
Source. Chicago Board of Exchange.

Corporate bond spreads*



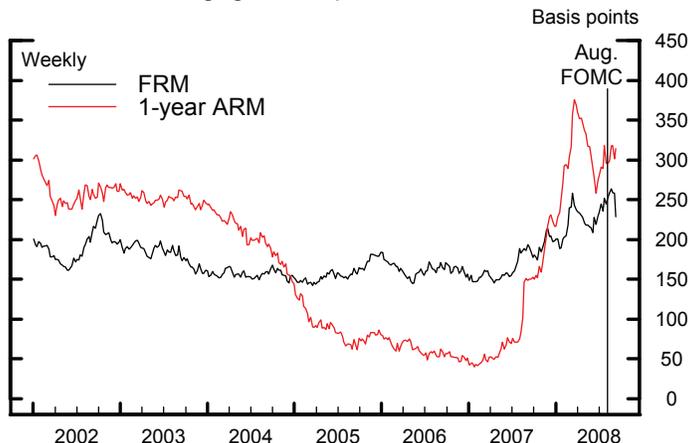
*Measured relative to an estimated off-the-run Treasury yield curve.

Pricing in the secondary market for leveraged loans



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

Residential mortgage rate spreads



Note. FRM spread relative to 10-year Treasury. ARM spread relative to 1-year Treasury. Last weekly observation is for Sept. 10, 2008.
Source. Freddie Mac.

(9) Conditions in some repo markets deteriorated a little over the intermeeting period, and liquidity in non-Treasury, non-agency term repo markets remained poor. Following the GSE conservatorship announcement, the spread between agency debt repo rates and repo rates on Treasury general collateral at horizons longer than one month reportedly narrowed, while those on agency MBS were little changed on net. Haircuts on agency debt held steady over the intermeeting period, but haircuts on agency MBS collateral, private-label alt-A, and subprime MBS collateral increased a bit further. The Desk's single-tranche, 28-day repos continued to attract strong demand, and Schedule 1 Term Securities Lending Facility (TSLF) auctions were generally oversubscribed, reflecting the relatively favorable terms the auctions offered relative to market spreads for financing agency collateral. By contrast, Schedule 2 auctions continued to be undersubscribed. Two auctions of options on Schedule 2 TSLF borrowing over the September quarter-end were held during the intermeeting period; both were oversubscribed. The stop-out rate was 1 basis point above the minimum fee rate at the first auction and 2 basis points above the minimum fee rate at the second. There were no credit extensions through the Primary Dealer Credit Facility (PDCF) during the intermeeting period to date.

(10) Liquidity in the Treasury bill market remained fairly good over the intermeeting period, amid robust supply. Conditions in the commercial paper market continued to be strained. Spreads on lower-rated nonfinancial and asset-backed commercial paper stayed at high levels, and spreads on higher-rated financial paper were volatile, generally remaining near the top of their recent range. Quarter-end pressures in money markets reportedly tightened somewhat in recent days, in part reflecting broader market conditions. Anecdotal reports suggest that market participants are growing more concerned about the upcoming year-end.

Capital Markets

(11) Broad equity price indexes were about flat, on net, over the intermeeting period, with the retail sector outperforming the broader market and lower oil prices dragging down the shares of energy firms. Financial sector indexes were quite volatile and ended the period somewhat lower. During the current quarter, analysts expect no growth in earnings from four quarters earlier for S&P 500 firms, as forecasted energy sector gains are offset by financial sector losses. Analysts trimmed their forecasts of year-ahead expected earnings, reflecting a more pessimistic outlook for the financial sector. Option-implied volatility on the S&P 500 rose slightly, on net, and remains at an elevated level. 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 – continued to climb and is now at its highest level since the early 1980s.

(12) Conditions in corporate debt markets tightened further over the intermeeting period. Risk spreads rose from already elevated levels, as yields on investment-grade bonds fell less than those on comparable-maturity Treasury securities, while yields on speculative-grade bonds were roughly unchanged. Spreads on investment-grade bonds are now at their highest levels since 2002, and their speculative-grade counterparts backed up to levels last seen in the spring. Conditions in the leveraged loan market worsened somewhat over the intermeeting period: Secondary market bid prices fell to the bottom of recent ranges, perhaps due in part to concerns about a deterioration in credit quality. Indeed, the implied spread on an index of loan credit default swaps (the LCDX) widened some over the period. However, according to the August Survey of Terms of Business Lending, the spread of loan rates on newly originated C&I loans over comparable-maturity market rates was little changed relative to May. The ratio of municipal bond yields to comparable-

maturity Treasury yields rose to a historically elevated level, but issuance remained strong and market functioning appeared smooth.

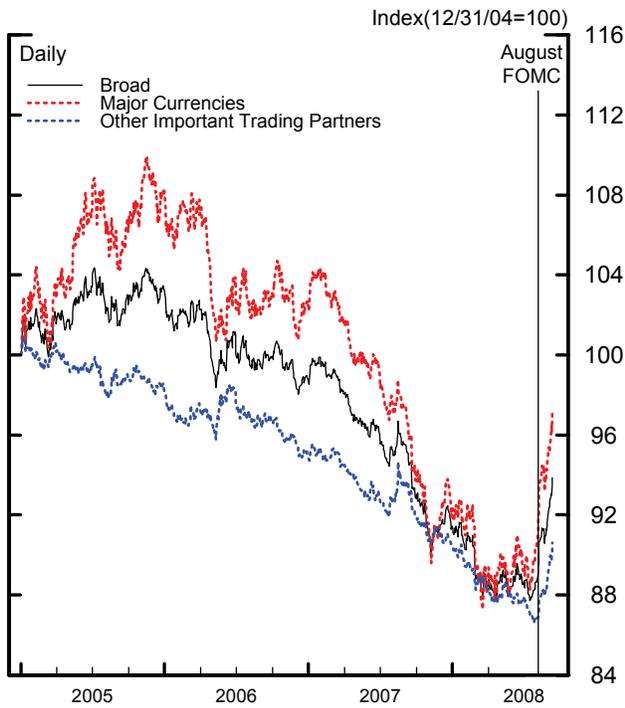
(13) Some indicators of conditions in the mortgage market worsened over the intermeeting period, while others remained steady. Issuance of Fannie Mae and Freddie Mac MBS in August is estimated to be about in line with July's pace but below the average rates seen in the first two quarters of the year. By contrast, issuance by Ginnie Mae has stayed elevated, owing to originations of mortgages insured by the Federal Housing Administration or guaranteed by the Department of Veterans Affairs. Market participants report that there have been no major disruptions to their ability to securitize conforming mortgages after Fannie Mae and Freddie Mac were placed into conservatorship, and interest rates on fixed-rate conforming mortgages fell markedly after the announcement. Jumbo mortgages remained both costly and difficult to obtain. Issuance of both private-label RMBS backed by nonconforming loans and of commercial mortgage-backed securities was essentially zero over the intermeeting period. Rates and spreads on all types of consumer ABS rose over the intermeeting period, consistent with higher delinquency rates on the underlying loans in recent months. Issuance of student loan asset-backed securities (ABS) was moderate in August, while there was no issuance of automobile loan-backed ABS.

Foreign Developments

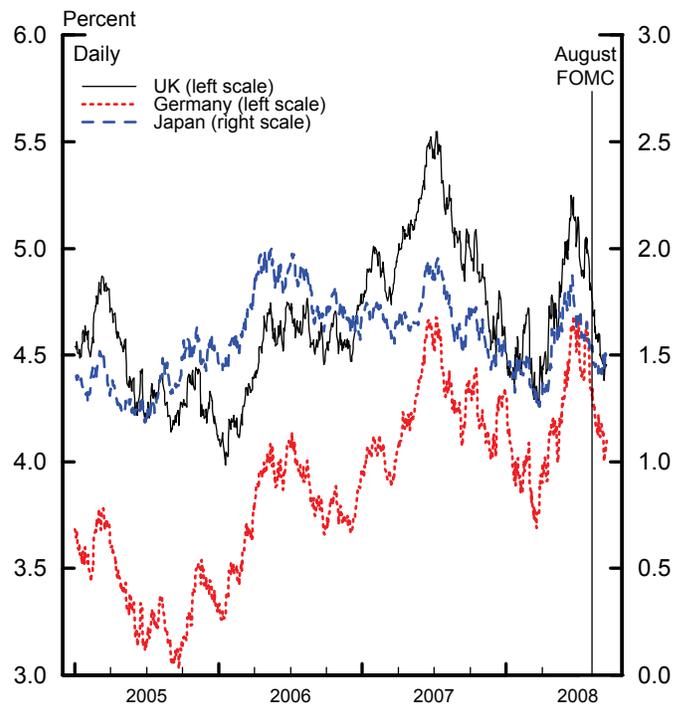
(14) The dollar appreciated broadly and sharply over the intermeeting period, chiefly reflecting the deterioration of the foreign economic outlook relative to that in the United States. The major currencies index rose by 6 percent, with gains exceeding 10 percent against both sterling and the euro offsetting a small decline against the yen (Chart 4). Data on macroeconomic activity in Europe continued to point to a softening economic outlook, and the Bank of England (BoE), the European Central

Chart 4 International Financial Indicators

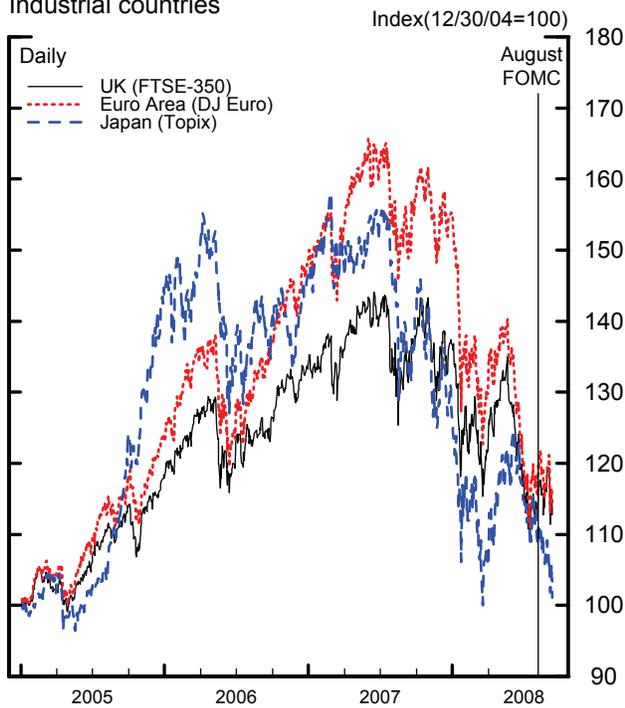
Nominal trade-weighted dollar indexes



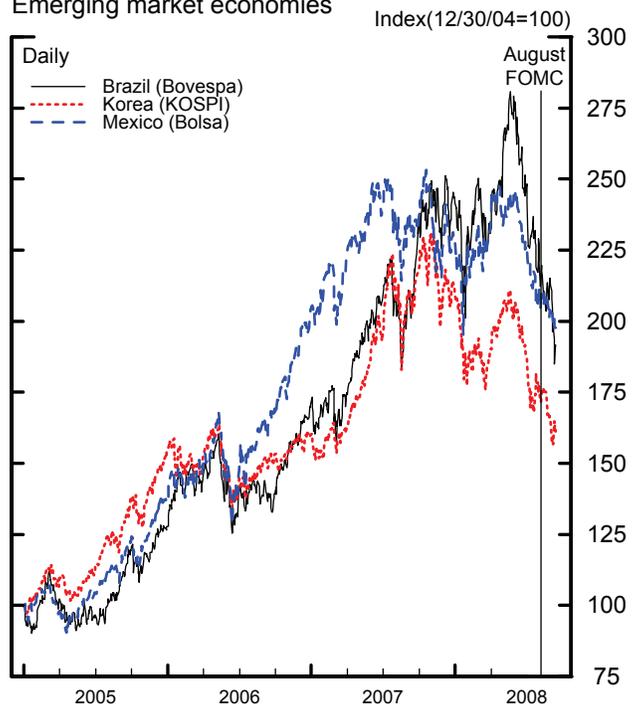
Ten-year government bond yields (nominal)



Stock price indexes
Industrial countries



Stock price indexes
Emerging market economies



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

Bank (ECB) and the OECD all revised down their forecasts for growth in Europe. Still, the BoE and the ECB left their policy rates unchanged over the intermeeting period, noting that inflation was well above target. Medium-term policy expectations have, however, declined since the August FOMC, particularly for the United Kingdom. In line with expected easing by central banks, sovereign bond yields have fallen, mainly reflecting declines in inflation compensation. Amid substantial volatility, stock markets around the world moved down as prospects for economic growth deteriorated.

(15) The index of the dollar's value against the currencies of our other important trading partners rose about 4 percent over the intermeeting period. The increase likely reflected concerns about the prospects for weaker economic growth in emerging market economies, even as many central banks in the region tightened policy in an attempt to curb mounting inflation. Notably, the dollar was little changed against the Chinese renminbi. In an about-face from their policies of recent years, several other central banks in emerging market countries reportedly intervened in foreign exchange markets to support their currencies in the face of sharp downward pressures.

Debt and Money

(16) The debt of domestic nonfinancial sectors is projected to expand at a 4 percent annual rate in the current quarter, up a bit from the second quarter, but well below the 8½ percent rise posted in 2007 (Chart 5). The pickup is attributable to increased borrowing by state and local governments and the federal government, as the rate of growth in the business and household sectors is estimated to be slowing. In the nonfinancial business sector, commercial paper issuance was quite robust in August, with some of the issuance reportedly intended to fund a large acquisition and dividend payments. By contrast, investment-grade bond issuance was moderate and

Chart 5 Debt and Money

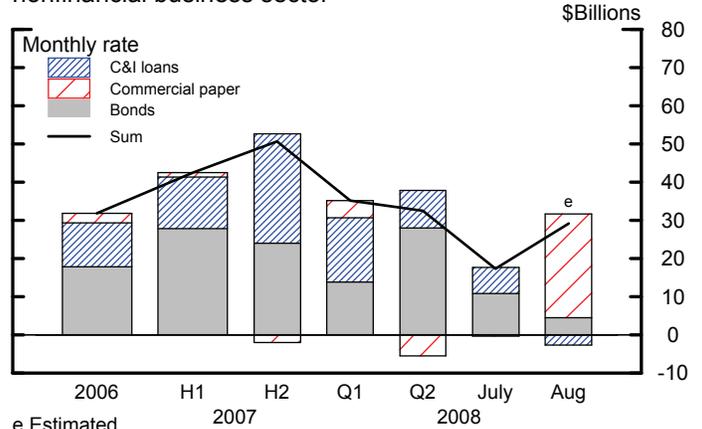
Growth of debt of nonfinancial sectors

Percent, s.a.a.r.

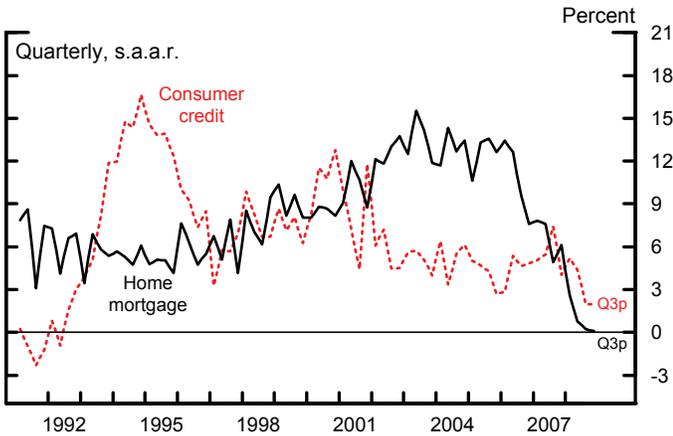
| | Total | Business | Household | Government |
|-----------------|-------|----------|-----------|------------|
| 2007 | 8.6 | 13.0 | 6.8 | 6.1 |
| Q1 | 8.1 | 10.4 | 7.0 | 7.1 |
| Q2 | 8.0 | 12.8 | 7.2 | 3.1 |
| Q3 | 9.1 | 14.2 | 6.2 | 7.8 |
| Q4 | 8.1 | 12.1 | 6.1 | 6.0 |
| 2008 | | | | |
| Q1 | 5.4 | 7.4 | 3.3 | 6.7 |
| Q2 | 3.5 | 5.7 | 1.4 | 4.3 |
| Q3 _p | 3.9 | 3.4 | 0.8 | 10.3 |

p Projected.

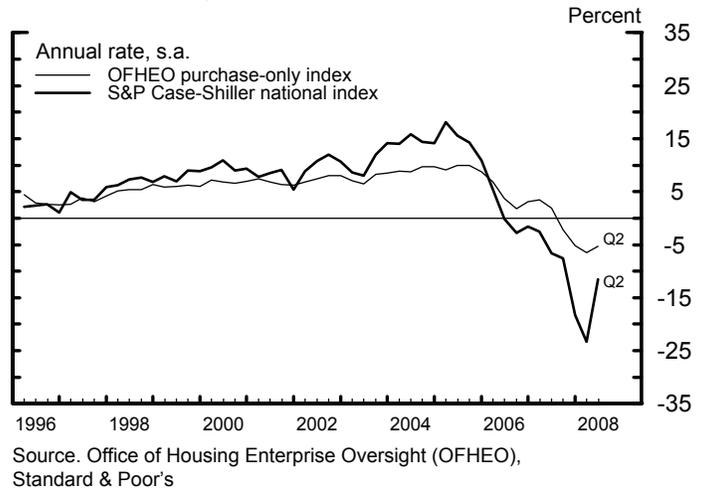
Changes in selected components of debt of nonfinancial business sector*



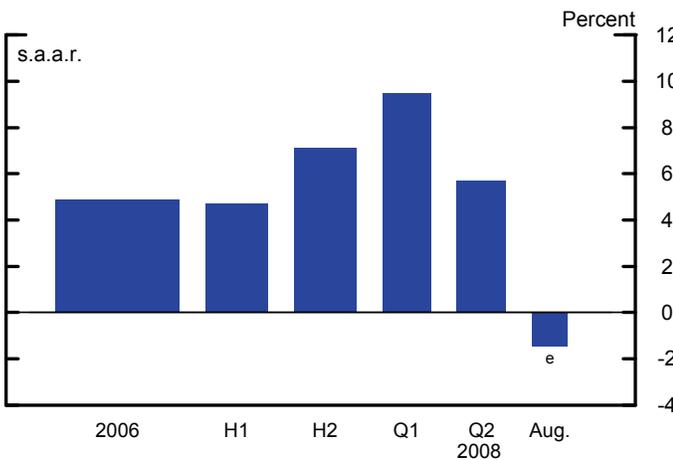
Growth of debt of household sector



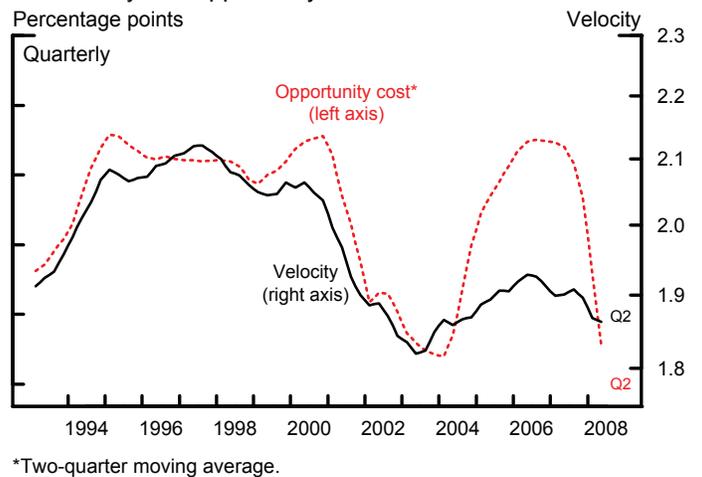
Growth of house prices



Growth of M2



M2 velocity and opportunity cost



speculative-grade bond issuance remained weak, likely because of relatively high interest rates and risk spreads. Smoothing through the month-to-month fluctuations, commercial bank credit has advanced at about the same pace in the current quarter as in the second quarter, as tepid loan growth has about offset more rapid gains in securities holdings. Leveraged loan issuance reportedly has continued to be very subdued. Household debt growth is estimated to have slowed further in the third quarter, with essentially no growth projected for home mortgage debt amid tighter terms for borrowers and declining prices and slow activity in the housing market.

(17) M2 contracted at a 1½ percent annual rate in August, as large outflows from liquid deposits and money funds more than offset robust growth in small time deposits. Currency growth was moderate. (See the box “Recent Behavior of the Components of M2.”) Since April, M2 has advanced at an average annual rate of just 1¼ percent. Staff currently forecast a 5 percent increase for 2008 as a whole, only slightly faster than the growth of nominal GDP, despite a steep drop in the opportunity cost of holding M2 late last year and early this year. Typically, the lagged effects of the decline in opportunity cost over the past year would have been expected to boost money growth substantially, but the effect of opportunity cost on the demand for M2 appears to have been damped in recent years. Based on the sharp decline in opportunity cost, the staff’s standard money demand models predict a significant acceleration in M2 this year. However, in light of the recent sluggish growth, M2 is projected to expand at a rate about ¾ percentage point less in 2008 than in 2007.

Economic Outlook

(18) The staff forecast presented in the September Greenbook is conditioned on an assumption that the target federal funds rate is held at 2 percent until mid-year 2009, six months longer than in the projection prepared for the August meeting, and

Recent Behavior of the Components of M2

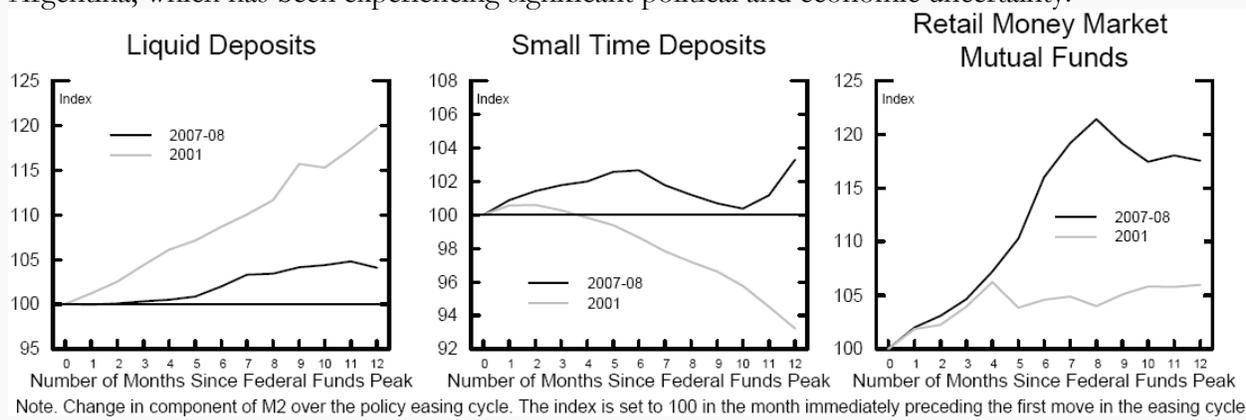
The behavior of important components of M2 has been somewhat atypical during the current easing cycle. The charts below compare the levels of selected M2 components over the first twelve months of the easing cycles that began in January 2001 and August 2007.

During periods of policy easing, rates available on small time deposits tend to track rates on other money market instruments with only short lags and therefore typically fall relative to those on liquid deposits, which are generally adjusted much more sluggishly. As a result, during periods of easing, liquid deposits generally expand rapidly and small time deposits run off; this pattern was clearly evident in the 2001 easing episode. During the current easing cycle, however, liquid deposits have expanded rather slowly while small time deposits have recorded positive growth.

The relatively rapid expansion of small time deposits in the current episode appears to reflect importantly bank funding decisions. Some depository institutions have been offering relatively high interest rates on small time deposits to strengthen their core deposit base or, in some cases, to offset liquid deposit outflows in the wake of depositors' concerns about depository institutions' solvency. Last month, small time deposits expanded at a 25 percent annual rate—the fastest monthly growth rate since 1995, a period of monetary policy tightening. Roughly a third of this increase was due to three institutions: Bank of America, Wachovia, and Washington Mutual; these institutions offered especially attractive rates on small time deposits in August. For Bank of America and Wachovia, the increase in small time deposits resulted in a net increase in total deposits. However, Washington Mutual's total deposits contracted over the month as outflows from liquid deposits overwhelmed increases in small time deposits. For all depository institutions taken together, increases in small time deposits fell short of outflows from liquid deposits.

Retail money market mutual funds, though growing only sluggishly in recent months, grew more than 17 percent from August 2007 to August 2008, much faster than the 6 percent expansion posted during the comparable period of the January 2001 easing cycle. In part, the robust growth of retail money funds likely reflects household demand for safe and liquid assets during the financial turmoil.

Currency has expanded just 2 percent over the year since August 2007, with moderately strong domestic demand partially offset by weak foreign demand for U.S. dollars. In June and July, however, there was a noticeable surge in foreign demand, likely due to strong demand for dollars in Argentina, which has been experiencing significant political and economic uncertainty.



rises to 3 percent by the end of 2010, 25 basis points lower than previously assumed. Long-term Treasury yields are projected to edge up over the forecast period, owing to the rising short-term rates, but beginning from a modestly lower level. Fixed mortgage rates have been marked down, in part to reflect the drop that occurred in response to the government's takeover of Fannie Mae and Freddie Mac, bringing forward nearly all of the decline in rates that had previously been projected to take place over the next two years. Stock prices, which start from a level that is $3\frac{1}{2}$ percent below that assumed in the previous forecast, increase at an average annual rate of $11\frac{1}{2}$ percent, as the equity risk premium retraces about half of the widening that has occurred during the financial turmoil. The real foreign exchange value of the dollar is again assumed to depreciate at an annual rate of $2\frac{1}{2}$ percent, but from a level that is about 5 percent higher than in the last Greenbook. The price of West Texas intermediate crude oil is expected edge up from its current level of \$103 per barrel – about \$20 per barrel less than in the previous projection – to \$107 by the end of 2009 and to hold to that level in 2010. In the forecast, the continued deterioration of the housing sector, restraint from the earlier increase in energy prices, weak consumer sentiment, and the considerable strains in financial conditions hold down growth in the near term, and a gradual improvement in these factors leads to modest acceleration in economic activity over time. On balance, real GDP growth is projected to average about $\frac{3}{4}$ percent at an annual rate over the second half of 2008, but to pick up to 2 percent next year and to $2\frac{3}{4}$ percent in 2010, a bit above the staff's estimate of the growth rate of potential GDP of $2\frac{1}{2}$ percent. This trajectory for growth is slightly weaker on average than forecasted last time, owing partly to the recent strength of the dollar. The unemployment rate is projected to average $6\frac{1}{4}$ percent in 2009 – $\frac{1}{4}$ percentage point higher than in the previous forecast and significantly above the staff's estimate of the NAIRU – and then to edge down in 2010. Higher-than-expected readings on inflation for July led the staff to increase its

forecast of overall PCE inflation in the current quarter nearly a percentage point to 5½ percent, but the recent decline in crude oil prices is expected to pull headline inflation down to ½ percent in the fourth quarter. The forecast for current-quarter core PCE inflation is 3 percent, but core inflation is projected to fall to 2½ percent in the fourth quarter. Both total and core PCE inflation are projected to be a little over 2 percent in 2009 and just under 2 percent in 2010.

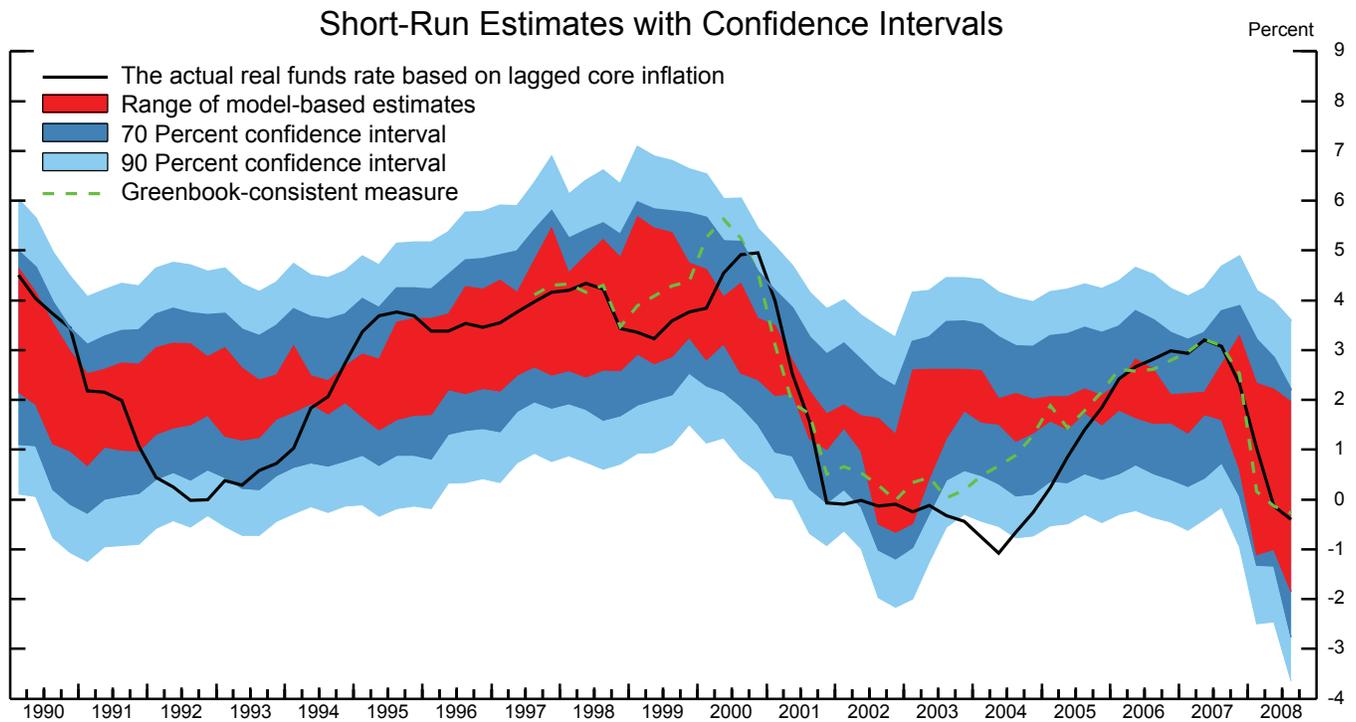
Update on Monetary Policy Strategies

(19) As shown in Chart 6, the Greenbook-consistent measure of short-run r^* now stands at -0.3 percent, about 40 basis points lower than in the previous Bluebook. The estimates from the small structural model and the FRB/US model has dropped more sharply and now stand at about -1¾ percent. These declines mainly reflect the higher path for the foreign exchange value of the dollar and the increase in the equity premium in the current forecast. The actual real federal funds rate—constructed using lagged core PCE inflation as a proxy for inflation expectations—now stands at -0.4 percent, about 20 basis points lower than in the previous Bluebook (see the box “Estimates of the Real Funds Rate and Optimal Monetary Policy”).

(20) Chart 7 depicts optimal control simulations of the FRB/US model using the long-run Greenbook forecast beyond 2010. 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 federal funds rate.² For an inflation goal of 1½ percent (the left-hand set of charts), the

² Consistent with the staff assumptions in the Greenbook, the value of the effective NAIRU used in the loss function is boosted 20 basis points in the last quarter of 2008 and 15 basis points in 2009 to control for the supply-side effects of recently enacted temporary extended unemployment insurance benefits. In these projections, policymakers and participants in financial markets are assumed to understand fully the forces shaping the economic outlook

Chart 6
Equilibrium Real Federal Funds Rate



Short-Run and Medium-Run Measures

| | Current Estimate | <i>Previous Bluebook</i> |
|--|------------------|--------------------------|
| Short-Run Measures | | |
| Single-equation model | 2.0 | 2.3 |
| Small structural model | -1.8 | -0.7 |
| Large model (FRB/US) | -1.7 | -0.1 |
| Confidence intervals for three model-based estimates | | |
| 70 percent confidence interval | -2.8 - 2.2 | |
| 90 percent confidence interval | -3.7 - 3.6 | |
| Greenbook-consistent measure | -0.3 | 0.1 |
| Medium-Run Measures | | |
| Single-equation model | 2.1 | 2.2 |
| Small structural model | 1.7 | 1.7 |
| Confidence intervals for two model-based estimates | | |
| 70 percent confidence interval | 1.0 - 2.9 | |
| 90 percent confidence interval | 0.4 - 3.7 | |
| TIPS-based factor model | 2.0 | 2.0 |
| Memo | | |
| Actual real federal funds rate | -0.4 | -0.2 |

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.

Estimates of the Real Funds Rate and Optimal Monetary Policy

The estimates shown in Chart 6 for the equilibrium real federal funds rate and the actual real funds rate are constructed using trailing core inflation as the proxy for expected inflation. As portrayed in the figure below, the estimated value of the real funds rate can vary substantially depending on the choice of proxy for expected inflation. When computed using either trailing core inflation or projected headline inflation, the actual real funds rate is around zero, close to the troughs reached in each of the previous two downturns. In contrast, when measured using trailing headline inflation, the current real funds rate stands at about $-2\frac{1}{2}$ percent, its lowest level in more than three decades.

In evaluating the macroeconomic and policy implications of these real funds rate measures, it is important to consider the extent to which they are affected by transitory fluctuations in overall inflation. For example, the staff projects a sharp decline in headline PCE inflation from $3\frac{1}{2}$ percent in 2008 to about $2\frac{1}{4}$ percent in 2009. Under this projection, the corresponding measure of the real funds rate will rise by roughly 125 basis points next year even if the nominal funds rate remains at its current level.

Regardless of the choice of proxy for expected inflation, no measure of the actual real funds rate can, by itself, provide an adequate metric for assessing the stance of monetary policy without reference to other factors influencing the outlook and to the Committee's objectives. Such an assessment must take account of expected future policy rates; term premiums; the risk premiums embedded in mortgage rates, corporate yields, and equity prices; and bank lending terms and standards. It must also take account of shocks to variables such as residential investment and commodity prices, as well as other financial and nonfinancial influences on the overall economic outlook. Indeed, staff analysis indicates that the economic and financial developments since last summer have shifted down the optimal-control path of the federal funds rate since that time by a magnitude similar to the decline in the actual funds rate.¹

¹ See the September 9 memo to the Committee, "Gauging the Effective Stance of Monetary Policy," by Jean-Philippe Laforte, Dave Reifschneider, John Roberts, and Tom Tallarini. The estimates of the real federal funds rate in this memo are based on the July/August Greenbook.

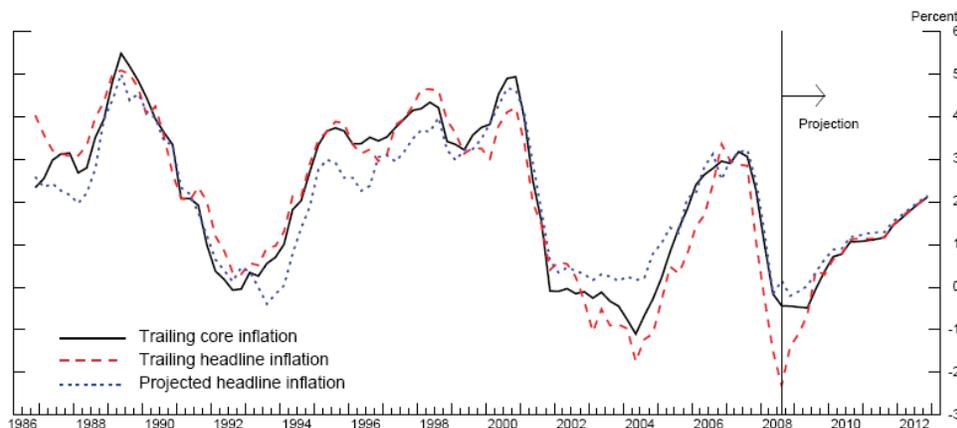


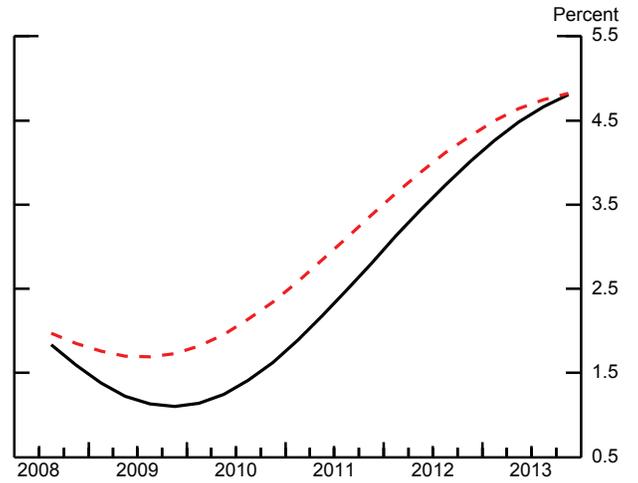
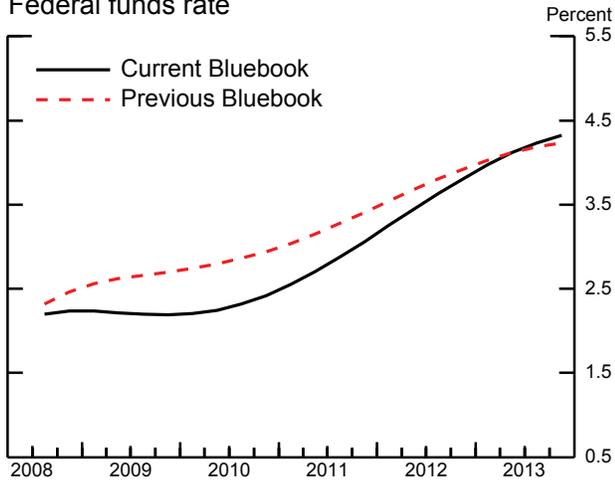
Chart 7

Optimal Policy Under Alternative Inflation Goals

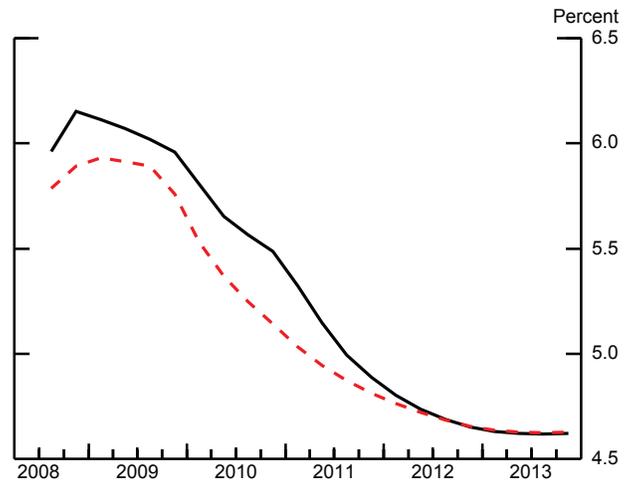
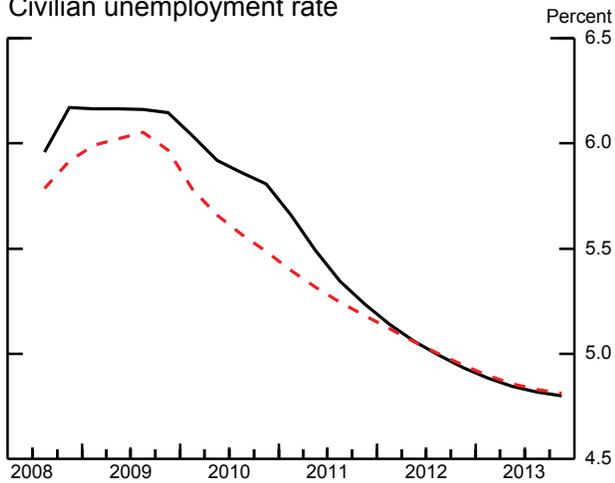
1½ Percent Inflation Goal

2 Percent Inflation Goal

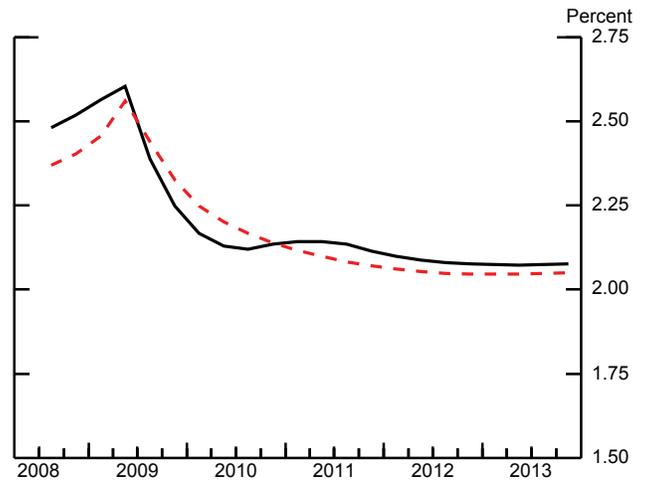
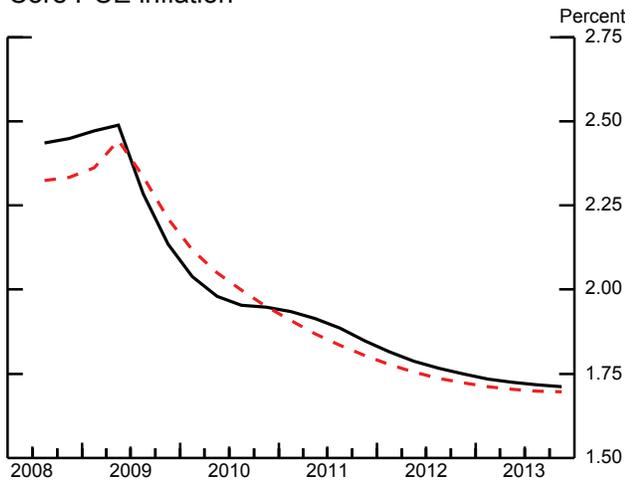
Federal funds rate



Civilian unemployment rate



Core PCE inflation



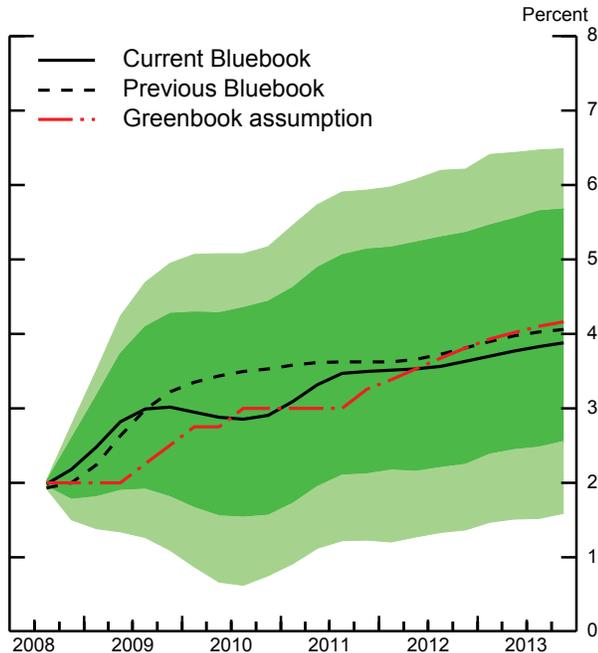
optimal funds rate stays near $2\frac{1}{4}$ percent through early 2010; this trajectory is about 20 to 50 basis points lower than in the previous Bluebook. With an inflation target of 2 percent (the right-hand set of charts), the funds rate declines to around 1 percent by late 2009 and then rises gradually to $4\frac{3}{4}$ percent by 2013. These prescriptions mostly reflect the reduction in the Greenbook consistent measure of r^* . For either inflation goal, the optimal-control policy generates outcomes for the unemployment rate over the next several years that are about $\frac{1}{4}$ percentage point higher than the last Bluebook, while the outcomes for core inflation are little changed beyond mid-2009.

(21) As depicted in Chart 8, the outcome-based monetary policy rule prescribes a funds rate path that rises steadily to about 3 percent by the middle of 2009 before flattening out. This trajectory is noticeably higher than currently embedded in financial market quotes, which imply a roughly unchanged funds rate until the middle of next year. Stochastic simulations of the FRB/US model indicate a 70 percent probability that the prescriptions of the outcome-based rule will fall in a range of $1\frac{3}{4}$ to $4\frac{1}{4}$ percent at the end of 2009; this confidence band is about 50 to 100 basis points higher than that implied by interest rate caps. The near-term prescriptions from the Taylor (1993, 1999) rules are a notch higher than in the previous Bluebook, reflecting a modest increase in recent readings on core inflation. As has been the case for some time, the rates implied by these rules are relatively high because they do not take into account the effects of financial market pressures, the persisting weakness of the housing market, and other forward-looking information captured by market expectations and the staff forecast. The first-difference rule under an inflation goal of $1\frac{1}{2}$ percent prescribes no change from the current target for 2008Q4 and a quarter-point tightening for 2009Q1. In contrast, under an inflation goal of 2 percent, it calls for about one quarter percentage point of easing over the next two quarters.

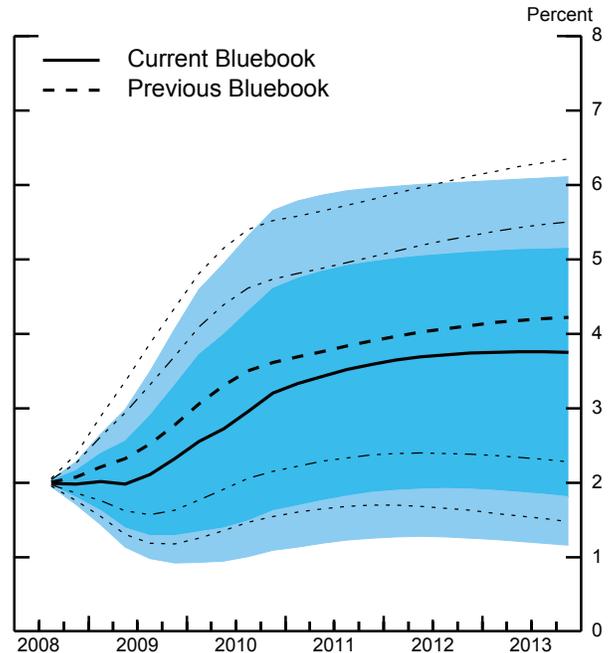
Chart 8

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 | 4.3 | 4.2 | 4.1 | 4.0 |
| <i>Previous Bluebook</i> | 4.2 | 4.1 | 3.9 | 3.8 |
| Taylor (1999) rule | 3.7 | 3.5 | 3.5 | 3.3 |
| <i>Previous Bluebook</i> | 3.5 | 3.3 | 3.3 | 3.1 |
| First-difference rule | 2.0 | 2.2 | 1.8 | 1.7 |
| <i>Previous Bluebook</i> | 2.0 | 2.2 | 1.5 | 1.5 |
| Memo | | | | |
| | | <u>2008Q4</u> | <u>2009Q1</u> | |
| Estimated outcome-based rule | | 2.2 | 2.6 | |
| Estimated forecast-based rule | | 2.2 | 2.4 | |
| Greenbook assumption | | 2.0 | 2.0 | |
| Fed funds futures | | 1.9 | 1.9 | |
| Median expectation of primary dealers | | 2.0 | 2.0 | |

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

(22) This Bluebook presents three alternatives for the Committee's consideration, summarized by the draft statements in Table 1. Under Alternatives A and B, the target federal funds rate would be maintained at 2 percent at this meeting. Alternative C includes a 25 basis point tightening. Compared with the statement released after the August meeting, all three alternatives would still note that inflation has been high, but the focus of the discussion of economic activity has shifted from the expansion in the second quarter to the slowdown evident in recent months. In addition, a slowing in export growth is included as a factor likely to weigh on the pace of economic activity over the next few quarters. Apart from these changes, Alternative B is little different from the Committee's statement in August. Alternative C expresses the Committee's "significant concern" that inflation may not moderate as anticipated, and states that the policy action was intended to better promote acceptable progress toward price stability. Alternative A indicates greater confidence that inflation will moderate and suggests that downside risks to growth and upside risks to inflation are now roughly balanced.

(23) If the Committee views the staff forecast, which is conditioned on unchanged policy through the middle of next year, as reasonable and acceptable in the circumstances and sees no compelling reason to change the statement materially, it may wish to leave the policy rate unchanged and issue a statement along the lines of that in **Alternative B**. Although inflation is currently high, the Committee may expect inflation to decline to acceptable levels given the recent appreciation of the dollar, the decline in oil prices, and the outlook for persistent economic slack. And even though members may believe that the next policy move is likely to be a tightening, they may also judge that holding the funds rate steady for now is appropriate given the Committee's dual objectives. Indeed, the optimal policy simulations based on a 1½ percent inflation goal has the target federal funds rate just

| Table 1: Alternative Language for the September 2008 FOMC Announcement | | | | |
|--|--|---|---|---|
| | August FOMC | Alternative A | Alternative B | Alternative C |
| Policy Decision | 1. The Federal Open Market Committee decided today to keep its target for the federal funds rate at 2 percent. | The Federal Open Market Committee decided today to keep its target for the federal funds rate at 2 percent. | The Federal Open Market Committee decided today to keep its target for the federal funds rate at 2 percent. | The Federal Open Market Committee decided today to <u>raise</u> its target for the federal funds rate <u>25 basis points to 2¼</u> percent. |
| Rationale | 2. Economic activity expanded in the second quarter, partly reflecting growth in consumer spending and exports. However, labor markets have softened further and financial markets remain under considerable stress. Tight credit conditions, the ongoing housing contraction, and elevated energy prices are likely to weigh on economic growth over the next few quarters. Over time, the substantial easing of monetary policy, combined with ongoing measures to foster market liquidity, should help to promote moderate economic growth. | <u>Incoming information suggests that growth in economic activity has slowed in recent months, partly reflecting a softening of household spending. In addition,</u> labor markets have <u>weakened</u> further and financial markets remain under considerable stress. Tight credit conditions, the ongoing housing contraction, <u>some slowing in export growth,</u> and <u>past increases in</u> energy prices are likely to weigh on economic growth over the next few quarters. Over time, the substantial easing of monetary policy, combined with ongoing measures to foster market liquidity, should help to promote moderate economic growth. | <u>Incoming information suggests that growth in economic activity has slowed in recent months, partly reflecting a softening of household spending. In addition,</u> labor markets have <u>weakened</u> further and financial markets remain under considerable stress. Tight credit conditions, the ongoing housing contraction, <u>some slowing in export growth,</u> and <u>past increases in</u> energy prices are likely to weigh on economic growth over the next few quarters. Over time, the substantial easing of monetary policy, combined with ongoing measures to foster market liquidity, should help to promote moderate economic growth. | <u>Incoming information suggests that growth in economic activity has slowed in recent months, partly reflecting a softening of household spending. In addition,</u> labor markets have <u>weakened</u> further and financial markets remain under considerable stress. Tight credit conditions, the ongoing housing contraction, <u>some slowing in export growth,</u> and <u>past increases in</u> energy prices are likely to weigh on economic growth over the next few quarters. <u>Nonetheless,</u> the <u>accommodative stance</u> of monetary policy, combined with ongoing measures to foster market liquidity, should help to promote moderate economic growth. |
| | 3. Inflation has been high, spurred by the earlier increases in the prices of energy and some other commodities, and some indicators of inflation expectations have been elevated. The Committee expects inflation to moderate later this year and next year, but the inflation outlook remains highly uncertain. | Inflation has been high, <u>but</u> the Committee expects <u>that the recent decline in energy and other commodity prices and increased slack in resource utilization will foster a moderation of</u> inflation later this year and next year. <u>Nevertheless,</u> the inflation outlook remains highly uncertain. | Inflation has been high, spurred by the earlier increases in the prices of energy and some other commodities, and some indicators of inflation expectations have been elevated. The Committee expects inflation to moderate later this year and next year, but the inflation outlook remains highly uncertain. | Inflation has <u>remained</u> high, and some indicators of inflation expectations have been elevated. <u>Although</u> the Committee expects inflation to moderate later this year and next year, <u>the possibility that inflation may fail to decline as anticipated is of significant concern.</u> |
| Assessment of Risk | 4. Although downside risks to growth remain, the upside risks to inflation are also of significant concern to the Committee. The Committee will continue to monitor economic and financial developments and will act as needed to promote sustainable economic growth and price stability. | <u>The</u> downside risks to growth <u>and</u> the upside risks to inflation are <u>both</u> of significant concern to the Committee. The Committee will continue to monitor economic and financial developments and will act as needed to promote sustainable economic growth and price stability. | Although downside risks to growth remain, the upside risks to inflation are also of significant concern to the Committee. The Committee will continue to monitor economic and financial developments and will act as needed to promote sustainable economic growth and price stability. | <u>The Committee took this action to provide additional assurance that inflation will abate as desired.</u> The Committee will continue to monitor economic and financial developments and will act as needed to promote sustainable economic growth and price stability. |

a bit above its current level until the second half of 2010 (Chart 7). Moreover, the risks to the outlook remain considerable on both sides. Financial strains have continued over the intermeeting period, and, while business spending has held up, the recent indications of exceptionally low consumer confidence, sharply declining auto sales, and deteriorating labor market conditions may suggest continued significant downside risks to growth. At the same time, inflation has persisted at levels well above those consistent with price stability, and the Committee may remain very concerned that inflation will not moderate as forecast. In these circumstances, the Committee may consider it prudent to leave policy unchanged while waiting for more information bearing on the outlook for economic activity and inflation.

(24) In the statement under Alternative B, the rationale begins by noting that “Incoming information suggests that growth in economic activity has slowed in recent months,” which is changed from “Economic activity expanded in the second quarter” to shift the discussion to the current quarter and reflect the significant, albeit expected, deceleration that appears to be under way. In light of the continued deterioration in labor market conditions, the statement then indicates that labor markets have “weakened” further, rather than “softened” as in August. The statement again notes that “financial markets remain under considerable stress” and then states that “Tight credit conditions, the ongoing housing contraction, some slowing in export growth, and past increases in energy prices are likely to weigh on economic growth.” “Some slowing in export growth” is included to recognize that, after surging about 11 percent over the four quarters ending in Q2, exports are projected to decelerate to a rate more in line with historical norms, and “past increases in” energy prices are referenced rather than “elevated” energy prices because the net rise in energy prices over the past year or so continues to restrain growth despite the recent marked decline in prices. The remainder of the statement under Alternative B is unchanged from that released by the Committee in August, indicating that the

substantial easing of monetary policy will promote economic growth; that the Committee expects inflation to moderate, but the outlook is uncertain; and that, although downside risks to growth remain, upside risks to inflation are also of significant concern.

(25) Futures and options quotes as well as the Desk's survey of primary dealers suggest that market participants do not expect any change in policy until the third quarter of next year. Investors read the statement released in August as consistent with an outlook for unchanged policy, so Alternative B, which is very similar, would probably not lead them to revise their views. Market participants will note the shift in focus of the discussion to the weaker economic activity in the current quarter, but they will probably take more direction from the forward-looking parts of the statement, which are unchanged. In sum, short- and longer-term interest rates, equity prices, and the exchange value of the dollar would probably be little changed in response to an announcement along the lines of Alternative B.

(26) If the Committee both thinks that it is important that it be seen to be responding to the continued high levels of inflation and has fairly high confidence in the resilience of financial markets and economic activity, it may prefer to tighten policy by 25 basis points at this meeting as in **Alternative C**. PCE inflation in the third quarter is projected to be its highest since the first quarter of 1990 – and above 2 percent for its eleventh consecutive quarter – and some measures of longer-term inflation expectations remain above their levels of recent years. Against this backdrop, the Committee may feel that failing to tighten policy could lead market participants and households to question its commitment to price stability, as in the “Unanchored inflation expectations” alternative scenario in the Greenbook. Moreover, most simple policy rules call for a federal funds rate that is considerably above its current level (Chart 8). Although financial market conditions remain strained, members may judge that the financial situation is being adequately addressed

by the various measures that the Federal Reserve has put in place to support market liquidity and by the Treasury's actions to stabilize Fannie Mae and Freddie Mac. As a result, the Committee may see the slowdown in growth as transitory, along the lines of the "Financial rebound" Greenbook alternative scenario, and be concerned that holding the federal funds rate at its current level would impart excessive momentum to the economy going forward, undercutting efforts to bring inflation down.

(27) The discussion of economic activity in the statement proposed in Alternative C is similar to that in Alternative B. However, Alternative C cites the "accommodative stance of monetary policy" rather than past policy easings as a factor that should support growth in the future because policy would be tightened under this alternative. The inflation paragraph in Alternative C indicates that "inflation has remained high." The statement goes on to emphasize that "the possibility that inflation may fail to decline as anticipated is of significant concern" to the Committee, and then notes that the policy firming at this meeting was intended to "provide additional assurance that inflation will abate as desired." This indication that the move was taken as a type of anti-inflation insurance, along with the earlier discussion of the current period of economic weakness, may suggest that the tightening would not necessarily be followed by a series of upward adjustments to the funds rate.

(28) Market participants are very confident in their outlook for no change in policy at this meeting and would be quite surprised by the adoption of Alternative C. The expected trajectory of the federal funds rate for the next several months would likely be marked up at least 25 basis points, and might move up further if investors thought the Committee was more likely to raise rates going forward. Other short-term interest rates would rise accordingly. Longer-term rates would probably increase as well. Inflation compensation would likely decline a bit, as investors concluded that the Committee was taking a more aggressive stance toward inflation. Equity prices would fall, perhaps sharply, while the exchange value of the dollar would probably

appreciate. The policy surprise, along with the potentially large and unexpected movements in asset prices, would likely intensify strains in financial markets, perhaps significantly.

(29) If the Committee sees recent developments as pointing to a weaker economic outlook and less pronounced inflation pressures, members may instead be attracted to the statement language of **Alternative A**. The substantial decline in energy prices in recent months, if not reversed, will pull down top-line inflation, which may prevent elevated inflation rates from becoming embedded in expectations. Indeed, near-term inflation expectations have come down appreciably over the intermeeting period, as has five-by-five inflation compensation. Moreover, the passthrough of the lower energy prices, coupled with a higher level of unemployment, should add to downward pressure on core inflation. Members may also see the recent marked rise in the exchange value of the dollar as likely to contribute to a reduction in inflation while restraining overall economic growth. In addition, financial strains appear to have extended to a wider range of financial institutions over the intermeeting period, in some cases creating severe pressures on their balance sheets and even uncertainty about their solvency. The ongoing pullback in credit availability has the potential to weigh on economic growth for a considerable period, as in the “More-persistent headwinds” scenario discussed in the Greenbook. The real federal funds rate (based on lagged four-quarter core PCE inflation) is roughly in line with its Greenbook-consistent equilibrium value, which the Committee may see as an appropriate policy stance in the present circumstances (Chart 6). Still, the Committee may now see risks to both inflation and output as considerable and roughly equal and may wish to adjust the language in the statement to treat them symmetrically.

(30) The statement under Alternative A differs from that under Alternative B only in its discussion of the inflation outlook and the assessment of risks. In particular, while still noting that inflation has been high, the alternative indicates the

Committee's expectation "that the recent decline in energy and other commodity prices and increased slack in resource utilization will foster a moderation of inflation." The statement again notes that the outlook for inflation is uncertain, but adopts language that suggests the Committee sees the risks to growth and inflation as roughly equal – "The downside risks to growth and the upside risks to inflation are both of significant concern to the Committee." Taken together, the adjustments suggest a greater degree of confidence that inflation will moderate as well as a more balanced outlook with regard to any future policy moves.

(31) Despite the changes in the statement language in Alternative A, the market reaction may not be very large. The observation that the substantial decline in oil prices is likely to contribute to a moderation in inflation will come as no surprise to market participants. Furthermore, investors already expect policy to be unchanged for several quarters and reportedly read the August statement as essentially signaling a shift to a balanced assessment of risks, so a more explicit indication in that regard may not spark much reaction. Indeed, the Desk's survey found that primary dealers expect the statement to be changed slightly to indicate a somewhat weaker outlook for growth and reduced inflationary pressures. Still, the greater confidence expressed in the statement that inflation will moderate may be seen as freeing up the Committee to ease policy if necessary should the outlook for the economy worsen. In consequence, short-term interest rates may decline somewhat following such an announcement. Long-term rates would likely edge down only a bit if at all, while inflation compensation could tick higher if investors see the FOMC as having become less vigilant with respect to inflation risks. Equity prices may increase moderately, and the exchange value of the dollar might decline a little.

Money and Debt Forecasts

(32) Because M2 growth has continued to be surprisingly sluggish in recent months, the forecast for M2 growth for 2008 has been revised down $1\frac{1}{4}$ percentage points, to 5 percent, despite an upward revision to the staff's outlook for nominal GDP growth and a downward revision to the opportunity cost of holding money. M2 growth is projected to fall to $3\frac{1}{2}$ percent in 2009 and 3 percent in 2010 in response to a projected increase in M2 opportunity cost as monetary policy firms.

(33) Growth of domestic nonfinancial sector debt is projected to remain quite moderate: After slowing from $8\frac{1}{2}$ percent growth in 2007 to $4\frac{1}{4}$ percent in 2008, it stays at around $4\frac{1}{2}$ percent in 2009 and 5 percent in 2010. In the projection, borrowing by households continues to be held down by falling home prices and tighter bank lending standards. Tightening by banks also contributes to a slowdown in business borrowing, which is restrained in addition by elevated corporate bond spreads. In contrast, federal government debt is expected to accelerate this year and next as a variety of factors, including this year's fiscal stimulus payments, slower growth in tax receipts, and expected federal outlays for deposit insurance and assistance for the GSEs contribute to wider federal deficits.

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

| | | No Change | 25 bp Tightening | Greenbook Forecast* |
|----------------------|---------|-----------|------------------|---------------------|
| Monthly Growth Rates | | | | |
| | Jan-08 | 8.0 | 8.0 | 8.0 |
| | Feb-08 | 17.0 | 17.0 | 17.0 |
| | Mar-08 | 12.4 | 12.4 | 12.4 |
| | Apr-08 | 2.4 | 2.4 | 2.4 |
| | May-08 | 1.3 | 1.3 | 1.3 |
| | Jun-08 | -0.2 | -0.2 | -0.2 |
| | Jul-08 | 6.1 | 6.1 | 6.1 |
| | Aug-08 | -1.5 | -1.5 | -1.5 |
| | Sep-08 | 1.3 | 1.1 | 1.3 |
| | Oct-08 | 3.6 | 3.0 | 3.6 |
| | Nov-08 | 3.5 | 2.7 | 3.5 |
| | Dec-08 | 3.5 | 2.8 | 3.5 |
| | Jan-09 | 3.4 | 2.8 | 3.4 |
| | Feb-09 | 3.3 | 2.9 | 3.3 |
| | Mar-09 | 3.5 | 3.1 | 3.5 |
| | 2008 Q1 | 9.5 | 9.5 | 9.5 |
| | 2008 Q2 | 5.7 | 5.7 | 5.7 |
| | 2008 Q3 | 1.9 | 1.9 | 1.9 |
| | 2008 Q4 | 2.5 | 2.0 | 2.5 |
| | 2009 Q1 | 3.4 | 2.8 | 3.4 |
| | 2007 | 5.8 | 5.8 | 5.8 |
| | 2008 | 5.0 | 4.9 | 5.0 |
| | 2009 | 3.9 | 3.6 | 3.5 |
| | 2010 | 3.8 | 3.8 | 3.0 |
| Growth From | To | | | |
| Aug-08 | Dec-08 | 3.0 | 2.4 | 3.0 |
| 2008 Q3 | Dec-08 | 2.8 | 2.2 | 2.8 |
| 2008 Q3 | Mar-09 | 3.0 | 2.5 | 3.0 |

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

Directive

(34) 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 _____ 2 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 | -0.4 | -0.3 | 0.4 |
| Lagged headline inflation | -2.4 | -0.6 | 0.1 |
| Projected headline inflation | 0.1 | -0.1 | 0.6 |

Appendix B: Analysis of Policy Paths and Confidence Intervals

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

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

FRB/US Model Simulations: Prescriptions from the two empirical rules are computed using dynamic simulations of the FRB/US model, implemented as though the rule were followed starting at this FOMC meeting. The dotted line labeled "Previous Bluebook" is based on the current specification of the policy rule, applied to the previous Greenbook projection. Confidence intervals are based on stochastic simulations of the FRB/US model with shocks drawn from the estimated residuals over 1986-2005.

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

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

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