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# Monetary Policy Report to the Congress

February 24, 2009



Board of Governors of the Federal Reserve System

# Monetary Policy Report to the Congress

Submitted pursuant to section 2B  
of the Federal Reserve Act

February 24, 2009



**Board of Governors of the Federal Reserve System**





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# Letter of Transmittal

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BOARD OF GOVERNORS OF THE  
FEDERAL RESERVE SYSTEM

Washington, D.C., February 24, 2009

THE PRESIDENT OF THE SENATE  
THE SPEAKER OF THE HOUSE OF REPRESENTATIVES

The Board of Governors is pleased to submit its *Monetary Policy Report to the Congress* pursuant to section 2B of the Federal Reserve Act.

Sincerely,

A handwritten signature in black ink, which appears to be "Ben Bernanke", is written over the word "Sincerely,".

Ben Bernanke, Chairman



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# Part 1

## Overview:

# Monetary Policy and the Economic Outlook

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The U.S. economy weakened markedly in the second half of 2008 as the turmoil in financial markets intensified, credit conditions tightened further, and asset values continued to slump. Conditions in the labor market worsened significantly after early autumn, and nearly all major sectors of the economy registered steep declines in activity late last year. Meanwhile, inflation pressures diminished appreciably as prices of energy and other commodities dropped sharply, the margin of resource slack in the economy widened, and the foreign exchange value of the dollar strengthened.

The second half of 2008 saw an intensification of the financial and economic strains that had initially been triggered by the end of the housing boom in the United States and other countries and the associated problems in mortgage markets. The ensuing turmoil in global credit markets affected asset values, credit conditions, and business and consumer confidence around the world. Over the summer, a weakening U.S. economy and continued financial turbulence led to a broad loss of confidence in the financial sector. In September, the government-sponsored enterprises Fannie Mae and Freddie Mac were placed into conservatorship by their regulator, and Lehman Brothers Holdings filed for bankruptcy. The insurance company American International Group, Inc., or AIG, also came under severe pressure, and the Federal Reserve, with the full support of the Treasury, agreed to provide substantial liquidity to the company. In addition, a number of other financial institutions failed or were acquired by competitors. As a result of the Lehman Brothers bankruptcy, a prominent money market mutual fund suffered capital losses, which prompted investors to withdraw large amounts from such funds. The resulting massive outflows undermined the stability of short-term funding markets, particularly the commercial paper market, upon which corporations rely heavily to meet their short-term borrowing needs. Against this backdrop, investors pulled back broadly from risk-taking in September and October, liquidity in short-term funding markets vanished for a time, and prices plunged across asset classes. Securitization markets, with the exception of those for government-supported mortgages, essentially shut down.

Reflecting in part the adverse developments in financial markets, economic activity dropped sharply in late 2008 and has continued to contract so far in 2009. In the labor market, the pace of job losses quickened considerably beginning last autumn, the unemployment rate has risen to its highest level since the early 1990s, and other measures of labor market conditions—for example, the number of persons working part time because full-time jobs are not available—have worsened noticeably. The deteriorating job market, along with the sizable losses of equity and housing wealth and the tightening of credit conditions, has depressed consumer sentiment and spending; these factors have also contributed to the continued steep decline in housing activity. In addition, businesses have instituted widespread cutbacks in capital spending in response to the weakening outlook for sales and production as well as the difficult credit environment. And in contrast to the first half of the year—when robust demand for U.S. exports provided some offset to the softness in domestic demand—exports slumped in the second half as economic activity abroad fell. In all, real gross domestic product (GDP) in the United States declined slightly in the third quarter of 2008 and is currently estimated by the Bureau of Economic Analysis to have dropped at an annual rate of 3¾ percent in the fourth quarter; real GDP seems headed for another considerable decrease in the first quarter of 2009.

The downturn in sales and production, along with steep declines in the prices of energy and other commodities and a strengthening in the exchange value of the dollar, has contributed to a substantial lessening of inflation pressures in the past several months. Indeed, overall inflation, as measured by the price index for personal consumption expenditures, turned negative in the fourth quarter of 2008; over the first three quarters of the year, overall inflation had averaged nearly 4½ percent at an annual rate, largely because of sharp increases in food and energy prices. Core inflation—which excludes the direct effects of movements in food and energy prices—also slowed significantly late last year and entered 2009 at a subdued pace. Mirroring the drop in headline inflation, survey measures of near-term inflation expectations have fallen to very low levels in



recent months, while the latest readings on longer-term inflation expectations are similar to those in 2007 and early 2008.

The Federal Reserve has responded forcefully to the crisis since its emergence in the summer of 2007. By the middle of last year, the Federal Open Market Committee (FOMC) had lowered the federal funds rate 325 basis points.<sup>1</sup> And as indications of economic weakness proliferated and the financial turbulence intensified in the second half, the FOMC continued to ease monetary policy aggressively; at its December meeting, the Committee established a target range for the federal funds rate of 0 to ¼ percent and indicated that economic conditions are likely to warrant exceptionally low levels of the federal funds rate for some time.

In addition, the Federal Reserve took a number of measures during the second half of 2008 to shore up financial markets and support the flow of credit to businesses and households. (See the appendix for descriptions of these programs.) In response to intensified stresses in dollar funding markets, the Federal Reserve announced extensions of its Term Auction Facility and significantly expanded its network of liquidity swap lines with foreign central banks. To support the functioning of the commercial paper market in the aftermath of the Lehman Brothers bankruptcy, the Federal Reserve established the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility in September as well as the Commercial Paper Funding Facility and Money Market Investor Funding Facility in October. In an effort to restart certain securitization markets and support extensions of credit to consumers, the Federal Reserve in November announced the Term Asset-Backed Securities Loan Facility, which is scheduled to begin operation in coming weeks. To support the mortgage and housing markets and the economy more broadly and to encourage better functioning in the market for agency securities, the Federal Reserve announced programs in November to purchase agency-guaranteed mortgage-backed securities and agency debt. These initiatives have resulted in a notable expansion of the Federal Reserve's balance sheet, and the FOMC has indicated that it expects the size of the balance sheet to remain at a high level for some time as a result of open market operations and other measures to support financial markets and to provide additional stimulus to the economy in an environment of very low short-term interest rates.

Other U.S. government entities and foreign governments also implemented a variety of policy measures

in response to the intensification of financial strains over the course of the fall and winter. The Treasury announced a temporary guarantee of the share prices of money market mutual funds and, beginning in October, used authority granted under the Emergency Economic Stabilization Act to purchase preferred shares in a large number of depository institutions. That same month, the Federal Deposit Insurance Corporation (FDIC) introduced a Temporary Liquidity Guarantee Program under which it offers guarantees for selected senior unsecured obligations of participating insured depository institutions and many of their parent holding companies as well as for all balances in non-interest-bearing transaction deposit accounts at participating insured depository institutions. In November, Citigroup came under significant financial pressure. In response, the FDIC, the Treasury, and the Federal Reserve provided a package of loans and guarantees to bolster Citigroup's financial condition; a similar package was arranged for Bank of America in January. Since October, governments in many advanced economies have announced support plans for their banking systems. These programs have included large-scale capital injections, expansions of deposit insurance, and guarantees of some forms of bank debt.

The measures taken by the Federal Reserve, other U.S. government entities, and foreign governments have helped restore a degree of stability to some financial markets. In particular, strains in short-term funding markets have eased noticeably since the fall, some corporate risk spreads have declined modestly, and measures of volatility have generally retreated. Nevertheless, significant stress persists in most markets, and financial institutions remain under considerable pressure; as a result, the flow of credit to households and businesses continues to be impaired.

In conjunction with the January 2009 FOMC meeting, the members of the Board of Governors of the Federal Reserve System and presidents of the Federal Reserve Banks, all of whom participate in FOMC meetings, provided projections for economic growth, unemployment, and inflation; these projections are presented in part 4 of this report. Given the strength of the forces weighing on the economy, FOMC participants viewed the outlook as having weakened significantly in recent months. Participants generally expected economic activity to contract sharply in the near term and then to move onto a path of gradual recovery, bolstered by monetary easing, government efforts to stabilize financial markets, and fiscal stimulus. Participants expected total and core inflation to be lower in 2009 than over the four quarters of 2008, in large measure because of the recent declines in commodity prices and rising

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1. A list of abbreviations is available at the end of this report.

slack in resource utilization; inflation was forecast to remain low in 2010 and 2011. Participants generally judged that the degree of uncertainty surrounding the outlook for both economic activity and inflation was greater than historical norms. Most participants viewed the risks to growth as skewed to the downside, and nearly all saw the risks to the inflation outlook as either balanced or tilted to the downside. Participants also

reported their assessments of the rates to which macroeconomic variables would be expected to converge over the longer run under appropriate monetary policy and in the absence of further shocks to the economy. The central tendencies of these longer-run projections were 2.5 percent to 2.7 percent for real GDP growth, 4.8 percent to 5.0 percent for the unemployment rate, and 1.7 percent to 2.0 percent for the inflation rate.

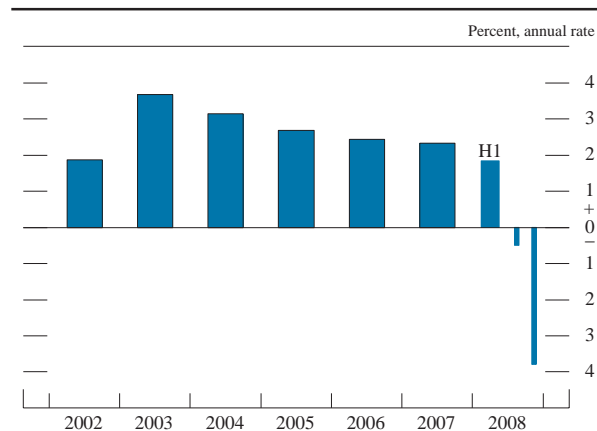


## Part 2

# Recent Financial and Economic Developments

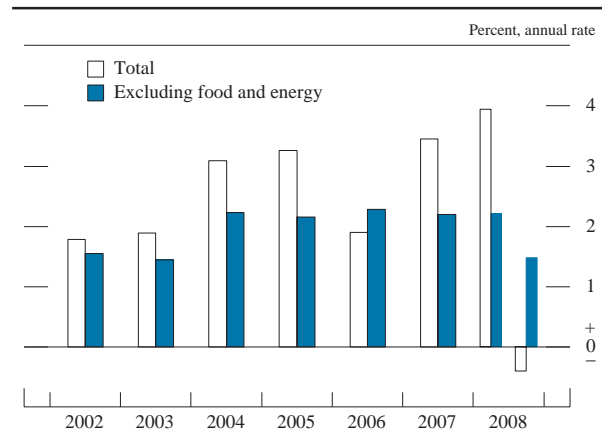
The downturn in economic activity that has been unfolding since late 2007 steepened appreciably in the second half of 2008 as the strains in financial markets intensified. After the financial difficulties experienced by Fannie Mae and Freddie Mac during the summer and the bankruptcy of Lehman Brothers Holdings in mid-September, short-term funding markets were severely disrupted, risk spreads shot up, equity prices plunged, and markets for private asset-backed securities remained largely shut down. As a result, pressures on the already strained balance sheets of financial institutions increased, thereby threatening the viability of some institutions and impinging on the flow of credit to households and businesses. In part reflecting the cascading effects of these developments throughout the wider economy, conditions in the labor market deteriorated markedly. Moreover, industrial production contracted sharply as manufacturers responded aggressively to declines in both domestic and foreign demand. According to the advance estimate from the Bureau of Economic Analysis, real gross domestic product (GDP) fell at an annual rate of 3¾ percent in the fourth quarter, and it seems headed for another sizable decrease in the first quarter of 2009 (figure 1). Meanwhile, inflation pressures have diminished as prices of energy and other commodities have plummeted, the margin of resource slack has widened, and the foreign exchange value of the dollar has strengthened (figure 2).

1. Change in real gross domestic product, 2002–08



SOURCE: Department of Commerce, Bureau of Economic Analysis.

2. Change in the chain-type price index for personal consumption expenditures, 2002–08



SOURCE: Department of Commerce, Bureau of Economic Analysis.

In response to the extraordinary financial strains, the Federal Reserve implemented a number of unprecedented policy initiatives to support financial stability and promote economic growth. These initiatives included lowering the target for the federal funds rate to a range of 0 to ¼ percent, beginning direct purchases of agency debt and agency mortgage-backed securities, broadening liquidity programs to financial intermediaries and other central banks, and initiating programs in support of systemically important market segments. Other U.S. government entities also undertook extraordinary initiatives to support the financial sector by injecting capital into the banking system and providing guarantees on selected liabilities of depository institutions. Many foreign central banks and governments took similar steps. Although these actions have helped restore a measure of stability to some markets, financial conditions remain quite stressed, and aggregate credit conditions continue to be impaired as a result.

## FINANCIAL STABILITY DEVELOPMENTS

### Evolution of the Financial Turmoil

The current period of pronounced turmoil in financial markets began in the summer of 2007 after a rapid deterioration in the performance of subprime mortgages

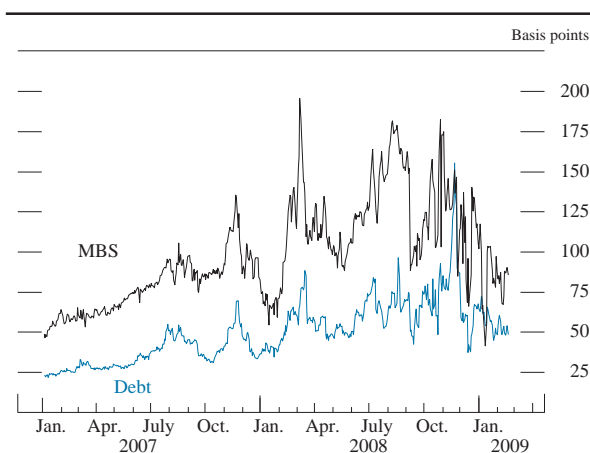
caused largely by a downturn in house prices in some parts of the country. Investors pulled back from risk-taking, and liquidity diminished sharply in the markets for interbank funding and structured credit products more generally. House prices continued to fall rapidly in the first part of 2008, mortgage delinquencies and defaults continued to climb, and concerns about credit risk mounted. The increased financial strains led to a liquidity crisis in March at The Bear Stearns Companies, Inc., a major investment bank, and to its acquisition by JPMorgan Chase & Co. Subsequent aggressive monetary policy easing and measures taken by the Federal Reserve to bolster the liquidity of financial institutions contributed to some recovery in financial markets during the spring.

Nevertheless, strains in financial conditions intensified going into the second half of the year. In particular, amid worries that the capital of Fannie Mae and Freddie Mac would be insufficient to absorb mounting losses on their mortgage portfolios, the stock prices of the two government-sponsored enterprises (GSEs) began to decline significantly in June, and their credit default swap (CDS) spreads—which reflect investors’ assessments of the likelihood of the GSEs defaulting on their debt obligations—rose sharply. Market anxiety eased somewhat in the second half of July after the Treasury proposed statutory changes, subsequently approved by the Congress, under which it could lend and provide capital to the GSEs. Nevertheless, pressures on these enterprises continued over the course of the summer; as a result, option-adjusted spreads on agency-guaranteed mortgage-backed securities (MBS) widened and interest rates on residential mortgages rose further (figure 3).

Meanwhile, investor unease about the outlook for the broader banking sector reemerged. In July, the failure of IndyMac Federal Bank, a large thrift institution, raised further concerns about the profitability and asset quality of many financial institutions. Over the summer, CDS spreads for major investment and commercial banks rose, several large institutions announced sharp declines in earnings, and anecdotal reports suggested that the ability of most financial firms to raise new capital was limited (figure 4). With banks reluctant to lend to one another, conditions in short-term funding markets continued to be strained during the summer. The relative cost of borrowing in the interbank market—as exemplified by the London interbank offered rate (Libor), a reference rate for a wide variety of contracts, including floating-rate mortgages—increased sharply (figure 5).<sup>2</sup> In addition, required margins of collateral (known as

2. Typically, the relative cost is measured by comparing the Libor rate with the rate on comparable-maturity overnight index swaps.

### 3. Spreads on 10-year Fannie Mae debt and option-adjusted spreads on Fannie Mae mortgage-backed securities, 2007–09



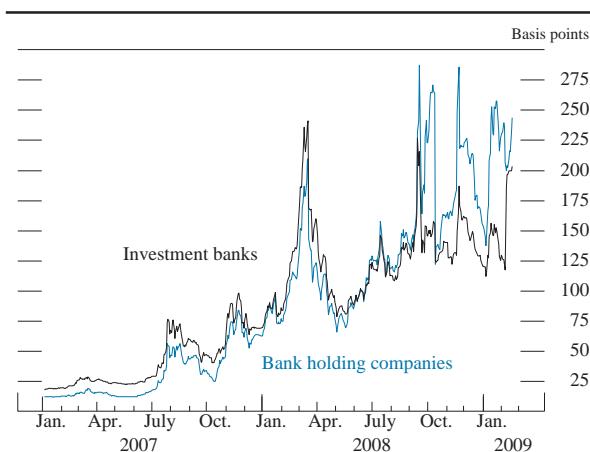
NOTE: The data are daily and extend through February 18, 2009. The spreads are over Treasury securities of comparable maturities. MBS are mortgage-backed securities.

SOURCE: For MBS, Bloomberg; for debt, Merrill Lynch and the Federal Reserve Bank of New York.

haircuts) and bid-asked spreads widened in the markets for repurchase agreements (repos) backed by many types of securities, including agency securities that previously were considered very safe and liquid.

On September 7, the Treasury and the Federal Housing Finance Agency announced that Fannie Mae and Freddie Mac had been placed into conservatorship. To maintain the GSEs’ ability to purchase home mortgages, the Treasury announced plans to establish a backstop lending facility for the GSEs, to purchase up to \$100 bil-

### 4. Spreads on credit default swaps for selected U.S. financial companies, 2007–09

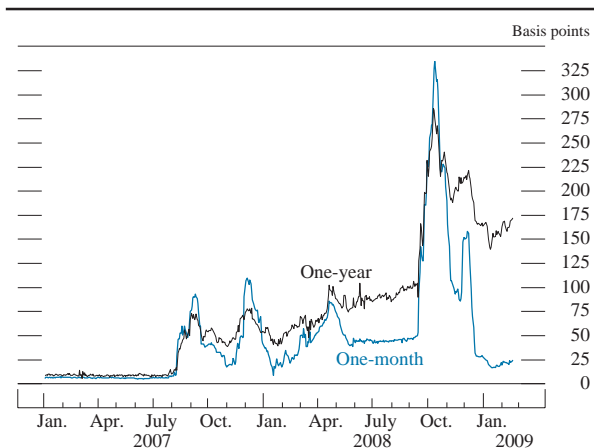


NOTE: The data are daily and extend through February 18, 2009. Median spreads for six bank holding companies and nine investment banks.

SOURCE: Markit.



## 5. Libor minus overnight index swap rate, 2007–09



NOTE: The data are daily and extend through February 19, 2009. An overnight index swap (OIS) is an interest rate swap with the floating rate tied to an index of daily overnight rates, such as the effective federal funds rate. At maturity, two parties exchange, on the basis of the agreed notional amount, the difference between interest accrued at the fixed rate and interest accrued by averaging the floating, or index, rate. Libor is the London interbank offered rate.

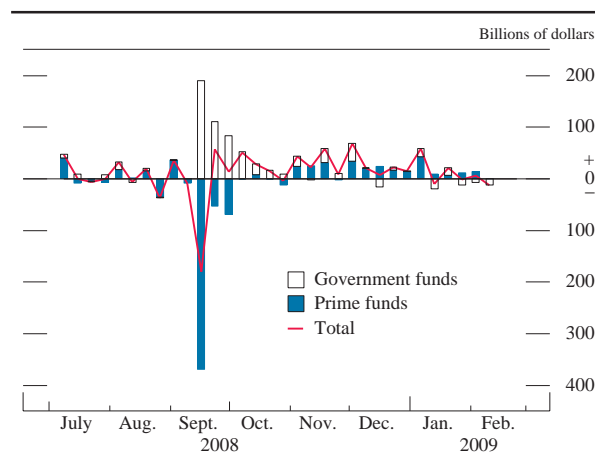
SOURCE: For Libor, British Bankers' Association; for the OIS rate, Prebon.

lion of preferred stock in each of the two firms, and to initiate a program to purchase agency MBS. After the announcement, interest rate spreads on GSE debt narrowed as investors became confident that the Treasury would support the obligations of the GSEs. Option-adjusted interest rate spreads on MBS issued by the GSEs fell, and rates and spreads on new conforming fixed-rate mortgages declined. Nevertheless, other financial institutions continued to face difficulties in obtaining liquidity and capital as investors remained anxious about their solvency and, more broadly, about the implications of worsening financial conditions for the availability of credit to households and businesses and so for the economic outlook.

Amid this broad downturn in investor confidence, and after large mortgage-related losses in the third quarter, Lehman Brothers came under pressure as counterparties refused to provide short-term funding to the investment bank, even on a secured basis. Eventually, with no other firm willing to acquire it and with its borrowing capacity limited by a lack of collateral, Lehman Brothers filed for bankruptcy on September 15.<sup>3</sup> Over the previous weekend, Bank of America announced its intention to acquire Merrill Lynch, which had also come

3. The bankruptcy of Lehman Brothers and the conservatorship of Fannie Mae and Freddie Mac constituted credit events of unprecedented scale for the CDS market. Nevertheless, settlement of the outstanding CDS contracts on these entities proceeded smoothly over the subsequent weeks, apparently due in part to the increased margins demanded by holders of CDS protection in the period leading up to early September.

## 6. Net flows into taxable U.S. money market mutual funds, 2008–09



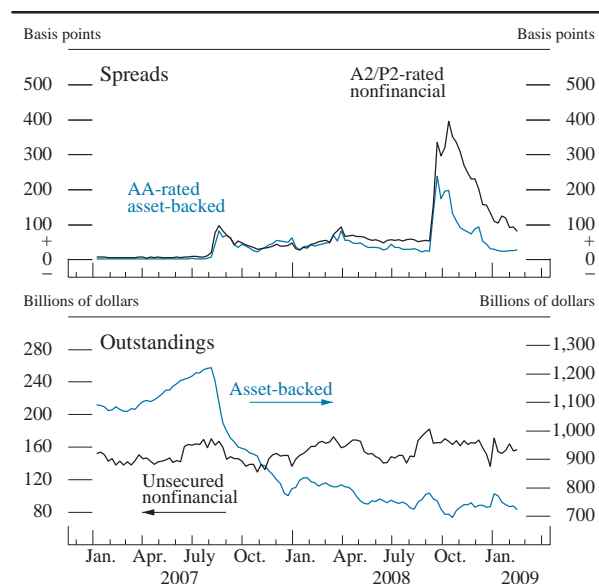
NOTE: Data are weekly and extend through February 13, 2009.

SOURCE: iMoneyNet.

under severe funding pressures. In large part because of losses on Lehman Brothers' debt, the net asset value of a major money market mutual fund fell below \$1 per share—also known as “breaking the buck,” an event that had not occurred in many years—thereby prompting rapid and widespread investor withdrawals from prime funds (that is, money market mutual funds that hold primarily private assets) (figure 6). Prime funds responded to the surge in redemptions by reducing their purchases of short-term assets, including commercial paper—which many businesses use to obtain working capital—and by shortening the maturity of those instruments that they did purchase, leading to a deterioration of the commercial paper market (figure 7). Meanwhile, investors increasingly demanded safe assets, and funds that hold only Treasury securities experienced a sharp increase in inflows, which caused yields on Treasury bills to plummet. Intense demands among investors to hold Treasury securities, coupled with increased concerns about counterparty credit risk, reportedly led to a substantial scaling back of activity among traditional securities lenders in the Treasury market. The decreased activity contributed, in turn, to disruptions in the Treasury repo and cash markets that were evidenced by a very high volume of fails-to-deliver. Redemptions from prime funds slowed after the Treasury and the Federal Reserve took actions in September and October to support these funds (see the appendix).

Around the same time that the difficulties at Lehman Brothers emerged, the financial condition of American International Group, Inc., or AIG—a large, complex insurance conglomerate—deteriorated rapidly, and the company found short-term funding, upon which it was heavily reliant, increasingly difficult to obtain. In view

## 7. Commercial paper, 2007–09



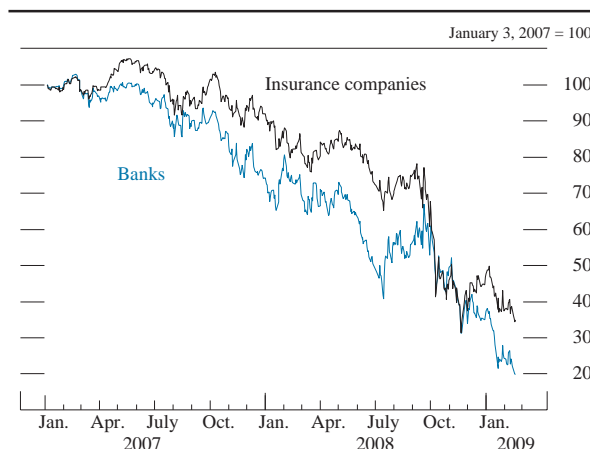
NOTE: The data are weekly and extend through February 18, 2009. Commercial paper yield spreads are for an overnight maturity and are expressed relative to the AA nonfinancial rate. Outstandings are seasonally adjusted.

SOURCE: Depository Trust and Clearing Corporation.

of the likely spillover effects to other financial institutions of a disorderly failure of AIG and the potential for significant pass-through effects to the broader economy, the Federal Reserve Board on September 16, with the full support of the Treasury, authorized the Federal Reserve Bank of New York to lend up to \$85 billion to the firm to assist it in meeting its obligations and to facilitate the orderly sale of some of its businesses. (AIG, the Treasury, and the Federal Reserve later modified the terms of this arrangement, as described in the appendix.) Meanwhile, CDS spreads for other insurance companies rose, and their equity prices fell, amid concerns regarding their profitability and declines in the values of their investment portfolios (figure 8).

Investor anxiety about investment banks, which had escalated rapidly in the wake of Lehman Brothers' collapse, abated somewhat after Morgan Stanley and Goldman Sachs were granted bank holding company charters by the Federal Reserve. However, on September 25 the resolution of another failing financial institution, Washington Mutual, imposed significant losses on senior and subordinated debt holders as well as on shareholders. As a consequence, investors marked down their expectations regarding likely government support for the unsecured nondeposit liabilities of financial institutions, which further inhibited the ability of some banking organizations to obtain funding. Among these institutions was Wachovia Corp., the parent company of the fourth-largest U.S. bank by asset size at the time,

## 8. Prices of exchange-traded funds on selected U.S. financial sectors, 2007–09



NOTE: The data are daily and extend through February 18, 2009; they cover 24 banks and 24 insurance companies.

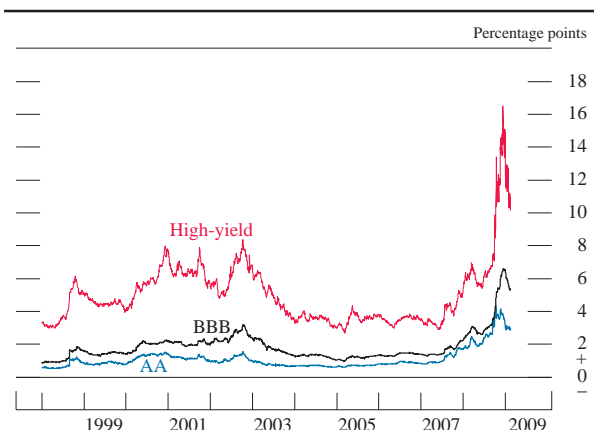
SOURCE: Keefe, Bruyette & Woods (KBW) and Bloomberg.

which was ultimately acquired by Wells Fargo in early October.

Against this backdrop, investors pulled back from risk-taking even further, funding markets for terms beyond overnight largely ceased to function, and a wide variety of financial firms experienced increasing difficulty in obtaining funds and raising capital. Labor rates rose at all maturities while comparable-maturity overnight index swap (OIS) rates fell, leaving spreads at record levels. Strains were also evident in the federal funds market, in which overnight funds traded over an unusually wide range and activity in term funds dropped sharply. Conditions in repo markets worsened further, as haircuts and bid-asked spreads on non-Treasury collateral increased, and the overnight rate on general Treasury collateral traded near zero. Despite substantial new issuance, yields on short-dated Treasury bills also traded near zero. Fails-to-deliver in the Treasury market and overnight lending of securities from the portfolio of the System Open Market Account soared to record highs. Spreads on asset-backed commercial paper (ABCP) and on lower-rated unsecured commercial paper issued by nonfinancial firms widened significantly.

Conditions in other financial markets also deteriorated sharply in September and October. CDS spreads on corporate debt surged, and the rates on investment-grade and high-yield bonds rose dramatically relative to comparable-maturity Treasury yields (figure 9). Secondary-market bid prices for leveraged loans dropped to record-low levels as institutional investors pulled back from the market, and the implied spread on an index of loan credit default swaps (the LCDX)

9. Spreads of corporate bond yields over comparable off-the-run Treasury yields, by securities rating, 1998–2009

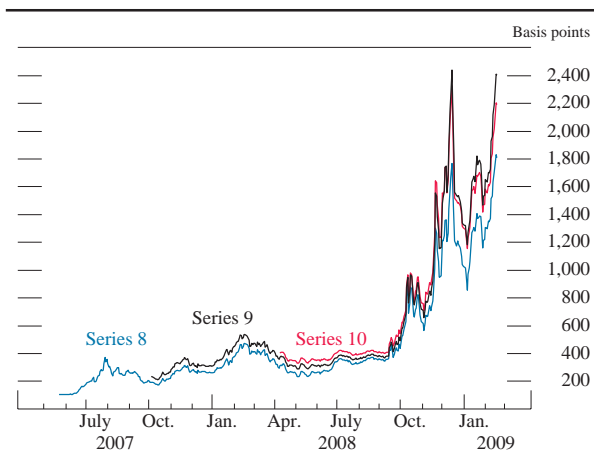


NOTE: The data are daily and extend through February 18, 2009. The spreads shown are the yields on 10-year bonds less the 10-year Treasury yield.

SOURCE: Derived from smoothed corporate yield curves using Merrill Lynch bond data.

widened to record levels (figure 10). Bid-asked spreads on high-yield corporate bonds and leveraged loans increased significantly, and liquidity and price discovery in the CDS market remained impaired, especially for contracts involving financial firms. Spreads on commercial mortgage-backed securities (CMBS) and consumer asset-backed securities (ABS) also widened dramatically, as securitizations other than government-supported MBS came to a standstill (figure 11). The turmoil affected even the Treasury market, in which interest rate spreads between yields on the most recently issued

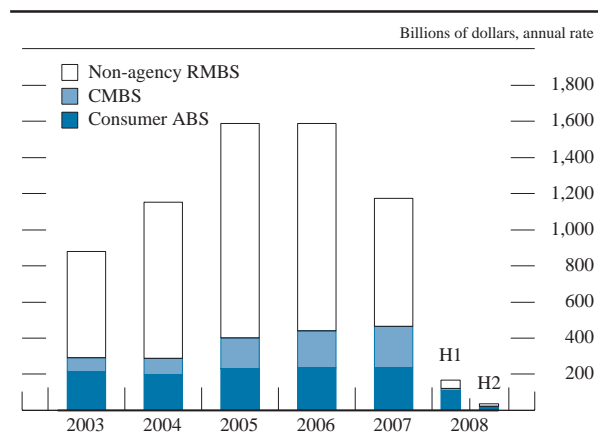
10. LCDX indexes, 2007–09



NOTE: The data are daily and extend through February 18, 2009. Each LCDX index consists of 100 single-name credit default swaps referencing entities with first-lien syndicated loans that trade in the secondary market for leveraged loans. Series 8 began trading on May 22, 2007, series 9 on October 3, 2007, and series 10 on April 8, 2008.

SOURCE: Markit.

11. Gross issuance of selected mortgage- and asset-backed securities, 2003–08



NOTE: Non-agency RMBS are residential mortgage-backed securities issued by institutions other than Fannie Mae, Freddie Mac, and Ginnie Mae; CMBS are commercial mortgage-backed securities; consumer ABS (asset-backed securities) are securities backed by credit card loans, nonrevolving consumer loans, and auto loans.

SOURCE: For RMBS and ABS, *Inside MBS & ABS* and Merrill Lynch; for CMBS, Commercial Mortgage Alert.

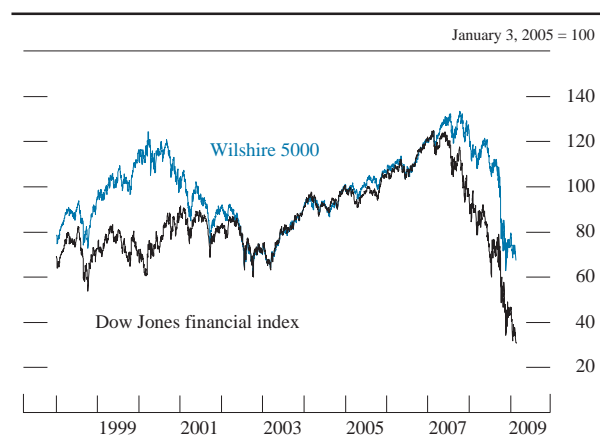
Treasury securities and yields on comparable-maturity off-the-run securities (that is, those securities that were previously issued)—an indicator of the liquidity in this market—surged from already elevated levels. Foreign financial markets experienced many of the same disturbances as domestic markets (see the section “International Developments”). Price movements in all of these markets were likely exacerbated by sales of securities by hedge funds and other leveraged market participants in an attempt to meet mounting redemption requests on the part of their investors and other funding needs.

In the stock market, prices tumbled and volatility soared to record levels during the autumn as investors grew more concerned about the prospects of financial firms and about the likelihood of a deep and prolonged recession (figures 12 and 13). Equity-price declines were particularly pronounced among financial and energy firms, but they were generally widespread across sectors and were accompanied by substantial net outflows from equity mutual funds. During this period, the premium that investors demanded for holding equity shares—gauged roughly by the gap between the earnings-price ratio and the yield on Treasury securities—shot up, reflecting the heightened risk aversion that prevailed in financial markets.

## Policy Actions and the Market Response

To strengthen confidence in the U.S. financial system, during the autumn the Federal Reserve, at times act-

## 12. Stock price indexes, 1998–2009



NOTE: The data are daily and extend through February 18, 2009.  
SOURCE: Dow Jones Indexes.

ing in concert with foreign central banks, expanded its existing liquidity facilities and announced several additional initiatives, including programs to support short-term funding markets and to purchase agency debt obligations and MBS. (These initiatives are discussed in more detail in the appendix.) Because of the sharply diminished availability of market funding, several Federal Reserve facilities were used heavily throughout the remainder of the year.

In addition, the Treasury announced a temporary guarantee program for money market mutual funds and proposed the Troubled Asset Relief Program (TARP) to use government funds to help stabilize the financial system; on October 3, the Congress approved and provided funding for this program as part of the Emergency Eco-

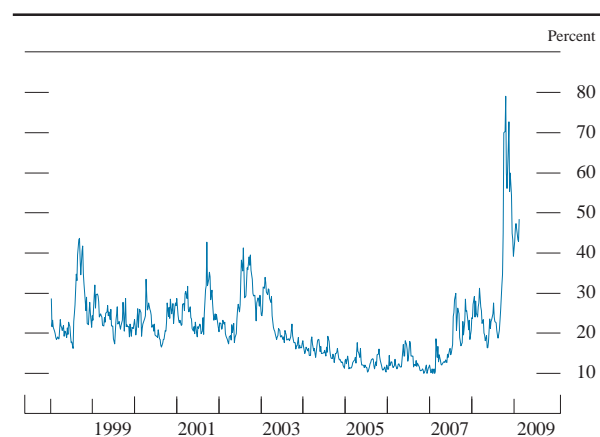
nomic Stabilization Act. Using funds from the TARP, the Treasury established a voluntary capital purchase plan under which the U.S. government would buy preferred shares from eligible institutions. Additionally, under the Temporary Liquidity Guarantee Program (TLGP), the Federal Deposit Insurance Corporation (FDIC) provided a temporary guarantee for selected senior unsecured obligations of participating insured depository institutions and many of their parent holding companies as well as for all balances in non-interest-bearing transaction deposit accounts at participating insured depository institutions.

After these actions and the announcements of similar programs in a number of other countries, stresses in financial markets eased somewhat, though conditions remained strained. In the interbank funding market, Libor fixings at most maturities declined noticeably and spreads over comparable-maturity OIS rates narrowed. Meanwhile, spreads on highly rated unsecured commercial paper and ABCP narrowed after the Federal Reserve announced measures in support of this market, and issuance rebounded somewhat from its lows in September and October. Conditions in global short-term dollar funding markets also improved significantly after the Federal Reserve substantially expanded its program of liquidity swaps with foreign central banks, which increased the amount of dollar funding auctioned in foreign markets, and a number of foreign governments took measures to strengthen and stabilize their banking systems.

Despite these improvements, investors remained concerned about the soundness of financial institutions. Spreads on CDS for U.S. banks widened further in November, which raised the prospect of significant increases in banks' costs of raising the funds they needed for lending. Citigroup, in particular, saw its CDS spread widen dramatically after it announced that it would take large losses on its securities portfolio. To support market stability, the U.S. government on November 23 entered into an agreement with Citigroup to provide a package of capital, guarantees, and liquidity access. Subsequently, CDS spreads for financial institutions reversed a portion of their earlier widening, and some nonfinancial risk spreads also narrowed.

Conditions in debt markets continued to ease after the passing of year-end, although most of these markets remain much less liquid than normal. Yields and spreads on corporate bonds and commercial paper have decreased noticeably in recent weeks, but activity in the leveraged loan market continues to be very weak. Equity prices for financial firms have continued to trend downward, and CDS spreads for such firms have fluctuated around extremely elevated levels. Investors

## 13. Implied S&amp;P 500 volatility, 1998–2009



NOTE: The data are weekly and extend through the week ending February 20, 2009. The final observation is an estimate based on data through February 18, 2009. The series shown — the VIX — is the implied 30-day volatility of the S&P 500 stock price index as calculated from a weighted average of options prices.

SOURCE: Chicago Board Options Exchange.



expressed renewed concern over financial institutions in January after a number of firms, most notably Bank of America Corporation, reported large net losses for the fourth quarter. The Treasury, the FDIC, and the Federal Reserve announced on January 16 that they had entered into an agreement with Bank of America to provide a package of capital, guarantees, and liquidity access (see the appendix). Although markets responded favorably to this action, the uncertain prospects of the financial sector continue to weigh heavily on market sentiment.

### Banking Institutions and the Availability of Credit

Commercial bank credit grew moderately over 2008 as a whole as both businesses and households at times drew heavily on existing lending commitments, but it contracted noticeably toward the end of the year and in early 2009. In the face of the severe financial market disruptions, some companies turned to already committed lines of credit with banks, which caused the growth of commercial and industrial (C&I) loans to spike in September and October. However, C&I lending declined over the past few months as some businesses reportedly paid down outstanding loans and stepped up their issuance in the corporate bond market. In addition, banks continued to report decreased demand for credit late last year in response to slowing business investment and reduced merger and acquisition activity. Most banks continued to tighten standards and terms on C&I loans to firms of all sizes. Issuance of leveraged loans by banks, which had already been very low through the first half of last year, was essentially nil in the second half, largely because of a drop in mergers and leveraged buyouts, which these loans are often used to finance. Commercial real estate (CRE) loans on banks' books expanded over 2008 as a whole. However, with the commercial mortgage securitization market essentially closed by mid-year, the rate of growth of this loan category stepped down significantly in the second half—a decrease consistent with the reported tightening of standards and a drop-off in demand for these loans.

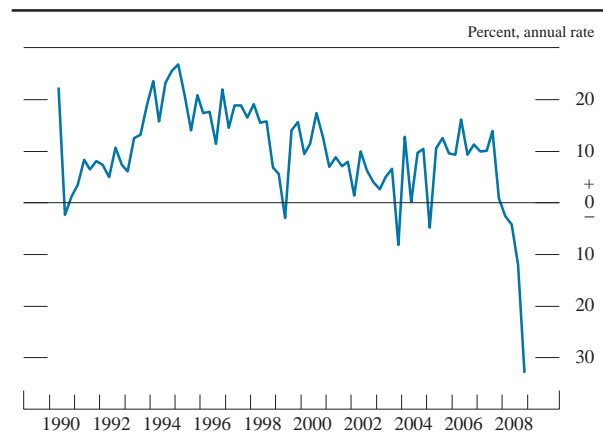
Bank loans to households also declined over the second half of 2008 and early 2009, led by a sharp contraction in residential mortgage loans on banks' books, as demand weakened further and banks sold such loans to the GSEs. However, loans drawn under existing revolving home equity lines of credit continued to rise briskly during the second half of the year, an increase likely influenced by a drop in the prime rate, on which the rates on such loans are often based. Growth of consumer loans originated by banks expanded at a solid

pace through October but weakened considerably in November and December. However, the amount of such loans held on banks' books generally continued to expand late in the year, as banks had difficulty selling these loans because of ongoing disruptions in securitization markets. Recently, consumer loan growth has also reportedly been buoyed by banks' decisions to build inventory in anticipation of issuance into the Term Asset-Backed Securities Loan Facility (TALF).

In the Senior Loan Officer Opinion Survey on Bank Lending Practices conducted in both October 2008 and January 2009, very large net fractions of banks reported having tightened lending standards for all major loan types. Significant net fractions of respondents also reported a widespread weakening of loan demand. In line with the nearly 33 percent drop (annual rate) in total unused loan commitments reported in fourth-quarter Call Reports, many banks indicated in the January survey that they had cut the size of existing credit lines to businesses and households (figure 14).

Earnings growth at depository institutions slowed markedly in 2008, and profitability as measured by return on assets and return on equity dropped dramatically (figure 15); indeed, commercial banks posted an aggregate loss in the fourth quarter. These developments in part reflected write-downs on securities holdings and increases in loan-loss provisioning in response to deteriorating asset quality. In the fourth quarter, the overall loan delinquency rate at commercial banks increased to more than 4½ percent, its highest level since the early 1990s, and the total charge-off rate rose to more than 1¾ percent, surpassing its peaks in the

14. Change in unused bank loan commitments to businesses and households, 1990:Q2–2008:Q4

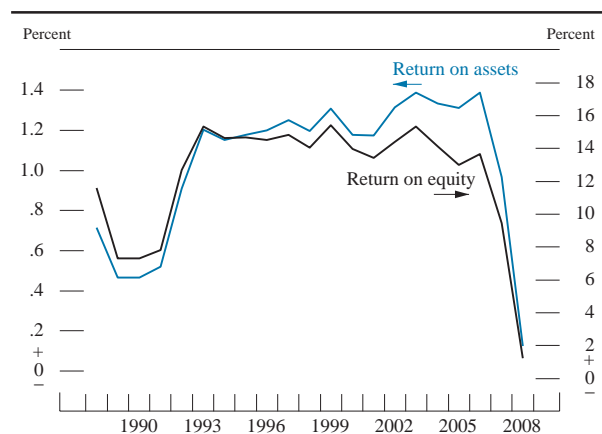


NOTE: The data, which are not seasonally adjusted, are quarterly and extend through 2008:Q4.

SOURCE: Federal Financial Institutions Examination Council, Consolidated Reports of Condition and Income (Call Report).



## 15. Commercial bank profitability, 1988–2008



NOTE: The data are annual and extend through 2008.

SOURCE: Federal Financial Institutions Examination Council, Consolidated Reports of Condition and Income (Call Report).

previous two recessions. The ratio of loan-loss reserves to net charge-offs—an indicator of reserve adequacy—dropped below its previous nadir reached in the early 1990s.

Depository institutions' access to funding has improved as a result of the various Federal Reserve liquidity programs and the TLGP, under which eligible firms have issued \$169 billion of FDIC-guaranteed bonds to date. In addition, the capital of banking organizations has been boosted by more than \$200 billion of preferred stock purchases under the TARP. Still, the recent downward trend in the equity prices of most banks and the elevated level of their CDS spreads suggest that market participants remain concerned about the long-term profitability and potential insolvency of some depository institutions.

The financial turmoil has led to significant changes in the structure of the broad banking industry, with two large investment banks and one large finance company recently converting to bank holding companies to obtain better access to government funding programs; a handful of large insurance firms, motivated partly by their desire to apply for TARP funding, have likewise converted to thrift holding companies. In addition, several failures and mergers of large financial institutions resulted in increased concentrations of industry assets and deposits in 2008.

## DOMESTIC DEVELOPMENTS

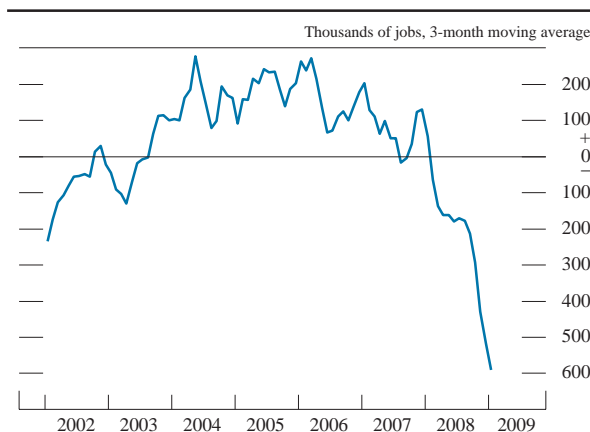
In part reflecting the intensifying deterioration in financial conditions, nearly all major sectors of the U.S.

economy recorded sizable declines in activity in late 2008, and the weakness has extended into early 2009. Conditions in the labor market have worsened substantially since early autumn as employment has fallen rapidly, the unemployment rate has climbed, and firms continue to announce more layoffs. Housing remains on a steep downward trend, and both consumer spending and business investment have contracted significantly. In addition, demand for U.S. exports has slumped in response to the decline in foreign economic activity. Meanwhile, overall consumer price inflation turned negative in late 2008 as energy prices tumbled, and core inflation slowed noticeably.

## The Labor Market

Conditions in the labor market deteriorated throughout 2008, but they worsened markedly in the autumn as job losses accelerated and the unemployment rate jumped. In total, private payrolls fell 3¼ million between the onset of the recession in December 2007 and January 2009, with roughly half of the reduction occurring during the past three months (figure 16). Indeed, since November, private payroll employment has fallen 600,000 per month, compared with average monthly job losses of 340,000 in September and October and 160,000 over the first eight months of 2008. The civilian unemployment rate, which stood at 4.9 percent in December 2007, has marched steadily upward over the past year, and it reached 7.6 percent in January 2009, its highest level since 1992 (figure 17). Moreover, private surveys and news reports indicate that firms plan on continuing to lay off workers in the near term.

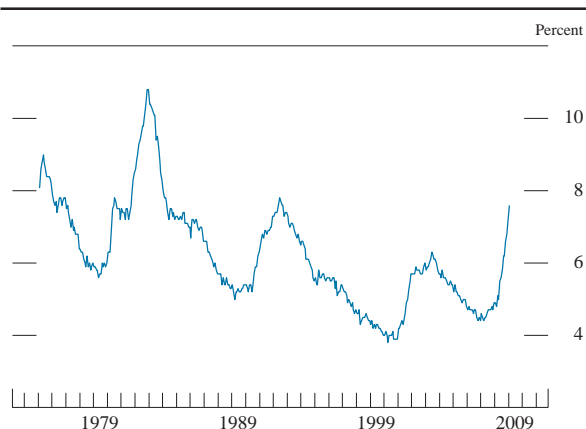
## 16. Net change in private payroll employment, 2002–09



NOTE: Nonfarm business sector. The data are monthly and extend through January 2009.

SOURCE: Department of Labor, Bureau of Labor Statistics.

17. Civilian unemployment rate, 1975–2009

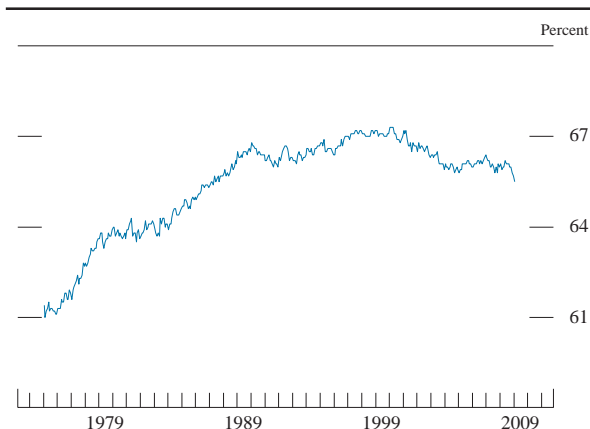


NOTE: The data are monthly and extend through January 2009.  
SOURCE: Department of Labor, Bureau of Labor Statistics.

Virtually all major industries have experienced considerable job losses recently. Manufacturing employment has fallen nearly 500,000 over the past three months and has dropped more than 1 million since December 2007. Layoffs in truck transportation and wholesale trade, which are closely related to activity in the manufacturing sector, show a similar pattern. The decline in construction employment, which began in early 2007, has also sped up, in part because the ongoing contraction in homebuilding has been accompanied more recently by weakness in nonresidential building. In the service-producing sector, job losses have mounted at retail establishments, providers of financial services, and professional and business services firms, all of which have been adversely affected by the downturn in economic activity. A noticeable exception has been the continued brisk hiring by providers of health services.

The increase in joblessness has been widespread across demographic, educational, and occupational groups. In January 2009, the unemployment rate for men aged 25 years and older was 3 percentage points above its average level in the fourth quarter of 2007, while the rate for women aged 25 years and older was up 2 percentage points; as typically occurs during recessions, unemployment rates for teenagers and young adults showed even larger increases. Among the major racial and ethnic groups, unemployment rates for blacks and Hispanics have risen somewhat more than those for whites, a differential also typical of periods when labor market conditions weaken. Moreover, the number of workers who are working part time for economic reasons—a group that includes individuals whose hours have been cut back by their employers as well as those who want full-time jobs but are unable to find them—has soared to nearly 8 million, more than 3 million

18. Labor force participation rate, 1975–2009



NOTE: The data are monthly and extend through January 2009.  
SOURCE: Department of Labor, Bureau of Labor Statistics.

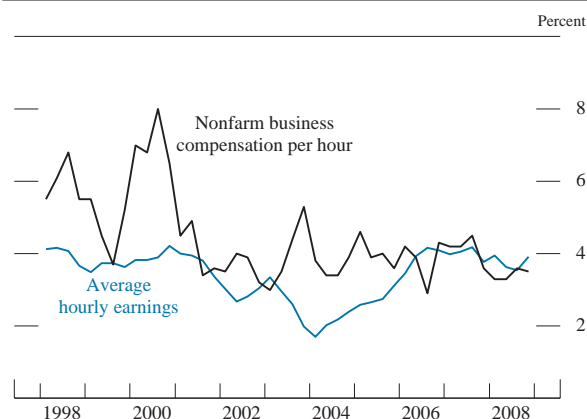
above its level at the start of the recession. The increase in involuntary part-time work has been widespread across industries.

The labor force participation rate, which typically falls during periods of labor market weakness, has decreased of late (figure 18). The decline has probably been damped somewhat by the availability of extended unemployment insurance benefits, which may have encouraged some workers who would have otherwise discontinued their job search efforts to continue looking for work.<sup>4</sup> In addition, the reduction in household wealth over the past couple of years may have prompted some individuals who would have otherwise dropped out of the labor force to remain in, and it may have caused some who would not have entered the labor force to do so.

Broad measures of nominal hourly compensation, which includes both wages and benefits, posted moderate increases in 2008. For example, compensation per hour in the nonfarm business sector—a measure derived from the compensation data in the national income and product accounts (NIPA)—rose 3½ percent in nominal terms in 2008, similar to the increases over the preceding few years (figure 19).

4. Under legislation enacted in June 2008, the Emergency Unemployment Compensation (EUC) program began to provide an additional 13 weeks of benefits to workers who exhaust their regular benefits (typically 26 weeks). In November, the program was expanded to provide additional benefits to workers who exhaust the previously available 13 weeks of EUC benefits (an additional 7 weeks for all eligible individuals and a further 13 weeks for individuals in states with high unemployment rates—defined as a state unemployment rate of 6 percent or above). This expansion, as well as the original EUC program, was scheduled to expire in March 2009, but the American Recovery and Reinvestment Act of 2009 extended it through December 2009; the act also increased payments to recipients of unemployment compensation by \$25 per week.

19. Change in hourly compensation and wages, 1998–2008



NOTE: The data are quarterly and extend through 2008:Q4. Changes are over four quarters. The nonfarm business sector excludes farms, government, nonprofit institutions, and households. Average hourly earnings refers to production and nonsupervisory workers on private nonfarm payrolls.

SOURCE: Department of Labor, Bureau of Labor Statistics.

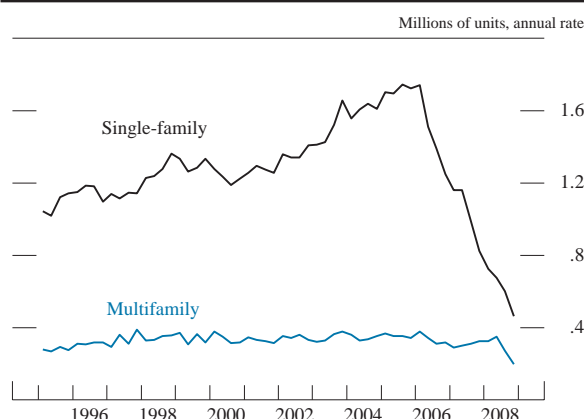
The wage component of hourly compensation also rose moderately in nominal terms in 2008, and because consumer price inflation over the year as a whole was low, much of the gain in nominal wages was reflected in higher real wages. For example, over the four quarters of last year, average hourly earnings, a measure of hourly wages for production and nonsupervisory workers, increased nearly 4 percent in nominal terms—and rose 2 percent after accounting for the rise in the price index for overall personal consumption expenditures (PCE). However, because of sharp cutbacks in hours worked, real average weekly earnings were up just 1 percent. Moreover, for many workers, real weekly earnings actually declined: In manufacturing, real average weekly earnings fell 1 percent last year, while in retail trade, this measure of real weekly earnings fell more than 2 percent.

## The Household Sector

### *Residential Investment and Housing Finance*

Housing activity remained on a steep downward trend in the second half of 2008. Home sales and prices slumped further, and homebuilders continued to curtail new construction in response to weak demand and elevated backlogs of unsold new homes. In the single-family sector, new units were started at an average annual rate of just 460,000 units in the fourth quarter of 2008—roughly 75 percent below the quarterly high reached in mid-2005 (figure 20). Starts in the multifamily sector averaged just 200,000 units in the fourth

20. Private housing starts, 1995–2008

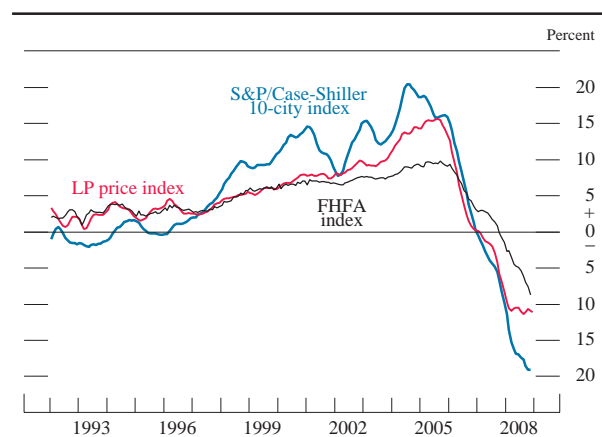


NOTE: The data are quarterly and extend through 2008:Q4.  
SOURCE: Department of Commerce, Bureau of the Census.

quarter; for 2008 as a whole, multifamily starts totaled 285,000, the lowest level in more than a decade. In all, the decline in residential investment, as measured in the NIPA, subtracted  $\frac{3}{4}$  percentage point from the annual rate of change in GDP in the second half of 2008, about as much as in the first half. The further drop in housing starts and residential building permits in January suggests that housing will continue to exert a substantial drag on the change in real GDP in early 2009.

The further contraction in housing demand in the second half of 2008 partly reflected the bleaker picture for household income and wealth. Potential homebuyers may also have been deterred by concerns about the likelihood of additional declines in house prices and fears of buying into a falling market. And while individuals who qualified for fixed-rate conforming mortgages were able to take advantage of historically low interest rates, many potential homebuyers with blemished credit histories or who were in a position to make only small down payments found it difficult to obtain loans. In the market for new single-family homes, sales fell nearly 30 percent (not at an annual rate) between the second and fourth quarters, which brought the total decline in sales since their peak in mid-2005 to 70 percent. The slippage in sales has continued to hamper builders' efforts to gain control of their inventories. Although the stock of unsold new homes fell considerably in the second half of 2008, it did not fall as much as sales; thus, the months' supply of unsold new homes continued to move up, reaching a level nearly three times that recorded during the first half of the decade. In the market for existing single-family homes, the decline in sales in recent quarters has been less pronounced than for new homes, but this situation could reflect the fact that these sales figures include some transactions

21. Change in prices of existing single-family houses, 1992–2008



NOTE: The data are monthly and extend into 2008:Q4; changes are from one year earlier. The LP price index includes purchase transactions only. The FHFA index (formerly calculated by the Office of Federal Housing Enterprise Oversight) also includes purchase transactions only. The S&P/Case-Shiller index reflects all arm's-length sales transactions in the metropolitan areas of Boston, Chicago, Denver, Las Vegas, Los Angeles, Miami, New York, San Diego, San Francisco, and Washington, D.C.

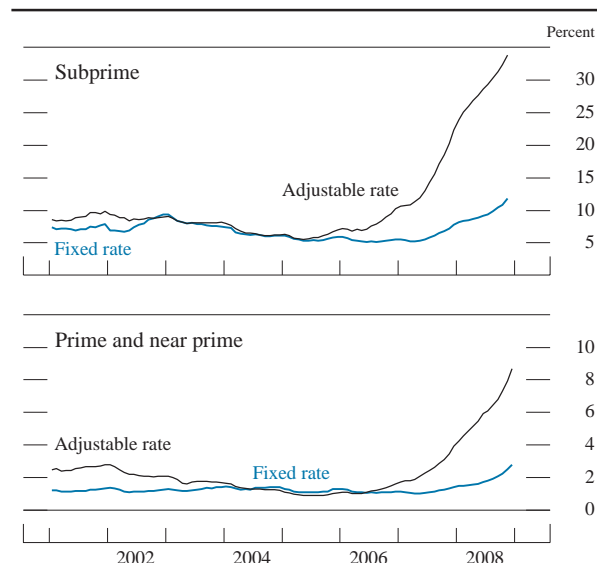
SOURCE: For LP, LoanPerformance, a division of First American CoreLogic; for FHFA, Federal Housing Finance Agency; for S&P/Case-Shiller, Chicago Mercantile Exchange.

involving foreclosed homes and other distressed properties, which tend to sell at heavily discounted prices. Existing home sales ended the year more than 30 percent below the highs of a few years earlier.

House prices fell sharply in the second half of 2008, with the latest 12-month readings in major nationwide indexes showing prices of existing homes down between 9 percent and 19 percent (figure 21). One such measure, the LoanPerformance repeat-sales price index, fell 11 percent over the 12 months ending in December and stood 19 percent below its peak in early 2006. Declines in home prices have been especially steep in Arizona, California, Florida, and Nevada. These states, which had experienced some of the largest increases in home prices earlier in the decade, have generally seen the largest increases in delinquency rates and foreclosure actions initiated by lenders.

The drop in home prices is contributing to worsening payment problems among mortgage borrowers. Traditionally, some homeowners have coped with job loss and other life events by refinancing their homes and extracting equity or by selling the properties. However, the considerable declines in housing equity, along with tighter lending standards, mean that even prime loans are more difficult to refinance, and weak housing demand has made selling difficult. As a consequence, borrowers have increasingly fallen behind in their monthly obligations. Indeed, in November 2008, 25 percent of subprime mortgages were seriously

22. Mortgage delinquency rates, 2001–08



NOTE: The data are monthly and extend through November 2008 for subprime and through December 2008 for prime and near prime. Delinquency rate is the percent of loans 90 days or more past due or in foreclosure.

SOURCE: For subprime, First American LoanPerformance. For prime and near prime, Lender Processing Services, Inc.

delinquent (the latest available data).<sup>5</sup> As of December 2008, 3¾ percent of prime mortgages were seriously delinquent—much lower than the level of serious delinquency for nonprime loans, but still almost twice the level of a year earlier (figure 22).

Foreclosures also have risen appreciably of late. Indeed, available data suggest that more than 2 million homes entered the foreclosure process in 2008, compared with foreclosure starts of 1½ million in 2007 and 1 million or less in each of the preceding four years. As with delinquencies, declining house prices have been a key contributor to the rise in foreclosures. At the same time, rising foreclosures have exacerbated the decline in house prices by increasing the number of heavily discounted properties on the market and thus exerting downward pressure on prices of otherwise comparable occupied homes. Lenders and public policy makers have taken steps to limit the number of avoidable foreclosures by modifying mortgages and putting in place programs such as Hope for Homeowners, established by the Federal Housing Administration (FHA).

In an environment of generally weak housing demand, falling home prices, tighter lending standards, and rising foreclosures, total household mortgage debt appears to have posted an outright decline in 2008—the first in the history of the series, which extends back to

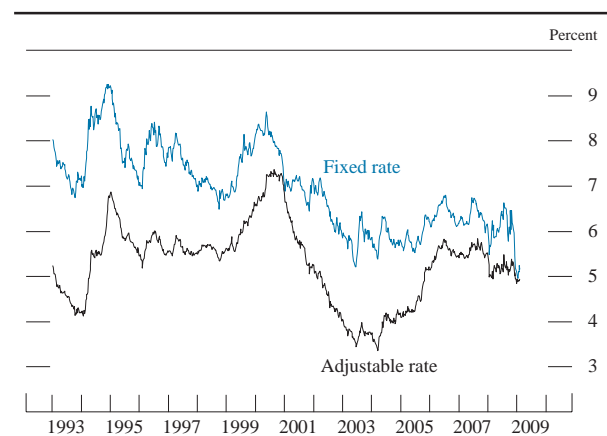
5. A mortgage is defined as seriously delinquent if the borrower is 90 days or more behind in payments or the property is in foreclosure.

the 1950s. In secondary mortgage markets, securitization of mortgages by Fannie Mae and Freddie Mac has fallen in recent months, and gross issuance of GSE-backed MBS has lately just outpaced maturing issues so that levels outstanding have only inched up since the summer. Issuance of Ginnie Mae securities backed by FHA loans has continued to be strong, but the non-agency MBS market remains closed. The FHA has offered an alternative source of mortgage financing for some nonprime and near-prime borrowers, and such lending has picked up lately; still, it has replaced only part of the reduction in credit from other sources, largely because of the FHA's relatively strict lending standards and higher costs.

Interest rates on 30-year fixed-rate conforming mortgages have fallen about 100 basis points, on net, since the November 25 announcement of the Federal Reserve's program to purchase MBS issued by the housing GSEs and Ginnie Mae, and they currently stand at 5 percent (figure 23). However, interest rates for nonconforming jumbo fixed-rate loans have declined by less than those for conforming mortgages in recent months, which has caused the extraordinarily wide spread between the two rates to widen further.<sup>6</sup> The high level of this spread reflects, in part, the absence of functioning securitization markets for jumbo mortgages

6. Conforming mortgages are those eligible for purchase by Fannie Mae and Freddie Mac; they must be equivalent in risk to a prime mortgage with an 80 percent loan-to-value ratio, and they cannot exceed the conforming loan limit. The conforming loan limit for a first mortgage on a single-family home in the contiguous United States is currently equal to the greater of \$417,000 or 115 percent of an area's median house price; it cannot exceed \$625,500. Jumbo mortgages are those that exceed the maximum size of a conforming loan; they are typically extended to borrowers with relatively strong credit histories.

23. Mortgage rates, 1993–2009



NOTE: The data, which are weekly and extend through February 18, 2009, are contract rates on 30-year mortgages.

SOURCE: Federal Home Loan Mortgage Corporation.

as well as an increased aversion by banks to making potentially risky loans.

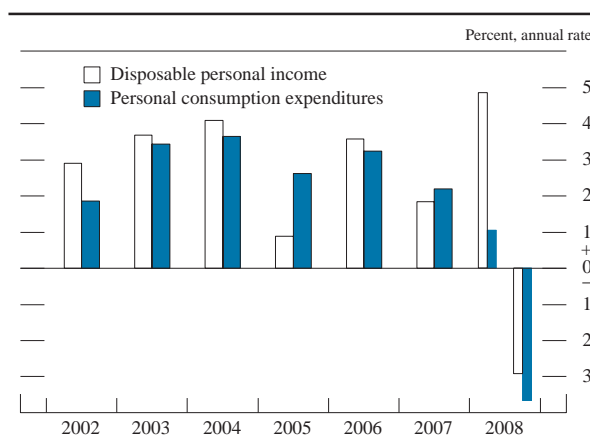
## Consumer Spending and Household Finance

Consumer spending held up reasonably well in the first part of 2008. However, spending slackened noticeably toward the end of the second quarter despite the boost to household income from the tax rebates authorized by the Economic Stimulus Act of 2008, and consumer outlays entered the second half of the year on a downward trajectory. Against a backdrop of sizable job losses, decreases in household net worth, and difficulties in obtaining credit, real PCE declined at an annual rate of more than 3½ percent in the second half of 2008 (figure 24).

The downshift in consumer spending reflected both a sharp pullback in purchases of goods and a marked deceleration in expenditures on services. Outlays for new light motor vehicles (cars, sport utility vehicles, and pickup trucks) were especially hard hit. Indeed, at an annual rate of just 10¼ million units, sales of light vehicles in the fourth quarter were nearly 4 million units below the already reduced pace during the first nine months of the year; they fell further in January 2009 despite relatively low gasoline prices and a substantial increase in sales incentives in recent months.

Real disposable personal income (DPI)—that is, after-tax income adjusted for inflation—rose just 1¼ percent in 2008. Some of the weakness in real DPI reflected softness in aggregate wage and salary income, which fell slightly in real terms. As noted earlier, hourly wages posted a solid increase in real terms last year, but the effect of this increase on aggregate wages and

24. Change in real income and consumption, 2002–08



SOURCE: Department of Commerce, Bureau of Economic Analysis.

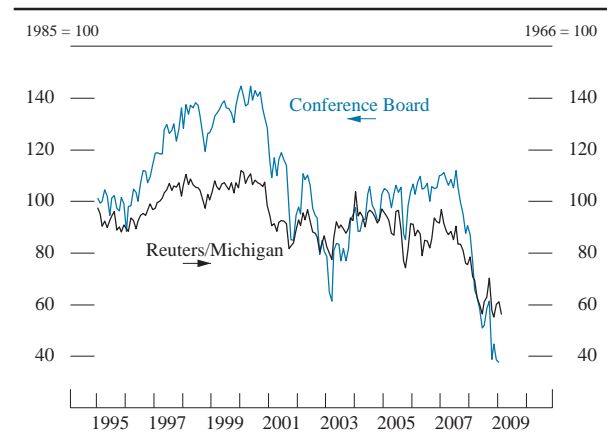


salaries was outweighed by the negative effects of the contraction in employment and the decrease in hours worked by those who retained jobs. Apart from transfer payments, most types of nonwage income performed poorly as well. Measured on a per capita basis, average real after-tax income was essentially unchanged last year, compared with an average increase of nearly 2 percent during the preceding five years.

In addition to the weakness in income, consumer spending has been restrained in recent quarters by a sizable decrease in household net worth (figure 25). This source of restraint on spending likely reflects not only the most recent drops in equity and house prices but also the lagged effects of the appreciable decline in wealth during 2007 and the first half of 2008. The loss of wealth, along with heightened concerns about the prospects for jobs and income, helped push consumer sentiment to very low levels (figure 26). These factors also contributed to a noticeable upturn in the personal saving rate, which rose to nearly 3 percent in the fourth quarter of 2008 after fluctuating between 0 and 1 percent for most of the period since 2005 (figure 27).

Nonmortgage consumer debt outstanding appears to have fallen, on net, in the second half of 2008 after having increased at an annual rate of 4 percent in the first half. Part of the drop in borrowing was likely due to weaker demand for loans, but the available evidence also suggests that lenders tightened the supply significantly. Indeed, results from the Senior Loan Officer Opinion Survey released in October 2008 and January 2009 revealed that many banks tightened standards and terms for consumer loans, actions that included lowering credit limits on existing credit card accounts. Lend-

## 26. Consumer sentiment, 1995–2009



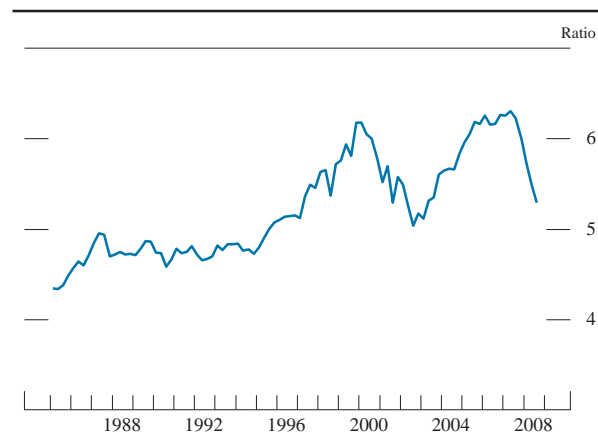
NOTE: The Conference Board data are monthly and extend through January 2009. The Reuters/Michigan data are monthly and extend through a preliminary estimate for February 2009.

SOURCE: The Conference Board and Reuters/University of Michigan Surveys of Consumers.

ers also reportedly continued to tighten underwriting standards on non-government-guaranteed student loans, and some major providers of these loans exited the market.

Part of the tightening of lending standards and terms no doubt reflects lenders' concerns about the credit quality of households. Indeed, the performance of consumer loans has continued to worsen in recent months, albeit less starkly than that of mortgages. Delinquency rates for most types of consumer lending—credit cards, auto loans, and nonrevolving loans—rose significantly, on net, over the course of 2008, and most such rates now stand at or above the levels seen during the 2001 recession (figure 28). Household bankruptcy rates also increased sharply in 2008.

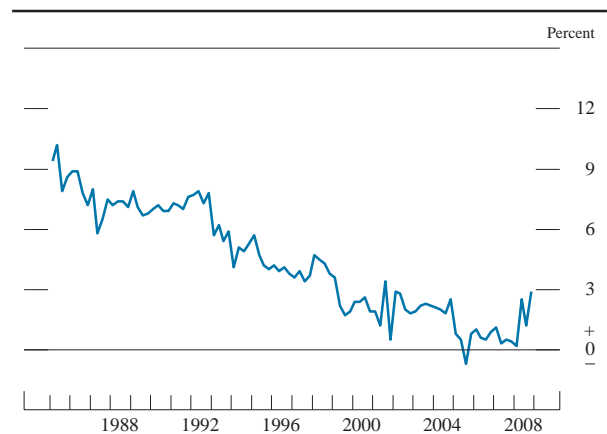
## 25. Wealth-to-income ratio, 1985–2008



NOTE: The data are quarterly and extend through 2008:Q3. The wealth-to-income ratio is the ratio of household net worth to disposable personal income.

SOURCE: For net worth, Federal Reserve Board, flow of funds data; for income, Department of Commerce, Bureau of Economic Analysis.

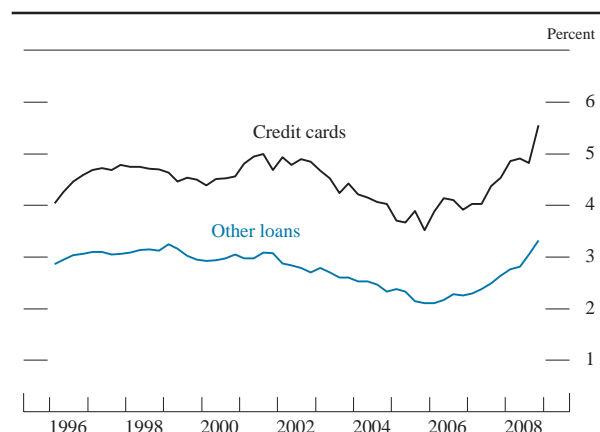
## 27. Personal saving rate, 1985–2008



NOTE: The data are quarterly and extend through 2008:Q4.

SOURCE: Department of Commerce, Bureau of Economic Analysis.

## 28. Delinquency rates on consumer loans, 1996–2008



NOTE: The data are quarterly and extend through 2008:Q4. Delinquency rate is the percent of loans 30 days or more past due.

SOURCE: Federal Financial Institutions Examination Council, Consolidated Reports of Condition and Income (Call Report).

The pullback in consumer credit also likely reflects, in part, the difficulties in the market for asset-backed securities. Until the first half of 2008, a substantial fraction of consumer credit had been funded with ABS, but since the third quarter, issuance of credit card, automobile, and student loan ABS has slowed to a trickle. As noted earlier, to facilitate renewed issuance of consumer and small business ABS and thus support economic activity, the Federal Reserve announced in November plans for the Term Asset-Backed Securities Loan Facility, which will begin operations in the coming weeks.<sup>7</sup> Spreads on AAA-rated ABS rose through most of last year but have declined lately, reportedly in anticipation of the opening of the TALF.

Against this backdrop, interest rates on auto loans generally rose somewhat during the second half of 2008, and those on most other types of consumer loans were little changed, despite a substantial decrease in rates on comparable-maturity Treasury securities. Although some consumer interest rates appear to have fallen slightly in early 2009, their spreads to Treasury rates remain quite elevated.

## The Business Sector

### Fixed Investment

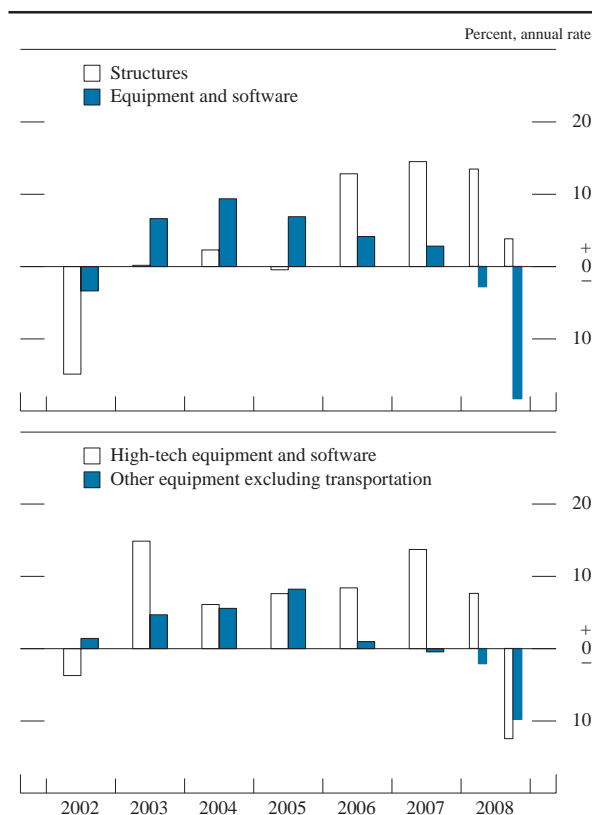
After having posted small gains in the first half of 2008, real business fixed investment edged down in the third quarter and fell sharply in the fourth quarter (figure 29).

7. A description of the TALF is in the appendix.

The retrenchment in investment reflected both a steep drop in outlays on equipment and software (E&S) and a sharp deceleration in spending on nonresidential construction after 2½ years of robust gains. Investment demand appears to have been depressed by the downturn in sales, production, and profitability as well as by the reduced availability and higher cost of credit from securities markets, banks, and other lenders.

Real spending for E&S fell at annual rates of 7½ percent in the third quarter and 28 percent in the fourth quarter. Business outlays on motor vehicles, which had fallen sharply in the first half of the year, continued to plunge in the second half. Outlays for other major components of E&S also recorded sizable declines. Real investment in information technology equipment—which had risen moderately in the first half of the year—fell at a 12½ percent annual rate, on average, in the second half as business demand for computers, software, and communications equipment dropped appreciably. Real spending on equipment other than information technology and transportation, which

## 29. Change in real business fixed investment, 2002–08



NOTE: High-tech equipment consists of computers and peripheral equipment and communications equipment.

SOURCE: Department of Commerce, Bureau of Economic Analysis.

had been moving essentially sideways since the end of 2005, held up through the third quarter. However, it fell at an annual rate of about 20 percent in the fourth quarter, and the slow pace of orders lately, along with the downbeat tone in recent surveys of business conditions, points to further declines in this broad category of spending in early 2009.

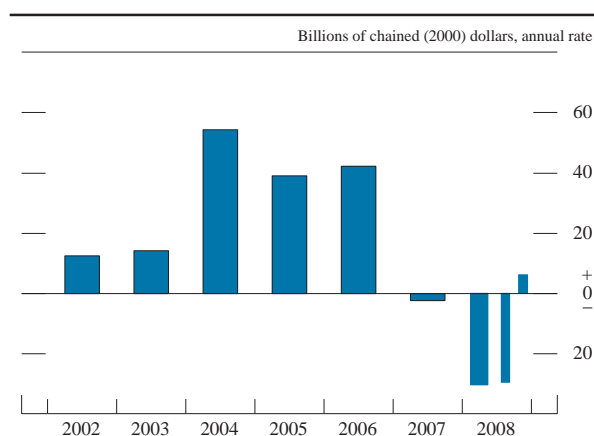
On net, real outlays for nonresidential construction posted a small increase in the second half of 2008. However, gains were concentrated in energy-related sectors—drilling and mining structures, petroleum refineries, and transmission and distribution facilities—and likely reflected the earlier run-up in the price of crude oil. Outside the energy-related sectors, spending turned down in the second half of last year as construction of office buildings softened and spending on non-office commercial buildings (a category that includes retail, wholesale, and some warehouse space) fell sharply. The decline was related to the rise in vacancy rates over the past few quarters, which was driven, in part, by the weakening in aggregate output and employment. In addition, recent reports from bank lending officers suggest that financing for new construction projects has become even more difficult to obtain.

### *Inventory Investment*

One hallmark of the economic landscape over the past year has been the prompt response of producers to the slowing in final sales. For much of 2008, the production adjustments resulted in a rapid pace of inventory liquidation and were sufficient to prevent the emergence of widespread stock imbalances (figure 30). In the fourth quarter, however, the precipitous drop in final demand left many firms holding inventories in excess of desired levels—a view expressed by respondents to a variety of business surveys at the turn of the year. Accordingly, available data suggest that producers continued to pare back output in January 2009.

The inventory overhang at year-end was especially acute in the motor vehicle sector. Although automakers slashed production during the fourth quarter, the collapse in sales last autumn pushed up dealers' stocks, and the days' supply of cars and light trucks soared to nearly 100 days—well above industry norms. In response, motor vehicle manufacturers instituted even larger cuts in production in early 2009. These cuts should help ease the pressure on dealers' stocks, though further progress will require continued restraint on production, a meaningful pickup in sales, or both.

30. Change in real business inventories, 2002–08



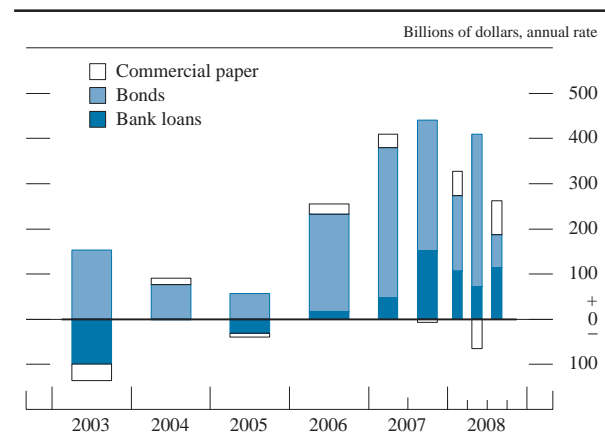
SOURCE: Department of Commerce, Bureau of Economic Analysis.

### *Corporate Profits and Business Finance*

Operating earnings per share for S&P 500 firms fell an estimated 17 percent in 2008. Losses were especially pronounced for financial firms. In the nonfinancial sector, earnings at firms other than oil and gas companies generally slowed over the course of 2008 and declined outright in the fourth quarter. In addition, in light of the deterioration in the economy, analysts significantly marked down their projections for earnings in 2009.

Borrowing by domestic nonfinancial businesses—primarily through the corporate bond market, the commercial paper market, and bank loans—slowed markedly in the second half of 2008 (figure 31). The deceleration reflected not only a reduced desire of businesses to borrow and invest in response to the worsening economic outlook but also a reduced willingness of potential lenders to provide funding for risky projects. In the corporate bond market, issuance of investment-grade securities by nonfinancial firms was solid throughout the year; in contrast, speculative-grade issuance has been scant in recent months. After moving up in the first half of the year, the cost of longer-term financing rose further as interest rates on both investment- and speculative-grade corporate bonds soared in the fall. While corporate bond rates were climbing, Treasury yields dropped, pushing interest rate spreads on corporate bonds well above previous record highs. The increases in spreads appeared to derive from both the anticipation of an increase in defaults and a further reduction in investors' willingness to take risk. In the commercial paper market, short-term borrowing by highly rated nonfinancial firms has increased since the summer; the rise reflects importantly the Federal Reserve programs supporting issuance by stronger

## 31. Selected components of net financing for nonfinancial corporate businesses, 2003–08



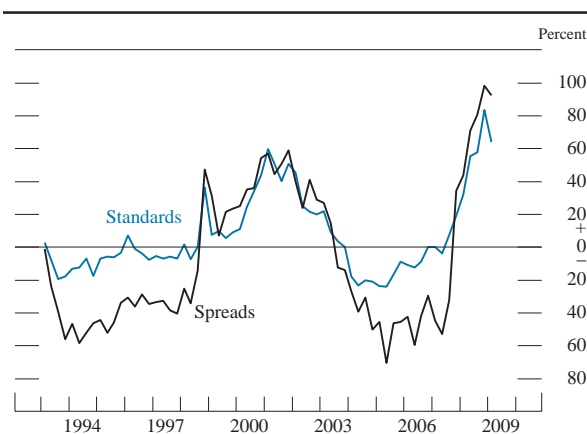
NOTE: The data for the components except bonds are seasonally adjusted.  
SOURCE: Federal Reserve Board, flow of funds data.

firms. Indeed, rates on highly rated paper with maturities of less than 30 days have averaged around 20 basis points since late November, compared with nearly 200 basis points in September and October. Rates on lower-grade nonfinancial paper have also decreased in recent months, but their spreads to highly rated paper remain elevated by historical standards.

Bank lending to businesses expanded in September and October as firms reportedly drew on existing lines of credit. More recently, however, loans to commercial and industrial borrowers have registered significant declines. In addition, the growth of commercial real estate loans—which are often used to finance construction and land development—slowed substantially in the second half of the year. Given the deteriorating economic outlook, tighter credit standards, and businesses' decisions to scale back new investment, both C&I and CRE lending seem likely to fall further in the first part of 2009 (figure 32).

In the equity market, initial offerings by nonfinancial corporations were very sparse through the second half of 2008, and seasoned offerings (excluding firms in the energy sector) were also weak (figure 33). Equity retirements—which often occur as a result of share repurchases that are associated with cash-financed mergers—continued to outpace the combined amount of private and public issuance, a development due, in part, to the completion of a few large mergers. However, share repurchases are estimated to have moderated a bit in recent months, and announcements of future cash-financed mergers have slowed significantly, likely because of the weaker economic outlook and tighter lending conditions.

## 32. Net percentage of domestic banks tightening standards and increasing spreads on commercial and industrial loans to large and medium-sized borrowers, 1993–2009

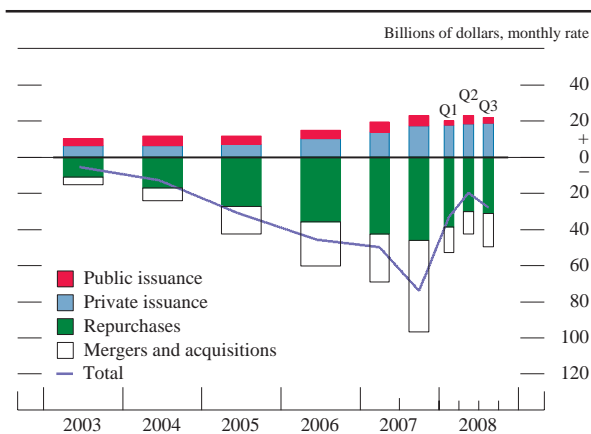


NOTE: The data are drawn from a survey generally conducted four times per year; the last observation is from the January 2009 survey, which covers 2008:Q4. Net percentage is the percentage of banks reporting a tightening of standards or an increase in spreads less the percentage reporting an easing or a decrease. Spreads are measured as the loan rate less the bank's cost of funds. The definition for firm size suggested for, and generally used by, survey respondents is that large and medium-sized firms have annual sales of \$50 million or more.

SOURCE: Federal Reserve Board, Senior Loan Officer Opinion Survey on Bank Lending Practices.

The credit quality of nonfinancial firms deteriorated in the second half of the year. The aggregate ratio of debt to assets climbed further, and the aggregate ratio of liquid assets to total assets declined notably. Ratings downgrades on nonfinancial corporate bonds picked up and outpaced upgrades, and the share of corporate bonds rated B3 or below by Moody's increased to about

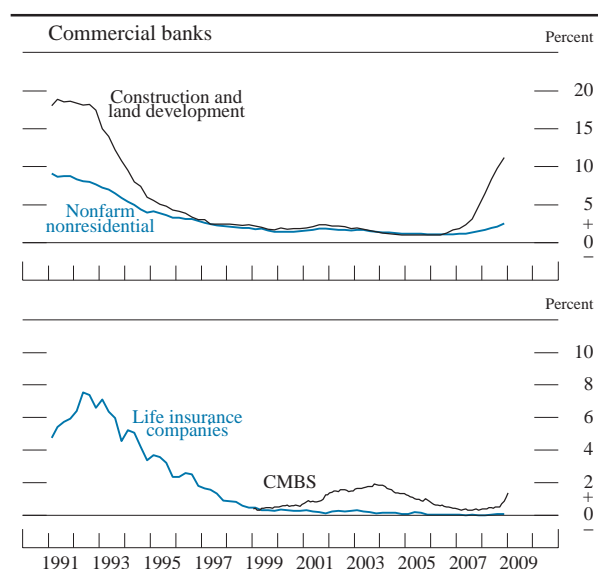
## 33. Components of net equity issuance, 2003–08



NOTE: Net equity issuance is the difference between equity issued by domestic companies in public or private markets and equity retired through share repurchases, domestic cash-financed mergers, or foreign takeovers of U.S. firms. Equity issuance includes funds invested by private equity partnerships and stock option proceeds.

SOURCE: Thomson Financial, Investment Benchmark Report; Money Tree Report by PricewaterhouseCoopers, National Venture Capital Association, and Venture Economics.

## 34. Delinquency rates on commercial real estate loans, 1991–2009



NOTE: The data for commercial banks and life insurance companies are quarterly and extend through 2008:Q4. The data for commercial mortgage-backed securities (CMBS) are monthly and extend through January 2009. The delinquency rates for commercial banks and CMBS are the percent of loans 30 days or more past due or not accruing interest. The delinquency rate for life insurance companies is the percent of loans 60 days or more past due or not accruing interest.

SOURCE: For commercial banks, Federal Financial Institutions Examination Council, Consolidated Reports of Condition and Income (Call Report); for life insurance companies, American Council of Life Insurers; for CMBS, Citigroup.

6½ percent. Delinquency rates on C&I loans increased noticeably in the fourth quarter, and delinquency rates on CRE loans rose further, mainly because of continued rapid weakening in the performance of residential and commercial construction loans (figure 34).

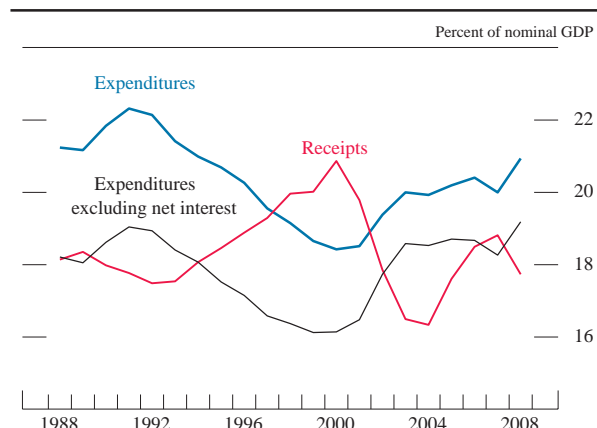
## The Government Sector

### Federal Government

The deficit in the federal unified budget is in the midst of a massive widening. Mainly reflecting the deceleration in economic activity and the provisions of the Economic Stimulus Act of 2008, the deficit rose to \$455 billion in fiscal year 2008, nearly \$300 billion higher than in fiscal 2007 and equal to more than 3 percent of nominal GDP. So far in fiscal 2009, the deficit has increased substantially further, mostly because of outlays under the Troubled Asset Relief Program and the effects of the weak economy on revenues and spending.<sup>8</sup> In January, the Congressional

8. In the Monthly Treasury Statements, equity purchases under the TARP and the GSE conservatorship are treated on a cash-flow basis,

## 35. Federal receipts and expenditures, 1988–2008



NOTE: The receipts and expenditures data are on a unified-budget basis and are for fiscal years (October through September); gross domestic product (GDP) is for the four quarters ending in Q3.

SOURCE: Office of Management and Budget.

Budget Office estimated that the deficit for fiscal 2009 as a whole would total more than \$1 trillion under the spending and taxation policies in place at that time, a figure that excludes the budgetary impact of the American Recovery and Reinvestment Act of 2009.

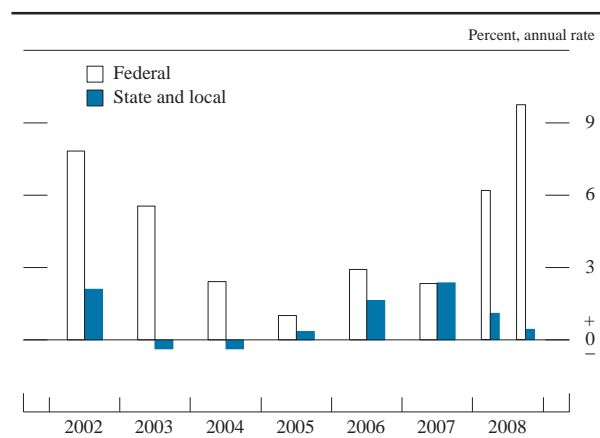
Federal receipts fell nearly 2 percent in nominal terms in fiscal 2008 and stood at 17¾ percent of nominal GDP; they dropped further during the first four months of fiscal 2009 (figure 35). The decline has been most pronounced in corporate receipts, which have fallen at double-digit rates as corporate profits have dropped and as firms have presumably adjusted payments to take advantage of the bonus depreciation provisions contained in the Economic Stimulus Act. Excluding the rebates provided to most households under the act, individual income tax receipts rose moderately in fiscal 2008. However, so far in fiscal 2009, individual receipts have been running below year-earlier levels, likely because of the weakness in nominal personal income and reduced capital gains realizations.

Excluding financial transactions, nominal federal outlays increased 8 percent in fiscal 2008 after having risen just 3 percent in fiscal 2007. Defense outlays rose 12 percent in fiscal 2008 as the rapid run-up in budget

which means that the outlays are recorded as they occur; a flow of receipts will be recorded in future years to reflect any dividends on the shares of equity and the proceeds from the eventual sale of the shares. In contrast, the Congressional Budget Office (CBO) treats these transactions on an accrual basis and thus records outlays as the net present value cost of the equity purchases, rather than the entire amount that is disbursed; under the CBO approach, there is no offsetting flow of receipts in future years. According to the Treasury, the unified budget deficit for the first four months of fiscal 2009 totaled \$569 billion; under the CBO approach, the year-to-date deficit would be \$361 billion.



36. Change in real government expenditures on consumption and investment, 2002–08



SOURCE: Department of Commerce, Bureau of Economic Analysis.

authority over the past three years continued to bolster spending; increases in defense funding in recent years have been substantial not only for operations in Iraq and Afghanistan but also for activities not directly related to those conflicts. Federal spending also rose sharply in fiscal 2008 for programs that provide support to lower-income households. So far in fiscal 2009, federal outlays for defense and low-income support programs have continued to rise rapidly. Also, spending for Medicare has picked up lately, and outlays for Social Security have been lifted by the large cost-of-living adjustment that took place in January. As for the part of federal spending that is a direct component of GDP, real federal expenditures for consumption and gross investment rose at an annual rate of 10 percent, on average, in the second half of calendar year 2008, mostly because of the sizable increase in defense spending (figure 36).

### State and Local Government

Aggregate real expenditures on consumption and gross investment by state and local governments were little changed, on net, in the second half of 2008 after posting a small increase in the first half. In part reflecting the mounting pressures on the sector's budgets, state and local employment has been about flat since mid-2008, while real construction spending has essentially moved sideways.

The financial positions of most states—with the exceptions of Arizona, California, Michigan, and a few others—were fairly solid at the end of fiscal year 2008.<sup>9</sup>

9. State government fiscal years end on June 30 in all but four states.

However, so far in fiscal 2009, revenues have been running significantly below expected levels because of the softness in personal and corporate incomes and the weakness in retail sales. States' initial plans to address the widening budget gaps have included cuts in spending on education and other programs, hiring freezes and furloughs, and some tapping of rainy day funds; in coming quarters, however, the dominant influence on state budgets will be the infusion of grants-in-aid under the 2009 federal stimulus package, which will help cushion the effects of the economic downturn on states' budgets. At the local level, property tax receipts continued to be propped up in 2008 by the lagged effects of the dramatic increases in house prices over the first half of the decade.<sup>10</sup> Nevertheless, the sharp fall in house prices over the past two years is likely to put substantial downward pressure on local revenues before long. Moreover, many state and local governments will need to set aside money in coming years to rebuild their employee pension funds after the losses experienced in 2008 and to fund their ongoing obligations to provide health care to their retired employees.

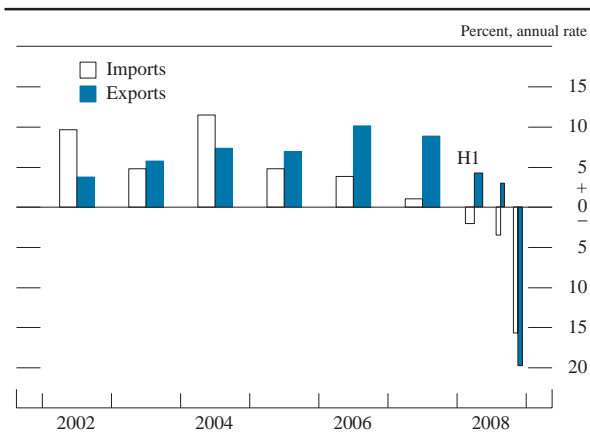
### The External Sector

In contrast to the first half of 2008—when robust exports provided some offset to the softness in domestic demand—the external sector provided little support to economic activity in the second half of the year. After decelerating in the third quarter, real exports declined sharply in the fourth quarter, as economic activity abroad contracted. Real imports, which had been declining earlier in 2008, also dropped considerably in the fourth quarter, dragged down by deteriorating U.S. demand (figure 37). The declines in trade flows in late 2008 were widespread across major types of products and U.S. trading partners. In addition, exports were depressed by production disruptions at Boeing.

The U.S. trade deficit narrowed considerably at the end of 2008, which largely reflected a sharp decline in the price of imported oil. The trade deficit was \$555 billion at an annual rate in the fourth quarter of 2008, or about 4 percent of nominal GDP, compared with a deficit of 5 percent of nominal GDP a year earlier (figure 38).

10. The lag between changes in house prices and changes in property tax revenue likely occurs because many localities are subject to state limits on the annual increases in total property tax payments and property value assessments. Thus, increases in market prices for houses may not be reflected in property tax bills until well after the fact.

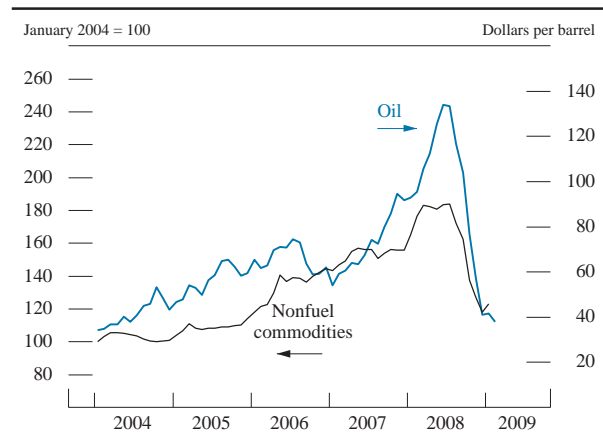
37. Change in real imports and exports of goods and services, 2002–08



SOURCE: Department of Commerce, Bureau of Economic Analysis.

The price of crude oil in world markets was extremely volatile in 2008. After ending 2007 at about \$95 per barrel, the spot price of West Texas intermediate (WTI) crude oil surged to more than \$145 by mid-July amid both surprisingly robust oil demand, especially from emerging market economies, and continued restraint in near-term supply (figure 39). Since mid-July, the financial market turmoil and the resulting sharp downturn in global economic activity have dragged down oil demand. Despite attempts by OPEC to rein in production, the rapid drop in demand and concerns about future prospects for the global economy led to a collapse in oil prices. The spot price of WTI fell about 75 percent from its peak to near \$40 per barrel in January of this year. Far-dated futures prices for crude oil

39. Prices of oil and nonfuel commodities, 2004–09



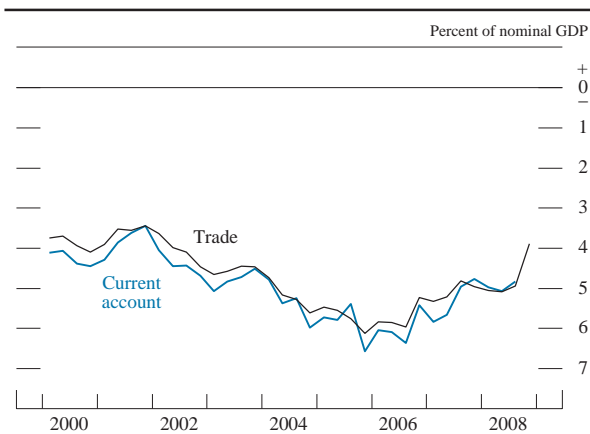
NOTE: The data are monthly. The oil price is the spot price of West Texas intermediate crude oil, and the last observation is the average for February 1–18, 2009. The price of nonfuel commodities is an index of 45 primary-commodity prices and extends through January 2009.

SOURCE: For oil, the Commodity Research Bureau; for nonfuel commodities, International Monetary Fund.

have fallen somewhat less, which likely reflects the view that OPEC actions will eventually reduce supply and that global oil demand will rebound in the medium term.

Import prices rose rapidly in the first half of 2008, but the increase was reversed in the second half. That pattern primarily reflected the sharp swing in oil prices, but it was also influenced by a marked slowing in non-oil import price inflation from its rapid pace in the first half of the year. Even excluding oil, prices of imported goods declined in the fourth quarter of 2008, driven by both the sharp fall in non-oil commodity prices and the appreciation of the dollar that occurred in the latter half of the year.

38. U.S. trade and current account balances, 2000–08



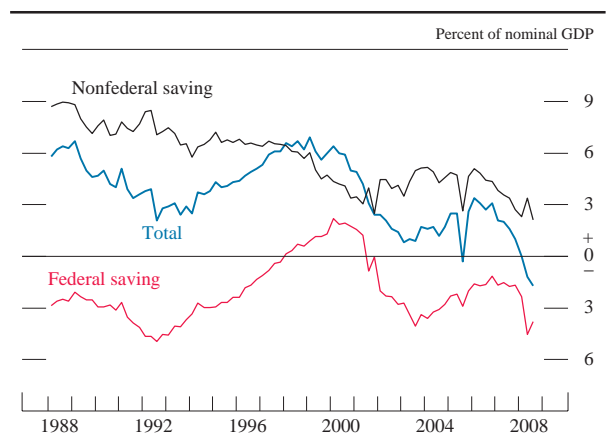
NOTE: The data are quarterly. For the trade account, the data extend through 2008:Q4; for the current account, they extend through 2008:Q3.

SOURCE: Department of Commerce, Bureau of Economic Analysis.

## National Saving

Total net national saving—that is, the saving of households, businesses, and governments excluding depreciation charges—fell further in 2008 (figure 40). After having ticked up to 3 percent of nominal GDP in 2006, net national saving dropped steadily over the subsequent two years as the federal budget deficit widened, the fiscal positions of state and local governments deteriorated, and private saving remained low; in the third quarter of 2008, net national saving stood at negative 1¼ percent of GDP. National saving will likely remain low this year in light of the weak economy and the recently enacted federal fiscal stimulus package. Nonetheless, if not boosted over the longer run, persistent low levels of national saving will likely be associated

40. Net saving, 1988–2008



NOTE: The data are quarterly and extend through 2008:Q3. Nonfederal saving is the sum of personal and net business saving and the net saving of state and local governments.

SOURCE: Department of Commerce, Bureau of Economic Analysis.

with both low rates of capital formation and heavy borrowing from abroad, which would limit the rise in the standard of living of U.S. residents over time and hamper the ability of the nation to meet the retirement needs of an aging population.

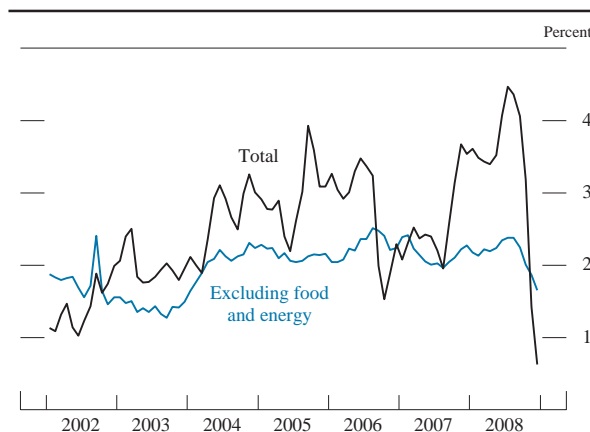
## Prices and Labor Productivity

### Prices

Although inflation pressures were elevated during the first half of 2008 and into the summer, they diminished appreciably toward year-end as prices of energy and other commodities dropped and the degree of slack in the economy increased. The chain-type price index for total personal consumption expenditures fell at an annual rate of 5½ percent in the fourth quarter after rising rapidly over the first three quarters of the year. The core PCE price index—which excludes food and energy items—rose at an annual rate of just ½ percent in the fourth quarter after increases of 2¼ percent, on average, over the first three quarters of the year. Over 2008 as a whole, core PCE prices increased 1¾ percent (figure 41). Data for PCE prices in January 2009 are not yet available, but information from the consumer price index (CPI) and other sources suggests that both the total and core PCE price indexes posted modest increases in that month.

Since peaking in July, consumer energy prices have fallen dramatically, with most of the decline coming during the last three months of 2008. Largely reflecting the drop in crude oil prices, the price of gasoline fell from around \$4 per gallon, on average, in July to

41. Change in the chain-type price index for personal consumption expenditures, 2002–08



NOTE: The data are monthly and extend through December 2008; changes are from one year earlier.

SOURCE: Department of Commerce, Bureau of Economic Analysis.

less than \$2 per gallon in December; in mid-February, it was in the neighborhood of \$2 per gallon. Prices of natural gas, which typically move roughly in line with crude oil prices over periods of several months, also fell sharply in the second half of 2008 after a substantial run-up in the first half of the year. Consumer prices for electricity continued to move up through the end of the year—likely because of higher prices earlier in the year for fossil fuel inputs to electricity generation—though increases appear to have slowed in early 2009.

In contrast, consumer food prices continued to rise rapidly into the autumn. Increases were substantial both for food consumed at home and for purchased meals and beverages, which typically are influenced more by labor and other business costs than by farm prices. Since November, however, increases in consumer food prices have been quite modest. Farm prices, which had soared between 2006 and mid-2008 as a consequence of strong world demand and the increased use of corn for the production of ethanol, fell sharply in the second half of last year as prospects for domestic and foreign demand for food weakened and the demand for ethanol eased. Typically, changes in farm prices start to show through fairly quickly to consumer food prices, and the small increases in the CPI for food in the past couple of months suggest that a noticeable moderation in consumer food price inflation is under way.

The slowdown in core inflation in late 2008 was widespread, although it was particularly steep for motor vehicles, apparel, and other consumer goods that were heavily discounted by retailers in an environment of weak demand and excess inventories. In addition, the cost pressures that seemed to be boosting core inflation

earlier in the year ebbed as pass-throughs of the previous large increases in the prices of energy and materials ran their course and the effects of recent declines in these prices started to show through to consumer prices. The strengthening in the exchange value of the dollar and the deceleration of import prices also helped ease the upward pressure on core inflation.

Survey-based measures of near-term inflation expectations have receded as actual inflation has come down, while indicators of longer-term inflation expectations have been steadier. According to the Reuters/University of Michigan Surveys of Consumers, median one-year inflation expectations, which had moved above 5 percent last spring and early summer, fell throughout the second half of last year; since December, they have fluctuated around 2 percent. As for longer-term inflation expectations, the Reuters/University of Michigan survey measure of median 5- to 10-year inflation expectations was about 3 percent in January and early February of this year, similar to the readings during 2007 and the early part of 2008.

### *Productivity and Unit Labor Costs*

Labor productivity has held up surprisingly well in the past year. Although productivity growth has often stalled during previous recessions, output per hour in the nonfarm business sector rose 2¾ percent over the course of 2008, the same rate as in 2007 (figure 42). The continued rise in productivity during the second half of last year, at a time when output was contracting, likely reflects the aggressive downsizing undertaken

by firms in response to their worsening sales prospects. Moreover, although estimates of the underlying pace of productivity growth are quite uncertain, the buoyancy of productivity in recent quarters suggests that the fundamental forces supporting a solid underlying trend—for example, the rapid pace of technological change and the ongoing efforts by firms to use information technology to improve the efficiency of their operations—remain in place.

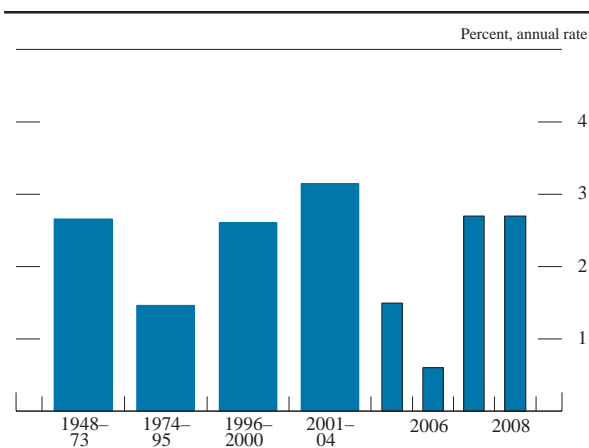
Reflecting the solid gain in labor productivity, along with the subdued increase in nominal hourly compensation noted earlier, unit labor costs in the nonfarm business sector rose just ¾ percent in 2008. The increase in unit labor costs was about the same as that recorded in 2007.

### **Monetary Policy Expectations and Treasury Rates**

The current target range for the federal funds rate, 0 to ¼ percent, is substantially below the level that investors expected at the end of June 2008; policy expectations were steadily revised downward over the second half of the year as the financial and economic outlook worsened. Toward the end of the year, readings on interest rate expectations from money market futures and options were complicated by persistent trading of federal funds below the target rate, which resulted from the large increase in reserve balances accompanying the expansion of the Federal Reserve's liquidity programs. Nevertheless, investors clearly anticipated that the federal funds rate would remain low for quite some time amid increasing concerns about the health of financial institutions, weakness in the real economy, and a moderation in inflation pressures. Futures quotes currently suggest that investors expect the federal funds rate to remain around its current level throughout the first half of this year and then to rise gradually through the end of 2010. However, uncertainty about the size of term premiums and potential distortions created by the zero lower bound for the federal funds rate make it difficult to obtain from futures prices a definitive reading on the policy expectations of market participants. Options prices suggested that investor uncertainty about the future path for policy was increasing considerably through October, as strains in financial markets intensified, but these measures of uncertainty have subsequently trended downward.

As the economic outlook worsened during the second half of the year and inflation pressures ebbed, yields on longer-maturity Treasury securities declined substantially (figure 43). In addition, the generally

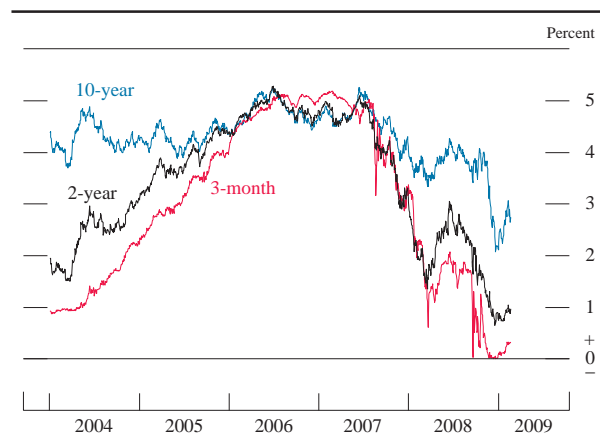
42. Change in output per hour, 1948–2008



NOTE: Nonfarm business sector. Change for each multiyear period is measured to the fourth quarter of the final year of the period from the fourth quarter of the year immediately preceding the period.

SOURCE: Department of Labor, Bureau of Labor Statistics.

43. Interest rates on selected Treasury securities, 2004–09



NOTE: The data are daily and extend through February 18, 2009.  
SOURCE: Department of the Treasury.

negative market sentiment and speculation that the Federal Reserve might begin purchasing large quantities of longer-maturity Treasury securities contributed at times to downward pressure on Treasury yields. Offsetting these factors to some degree were market expectations that the Treasury's issuance of long-term debt, which rose notably over the course of 2008, would pick up further in 2009. On net, yields on 2- and 10-year notes fell about 200 and 140 basis points, respectively, during the second half of 2008.

In contrast to yields on their nominal counterparts, yields on Treasury inflation-protected securities (TIPS) rose over the second half of 2008, which resulted in a noticeable reduction in measured inflation compensation—the difference between comparable-maturity nominal and TIPS yields. Some of this reduction was reversed in the early part of 2009. Inferences about inflation expectations based on TIPS yields have been difficult to make recently because these yields appear to have been affected to a degree by movements in liquidity premiums and because special factors have buffeted yields on nominal Treasury issues.

## Federal Borrowing

Federal debt soared in the second half of 2008. The more than \$1 trillion of Treasury borrowing since the summer reflects importantly the need to finance the Treasury's purchases of agency MBS and equity; the TARP, under which the Treasury has purchased preferred shares in a number of financial institutions; and the Supplementary Financing Program, under which the Treasury has increased deposits at the Federal Reserve to help fund the expansion of the Federal Reserve's bal-

ance sheet. The ratio of federal debt held by the public to nominal GDP surged to almost 45 percent at the end of calendar year 2008 and seems certain to increase again in the first part of 2009, as borrowing is expected to remain strong with the weak economy and budgetary initiatives.

Despite the heavy issuance of Treasury securities in the second half of the year, the rapid growth of federally guaranteed debt issued by banking institutions under the Temporary Liquidity Guarantee Program, and continued issuance of GSE securities, demand at most Treasury auctions was solid, as investors sought the safety of Treasury securities. Demand for Treasury bills was extremely strong, and yields in secondary markets sometimes fell close to zero (and even below zero at times), even as the supply of bills increased markedly. Foreign custody holdings of Treasury securities at the Federal Reserve Bank of New York grew nearly 40 percent over 2008, although the proportion of nominal coupon securities purchased at auctions by foreign investors generally remained in the 10 percent to 30 percent range observed over the past several years.

## State and Local Government Borrowing

On net, borrowing by state and local governments in the market for municipal securities was subdued in the second half of 2008. The issuance of short-term municipal debt was robust, boosted in part by the need to fund operating expenditures at a time of weak revenues. However, issuance of long-term debt, which is generally used to fund capital spending projects or to refund existing long-term debt, slowed significantly. Interest rates on long-term debt climbed sharply across the maturity spectrum in the second half of 2008 in the face of considerable strain on the budgets of many state and local governments and sharp deteriorations in market functioning. More recently, however, municipal bond rates have dropped markedly, in part because market participants appeared to view the federal stimulus package as likely to improve the financial condition of state and local governments.

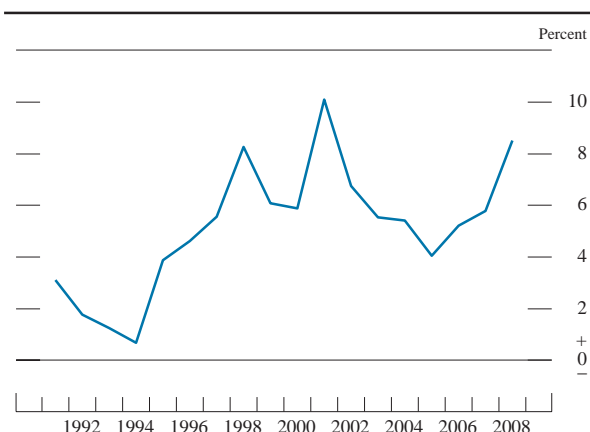
## Monetary Aggregates

The M2 monetary aggregate increased at a 10 percent annual rate during the second half of 2008 and 8½ percent for the year as a whole (figure 44).<sup>11</sup>

11. M2 consists of (1) currency outside the U.S. Treasury, Federal Reserve Banks, and the vaults of depository institutions; (2) traveler's



## 44. M2 growth rate, 1991–2008



NOTE: The data extend through 2008 and are annual on a fourth-quarter over fourth-quarter basis. M2 consists of currency, traveler's checks, demand deposits, other checkable deposits, savings deposits (including money market deposit accounts), small-denomination time deposits, and balances in retail money market funds.

SOURCE: Federal Reserve Board, Statistical Release H.6, "Money Stock Measures."

The rapid growth reflected in part a marked decrease in some market interest rates relative to the rates offered on M2 assets, as well as increased demand for safe and liquid assets during the financial turmoil. During the second half of the year, the significant slowdown in the growth of retail money market mutual funds was offset by a rapid increase in small time deposits, as banks bid aggressively for these deposits to buttress their funding. The currency component of the money stock also increased briskly, an indication of solid demand for U.S. banknotes from both foreign and domestic sources. Flows into demand deposits were significant after the introduction of the Temporary Liquidity Guarantee Program, which apparently drew funds out of other money market instruments.

The monetary base—essentially the sum of currency in the hands of the public and bank reserves—has increased rapidly in recent months, primarily owing to heavy use of the Federal Reserve's liquidity programs. Credit extended through these programs caused the

checks of nonbank issuers; (3) demand deposits at commercial banks (excluding those amounts held by depository institutions, the U.S. government, and foreign banks and official institutions) less cash items in the process of collection and Federal Reserve float; (4) other checkable deposits (negotiable order of withdrawal, or NOW, accounts and automatic transfer service accounts at depository institutions, credit union share draft accounts, and demand deposits at thrift institutions); (5) savings deposits (including money market deposit accounts); (6) small-denomination time deposits (time deposits in amounts of less than \$100,000) less individual retirement account (IRA) and Keogh balances at depository institutions; and (7) balances in retail money market mutual funds less IRA and Keogh balances at money market mutual funds.

balance sheet of the Federal Reserve to expand considerably over the course of 2008, and this growth was financed largely by the creation of reserve balances. The increase in reserve balances almost entirely represented an increase in excess reserves rather than an increase in required reserves. In early 2009, the size of the balance sheet has decreased somewhat, which reflects a runoff in credit extended through the Commercial Paper Funding Facility and a decrease in draws on liquidity swap lines with foreign central banks.

## INTERNATIONAL DEVELOPMENTS

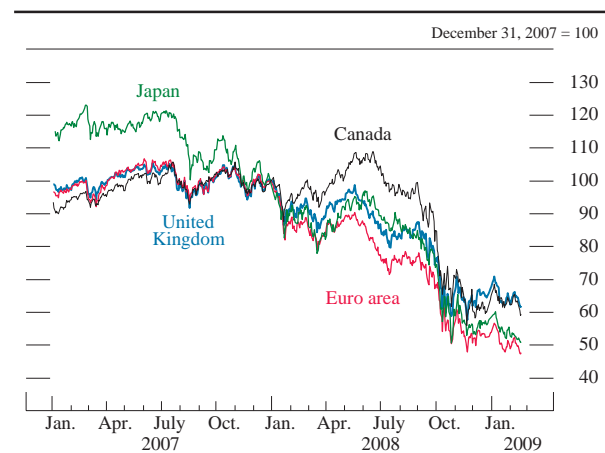
### International Financial Markets

Although foreign banks continued to report losses over the summer and funding conditions remained strained, global financial markets were relatively calm in July and August of 2008. This situation changed abruptly in September, as global interbank and other funding markets seized up and lending came to a near standstill. These developments were followed by the collapse of several prominent foreign financial institutions. In late September, the banks Bradford and Bingley, Fortis, and Dexia were partially or fully nationalized, and Hypo Real Estate Holding AG received a large capital injection from the German government.

The deepening of the crisis led many foreign governments to announce unprecedented measures to restore credit market functioning, including large-scale capital injections into the banking system, expansions of deposit insurance programs, and guarantees of some forms of bank debt. Most major central banks cut policy rates sharply as the financial crisis led to a dramatic deterioration in the outlook for economic activity and inflation; in October, coordinated policy rate cuts were made by the Federal Reserve and five other central banks. To address global dollar funding pressures, the Federal Reserve greatly expanded its program of liquidity swaps with foreign central banks by increasing the dollar amounts extended as well as the number of countries with which it has swap agreements. (The central banks with swap arrangements are discussed in the appendix.) These concerted global measures seem to have soothed conditions and had restored some measure of stability to markets by the end of the year, although credit markets abroad are still impaired.

Stock markets in the advanced foreign economies were nearly flat over July and August of 2008 but fell sharply beginning in late September; market volatility rose to record levels with the deepening of the financial crisis. On net, broad equity price indexes in Europe,

## 45. Equity indexes in selected advanced foreign economies, 2007–09

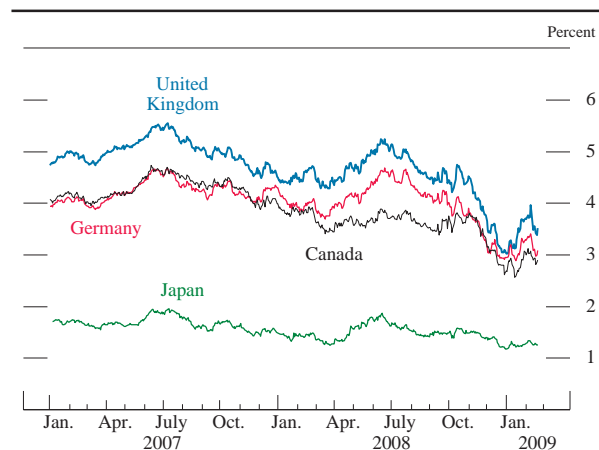


NOTE: The data are daily. The last observation for each series is February 18, 2009. Because the Tokyo Exchange was closed on December 31, 2007, the Japan index is scaled so that the December 28, 2007, closing value equals 100.

SOURCE: For euro area, Dow Jones Euro STOXX Index; for Canada, Toronto Stock Exchange 300 Composite Index; for Japan, Tokyo Stock Exchange (TOPIX); and for the United Kingdom, London Stock Exchange (FTSE 350), as reported by Bloomberg.

Japan, and Canada fell 20 percent to 40 percent over the second half of last year and have continued to decline this year (figure 45). Long-term sovereign bond yields fell sharply in Europe and Canada in the latter part of 2008, which reflected both the easing of monetary policy and diminished growth prospects, but have risen somewhat, on balance, in early 2009 (figure 46). In contrast, yields on inflation-protected long-term securities rose in many countries, and inflation compensation

## 46. Yields on benchmark government bonds in selected advanced foreign economies, 2007–09



NOTE: The data, which are for 10-year bonds, are daily. The last observation for each series is February 18, 2009.

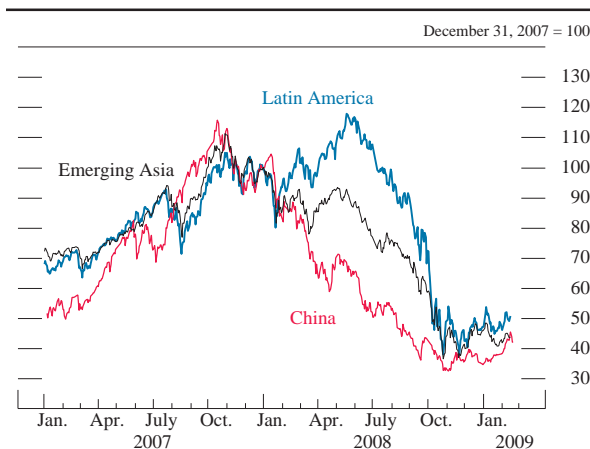
SOURCE: Bloomberg.

(the difference between yields on nominal securities and those on inflation-protected securities) fell sharply. As in the United States, measures of inflation compensation were quite volatile, however, as the liquidity of inflation-protected securities fell markedly.

Although in early 2008 the emerging market economies looked as if they might escape the most serious consequences of the financial crisis, the intensification of financial strains in September 2008 led to sharp and sudden capital outflows from many emerging markets as investors in the advanced economies sought to repatriate funds. Dwindling financial markets were reinforced by concerns over the effects of declining exports to the advanced economies and, for commodity exporters, plummeting commodity prices. Most stock markets in the emerging economies fell 20 percent to 40 percent, on net, over the second half of the year, and risk spreads on emerging market debt rose sharply (figure 47).

The Federal Reserve's broadest measure of the nominal trade-weighted foreign exchange value of the dollar rose about 12 percent, on net, over the second half of 2008 (figure 48). Much of this rise reflected gains against major foreign currencies. The dollar appreciated 13 percent against the euro, 20 percent against the Canadian dollar, and 36 percent against sterling (figure 49). The dollar's strength was attributable to several factors, including the realization by many inves-

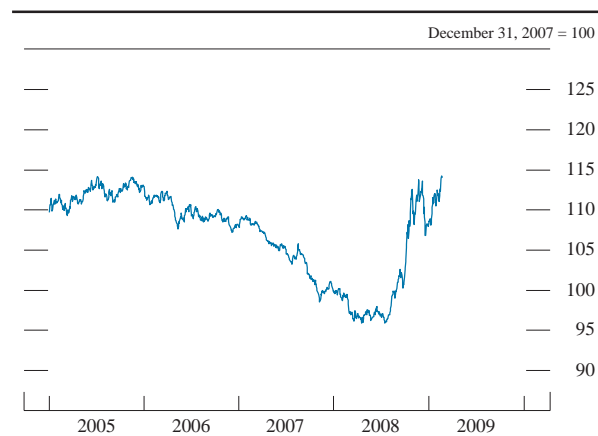
## 47. Equity indexes in selected emerging market economies, 2007–09



NOTE: The data are daily. The last observation for each series is February 18, 2009. Because the Shanghai Stock Exchange was closed on December 31, 2007, the China index is scaled so that the December 28, 2007, closing value equals 100. The Latin American economies are Argentina, Brazil, Chile, Colombia, Mexico, and Peru. The emerging Asian economies are China, India, Indonesia, Malaysia, Pakistan, the Philippines, South Korea, Taiwan, and Thailand.

SOURCE: For Latin America and emerging Asia, Morgan Stanley Capital International (MSCI) index; for China, Shanghai Composite Index, as reported by Bloomberg.

48. U.S. dollar nominal exchange rate, broad index, 2005–09



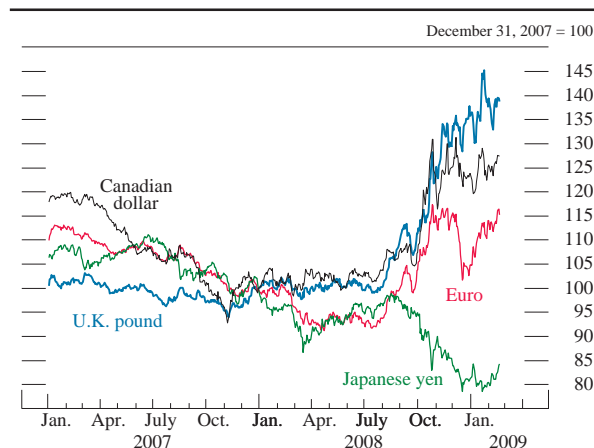
NOTE: The data, which are in foreign currency units per dollar, are daily. The last observation for the series is February 18, 2009. The broad index is a weighted average of the foreign exchange values of the U.S. dollar against the currencies of a large group of the most important U.S. trading partners. The index weights, which change over time, are derived from U.S. export shares and from U.S. and foreign import shares.

SOURCE: Federal Reserve Board.

tors that foreign growth would slow much more sharply than had been earlier anticipated as well as an increase in demand for the relative safety of U.S. assets such as Treasury securities. In contrast to its strength against other major currencies, the dollar depreciated 14 percent against the yen, as market volatility led many Japanese investors to sell foreign assets.

The dollar also rose against the currencies of most emerging market economies, including appreciation of more than 30 percent against both the Mexican peso

49. U.S. dollar exchange rate against selected major currencies, 2007–09



NOTE: The data, which are in foreign currency units per dollar, are daily. The last observation for each series is February 18, 2009.

SOURCE: Bloomberg.

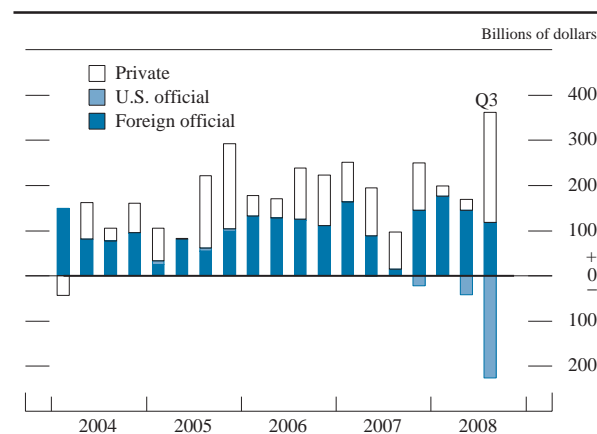
and the Brazilian *real*. The dollar appreciated much less against most emerging Asian currencies, although it did rise more than 20 percent against the Korean won. In response to these pressures, many central banks in both Latin America and Asia intervened in support of their currencies.

## The Financial Account

Although the current account deficit is estimated to have narrowed in 2008, it remains sizable. Turbulence in global financial markets has noticeably changed the composition of the associated financial flows. Before the turmoil, financial inflows were primarily in the form of net purchases of U.S. securities by foreign private investors and somewhat smaller net purchases by foreign official institutions. Since late 2007, however, foreign private net purchases of U.S. securities have dropped sharply, leaving foreign official inflows to play a much larger role (figure 50). Furthermore, whereas before the turmoil private foreign investors purchased large sums of U.S. assets issued by private entities, since then foreign investments—both official and private—have been dominated by a “flight to safety” to U.S. Treasury securities. Finally, in the third quarter of 2008, reductions in holdings of foreign assets by private U.S. residents played an unusual role, which added significantly to net private inflows.

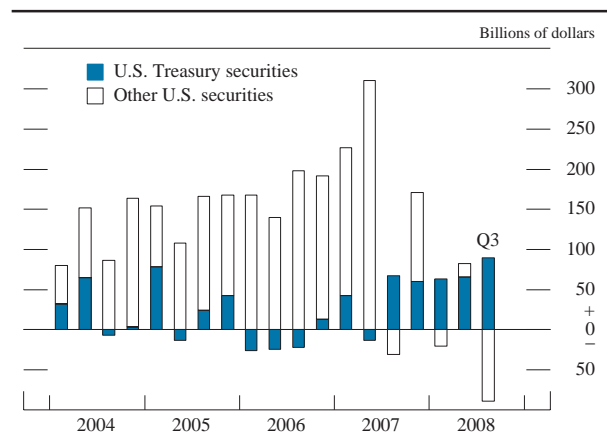
Overall, inflows from foreign private acquisitions of U.S. securities in 2008 were just one-fifth of the flows obtained in the previous two years, on average. Although purchases of U.S. Treasury securities rose considerably, there were unprecedented net sales in other U.S. securities in 2008 (figure 51). Foreign demand was particularly weak for U.S. agency and corporate

50. U.S. net financial inflows, 2004–08



SOURCE: Department of Commerce, Bureau of Economic Analysis.

## 51. Net private foreign purchases of U.S. securities, 2004–08



NOTE: Other U.S. securities include corporate equities and bonds, agency bonds, and municipal bonds.

SOURCE: Department of Commerce, Bureau of Economic Analysis.

bonds, with the weakness especially pronounced in the second half of the year.

Foreign official net purchases of U.S. assets remained relatively steady in 2008, at a pace slightly above that of 2007. However, the composition of official net purchases in the third and fourth quarters moved sharply away from U.S. agency securities and was concentrated almost exclusively in U.S. Treasury securities. Foreign official acquisitions continued to be dominated by Asian institutions in 2008.

Prior to the turmoil, U.S. investors' net purchases of foreign securities typically generated a financial outflow. These purchases slowed following the turmoil and more recently have turned to sizable net sales—generating a financial inflow—as U.S. investors have pulled out of foreign investments. In addition, U.S. residents considerably reduced their deposits in foreign banks in 2008.

The turmoil also led to unusual flows from the banking sector and from official transactions in the form of the Federal Reserve's liquidity swap arrangements with foreign central banks. Net flows reported by banking offices in the United States are typically small. Since the onset of the turmoil through mid-2008, however, banks have generated unusually large outflows, in part reflecting a response to heightened demand resulting from interbank funding pressures in European markets. As central banks acted to address these concerns with the expansion of the swap arrangements in September 2008, the private banking outflows slowed to a halt. Foreign central banks eased dollar pressures abroad by lending to their domestic banks the dollar liquidity acquired from the Federal Reserve. Further drawings on the swap lines in October and December contributed

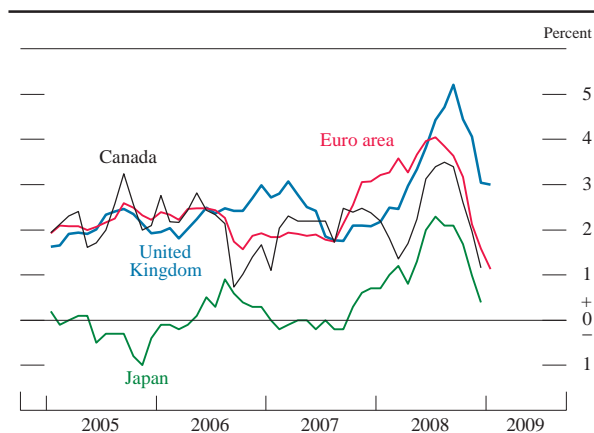
to a strong reversal of banking flows (back toward the United States, on net) in the fourth quarter.

## Advanced Foreign Economies

Economic performance in the major advanced foreign economies weakened sharply in the second half of 2008, as global financial market turbulence, shrinking world trade, and collapsing business and consumer confidence weighed on activity. Across the advanced foreign economies, credit conditions and lending standards tightened considerably, industrial production declined, and retail sales slowed. Housing markets weakened everywhere and performed particularly poorly in countries that earlier had experienced housing booms, such as Ireland, Spain, and the United Kingdom. By the third quarter of last year, both Japan and the euro area had entered recessions, and output fell sharply in all the major advanced foreign economies in the fourth quarter, with most countries experiencing especially severe declines in exports and private investment.

After surging in response to accelerating commodity prices in the first half of last year, headline rates of inflation fell noticeably as a result of collapsing commodity prices and worsening economic conditions. The 12-month change in consumer prices peaked in the third quarter of 2008 for all the major economies, and the peak values ranged from a high of 5¼ percent in the United Kingdom to 2¼ percent in Japan. The most recent figures are substantially lower and range from 3 percent in the United Kingdom to below 1 percent in Japan (figure 52). Excluding food and energy prices,

## 52. Change in consumer prices for major foreign economies, 2005–09



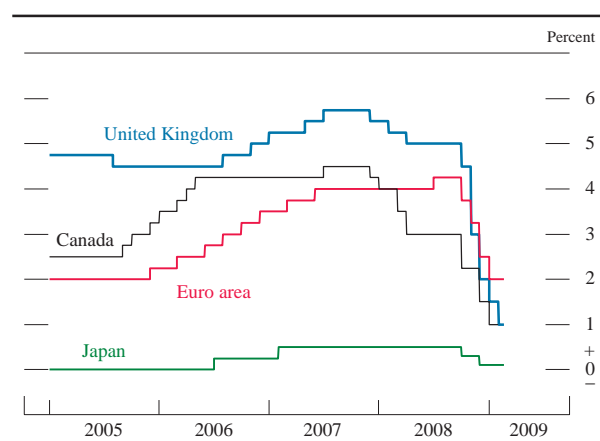
NOTE: The data are monthly, and the percent change is from one year earlier. The data extend through December 2008 for Canada and Japan and through January 2009 for the euro area and the United Kingdom.

SOURCE: Haver Analytics.

the swings in consumer price inflation have been more subdued. After moving up somewhat during most of 2008, core inflation is now declining in most advanced foreign economies.

Official monetary policy rates have been lowered significantly since the beginning of 2008 in response to severe financial market turbulence, decelerating economic activity, and waning inflation. After some easing early last year by the Bank of England and the Bank of Canada, rapidly rising food and energy costs led these central banks to pause, and, in the case of the European Central Bank (ECB), raise rates in the summer. However, in the fall, as financial conditions deteriorated and commodity prices fell, policymakers in the major industrial economies cut rates sharply, including a coordinated move in October. In total, the Bank of England has lowered its policy rate from 5½ percent in January of 2008 to 1 percent. The Bank of Canada and the ECB have also dropped rates to 1 percent and 2 percent, respectively. In Japan, interest rates were lowered to near zero in December (figure 53). In addition to substantial reductions in policy rates, central banks in the major advanced economies have taken a number of extraordinary measures to improve liquidity in financial markets, including the large-scale provision of term funding in local currency and dollar markets and the significant expansion of allowable collateral for central bank funding. Some foreign central banks are turning to or contemplating other measures to support activity, such as purchases of private-sector assets. Governments in the major industrial economies have also announced fiscal packages to bolster activity.

53. Official or targeted interest rates in selected advanced foreign economies, 2005–09



NOTE: The data are daily and extend through February 18, 2009. The data shown are, for Canada, the overnight rate; for the euro area, the minimum bid rate on main refinancing operations; for Japan, the call money rate; and, for the United Kingdom, the official bank rate paid on commercial reserves.

SOURCE: The central bank of each area or country shown.

## Emerging Market Economies

Economic performance weakened dramatically in emerging market countries in the second half of 2008. In the first half of the year, growth in many emerging market economies was relatively robust, and as food and energy prices soared, policymakers focused on containing inflationary pressure. However, in the second half, weaker demand from the advanced economies weighed on the export sectors of these countries, global financial turmoil led to tighter credit conditions, and in some cases, plunging commodity prices contributed to economic difficulties. By the end of the year, output in emerging market economies was dropping sharply, and inflationary pressures were moderating. These developments prompted policymakers in many countries to shift their focus to more stimulative monetary and fiscal policies to mitigate the effects of the economic downturn.

In China, the pace of activity slowed substantially in 2008, and concerns regarding high inflation and an overheating economy receded and gave way to efforts to bolster activity. Since September, Chinese authorities have lowered benchmark lending and deposit rates as well as bank reserve requirements several times. In November, a large fiscal stimulus plan that focused on infrastructure investment was announced, and Chinese authorities also enacted other policies designed to support the export sector, the real estate market, and small and medium-sized enterprises. After appreciating significantly in the first half of the year, the exchange value of the renminbi vis-à-vis the dollar was relatively stable in the second half of 2008.

Elsewhere in emerging Asia, the downturn in activity has been dramatic. Hong Kong, Singapore, South Korea, and Taiwan all posted substantial contractions in real GDP at the end of last year. Demand for these countries' goods from the advanced economies and China plunged in the second half of 2008, and authorities across emerging Asia have introduced more stimulative monetary and fiscal policies to bolster their economies.

In Mexico, growth was anemic in the first half of last year, but it improved in the third quarter, largely because of strong activity in the agricultural and service sectors. However, output is estimated to have declined sharply in the fourth quarter, as weakness in the U.S. manufacturing sector and financial stress have begun to weigh on the Mexican economy. In Brazil, economic activity remained firm through much of the year, but indicators suggest that output fell sharply in the fourth quarter.

Russia's economy and financial system experienced considerable stress over the second half of the year



because of the steep drop in oil and other commodity prices, the turmoil in global financial markets, and geopolitical tensions resulting from the conflict with Georgia. Russian international reserves fell substantially, largely because of interventions to support the currency and the financial and corporate sectors more broadly. Several countries in emerging Europe also came under

significant financial pressures in the fourth quarter of 2008, which reflected the aftermath of a period of very high rates of credit expansion as well as large current account deficits and external financing needs. Hungary, Latvia, Serbia, and Ukraine received official assistance from the International Monetary Fund.

## Part 3

# Monetary Policy in 2008 and Early 2009

After easing the stance of monetary policy 225 basis points over the first half of 2008, the Federal Open Market Committee (FOMC) lowered the target federal funds rate further in the second half, ultimately bringing it to a range of 0 to ¼ percent (figure 54).<sup>12</sup> The Federal Reserve also took a number of additional actions to increase liquidity and improve market functioning. Some of these measures resulted in a substantial increase in the size of the Federal Reserve's balance sheet; further, the FOMC announced at its December meeting that the focus of policy going forward would be to support the functioning of financial markets and stimulate the economy through open market operations and other measures that would sustain the size of the Federal Reserve's balance sheet at a high level.

Information available last summer indicated that residential construction remained on a downward trend, the labor market had weakened further, and industrial production had declined. Although aggregate output was

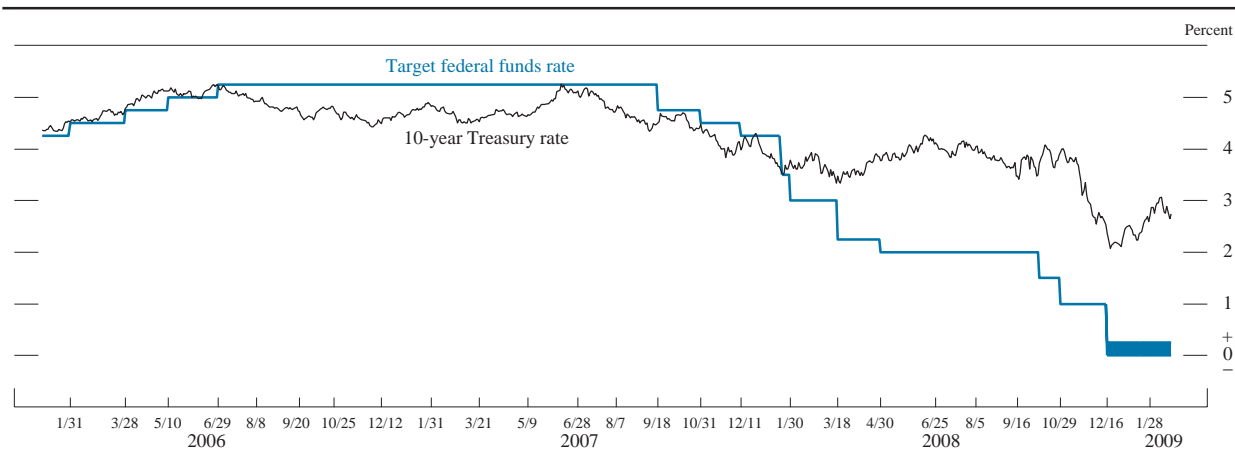
reported to have expanded in the second quarter, financial market developments suggested that the economy would likely come under considerable stress in the near future—in particular, tight credit conditions, the ongoing housing contraction, and the rise in energy prices were expected to weigh on economic growth over the subsequent few quarters. Core consumer price inflation remained relatively stable, but headline inflation was elevated as a result of large increases in food and energy prices.

With these considerations in mind, the FOMC kept the target federal funds rate unchanged at 2 percent at its August meeting. The accompanying policy statement indicated that, although downside risks to growth remained, the upside risks to inflation were also of significant concern to the Committee. This risk assessment, which many market participants reportedly interpreted as essentially balanced, was in line with expectations at the time. Accordingly, the expected path for policy was little changed in the wake of the announcement, and the response in broader financial markets was minimal.

By the time of the meeting on September 16, the outlook for inflation had moderated as a result of substantial declines in the prices of oil and other commodities as well as weakening aggregate demand. Various measures of inflation expectations declined between the two

12. *Members* of the FOMC in 2008 consisted of members of the Board of Governors of the Federal Reserve System plus the presidents of the Federal Reserve Banks of Cleveland, Dallas, Minneapolis, New York, and Philadelphia; in 2009, FOMC members consist of members of the Board of Governors plus the presidents of the Federal Reserve Banks of Atlanta, Chicago, New York, Richmond, and San Francisco. *Participants* at FOMC meetings consist of members of the Board of Governors and all Reserve Bank presidents.

54. Selected interest rates, 2006–09



NOTE: The data are daily and extend through February 18, 2009. The 10-year Treasury rate is the constant-maturity yield based on the most actively traded securities. The dates on the horizontal axis are those of regularly scheduled Federal Open Market Committee meetings.

SOURCE: Department of the Treasury and the Federal Reserve.

meetings, nominal wage increases continued to be moderate, and productivity growth remained solid. In addition, declining employment and softening final sales contributed to a weaker outlook for near-term economic activity. Still, some firms reportedly were continuing to pass through to their customers previous increases in the costs of energy and raw materials, and readings on core and headline inflation remained elevated. In this environment, the Committee was concerned that high inflation might become embedded in expectations and thereby impart considerable momentum to overall inflation. Financial strains had increased over the intermeeting period, although the consequences of the bankruptcy of Lehman Brothers Holdings on September 15 were not yet clear at the time of the meeting. Indeed, the substantial easing of monetary policy over the previous year, combined with ongoing measures to foster market liquidity, was seen as likely to support activity going forward. Thus, members agreed that keeping the federal funds target rate unchanged at 2 percent at the September meeting was appropriate.

Over the following weeks, stresses in financial markets continued to mount. Interest rate spreads in interbank funding markets widened markedly, corporate and municipal bond yields rose, and equity prices dropped sharply. The decline in the net asset value of a major money market mutual fund below \$1 per share sparked a flight out of prime money market funds and caused a severe impairment of the functioning of the commercial paper market. In response to the extraordinary stresses in financial markets, the Federal Reserve, together with U.S. government entities and many foreign central banks and governments, implemented a number of unprecedented policy initiatives. Measures taken by the Federal Reserve around this time, discussed in detail in the appendix, included the establishment of the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, Commercial Paper Funding Facility, and Money Market Investor Funding Facility, which were intended to improve the liquidity in short-term debt markets and ease the strains in credit markets more broadly. In addition, to address the sizable demand for dollar funding in foreign jurisdictions, the FOMC authorized increases in its existing liquidity swap lines with foreign central banks and established lines with additional central banks. In domestic markets, the Federal Reserve raised the regular auction amounts of the 28- and 84-day maturity Term Auction Facility (TAF) auctions and announced two forward TAF auctions to provide funding over year-end.

The expansion of existing liquidity facilities and the creation of new facilities contributed to a substantial increase in the size of the Federal Reserve's balance

sheet. Two initiatives were introduced to help manage the expansion of the balance sheet and promote control of the federal funds rate. First, on September 17, the Treasury announced a temporary Supplementary Financing Program at the request of the Federal Reserve. Under this program, the Treasury issues short-term bills over and above its regular borrowing program, with the proceeds deposited at the Federal Reserve. Second, using authority granted under the Emergency Economic Stabilization Act, the Federal Reserve announced on October 6 that it would begin paying interest on required and excess reserve balances. The payment of interest on excess reserves was intended to assist in maintaining the federal funds rate close to the target set by the Committee by creating a floor on interbank market rates. Initially, the interest rate paid on required reserve balances was set as a spread below the average targeted federal funds rate established by the FOMC over each reserve maintenance period, and the rate paid on excess balances was set as a spread below the lowest targeted federal funds rate for each reserve maintenance period. Subsequently, with the federal funds rate trading consistently below the target rate, the spreads were eliminated.

In late September and into October, macroeconomic conditions deteriorated in both the United States and Europe, prices of crude oil and other commodities dropped substantially, and some measures of expected inflation declined. In light of these developments and the extraordinary turmoil in financial markets, the Committee members agreed that downside risks to economic growth had increased and that upside risks to inflation had diminished; at an unscheduled meeting in early October, the FOMC cut its target to 1½ percent in an unprecedented coordinated policy action with five other major central banks. This action, along with the accompanying statement, led investors to mark down further the expected path for the federal funds rate.

At its October 28–29 meeting, the FOMC lowered its target for the federal funds rate an additional 50 basis points, to 1 percent. The Committee's statement noted that economic activity appeared to have slowed markedly, a development due importantly to weakening consumer and business spending and softening demand from many foreign economies. Moreover, the intensification of financial market turmoil was likely to exert additional restraint on spending by further tightening credit conditions for households and businesses. The Committee noted that, in light of the declines in the prices of energy and other commodities and the weaker prospects for economic activity, it expected inflation to moderate in coming quarters to levels consistent with price stability. With risks to economic activity to the

downside, the Committee indicated that it would monitor economic and financial developments carefully and act as needed to promote sustainable economic growth and price stability.

The decision of the FOMC at its October meeting was broadly in line with market expectations and elicited only a modest reaction in financial markets. However, subsequent economic data releases suggested that economic activity was weaker and inflation lower than had been earlier anticipated. Those readings, along with continued strains in financial markets that weighed on investor sentiment, contributed to a sharp downward revision in the expected path of policy over the following weeks. Reflecting investor concerns about the condition of financial institutions, spreads on credit default swaps for U.S. banks widened sharply, and those for insurance companies remained very elevated.

Available evidence also suggested further tightening in consumer and small business credit conditions; in view of this tightening, the Federal Reserve announced on November 25 plans for the Term Asset-Backed Securities Loan Facility (TALF) to support lending to these borrowers. The Federal Reserve also announced on November 25 that, to help reduce the cost and increase the availability of residential mortgage credit, it would initiate a program to purchase up to \$100 billion in direct obligations of housing-related government-sponsored enterprises and up to \$500 billion in mortgage-backed securities (MBS) backed by Fannie Mae, Freddie Mac, and Ginnie Mae. The announcement and implementation of the agency purchase program appeared to reduce spreads on agency debt; conditions for high-quality borrowers in the primary residential mortgage market subsequently recovered somewhat.

Although some financial markets exhibited signs of improved functioning ahead of the December meeting, financial conditions generally remained very strained. Credit conditions had continued to tighten for both households and businesses, and ongoing declines in equity and house prices further reduced household wealth. Against this backdrop, indicators of aggregate economic activity continued to worsen. The Committee expected economic activity to contract sharply in the fourth quarter of 2008 and in early 2009; it noted that the uncertainty surrounding the outlook was considerable and that the downside risk to even this dour trajectory for economic activity was a serious concern. Inflation pressures had diminished appreciably as energy and other commodity prices dropped and economic activity slumped. Looking forward, members agreed that inflation pressures appeared set to moderate further in coming quarters, and some saw risks that inflation could drop below rates they viewed as most consistent

over time with the Federal Reserve's dual mandate for maximum employment and price stability.

With the federal funds rate already trading at very low levels as a result of the large volume of excess reserves associated with the Federal Reserve's liquidity operations, participants agreed that the Committee would soon need to use other tools to impart additional monetary stimulus to the economy. The Federal Reserve had already adopted a series of programs that were providing liquidity support to a range of institutions and markets, and a continued focus on the quantity and the composition of Federal Reserve assets appeared to be necessary and desirable. Participants agreed that maintenance of a low level of short-term interest rates for some time and reliance on the use of balance sheet policies and communications about monetary policy could be effective and appropriate, in light of the sharp deterioration in the economic outlook and the appreciable easing of inflationary pressures.

Accordingly, the Committee announced a target range for the federal funds rate of 0 to ¼ percent and indicated that weak economic conditions were likely to warrant exceptionally low levels of the federal funds rate for some time. The statement also noted that the size of the Federal Reserve's balance sheet would be maintained at a high level through open market operations and other measures to support financial markets and stimulate the economy. In addition, the statement indicated that the Committee stood ready to expand purchases of agency debt and agency MBS and that it was evaluating the potential benefits of purchasing longer-term Treasury securities. The FOMC members emphasized that their expectation about the path of the federal funds rate was conditioned on their view of the likely path of economic activity. The interest rates on required reserve balances and excess reserve balances were both set at 25 basis points. These monetary policy decisions apparently were more aggressive than investors had been expecting. Market participants were somewhat surprised both by the size of the reduction in the target federal funds rate and by the statements that policy rates would likely remain low for some time and that the FOMC might engage in additional nontraditional policy actions such as the purchase of longer-term Treasury securities.

Incoming data over the following weeks indicated a continued sharp contraction in economic activity. The housing market remained on a steep downward trend, consumer spending continued its significant decline, the slowdown in business equipment investment intensified, and foreign demand weakened. Conditions in the labor market continued to deteriorate rapidly, and the drop in industrial production accelerated. Head-

line consumer prices fell in November and December, which reflected declines in consumer energy prices; core consumer prices were about flat in those months. Credit conditions generally remained tight, with financial markets fragile and some parts of the banking sector under substantial stress. However, modest signs of improvement were evident in some financial markets—particularly those that were receiving support from Federal Reserve liquidity facilities and other government actions.

At the meeting in January 2009, participants anticipated that a gradual recovery in U.S. economic activity would begin in the second half of the year in response to monetary easing, another dose of fiscal stimulus, relatively low energy prices, and continued efforts by the government to stabilize the financial sector and increase the availability of credit. As of late January, however, with financial conditions strained and the near-term economic outlook weak, most participants agreed that the Committee should continue to focus on supporting the functioning of financial markets and stimulating the economy through purchases of agency debt and MBS and other measures—including the implementation of the TALF—that will keep the size of

the Federal Reserve's balance sheet at a high level for some time. Committee members agreed that keeping the target range for the federal funds rate at 0 to ¼ percent would be appropriate. They also agreed to continue using liquidity and asset-purchase programs to support the functioning of financial markets and to stimulate the economy.

In its January statement, the FOMC reemphasized that the Federal Reserve will use all available tools to promote the resumption of sustainable economic growth and to preserve price stability. The Committee also stated that, in addition to the purchases of agency debt and MBS already under way, it was prepared to purchase longer-term Treasury securities if evolving circumstances indicated that such transactions would be particularly effective in improving conditions in private credit markets. The Committee will continue to monitor carefully the size and composition of the Federal Reserve's balance sheet in light of evolving financial market developments. It will also continue to assess whether expansions of, or modifications to, lending facilities would serve to further support credit markets and economic activity and help preserve price stability.



# Part 4

## Summary of Economic Projections

*The following material appeared as an addendum to the minutes of the January 27–28, 2009, meeting of the Federal Open Market Committee.*

In conjunction with the January 27–28, 2009 FOMC meeting, the members of the Board of Governors and the presidents of the Federal Reserve Banks, all of whom participate in deliberations of the FOMC, provided projections for economic growth, unemployment, and inflation in 2009, 2010, 2011, and over the longer run. Projections were based on information available through the conclusion of the meeting, on each participant's assumptions regarding a range of factors likely to affect economic outcomes, and on his or her assessment of appropriate monetary policy. "Appropriate monetary policy" is defined as the future policy that, based on current information, is deemed most likely to foster outcomes for economic activity and inflation that best satisfy the participant's interpretation of the Federal Reserve's dual objectives of maximum employment and price stability. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge over time under appropriate monetary policy and in the absence of further shocks.

FOMC participants viewed the outlook for economic activity and inflation as having weakened significantly since last October, when their last projections were made. As indicated in Table 1 and depicted in Figure 1, participants projected that real GDP would contract this year, that the unemployment rate would increase substantially, and that consumer price inflation would be significantly lower than in recent years. Given the strength of the forces currently weighing on the economy, participants generally expected that the recovery would be unusually gradual and prolonged: All participants anticipated that unemployment would remain substantially above its longer-run sustainable rate at the end of 2011, even absent further economic shocks; a few indicated that more than five to six years would be needed for the economy to converge to a longer-run path characterized by sustainable rates of output growth and unemployment and by an appropriate rate of inflation. Participants generally judged that their projections for both economic activity and inflation were subject to a degree of uncertainty exceeding historical norms. Nearly all participants viewed the risks to the growth outlook as skewed to the downside, and all participants saw the risks to the inflation outlook as either balanced or tilted to the downside.

Table 1. Economic projections of Federal Reserve Governors and Reserve Bank presidents, January 2009  
Percent

Variable	Central tendency <sup>1</sup>				Range <sup>2</sup>			
	2009	2010	2011	Longer Run	2009	2010	2011	Longer Run
Change in real GDP .....	-1.3 to -0.5	2.5 to 3.3	3.8 to 5.0	2.5 to 2.7	-2.5 to 0.2	1.5 to 4.5	2.3 to 5.5	2.4 to 3.0
October projection .....	-0.2 to 1.1	2.3 to 3.2	2.8 to 3.6	n.a.	-1.0 to 1.8	1.5 to 4.5	2.0 to 5.0	n.a.
Unemployment rate.....	8.5 to 8.8	8.0 to 8.3	6.7 to 7.5	4.8 to 5.0	8.0 to 9.2	7.0 to 9.2	5.5 to 8.0	4.5 to 5.5
October projection .....	7.1 to 7.6	6.5 to 7.3	5.5 to 6.6	n.a.	6.6 to 8.0	5.5 to 8.0	4.9 to 7.3	n.a.
PCE inflation.....	0.3 to 1.0	1.0 to 1.5	0.9 to 1.7	1.7 to 2.0	-0.5 to 1.5	0.7 to 1.8	0.2 to 2.1	1.5 to 2.0
October projection .....	1.3 to 2.0	1.4 to 1.8	1.4 to 1.7	n.a.	1.0 to 2.2	1.1 to 1.9	0.8 to 1.8	n.a.
Core PCE inflation <sup>3</sup> .....	0.9 to 1.1	0.8 to 1.5	0.7 to 1.5		0.6 to 1.5	0.4 to 1.7	0.0 to 1.8	
October projection .....	1.5 to 2.0	1.3 to 1.8	1.3 to 1.7		1.3 to 2.1	1.1 to 1.9	0.8 to 1.8	

NOTE: Projections of change in real gross domestic product (GDP) and of inflation are from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption expenditures (PCE) and the price index for PCE excluding food and energy. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. Each participant's projections are based on his or her assessment of appropriate monetary policy. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy. The October projections were made in conjunction with the FOMC meeting on October 28-29, 2008.

1. The central tendency excludes the three highest and three lowest projections for each variable in each year.
2. The range for a variable in a given year includes all participants' projections, from lowest to highest, for that variable in that year.
3. Longer-run projections for core PCE inflation are not collected.

Figure 1. Central tendencies and ranges of economic projections, 2009–11 and over the longer run



NOTE: Definitions of variables are in the notes to table 1. The data for the actual values of the variables are annual.

## The Outlook

Participants' projections for the change in real GDP in 2009 had a central tendency of -1.3 to -0.5 percent, compared with the central tendency of -0.2 to 1.1 percent for their projections last October. In explaining these downward revisions, participants referred to the further intensification of the financial crisis and its effect on credit and wealth, the waning of consumer and business confidence, the marked deceleration in global economic activity, and the weakness of incoming data on spending and employment. Participants anticipated a broad-based decline in aggregate output during the first half of this year; they noted that consumer spending would likely be damped by the deterioration in labor markets, the tightness of credit conditions, the continuing decline in house prices, and the recent sharp reduction in stock market wealth, and they saw reductions in consumer demand contributing to further weakness in business investment. However, participants expected that the economy would begin to recover—albeit gradually—during the second half of the year, mainly reflecting the effects of fiscal stimulus and of Federal Reserve measures providing support to credit markets.

Looking further ahead, participants' growth projections had a central tendency of 2.5 to 3.3 percent for 2010 and 3.8 to 5.0 percent for 2011. Participants generally expected that strains in financial markets would ebb only slowly and hence that the pace of recovery in 2010 would be damped. Nonetheless, participants generally anticipated that real GDP growth would gain further momentum in 2011, reaching a pace that would temporarily exceed their estimates of the longer-run sustainable rate of economic growth and would thereby help reduce the slack in resource utilization. Most participants expected that, absent further shocks, economic growth would eventually converge to a rate of 2.5 to 2.7 percent, reflecting longer-term trends in the growth of productivity and the labor force.

Participants anticipated that labor market conditions would deteriorate substantially further over the course of this year, and nearly all expected that unemployment would still be well above its longer-run sustainable rate at the end of 2011. Participants' projections for the average unemployment rate during the fourth quarter of 2009 had a central tendency of 8.5 to 8.8 percent, markedly higher than last December's actual unemployment rate of 7.2 percent—the latest available figure at the time of the January FOMC meeting. Nearly all participants' projections were more than a percentage point higher than their previous forecasts made last October,

reflecting the sharp rise in actual unemployment that occurred during the final months of 2008 as well as participants' weaker outlook for economic activity this year. Most participants anticipated that output growth in 2010 would not be substantially above its longer-run trend rate and hence that unemployment would decline only modestly next year. With economic activity and job creation generally projected to accelerate in 2011, participants anticipated that joblessness would decline more appreciably that year, as is evident from the central tendency of 6.7 to 7.5 percent for their unemployment rate projections. Participants expected that the unemployment rate would decline further after 2011, and most saw it settling in at a rate of 4.8 to 5.0 percent over time.

The central tendency of participants' projections for total PCE inflation this year was 0.3 to 1.0 percent, about a percentage point lower than the central tendency of their projections last October. Many participants noted that recent readings on inflation had been surprisingly low, and some anticipated that the unexpected declines in the prices of energy and other commodities that had occurred in the latter part of 2008 would continue to hold down inflation at the consumer level in 2009. Participants also marked down their projections for core PCE inflation this year in light of their views about the indirect effects of lower energy prices and the influence of increased resource slack.

Looking beyond this year, participants' projections for total PCE inflation had a central tendency of 1.0 to 1.5 percent for 2010, 0.9 to 1.7 percent for 2011, and 1.7 to 2.0 percent over the longer run. Participants' longer-run projections for total PCE inflation reflected their individual assessments of the measured rates of inflation consistent with the Federal Reserve's dual mandate for promoting price stability and maximum employment. Most participants judged that a longer-run PCE inflation rate of 2 percent would be consistent with the dual mandate; others indicated that 1½ or 1¾ percent inflation would be appropriate. Modestly positive longer-run inflation would allow the Committee to stimulate economic activity and support employment by setting the federal funds rate temporarily below the inflation rate when the economy is buffeted by a large negative shock to demands for goods and services. Participants generally expected that core and overall inflation would converge over time, and that persistent economic slack would continue to weigh on inflation outcomes for the next few years and hence that total PCE inflation in 2011 would still be below their assessments of the appropriate inflation rate for the longer run.

## Risks to the Outlook

Participants continued to view uncertainty about the outlook for economic activity as higher than normal.<sup>13</sup> The risks to their projections for real GDP growth were judged as being skewed to the downside and the associated risks to their projections for the unemployment rate were tilted to the upside. Participants highlighted the considerable degree of uncertainty about the future course of the financial crisis and its impact on the real economy; for example, rising unemployment and weaker growth could exacerbate delinquencies on household and business loans, leading to higher losses for financial firms and so to a further tightening of credit conditions that would in turn put further downward pressure on spending to a greater degree than currently foreseen. In addition, some participants noted that a substantial degree of uncertainty was associated with gauging the stimulative effects of nontraditional monetary policy tools that are now being employed given that conventional policy easing was limited by the zero lower bound on nominal interest rates. Others referred to uncertainties regarding the size, composition, and effectiveness of the fiscal stimulus package—which was still under consideration at the time of the FOMC meeting—and of further measures to stabilize the banking system.

As in October, most participants continued to view the uncertainty surrounding their inflation projections as higher than historical norms. A slight majority of participants judged the risks to the inflation outlook as roughly balanced, while the rest viewed these risks as skewed to the downside. Participants indicated that elevated uncertainty about global growth was clouding the outlook for prices of energy and other commodities and hence contributing to greater uncertainty in their inflation projections. Many participants stated that their assessments regarding the level of uncertainty and balance of risks to the inflation outlook were closely linked to their judgments about the uncertainty and risks to the outlook for economic activity. Some participants noted the risk that inflation expectations might become unanchored and drift downward in response to persistently low inflation outcomes, while others pointed to the possibility of an upward shift if investors became concerned that stimulative policy measures might not be

13. Table 2 provides estimates of forecast uncertainty for the change in real GDP, the unemployment rate, and total consumer price inflation over the period from 1987 to 2007. At the end of this summary, the box “Forecast Uncertainty” discusses the sources and interpretation of uncertainty in economic forecasts and explains the approach used to assess the uncertainty and risks attending participants’ projections.

Table 2. Average historical projection error ranges

Percentage points

Variable	2009	2010	2011
Change in real GDP <sup>1</sup> .....	±1.2	±1.4	±1.4
Unemployment rate <sup>1</sup> .....	±0.5	±0.8	±1.0
Total consumer prices <sup>2</sup> .....	±0.9	±1.0	±0.9

NOTE: Error ranges shown are measured as plus or minus the root mean squared error of projections that were released in the winter from 1987 through 2007 for the current and following two years by various private and government forecasters. As described in the box “Forecast Uncertainty,” under certain assumptions, there is about a 70 percent probability that actual outcomes for real GDP, unemployment, and consumer prices will be in ranges implied by the average size of projection errors made in the past. Further information is in David Reifschneider and Peter Tulip (2007), “Gauging the Uncertainty of the Economic Outlook from Historical Forecasting Errors,” Finance and Economics Discussion Series 2007-60 (Board of Governors of the Federal Reserve System, November).

1. For definitions, refer to general note in table 1.

2. Measure is the overall consumer price index, the price measure that has been most widely used in government and private economic forecasts. Projection is percent change, fourth quarter of the previous year to the fourth quarter of the year indicated. The slightly narrower estimated width of the confidence interval for inflation in the third year compared with that for the second year is likely the result of using a limited sample period for computing these statistics.

unwound in a timely fashion once the economy begins to recover.

## Diversity of Views

Figures 2.A and 2.B provide further details on the diversity of participants’ views regarding likely outcomes for real GDP growth and the unemployment rate, respectively. For 2009 to 2011, the dispersion in participants’ projections for each variable was roughly the same as for their projections last October. This dispersion mainly indicated the diversity of participants’ assessments regarding the stimulative effects of fiscal policy, the pace of recovery in financial markets, and the evolution of households’ desired saving rates. The dispersion in participants’ longer-run projections reflected differences in their estimates regarding the sustainable rates of output growth and unemployment to which the economy would converge under appropriate policy and in the absence of any further shocks.

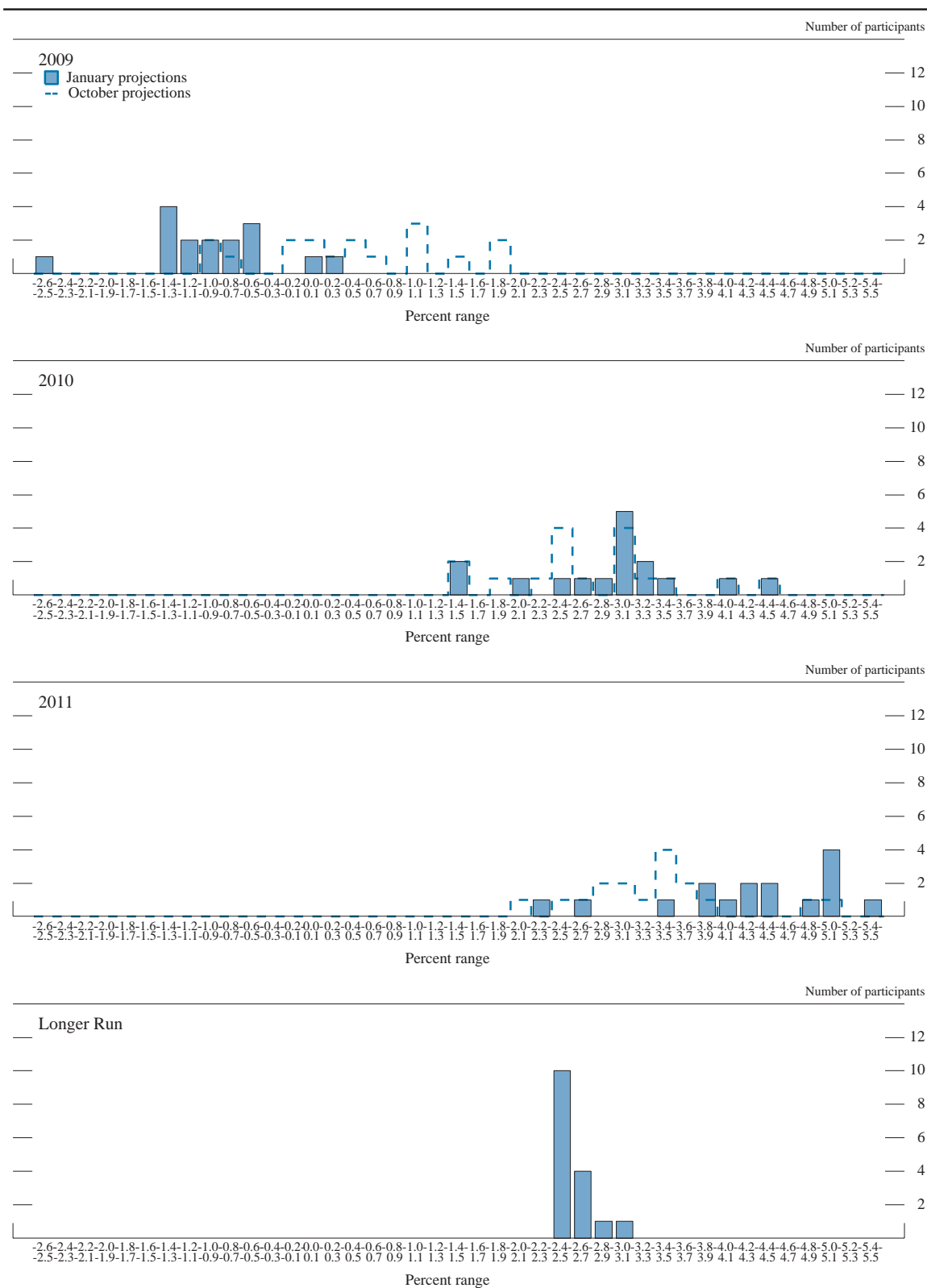
Figures 2.C and 2.D provide corresponding information regarding the diversity of participants’ views regarding the inflation outlook. The dispersion in participants’ projections for total PCE inflation in 2009 was substantially greater than for their projections made last October, due to increased diversity of participants’ views regarding the near-term evolution of prices of energy and raw materials and the extent to which changes in those prices would be likely to pass through into overall inflation. The dispersion in participants’ projections for core PCE inflation in 2009 was noticeably lower than last October, but the dispersion in their

projections for core inflation in 2010 and 2011 was markedly wider, reflecting varying assessments about the timing and pace of economic recovery, the sensitivity of inflation to slack in resource utilization, the prevalence of downward nominal wage rigidity, and the likelihood that inflation expectations will remain firmly anchored. A few participants anticipated that inflation

in 2011 would be close to their longer-run projections. However, most participants' projections for total PCE inflation in 2011 were below their longer-run projections, primarily reflecting the anticipated effects of substantial slack over the next three years; this inflation gap was about  $\frac{1}{4}$  to  $\frac{1}{2}$  percentage point for some participants but exceeded a full percentage point for others.

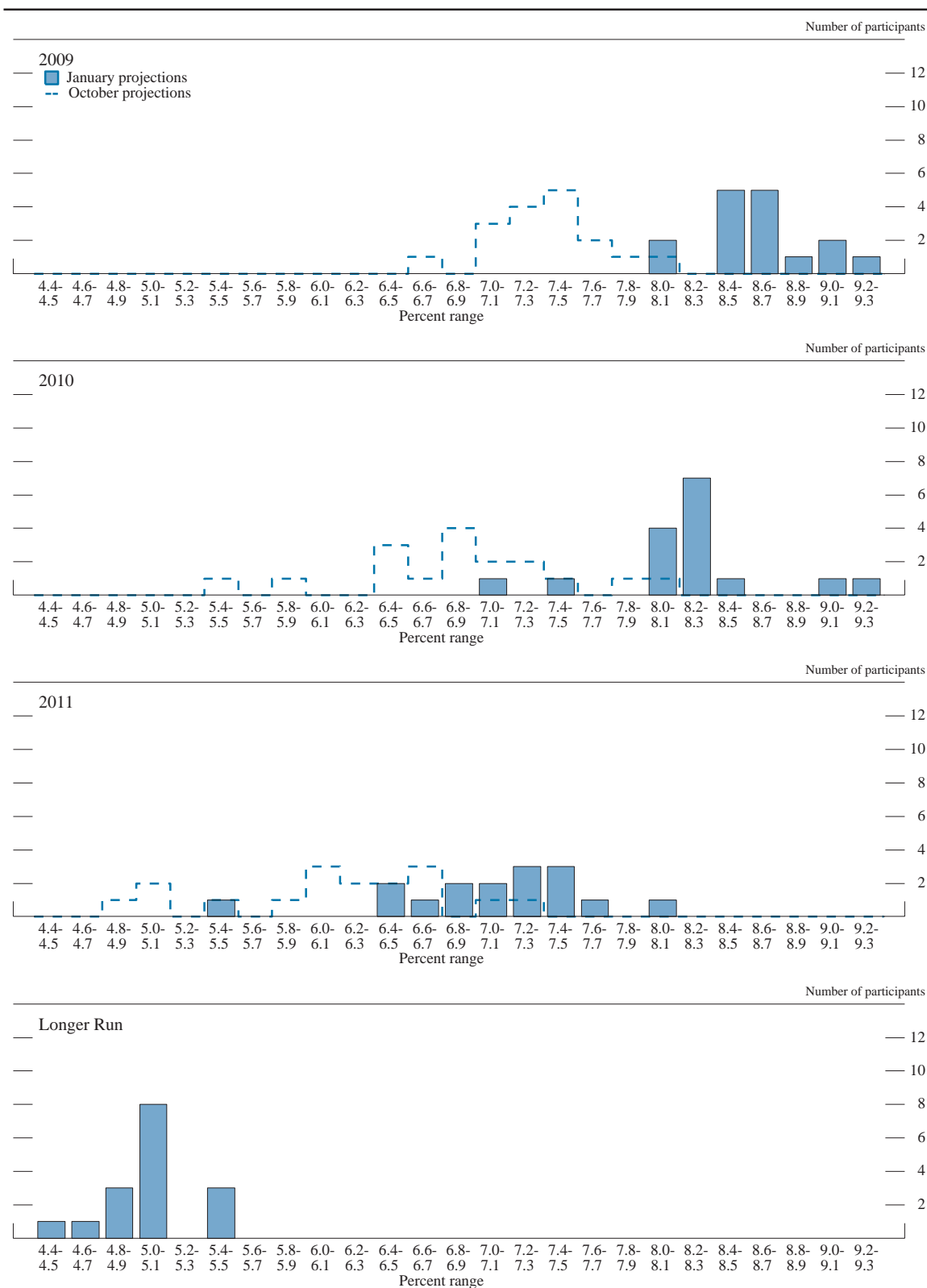


Figure 2.A. Distribution of participants' projections for the change in real GDP, 2009–11 and over the longer run



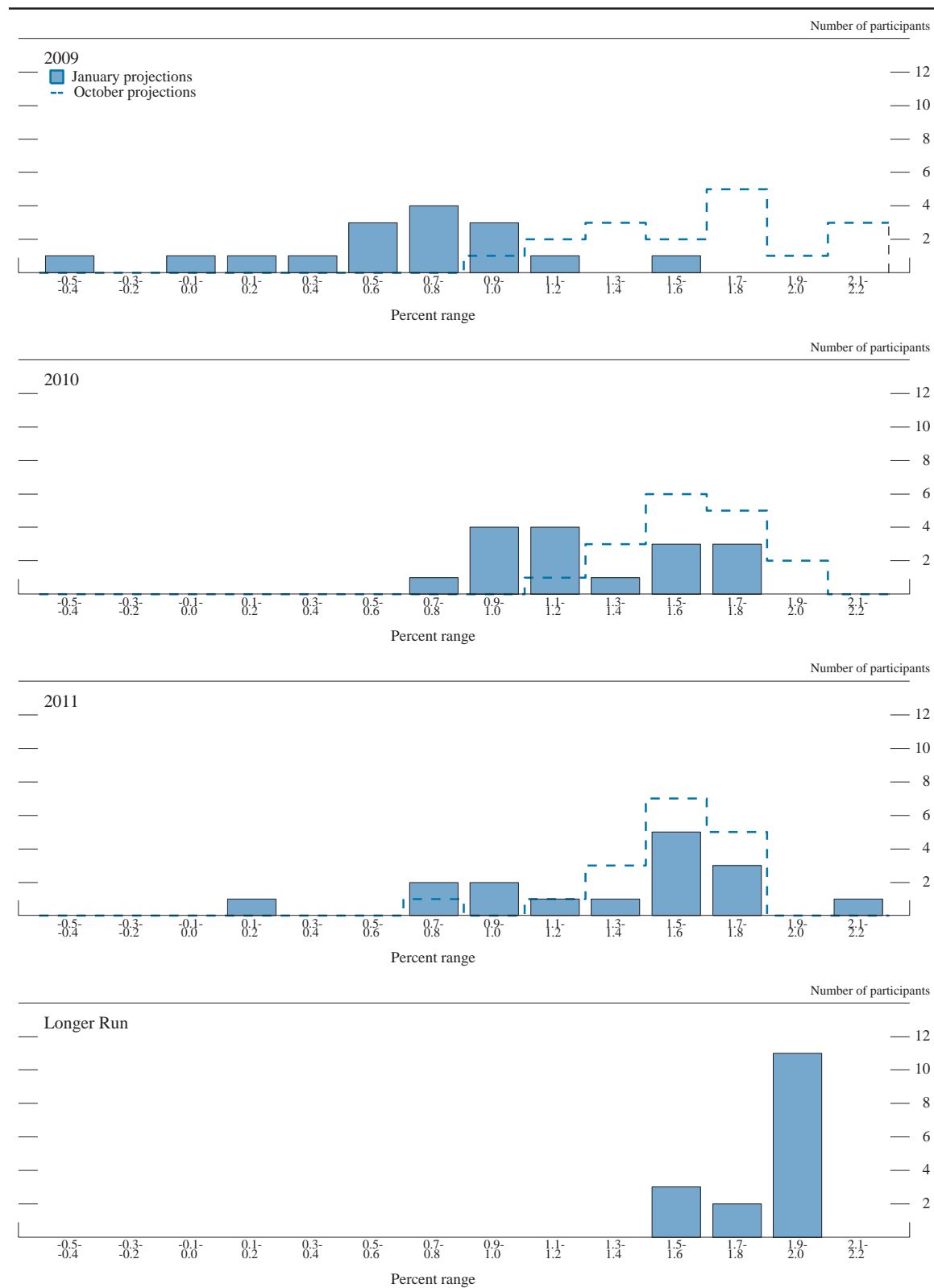
NOTE: Definitions of variables are in the general note to table 1.

Figure 2.B. Distribution of participants' projections for the unemployment rate, 2009–11 and over the longer run



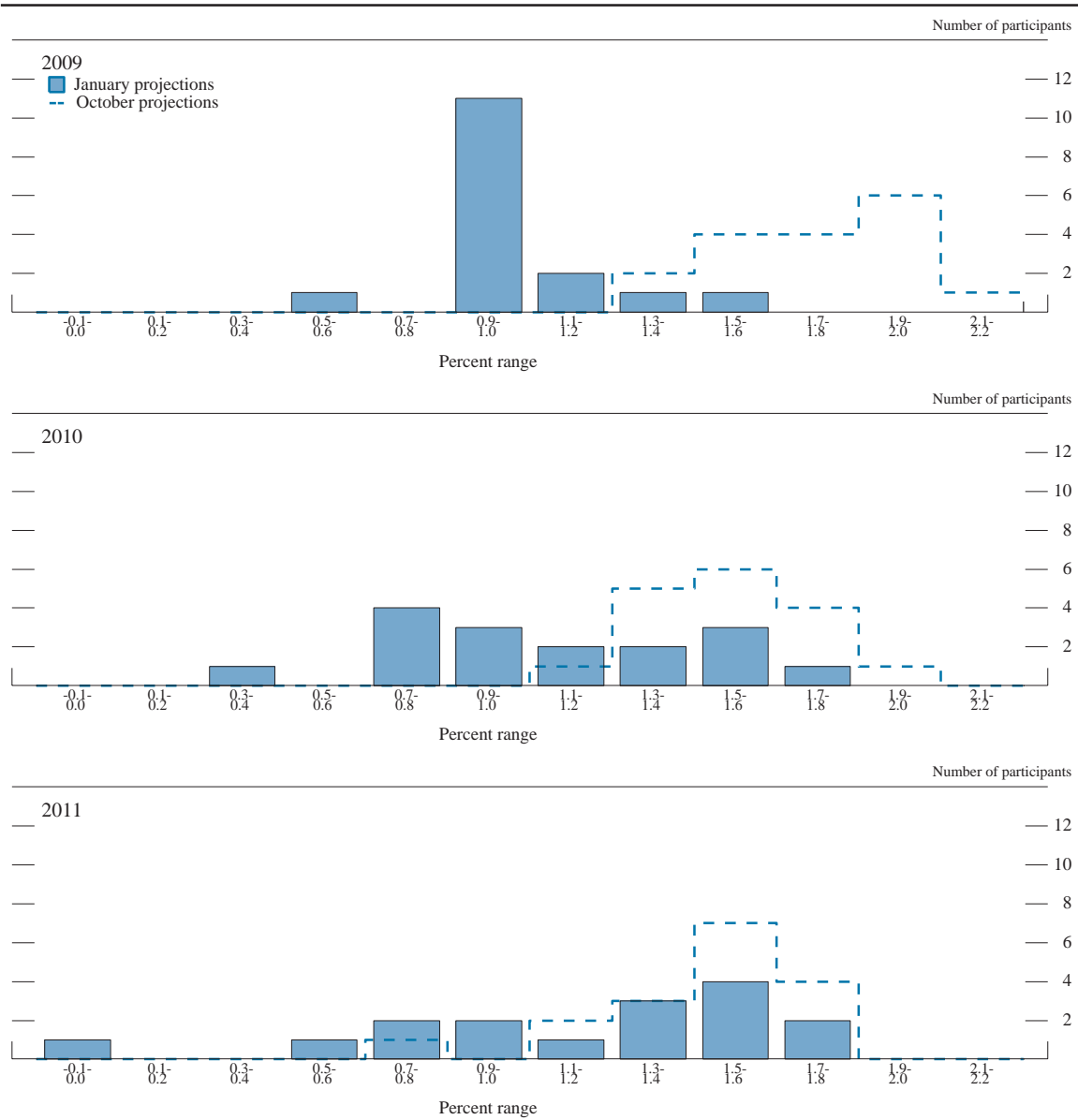
NOTE: Definitions of variables are in the general note to table 1.

Figure 2.C. Distribution of participants' projections for PCE inflation, 2009–11 and over the longer run



NOTE: Definitions of variables are in the general note to table 1.

Figure 2.D. Distribution of participants' projections for core PCE inflation, 2009–11



NOTE: Definitions of variables are in the general note to table 1.

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## Forecast Uncertainty

The economic projections provided by the members of the Board of Governors and the presidents of the Federal Reserve Banks inform discussions of monetary policy among policy-makers and can aid public understanding of the basis for policy actions. Considerable uncertainty attends these projections, however. The economic and statistical models and relationships used to help produce economic forecasts are necessarily imperfect descriptions of the real world. And the future path of the economy can be affected by myriad unforeseen developments and events. Thus, in setting the stance of monetary policy, participants consider not only what appears to be the most likely economic outcome as embodied in their projections, but also the range of alternative possibilities, the likelihood of their occurring, and the potential costs to the economy should they occur.

Table 2 summarizes the average historical accuracy of a range of forecasts, including those reported in past Monetary Policy Reports and those prepared by Federal Reserve Board staff in advance of meetings of the Federal Open Market Committee. The projection error ranges shown in the table illustrate the considerable uncertainty associated with economic forecasts. For example, suppose a participant projects that real GDP and total consumer prices will rise steadily at annual rates of, respectively, 3 percent and 2 percent. If the uncertainty attending those projections is similar to that experienced in

the past and the risks around the projections are broadly balanced, the numbers reported in table 2 would imply a probability of about 70 percent that actual GDP would expand between 1.8 percent to 4.2 percent in the current year and 1.6 percent to 4.4 percent in the second and third years. The corresponding 70 percent confidence intervals for overall inflation would be 1.1 percent to 2.9 percent in the current year, 1.0 percent to 3.0 percent in the second year, and 1.1 percent to 2.9 percent in the third year.

Because current conditions may differ from those that prevailed on average over history, participants provide judgments as to whether the uncertainty attached to their projections of each variable is greater than, smaller than, or broadly similar to typical levels of forecast uncertainty in the past as shown in table 2. Participants also provide judgments as to whether the risks to their projections are weighted to the upside, downside, or are broadly balanced. That is, participants judge whether each variable is more likely to be above or below their projections of the most likely outcome. These judgments about the uncertainty and the risks attending each participant's projections are distinct from the diversity of participants' views about the most likely outcomes. Forecast uncertainty is concerned with the risks associated with a particular projection, rather than with divergences across a number of different projections.

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# Appendix

## Federal Reserve Initiatives to Address Financial Strains

Since the onset of the financial turmoil in the summer of 2007, the Federal Reserve has announced several new measures to address the strains in financial markets, as well as enhancements to its existing liquidity facilities. (For outstanding balances related to these facilities, see table.)

### Provision of Liquidity to Banks and Dealers

#### *Modifications to the Primary Credit Program*

Following the onset of the financial turmoil, the Federal Reserve Board announced temporary changes to its primary credit discount window facility on August 17, 2007. These changes were designed to provide depositories with greater assurance about the cost and availability of funding. First, the Federal Reserve Board approved a 50 basis point reduction in the primary credit rate to narrow the spread between the primary credit rate and the Federal Open Market Committee's target federal funds rate to 50 basis points. Second, the Federal Reserve Board announced a change to the Reserve Banks' usual practices to allow the provision of term financing for as long as 30 days, renewable by the borrower.

To bolster market liquidity further in the face of increasing financial strains, on March 16, 2008, the Federal Reserve Board unanimously approved a request by the Federal Reserve Banks to decrease the spread of the primary credit rate over the FOMC's target federal funds rate to ¼ percentage point. The Board also approved an increase in the maximum maturity of primary credit loans to 90 days from 30 days.

#### *The Term Auction Facility*

To address elevated pressures in short-term funding markets, in December 2007 the Board of Governors of the Federal Reserve System approved the establishment of a Term Auction Facility (TAF). Under this program, the Federal Reserve auctions term funds to depository institutions against the wide variety of collateral that

Federal Reserve provision of liquidity and credit, 2007–09  
Millions of dollars

Asset	Dec. 31, 2007	June 30, 2008	Feb. 18, 2009
<i>Provision of liquidity to banks and dealers</i>			
Primary credit program .....	8,620	24,095	65,144
Term Auction Facility .....	40,000	150,000	447,563
Liquidity swaps with foreign central banks .....	21,000	62,000	375,005
Securities lent under the Term Securities Lending Facility .....	n.a.	104,097	115,280
Primary Dealer Credit Facility and other broker-dealer credit .....	n.a.	1,455	25,268
<i>Provision of liquidity to other market participants</i>			
Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility ...	n.a.	n.a.	12,722
Net portfolio holdings of Commercial Paper Funding Facility .....	n.a.	n.a.	248,671
Net portfolio holdings of LLCs funded through the Money Market Investor Funding Facility .....	n.a.	n.a.	0
<i>Support of critical institutions</i>			
Net portfolio holdings of Maiden Lane I, II, and III LLCs <sup>1</sup> .....	n.a.	29,970	72,231
Credit extended to American International Group, Inc. ....	n.a.	n.a.	37,357

NOTE: LLC is a limited liability company.

1. The Federal Reserve has extended credit to several LLCs in conjunction with efforts to support critical institutions. Maiden Lane LLC was formed to acquire certain assets of The Bear Stearns Companies, Inc. Maiden Lane II LLC was formed to purchase residential mortgage-backed securities from the U.S. securities lending reinvestment portfolio of subsidiaries of American International Group, Inc. (AIG). Maiden Lane III LLC was formed to purchase multi-sector collateralized debt obligations on which the Financial Products group of AIG has written credit default swap contracts.

n.a. Not available.

SOURCE: Federal Reserve Board.

can be used to secure loans at the discount window. By increasing the access of depository institutions to funding, the TAF has supported the ability of such institutions to meet the credit needs of their customers.

Each depository institution that is judged to be in generally sound financial condition by its Reserve Bank (and likely to remain so over the term of the loan) can participate in TAF auctions. All advances must be fully collateralized. Each TAF auction is for a fixed amount of funds, with the rate determined by the auction process (subject to a minimum bid rate). A depository institution submits bids through its Reserve Bank. The minimum bid rate for the auctions was initially established at the overnight index swap (OIS) rate corresponding to the maturity of the credit being auctioned. In January 2009, the minimum bid rate was changed to the interest

rate paid by the Federal Reserve on excess reserve balances.

Initially, TAF auctions were in amounts of \$20 billion and provided primarily 28-day term funds. Over the course of 2008, the Federal Reserve extended the term of some auctions to 84 days and raised the regular amounts of both the 28- and 84-day TAF auctions to \$150 billion. The Federal Reserve also conducted two forward TAF auctions in November for \$150 billion each, which provided funding over year-end.

### ***Liquidity Swap Lines with Foreign Central Banks***

To address the increasing demand for dollar funding in foreign jurisdictions, in December 2007, the Federal Open Market Committee (FOMC) authorized temporary reciprocal currency arrangements (swap lines) with the European Central Bank (ECB) and the Swiss National Bank (SNB). These arrangements initially provided dollars in amounts of up to \$20 billion and \$4 billion to the ECB and the SNB, respectively, for use in their jurisdictions. The FOMC approved these liquidity swap lines for a period of up to six months and later extended this term to October 30, 2009.

As demand for dollar funding rose further over the course of 2008, the FOMC authorized the expansion of its existing swap lines with the ECB and SNB. In the fall, the formal quantity limits on these lines, as well as on swap lines that were set up with the Bank of Japan and the Bank of England, were eliminated. The FOMC also authorized new liquidity swap lines with 10 other central banks: the Reserve Bank of Australia, the Banco Central do Brasil, the Bank of Canada, the Danmarks Nationalbank, the Bank of Korea, the Bank of Mexico, the Reserve Bank of New Zealand, the Norges Bank, the Monetary Authority of Singapore, and the Sveriges Riksbank.

### ***The Term Securities Lending Facility***

On March 11, 2008, to address increasing liquidity pressures in funding markets, the Federal Reserve announced the establishment of a Term Securities Lending Facility (TSLF). Under the TSLF, the Federal Reserve lends up to \$200 billion of Treasury securities to primary dealers for a term of 28 days (rather than overnight, as in the regular securities lending program); the lending is secured by a pledge of other securities. Initially, the eligible collateral included other Treasury

securities, federal agency debt, federal agency residential mortgage-backed securities (MBS), and non-agency AAA/Aaa-rated private-label residential MBS. In September, this list was broadened to include all investment-grade debt securities. The TSLF is intended to strengthen the financing position of primary dealers and foster improved conditions in financial markets more generally. Securities are made available through weekly auctions. This facility is currently scheduled to expire on October 30, 2009.

### ***The Primary Dealer Credit Facility***

To bolster market liquidity and promote orderly market functioning, on March 16, 2008, the Federal Reserve Board voted unanimously to authorize the Federal Reserve Bank of New York to create a lending facility—the Primary Dealer Credit Facility—to improve the ability of primary dealers to provide financing to participants in securitization markets. This facility became available for business on Monday, March 17, and was originally instituted for a term of six months; this term was subsequently extended, and the facility is currently set to expire on October 30, 2009. Collateral pledged to secure loans under this facility was initially limited to investment-grade debt securities; subsequently, eligible collateral was expanded to include all collateral eligible for pledge in triparty funding arrangements through the major clearing banks. The interest rate charged on such credit is the same as the primary credit rate at the Federal Reserve Bank of New York.

### ***Provision of Liquidity to Other Market Participants***

#### ***The Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility***

On September 19, 2008, the Federal Reserve announced the creation of the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF). Under this program, the Federal Reserve extends nonrecourse loans at the primary credit rate to U.S. depository institutions and bank holding companies to finance their purchases of high-quality asset-backed commercial paper (ABCP) from money market mutual funds. This initiative is intended to assist money funds that hold such paper in meeting demands for redemptions by investors and to foster liquidity in the ABCP markets and broader money markets. Although

the AMLF was initially authorized through January 2009, the Board subsequently extended its operation through October 30, 2009.

### ***The Commercial Paper Funding Facility***

On October 7, the Federal Reserve authorized the creation of the Commercial Paper Funding Facility (CPFF) to provide a liquidity backstop to U.S. issuers of commercial paper. The CPFF is intended to improve liquidity in short-term funding markets and thereby increase the availability of credit for businesses and households. The CPFF is currently authorized to purchase commercial paper through October 30, 2009.

Under the CPFF, Federal Reserve credit is provided to a special purpose vehicle (SPV) that, in turn, purchases commercial paper of eligible issuers. The Federal Reserve Bank of New York has committed to lend to the SPV on a recourse basis, with such loans secured by all the assets of the SPV. The SPV purchases from eligible issuers three-month U.S. dollar-denominated commercial paper through the Federal Reserve Bank of New York's primary dealers. Eligible issuers are U.S. issuers of commercial paper, including U.S. issuers with a foreign parent company. The SPV purchases only U.S. dollar-denominated commercial paper (including ABCP) that is rated at least A-1/P-1/F1.

The maximum amount of a single issuer's commercial paper that the SPV may own at any time is the greatest amount of U.S. dollar-denominated commercial paper the issuer had outstanding on any day between January 1 and August 31, 2008. The SPV will not purchase additional commercial paper from an issuer whose total commercial paper outstanding to all investors (including the SPV) equals or exceeds the issuer's limit. Pricing is based on the three-month OIS rate plus fixed spreads. At the time of its registration to use the CPFF, each issuer must pay a facility fee equal to 0.1 percent of the maximum amount of its commercial paper the SPV may own.

### ***The Money Market Investor Funding Facility***

On October 21, 2008, the Federal Reserve announced the creation of the Money Market Investor Funding Facility (MMIFF). Under the MMIFF, the Federal Reserve Bank of New York will provide senior secured funding to a series of SPVs to facilitate an industry-supported private-sector initiative to finance the purchase of eligible assets from eligible investors. Eligible

assets include U.S. dollar-denominated certificates of deposit and commercial paper issued by highly rated financial institutions and having remaining maturities of 90 days or less. Eligible investors currently include U.S. money market mutual funds and other similar entities. By backstopping the sales of money market instruments in the secondary market, the MMIFF should improve the liquidity of money market investors, thus increasing their ability to meet redemption requests and their willingness to invest in money market instruments. Improved money market conditions enhance the ability of banks and other financial intermediaries to accommodate the credit needs of businesses and households.

The SPVs will purchase eligible money market instruments from eligible investors using financing from the MMIFF and from the issuance of ABCP. The SPVs will issue to the seller of each eligible asset ABCP equal to 10 percent of the asset's purchase price, with the remaining 90 percent of the transaction funded in cash. The Federal Reserve Bank of New York will commit to lend to each SPV 90 percent of the purchase price of each eligible asset. These loans will be on an overnight basis and at the primary credit rate. The loans will be senior to the ABCP, with recourse to the SPV, and secured by all the assets of the SPV. At the time of an SPV's purchase of a debt instrument issued by a financial institution, the debt instruments of that financial institution may not constitute more than 15 percent of the assets of the SPV, except during an initial ramp-up period when the concentration limit may be 20 percent. The SPVs financed by the MMIFF are scheduled to enter a wind-down process on October 30, 2009.

### ***The Term Asset-Backed Securities Loan Facility***

On November 25, 2008, the Federal Reserve Board announced plans for the Term Asset-Backed Securities Loan Facility (TALF), a facility that will help market participants meet the credit needs of households and small businesses by supporting the issuance of asset-backed securities (ABS) collateralized by student loans, auto loans, credit card loans, and loans guaranteed by the Small Business Administration. The TALF is designed to increase credit availability and support economic activity by facilitating renewed issuance of consumer and small business ABS at more normal interest rate spreads.

Under the current design of the TALF, the Federal Reserve Bank of New York will lend up to \$200 billion on a nonrecourse basis to holders of certain AAA-rated ABS backed by consumer and small business loans.

Eligible securities must have been issued on or after January 1, 2009, and all or substantially all of the credit exposures underlying eligible ABS must be newly or recently originated exposures to U.S.-domiciled obligors. Originators of the credit exposures underlying eligible ABS must have agreed to comply with, or already be subject to, the executive compensation requirements of the Emergency Economic Stabilization Act of 2008.

On February 10, 2009, the Federal Reserve Board announced that it is prepared to undertake a substantial expansion of the TALF. The expansion could increase the size of the TALF to as much as \$1 trillion and could broaden the eligible collateral to encompass other types of newly issued AAA-rated asset-backed securities, such as commercial MBS and private-label residential MBS. An expansion of the TALF would be supported by the provision by the Treasury of additional funds from the Troubled Asset Relief Program (TARP).

All U.S. persons who own eligible collateral may participate in the TALF, and each borrower must use a primary dealer to access the TALF. The Federal Reserve Bank of New York will offer a fixed amount of loans under the TALF on a monthly basis. Via a competitive, sealed-bid auction process, the Federal Reserve Bank of New York will award loans in amounts equal to the market value of the ABS less a haircut. The loans will be nonrecourse, will be secured at all times by the ABS, and will have a three-year term, with interest payable monthly. The Treasury, under the TARP, will provide credit protection to the Federal Reserve Bank of New York in connection with the TALF. The facility will cease making new loans on December 31, 2009, unless the Board agrees to extend the facility.

## Direct Purchases of Assets

On September 19, 2008, the Federal Reserve announced that, to support market functioning, the Open Market Trading Desk would begin purchasing federal agency discount notes in the secondary market for the System Open Market Account. These instruments are short-term debt obligations issued by Fannie Mae, Freddie Mac, and the Federal Home Loan Banks. Similar to secondary-market purchases of Treasury securities, purchases of Fannie Mae, Freddie Mac, and Federal Home Loan Bank debt are conducted with the Federal Reserve's primary dealers through a series of competitive auctions.

To help reduce the cost and increase the availability of residential mortgage credit, the Federal Reserve announced on November 25 a program to purchase up to \$100 billion in direct obligations of housing-related

government-sponsored enterprises (GSEs) and up to \$500 billion in MBS backed by Fannie Mae, Freddie Mac, the Federal Home Loan Banks, and Ginnie Mae. Purchases of agency debt obligations began in December, and purchases of MBS began in January.

The program to purchase GSE direct obligations has initially focused on fixed-rate, noncallable, senior benchmark securities issued by Fannie Mae, Freddie Mac, and the Federal Home Loan Banks. Over the course of the program, the Federal Reserve may change the scope of purchasable securities. Purchases will be made through a multiple-price competitive auction process. Primary dealers are eligible to transact directly with the Federal Reserve and are encouraged to submit offers for themselves and their customers.

## Support of Critical Institutions

### *Bear Stearns*

In mid-March of 2008, The Bear Stearns Companies, Inc., a major investment bank and primary dealer, was pushed to the brink of failure after losing the confidence of investors and finding itself without access to short-term financing markets. A bankruptcy filing would have forced the secured creditors and counterparties of Bear Stearns to liquidate underlying collateral, and given the illiquidity of markets, those creditors and counterparties might well have sustained substantial losses. If they had responded to losses or the unexpected illiquidity of their holdings by pulling back from providing secured financing to other firms and by dumping large volumes of illiquid assets on the market, a much broader financial crisis likely would have ensued. Thus, the Federal Reserve judged that a disorderly failure of Bear Stearns would have threatened overall financial stability and would most likely have had significant adverse implications for the U.S. economy.

After discussions with the Securities and Exchange Commission and in close consultation with the Treasury, the Federal Reserve determined that it should invoke emergency authorities to provide special financing to facilitate the acquisition of Bear Stearns by JPMorgan Chase & Co. JPMorgan Chase agreed to purchase Bear Stearns and assume the company's financial obligations. The Federal Reserve agreed to supply term funding, secured by \$30 billion in Bear Stearns assets, to facilitate the purchase. A limited liability company, Maiden Lane LLC, was formed to facilitate the arrangements associated with the purchase by acquiring certain assets of Bear Stearns and managing those assets through time to maximize repayment of the



credit extended and to minimize disruption to financial markets. JPMorgan Chase completed the acquisition of Bear Stearns on June 26, and the Federal Reserve extended approximately \$29 billion of funding to Maiden Lane on that date.

### *American International Group*

In early September, the condition of American International Group, Inc. (AIG), a large, complex financial institution, deteriorated rapidly. In view of the likely systemic implications and the potential for significant adverse effects on the economy of a disorderly failure of AIG, on September 16, the Federal Reserve Board, with the support of the Treasury, authorized the Federal Reserve Bank of New York to lend up to \$85 billion to the firm to assist it in meeting its obligations and to facilitate the orderly sale of some of its businesses. This facility had a 24-month term, with interest accruing on the outstanding balance at a rate of 3-month Libor plus 850 basis points, and was collateralized by all of the assets of AIG and its primary nonregulated subsidiaries. On October 8, the Federal Reserve announced an additional program under which it would lend up to \$37.8 billion to finance investment-grade, fixed-income securities held by AIG. These securities had previously been lent by AIG's insurance company subsidiaries to third parties.

In November, the Treasury announced that it would purchase \$40 billion of newly issued AIG preferred shares under the TARP, which allowed the Federal Reserve to reduce from \$85 billion to \$60 billion the total amount available under the credit facility. Further, the interest rate on that facility was reduced to Libor plus 300 basis points, the fee on undrawn funds was reduced to 75 basis points, and the term of the facility was lengthened from two years to five years. The Federal Reserve also announced plans to restructure its lending related to AIG by extending credit to two newly formed limited liability companies. The first, Maiden Lane II LLC, received a \$22.5 billion loan from the Federal Reserve and a \$1 billion subordinated loan from AIG and purchased residential mortgage-backed securities from AIG. As a result of these actions, the securities lending facility established on October 8 was subsequently repaid and terminated. The second new company, Maiden Lane III LLC, received a \$30 billion loan from the Federal Reserve and a \$5 billion subordinated loan from AIG and purchased multisector col-

lateralized debt obligations on which AIG has written credit default swap contracts.

### *Citigroup*

Market anxiety about the condition of Citigroup intensified in November 2008, especially in the wake of the firm's announcement that it would lay off 52,000 workers and absorb \$17 billion in distressed assets from structured investment vehicles that it sponsored, and concerns about the firm's access to funding mounted. To support financial market stability, the U.S. government on November 23 entered into an agreement with Citigroup to provide a package of capital, guarantees, and liquidity access. As part of the agreement, the Treasury and Federal Deposit Insurance Corporation (FDIC) are providing capital protection against outsized losses on a pool of about \$306 billion in residential and commercial real estate and other assets, Citigroup has issued preferred shares to the Treasury and FDIC, and the Treasury has purchased an additional \$20 billion in Citigroup preferred stock using TARP funds. In addition and if necessary, the Federal Reserve stands ready to backstop residual risk in the asset pool by providing nonrecourse credit.

### *Bank of America*

Despite the improvement in bank funding markets after year-end, Bank of America also came under intense pressure. In mid-January 2009, the firm reported a \$1.8 billion net loss for the fourth quarter, and it was further strained by its merger on January 2 with Merrill Lynch, which reported a fourth-quarter loss of \$23 billion on a pretax basis and \$16 billion on an after-tax basis. On January 16, Bank of America entered into an agreement with the Treasury, the FDIC, and the Federal Reserve similar to that arranged with Citigroup in November. Under the arrangement, the Treasury and the FDIC provide protection against the possibility of unusually large losses on a pool of approximately \$118 billion of financial instruments. In addition, and if necessary, the Federal Reserve will provide nonrecourse credit to Bank of America against this pool of financial instruments. As a fee for this arrangement, Bank of America issued preferred shares to the Treasury and the FDIC.





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## Abbreviations

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ABS	asset-backed securities
AMLF	Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility
C&I	commercial and industrial
CMBS	commercial mortgage-backed securities
CPFF	Commercial Paper Funding Facility
CRE	commercial real estate
FOMC	Federal Open Market Committee; also, the Committee
GSE	government-sponsored enterprise
Libor	London interbank offered rate
MBS	mortgage-backed securities
MMIFF	Money Market Investor Funding Facility
OIS	overnight index swap
PDCF	Primary Dealer Credit Facility
SFP	Supplementary Financing Program
TAF	Term Auction Facility
TALF	Term Asset-Backed Securities Loan Facility
TARP	Troubled Asset Relief Program
TLGP	Temporary Liquidity Guarantee Program
TSLF	Term Securities Lending Facility

