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Semiannual Monetary Policy Report to the Congress

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Chairman

Board of Governors of the Federal Reserve System

before the

Committee on Financial Services

U.S. House of Representatives

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Chairman Frank, Ranking Member Bachus, and other members of the Committee, I am pleased to present the Federal Reserve's semiannual *Monetary Policy Report to the Congress*. I will begin today with some comments on the outlook for the economy and for monetary policy, then touch briefly on several other important issues.

The Economic Outlook

Although the recession officially began more than two years ago, U.S. economic activity contracted particularly sharply following the intensification of the global financial crisis in the fall of 2008. Concerted efforts by the Federal Reserve, the Treasury Department, and other U.S. authorities to stabilize the financial system, together with highly stimulative monetary and fiscal policies, helped arrest the decline and are supporting a nascent economic recovery. Indeed, the U.S. economy expanded at about a 4 percent annual rate during the second half of last year. A significant portion of that growth, however, can be attributed to the progress firms made in working down unwanted inventories of unsold goods, which left them more willing to increase production. As the impetus provided by the inventory cycle is temporary, and as the fiscal support for economic growth likely will diminish later this year, a sustained recovery will depend on continued growth in private-sector final demand for goods and services.

Private final demand does seem to be growing at a moderate pace, buoyed in part by a general improvement in financial conditions. In particular, consumer spending has recently picked up, reflecting gains in real disposable income and household wealth and tentative signs of stabilization in the labor market. Business investment in equipment and software has risen significantly. And international trade--supported by a recovery in the economies of many of our trading partners--is rebounding from its deep contraction of a year ago. However, starts of single-family homes, which rose noticeably this past spring, have recently been roughly flat, and

commercial construction is declining sharply, reflecting poor fundamentals and continued difficulty in obtaining financing.

The job market has been hit especially hard by the recession, as employers reacted to sharp sales declines and concerns about credit availability by deeply cutting their workforces in late 2008 and in 2009. Some recent indicators suggest the deterioration in the labor market is abating: Job losses have slowed considerably, and the number of full-time jobs in manufacturing rose modestly in January. Initial claims for unemployment insurance have continued to trend lower, and the temporary services industry, often considered a bellwether for the employment outlook, has been expanding steadily since October. Notwithstanding these positive signs, the job market remains quite weak, with the unemployment rate near 10 percent and job openings scarce. Of particular concern, because of its long-term implications for workers' skills and wages, is the increasing incidence of long-term unemployment; indeed, more than 40 percent of the unemployed have been out of work six months or more, nearly double the share of a year ago.

Increases in energy prices resulted in a pickup in consumer price inflation in the second half of last year, but oil prices have flattened out over recent months, and most indicators suggest that inflation likely will be subdued for some time. Slack in labor and product markets has reduced wage and price pressures in most markets, and sharp increases in productivity have further reduced producers' unit labor costs. The cost of shelter, which receives a heavy weight in consumer price indexes, is rising very slowly, reflecting high vacancy rates. In addition, according to most measures, longer-term inflation expectations have remained relatively stable.

The improvement in financial markets that began last spring continues. Conditions in short-term funding markets have returned to near pre-crisis levels. Many (mostly larger) firms

have been able to issue corporate bonds or new equity and do not seem to be hampered by a lack of credit. In contrast, bank lending continues to contract, reflecting both tightened lending standards and weak demand for credit amid uncertain economic prospects.

In conjunction with the January meeting of the Federal Open Market Committee (FOMC), Board members and Reserve Bank presidents prepared projections for economic growth, unemployment, and inflation for the years 2010 through 2012 and over the longer run. The contours of these forecasts are broadly similar to those I reported to the Congress last July. FOMC participants continue to anticipate a moderate pace of economic recovery, with economic growth of roughly 3 to 3-1/2 percent in 2010 and 3-1/2 to 4-1/2 percent in 2011. Consistent with moderate economic growth, participants expect the unemployment rate to decline only slowly, to a range of roughly 6-1/2 to 7-1/2 percent by the end of 2012, still well above their estimate of the long-run sustainable rate of about 5 percent. Inflation is expected to remain subdued, with consumer prices rising at rates between 1 and 2 percent in 2010 through 2012. In the longer term, inflation is expected to be between 1-3/4 and 2 percent, the range that most FOMC participants judge to be consistent with the Federal Reserve's dual mandate of price stability and maximum employment.

Monetary Policy

Over the past year, the Federal Reserve has employed a wide array of tools to promote economic recovery and preserve price stability. The target for the federal funds rate has been maintained at a historically low range of 0 to 1/4 percent since December 2008. The FOMC continues to anticipate that economic conditions--including low rates of resource utilization, subdued inflation trends, and stable inflation expectations--are likely to warrant exceptionally low levels of the federal funds rate for an extended period.

To provide support to mortgage lending and housing markets and to improve overall conditions in private credit markets, the Federal Reserve is in the process of purchasing $1.25 trillion of agency mortgage-backed securities and about $175 billion of agency debt. We have been gradually slowing the pace of these purchases in order to promote a smooth transition in markets and anticipate that these transactions will be completed by the end of March. The FOMC will continue to evaluate its purchases of securities in light of the evolving economic outlook and conditions in financial markets.

In response to the substantial improvements in the functioning of most financial markets, the Federal Reserve is winding down the special liquidity facilities it created during the crisis. On February 1, a number of these facilities, including credit facilities for primary dealers, lending programs intended to help stabilize money market mutual funds and the commercial paper market, and temporary liquidity swap lines with foreign central banks, were allowed to expire.[1] The only remaining lending program for multiple borrowers created under the Federal Reserve's emergency authorities, the Term Asset-Backed Securities Loan Facility, is scheduled to close on March 31 for loans backed by all types of collateral except newly issued commercial mortgage-backed securities (CMBS) and on June 30 for loans backed by newly issued CMBS.

In addition to closing its special facilities, the Federal Reserve is normalizing its lending to commercial banks through the discount window. The final auction of discount-window funds to depositories through the Term Auction Facility, which was created in the early stages of the crisis to improve the liquidity of the banking system, will occur on March 8. Last week we announced that the maximum term of discount window loans, which was increased to as much as 90 days during the crisis, would be returned to overnight for most banks, as it was before the

[1] Primary dealers are broker-dealers that act as counterparties to the Federal Reserve Bank of New York in its conduct of open market operations.

crisis erupted in August 2007. To discourage banks from relying on the discount window rather than private funding markets for short-term credit, last week we also increased the discount rate by 25 basis points, raising the spread between the discount rate and the top of the target range for the federal funds rate to 50 basis points. These changes, like the closure of most of the special lending facilities earlier this month, are in response to the improved functioning of financial markets, which has reduced the need for extraordinary assistance from the Federal Reserve. These adjustments are not expected to lead to tighter financial conditions for households and businesses and should not be interpreted as signaling any change in the outlook for monetary policy, which remains about the same as it was at the time of the January meeting of the FOMC.

Although the federal funds rate is likely to remain exceptionally low for an extended period, as the expansion matures, the Federal Reserve will at some point need to begin to tighten monetary conditions to prevent the development of inflationary pressures. Notwithstanding the substantial increase in the size of its balance sheet associated with its purchases of Treasury and agency securities, we are confident that we have the tools we need to firm the stance of monetary policy at the appropriate time.[2]

Most importantly, in October 2008 the Congress gave statutory authority to the Federal Reserve to pay interest on banks' holdings of reserve balances at Federal Reserve Banks. By increasing the interest rate on reserves, the Federal Reserve will be able to put significant upward pressure on all short-term interest rates. Actual and prospective increases in short-term interest rates will be reflected in turn in longer-term interest rates and in financial conditions more generally.

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[2] For further details on these tools and the Federal Reserve's exit strategy, see Ben S. Bernanke (2010), "Federal Reserve's Exit Strategy," statement before the Committee on Financial Services, U.S. House of Representatives, February 10, www.federalreserve.gov/newsevents/testimony/bernanke20100210a.htm.

The Federal Reserve has also been developing a number of additional tools to reduce the large quantity of reserves held by the banking system, which will improve the Federal Reserve's control of financial conditions by leading to a tighter relationship between the interest rate paid on reserves and other short-term interest rates. Notably, our operational capacity for conducting reverse repurchase agreements, a tool that the Federal Reserve has historically used to absorb reserves from the banking system, is being expanded so that such transactions can be used to absorb large quantities of reserves.[3] The Federal Reserve is also currently refining plans for a term deposit facility that could convert a portion of depository institutions' holdings of reserve balances into deposits that are less liquid and could not be used to meet reserve requirements.[4] In addition, the FOMC has the option of redeeming or selling securities as a means of reducing outstanding bank reserves and applying monetary restraint. Of course, the sequencing of steps and the combination of tools that the Federal Reserve uses as it exits from its currently very accommodative policy stance will depend on economic and financial developments. I provided more discussion of these options and possible sequencing in a recent testimony.[5]

Federal Reserve Transparency

The Federal Reserve is committed to ensuring that the Congress and the public have all the information needed to understand our decisions and to be assured of the integrity of our operations. Indeed, on matters related to the conduct of monetary policy, the Federal Reserve is

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[3] The Federal Reserve has recently developed the ability to engage in reverse repurchase agreements in the triparty market for repurchase agreements, with primary dealers as counterparties and using Treasury and agency debt securities as collateral, and it is developing the capacity to carry out these transactions with a wider set of counterparties (such as money market mutual funds and the mortgage-related government-sponsored enterprises) and using agency mortgage-backed securities as collateral.
[4] In December the Federal Reserve published a proposal describing a term deposit facility in the *Federal Register* (see Board of Governors of the Federal Reserve System (2009), "Federal Reserve Board Proposes Amendments to Regulation D That Would Enable the Establishment of a Term Deposit Facility," press release, December 28, www.federalreserve.gov/newsevents/press/monetary/20091228a.htm). We are now in the process of analyzing the public comments that have been received. A revised proposal will be reviewed by the Federal Reserve Board, and test transactions could commence during the second quarter.
[5] See Bernanke, "Federal Reserve's Exit Strategy," in note 2.

already one of the most transparent central banks in the world, providing detailed records and explanations of its decisions. Over the past year, the Federal Reserve also took a number of steps to enhance the transparency of its special credit and liquidity facilities, including the provision of regular, extensive reports to the Congress and the public; and we have worked closely with the Government Accountability Office (GAO), the Office of the Special Inspector General for the Troubled Asset Relief Program, the Congress, and private-sector auditors on a range of matters relating to these facilities.

While the emergency credit and liquidity facilities were important tools for implementing monetary policy during the crisis, we understand that the unusual nature of those facilities creates a special obligation to assure the Congress and the public of the integrity of their operation. Accordingly, we would welcome a review by the GAO of the Federal Reserve's management of all facilities created under emergency authorities.[6] In particular, we would support legislation authorizing the GAO to audit the operational integrity, collateral policies, use of third-party contractors, accounting, financial reporting, and internal controls of these special credit and liquidity facilities. The Federal Reserve will, of course, cooperate fully and actively in all reviews. We are also prepared to support legislation that would require the release of the identities of the firms that participated in each special facility after an appropriate delay. It is important that the release occur after a lag that is sufficiently long that investors will not view an institution's use of one of the facilities as a possible indication of ongoing financial problems, thereby undermining market confidence in the institution or discouraging use of any future

[6] Last month the Federal Reserve said that it would welcome a full review by the GAO of all aspects of the Federal Reserve's involvement in the extension of credit to the American International Group, Inc. (see Ben S. Bernanke (2010), letter to Gene L. Dodaro, January 19, www.federalreserve.gov/monetarypolicy/files/letter_aig_20100119.pdf). The Federal Reserve would support legislation authorizing a review by the GAO of the Federal Reserve's operations of its facilities created under emergency authorities: the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, the Commercial Paper Funding Facility, the Money Market Investor Funding Facility, the Primary Dealer Credit Facility, the Term Asset-Backed Securities Loan Facility, and the Term Securities Lending Facility.

facility that might become necessary to protect the U.S. economy. An appropriate delay would also allow firms adequate time to inform investors through annual reports and other public documents of their use of Federal Reserve facilities.

Looking ahead, we will continue to work with the Congress in identifying approaches for enhancing the Federal Reserve's transparency that are consistent with our statutory objectives of fostering maximum employment and price stability. In particular, it is vital that the conduct of monetary policy continue to be insulated from short-term political pressures so that the FOMC can make policy decisions in the longer-term economic interests of the American people. Moreover, the confidentiality of discount window lending to individual depository institutions must be maintained so that the Federal Reserve continues to have effective ways to provide liquidity to depository institutions under circumstances where other sources of funding are not available. The Federal Reserve's ability to inject liquidity into the financial system is critical for preserving financial stability and for supporting depositories' key role in meeting the ongoing credit needs of firms and households.

Regulatory Reform

Strengthening our financial regulatory system is essential for the long-term economic stability of the nation. Among the lessons of the crisis are the crucial importance of macroprudential regulation--that is, regulation and supervision aimed at addressing risks to the financial system as a whole--and the need for effective consolidated supervision of every financial institution that is so large or interconnected that its failure could threaten the functioning of the entire financial system.

The Federal Reserve strongly supports the Congress's ongoing efforts to achieve comprehensive financial reform. In the meantime, to strengthen the Federal Reserve's oversight

of banking organizations, we have been conducting an intensive self-examination of our regulatory and supervisory responsibilities and have been actively implementing improvements. For example, the Federal Reserve has been playing a key role in international efforts to toughen capital and liquidity requirements for financial institutions, particularly systemically critical firms, and we have been taking the lead in ensuring that compensation structures at banking organizations provide appropriate incentives without encouraging excessive risk-taking.[7]

The Federal Reserve is also making fundamental changes in its supervision of large, complex bank holding companies, both to improve the effectiveness of consolidated supervision and to incorporate a macroprudential perspective that goes beyond the traditional focus on safety and soundness of individual institutions. We are overhauling our supervisory framework and procedures to improve coordination within our own supervisory staff and with other supervisory agencies and to facilitate more-integrated assessments of risks within each holding company and across groups of companies.

Last spring the Federal Reserve led the successful Supervisory Capital Assessment Program, popularly known as the bank stress tests. An important lesson of that program was that combining on-site bank examinations with a suite of quantitative and analytical tools can greatly improve comparability of the results and better identify potential risks. In that spirit, the Federal Reserve is also in the process of developing an enhanced quantitative surveillance program for large bank holding companies. Supervisory information will be combined with firm-level, market-based indicators and aggregate economic data to provide a more complete picture of the risks facing these institutions and the broader financial system. Making use of the Federal Reserve's unparalleled breadth of expertise, this program will apply a multidisciplinary approach

[7] For further information, see Board of Governors of the Federal Reserve System (2009), "Federal Reserve Issues Proposed Guidance on Incentive Compensation," press release, October 22, www.federalreserve.gov/newsevents/press/bcreg/20091022a.htm.

that involves economists, specialists in particular financial markets, payments systems experts, and other professionals, as well as bank supervisors.

The recent crisis has also underscored the extent to which direct involvement in the oversight of banks and bank holding companies contributes to the Federal Reserve's effectiveness in carrying out its responsibilities as a central bank, including the making of monetary policy and the management of the discount window. Most important, as the crisis has once again demonstrated, the Federal Reserve's ability to identify and address diverse and hard-to-predict threats to financial stability depends critically on the information, expertise, and powers that it has by virtue of being both a bank supervisor and a central bank.

The Federal Reserve continues to demonstrate its commitment to strengthening consumer protections in the financial services arena. Since the time of the previous *Monetary Policy Report* in July, the Federal Reserve has proposed a comprehensive overhaul of the regulations governing consumer mortgage transactions, and we are collaborating with the Department of Housing and Urban Development to assess how we might further increase transparency in the mortgage process.[8] We have issued rules implementing enhanced consumer protections for credit card accounts and private student loans as well as new rules to ensure that consumers have meaningful opportunities to avoid overdraft fees.[9] In addition, the Federal Reserve has

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[8] For further information, see Board of Governors of the Federal Reserve System (2009), "Federal Reserve Proposes Significant Changes to Regulation Z (Truth in Lending) Intended to Improve the Disclosures Consumers Receive in Connection with Closed-End Mortgages and Home-Equity Lines of Credit," press release, July 23, www.federalreserve.gov/newsevents/press/bcreg/20090723a.htm.

[9] For more information, see Board of Governors of the Federal Reserve System (2009), "Federal Reserve Approves Final Amendments to Regulation Z That Revise Disclosure Requirements for Private Education Loans," press release, July 30, www.federalreserve.gov/newsevents/press/bcreg/20090730a.htm; Board of Governors of the Federal Reserve System (2009), "Federal Reserve Announces Final Rules Prohibiting Institutions from Charging Fees for Overdrafts on ATM and One-Time Debit Card Transactions," press release, November 12, www.federalreserve.gov/newsevents/press/bcreg/20091112a.htm; and Board of Governors of the Federal Reserve System (2010), "Federal Reserve Approves Final Rules to Protect Credit Card Users from a Number of Costly Practices," press release, January 12, www.federalreserve.gov/newsevents/press/bcreg/20100112a.htm.

implemented an expanded consumer compliance supervision program for nonbank subsidiaries of bank holding companies and foreign banking organizations.[10]

More generally, the Federal Reserve is committed to doing all that can be done to ensure that our economy is never again devastated by a financial collapse. We look forward to working with the Congress to develop effective and comprehensive reform of the financial regulatory framework.

[10] For further information, see Board of Governors of the Federal Reserve System (2009), "Federal Reserve to Implement Consumer Compliance Supervision Program of Nonbank Subsidiaries of Bank Holding Companies and Foreign Banking Organizations," press release, September 15, www.federalreserve.gov/newsevents/press/bcreg/20090915a.htm.

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Monetary Policy Report to the Congress

February 24, 2010

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, 2010

Board of Governors of the Federal Reserve System

Letter of Transmittal

Board of Governors of the
Federal Reserve System

Washington, D.C., February 24, 2010

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,

Ben Bernanke, Chairman

Contents

Part 1
1 **Overview: Monetary Policy and the Economic Outlook**

Part 2
5 **Recent Financial and Economic Developments**

6 ***Domestic Developments***

6 **The Household Sector**
6 *Residential Investment and Housing Finance*
8 *Consumer Spending and Household Finance*

11 **The Business Sector**
11 *Fixed Investment*
11 *Inventory Investment*
12 *Corporate Profits and Business Finance*

14 **The Government Sector**
14 *Federal Government*
15 *Federal Borrowing*
15 *State and Local Government*
16 *State and Local Government Borrowing*

16 **The External Sector**

17 **National Saving**

18 **The Labor Market**
18 *Employment and Unemployment*
21 *Productivity and Labor Compensation*

21 **Prices**

22 ***Financial Stability Developments***

22 **Evolution of the Financial Sector, Policy Actions, and Market Developments**

25 **Banking Institutions**

26 **Monetary Policy Expectations and Treasury Rates**

27 **Monetary Aggregates and the Federal Reserve's Balance Sheet**

28 *International Developments*

28 **International Financial Markets**

30 **The Financial Account**

31 **Advanced Foreign Economies**

32 **Emerging Market Economies**

Part 3
35 **Monetary Policy: Recent Developments and Outlook**

35 **Monetary Policy over the Second Half of 2009 and Early 2010**

38 **Monetary Policy as the Economy Recovers**

Part 4
43 **Summary of Economic Projections**

45 **The Outlook**

46 **Uncertainty and Risks**

46 **Diversity of Views**

53 **Abbreviations**

Boxes

18 **Developments in Global Trade**

40 **Federal Reserve Initiatives to Increase Transparency**

52 **Forecast Uncertainty**

Part 1
Overview: Monetary Policy and the Economic Outlook

After declining for a year and a half, economic activity in the United States turned up in the second half of 2009, supported by an improvement in financial conditions, stimulus from monetary and fiscal policies, and a recovery in foreign economies. These factors, along with increased business and household confidence, appear likely to boost spending and sustain the economic expansion. However, the pace of the recovery probably will be tempered by households' desire to rebuild wealth, still-tight credit conditions facing some borrowers, and, despite some tentative signs of stabilization, continued weakness in labor markets. With substantial resource slack continuing to suppress cost pressures and with longer-term inflation expectations stable, inflation is likely to be subdued for some time.

U.S. real gross domestic product (GDP) rose at about a 4 percent pace, on average, over the second half of 2009. Consumer spending—which was boosted by supportive monetary and fiscal policies—posted solid increases, though it remained well below its pre-recession level. Meanwhile, activity in the housing market, which began to pick up last spring, flattened over the second half of 2009. In the business sector, investment in equipment and software posted a sizable gain in the second half of last year, likely reflecting improved conditions in capital markets and brighter sales prospects. In addition, firms reduced the pace of inventory liquidation markedly in the fourth quarter. In contrast, investment in nonresidential structures continued to contract. With the recovery in U.S. and foreign demand, U.S. trade flows rebounded in the second half of 2009 after precipitous declines late in 2008 and early in 2009. Nevertheless, both exports and imports stayed considerably below their earlier peaks.

Despite the pickup in output, employment continued to contract in the second half of 2009, albeit at a markedly slower pace than in the first half. The unemployment rate rose further during the second half, reaching 10 percent by the end of the year—its highest level since the early 1980s—before dropping back in January. Although job losses have slowed, hiring remains weak, and the median duration of unemployment has lengthened significantly.

Headline consumer price inflation picked up in 2009 as energy prices rose sharply: Over the 12 months ending in December, prices for personal consumption expenditures (PCE) increased about 2 percent, up from ½ percent in 2008. In contrast, price increases for consumer expenditures other than food and energy items—so-called core PCE—slowed noticeably last year. After rising at an annual rate of about 1¾ percent in 2008 and the first half of 2009, core PCE prices increased at an annual rate of just over 1 percent in the second half of the year.

The recovery in financial markets that began last spring continued through the second half of the year and into 2010. Broad equity price indexes increased further, on balance, and risk spreads on corporate bonds narrowed considerably. Conditions in short-term funding markets returned to near pre-crisis levels; liquidity and pricing in bank funding markets continued to normalize, while risk spreads in the commercial paper market were stable at the low end of the range observed since the fall of 2007. The functioning of financial markets more generally improved further.

Investors became more optimistic about the outlook for financial institutions during the first half of last year. That development was bolstered by the release of the results of the Supervisory Capital Assessment Program (SCAP), which were seen as helping clarify the financial conditions of the largest bank holding companies and provided investors with greater assurance about the health of the institutions. Sentiment rose further over the remainder of the year as investors became more optimistic about the economic outlook. Most of the 19 bank holding companies included in the SCAP issued equity, some to augment or improve the quality of their capital and some to repay investments made by the Treasury under the Troubled Asset Relief Program. Still, delinquency and charge-off rates at commercial banks increased further in the second half of the year, and loan losses remained very high.

Nonfinancial firms with access to capital markets took advantage of the improvement in financial conditions to issue corporate bonds and equity shares at a solid pace; a significant portion of issuance likely reflected an effort by businesses to substitute attractively priced

longer-term financing for shorter-term debt. In contrast, many small businesses and other firms that depend largely on banks to meet their funding needs found their access to credit severely restricted; banks continued to tighten their lending standards and terms, though to a more limited extent, during the second half of 2009 amid higher loan losses on their commercial loans and reports of lingering uncertainty about business credit quality. According to survey data, demand for business loans was also weak throughout 2009.

Availability of credit for households remained constrained in the second half of 2009, even as interest rates declined for mortgages and many consumer loans. Restrictive bank lending policies to individuals likely were due importantly to banks' concerns about the ability of households to repay loans in an environment of high unemployment and continued softness in house prices. In addition, senior bank loan officers reported weakening loan demand from households throughout 2009. However, in part because of support from the Federal Reserve's Term Asset-Backed Securities Loan Facility, the consumer asset-backed securities market, which is an important funding source for consumer loans, improved. All told, in 2009 nominal household debt experienced its first annual decline since the beginning of the data series in 1951.

The Federal Reserve continued to support the functioning of financial markets and promote recovery in economic activity using a wide array of tools. The Federal Open Market Committee (FOMC) maintained a target range of 0 to ¼ percent for the federal funds rate throughout the second half of 2009 and early 2010 and indicated that economic conditions were likely to warrant exceptionally low levels of the federal funds rate for an extended period. Further, the Federal Reserve continued its purchases of Treasury securities, agency mortgage-backed securities (MBS), and agency debt in order to provide support to mortgage and housing markets and to improve overall conditions in private credit markets. To promote a smooth transition in financial markets as the acquisitions are completed, the Federal Reserve gradually slowed the pace of these purchases in late 2009 and early 2010. The planned acquisitions of $300 billion of Treasury securities were completed by October, while the purchases of $1.25 trillion of MBS and about $175 billion of agency debt are expected to be finished by the end of the first quarter of this year.

In light of the improved functioning of financial markets, the Federal Reserve removed some of the extraordinary support it had provided during the crisis and closed many of its special liquidity facilities and the temporary liquidity swap arrangements with other central banks in the fall of 2009 and early in 2010. The Federal Reserve also began to normalize its lending to commercial banks through the discount window by reducing the maximum maturity of loans extended through the primary credit facility from 90 days to 28 days, effective on January 14, and by announcing that the maturity of those loans will be reduced further to overnight, effective on March 18. The rate charged on primary credit loans was increased from ½ percent to ¾ percent effective February 19. In addition, the Federal Reserve announced that the final auction under the Term Auction Facility will occur in March and later noted that the minimum bid rate for that auction had been increased by ¼ percentage point to ½ percent. Overall, the size of the Federal Reserve's balance sheet increased from about $2 trillion in the summer of 2009 to about $2.3 trillion on February 17, 2010. The composition of the balance sheet continued to shift as a considerable decline in credit extended through various facilities was more than offset by the increase in securities held outright. The Federal Reserve continued to broaden its efforts to provide even more information to the public regarding its conduct of these programs and of monetary policy (see box in Part 3).

The Federal Reserve is taking steps to ensure that it will be able to smoothly withdraw extraordinary policy accommodation when appropriate. Because the Federal Reserve, under the statutory authority provided by the Congress in October 2008, pays interest on the balances depository institutions hold at Reserve Banks, it can put upward pressure on short-term interest rates even with an extraordinarily large volume of reserves in the banking system by raising the interest rate paid on such balances. In addition, the Federal Reserve has continued to develop several other tools that it could use to reinforce the effects of increases in the interest rate on balances at Reserve Banks. In particular, the Federal Reserve has tested its ability to execute reverse repurchase agreements (reverse repos) in the triparty repo market with primary dealers using both Treasury and agency debt as collateral, and it is developing the capability to conduct such transactions with other counterparties and against agency MBS. The Federal Reserve has also announced plans for implementing a term deposit facility. In addition, it has the option of redeeming or selling assets in order to reduce monetary policy accommodation.

In conjunction with the January 2010 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. FOMC participants agreed that economic recovery from the recent recession was under way, but that they expected it to proceed at a gradual pace, restrained in part by household and business uncertainty regarding the economic outlook, modest improvement in labor markets, and slow easing of credit conditions in the banking sector. Participants expected that real GDP would expand at a rate that was only moderately above its longer-run sustainable growth rate and that the unemployment rate would decline only slowly over the next few years. Most participants also anticipated that inflation would remain subdued over this period.

Nearly all participants judged the risks to their growth outlook as generally balanced, and most also saw roughly balanced risks surrounding their inflation projections. Participants continued to judge the uncertainty surrounding their projections for economic activity and inflation as unusually high relative to historical norms. Participants also reported their assessments of the rates to which key macroeconomic variables would be expected to converge in 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 to 2.8 percent for real GDP growth, 5.0 to 5.2 percent for the unemployment rate, and 1.7 to 2.0 percent for the inflation rate.

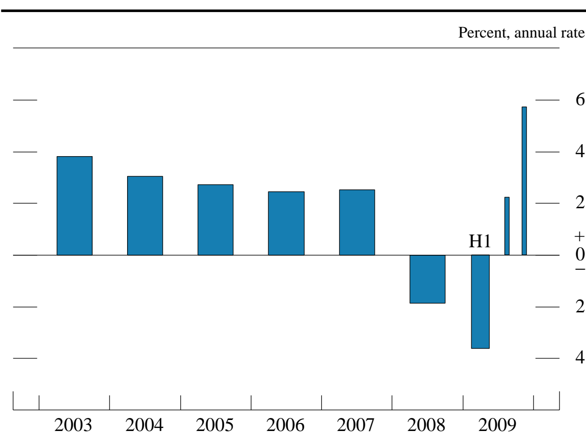
Part 2
Recent Financial and Economic Developments

According to the advance estimate from the Bureau of Economic Analysis, real gross domestic product (GDP) increased at an annual rate of 4 percent in the second half of 2009, retracing part of the sharp decline in activity that began in early 2008 (figure 1). Nonetheless, labor market conditions, which tend to lag changes in economic activity, remain very weak: The unemployment rate rose to 10 percent at the end of last year, 5 percentage points above its level at the start of 2008, before dropping back some in January. Conditions in many financial markets have improved significantly, but lending policies at banks remain stringent. Meanwhile, an increase in energy prices has boosted overall consumer price inflation; however, price inflation for other items has remained subdued, and inflation expectations have been relatively stable (figure 2).

Conditions in financial markets improved further in the second half of 2009, reflecting a more positive economic outlook as well as the effects of the policy initiatives implemented by the Federal Reserve, the Treasury, and other government agencies to support financial stability and promote economic recovery. Treasury yields, mortgage rates, and other market interest rates remained low while equity prices continued to rise, on net, amid positive earnings news, and corporate bond spreads narrowed substantially. As the functioning of short-term funding markets improved further, the usage of special liquidity facilities declined sharply, and the Federal Reserve closed several of those facilities on February 1, 2010.[1] Investors also seemed to become more optimistic about the prospects for the banking sector, and many of the largest banking institutions issued equity and repaid investments made by the Treasury under the Troubled Asset Relief Program (TARP). Nevertheless, the credit quality of bank loan portfolios remained a concern, particularly for loans secured by commercial and residential real estate loans.

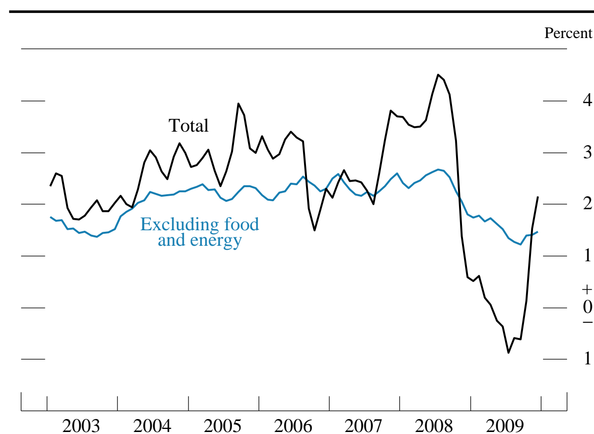
Private domestic nonfinancial sector debt contracted, on balance, in the second half of 2009. On the positive side, firms with access to capital markets issued corporate bonds at a robust pace, with many firms reportedly seeking to lock in long-term, low-interest-rate debt or refinance other debt. By contrast, many small businesses and other firms that depend primarily on banks for their funding needs faced substantial constraints on their access to credit even as demand for such credit remained weak. In the household sector, demand for

1. Change in real gross domestic product, 2003–09



Note: Here and in subsequent figures, except as noted, change for a given period is measured to its final quarter from the final quarter of the preceding period.
Source: Department of Commerce, Bureau of Economic Analysis.

2. Change in the chain-type price index for personal consumption expenditures, 2003–09



Note: The data are monthly and extend through December 2009; changes are from one year earlier.
Source: Department of Commerce, Bureau of Economic Analysis.

1. Specifically, the Primary Dealer Credit Facility, the Term Securities Lending Facility, the Commercial Paper Funding Facility, the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, and the temporary swap lines with foreign central banks were closed.

credit was weak, and supply conditions remained tight, as banks maintained stringent lending standards for both consumer loans and residential real estate loans. However, issuance of asset-backed securities (ABS), which are an important source of funding for consumer loans, strengthened, supported in part by the Federal Reserve's Term Asset-Backed Securities Loan Facility (TALF).

Domestic Developments

The Household Sector

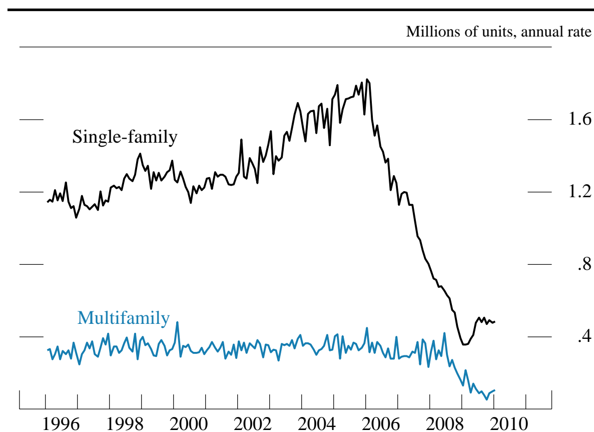
Residential Investment and Housing Finance

The housing market began to recover in the spring of 2009, but the pace of improvement slowed during the second half of the year. After having increased almost 30 percent through mid-2009, sales of new single-family homes retraced about one-half of that gain in the second half of the year. And, although sales of existing single-family homes moved up noticeably through November, they fell back sharply in December, suggesting that some of the earlier strength reflected sales that had been pulled forward in anticipation of the expiration of the first-time homebuyer tax credit.[2] The index of pending home sales, a leading indicator of sales of existing homes, leveled off in December after November's steep decline.

The recovery in construction activity in the single-family sector also decelerated in the second half of 2009. After stepping up noticeably last spring from an exceptionally low level, starts of single-family homes were about flat, on average, from June to December (figure 3). With the level of construction remaining quite low, the inventory of unsold new homes fell sharply and is now less than one-half of the peak reached in 2006. In the much smaller multifamily sector—where tight credit conditions and high vacancies have depressed building—starts deteriorated a bit further in the second half of the year.

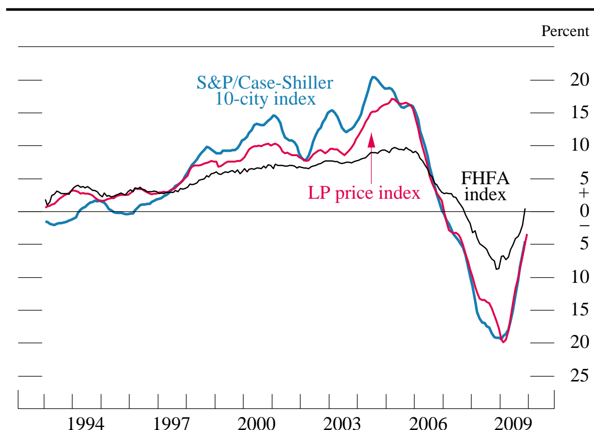
After falling sharply for about two and a half years, house prices, as measured by a number of national indexes, were more stable in the second half of 2009 (figure 4). One house price measure with wide geographic coverage—the LoanPerformance repeat-sales index—is up, on net, from its trough earlier in the year, even though the last few readings of that index fell back a bit. According to the Thomson Reuters/University of Michigan Surveys of Consumers, the number of respondents who expect house prices to increase over the next 12 months has moved up and now slightly exceeds the number of respondents who expect prices to decrease.[3]

3. Private housing starts, 1996–2010



Note: The data are monthly and extend through January 2010.
Source: Department of Commerce, Bureau of the Census.

4. Change in prices of existing single-family houses, 1993–2009



Note: The data are monthly and extend into 2009: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, Standard & Poor's.

2. The first-time homebuyer tax credit, which was enacted in February 2009 as part of the American Recovery and Reinvestment Act, was originally scheduled to expire on November 30, 2009. In early November, however, the Congress extended the credit to sales occurring through April 30, 2010, and expanded it to include repeat homebuyers who have owned and occupied a house for at least five of the past eight years.

3. The survey, formerly the Reuters/University of Michigan Surveys of Consumers, was renamed the Thomson Reuters/University of Michigan Surveys of Consumers as of January 1, 2010.

The earlier declines in house prices in combination with the low level of mortgage rates have made housing more affordable, and the apparent stabilization in prices may bring into the market buyers who were reluctant to purchase a home when prices were perceived to be falling. That said, the still-substantial inventory of unsold homes, including foreclosed homes, has continued to weigh on the market.

Even with house prices showing signs of stabilization, home values remained well below the remaining amount of principal on mortgages (so-called underwater loans) for many borrowers in the second half of 2009. Against this backdrop, and with a very high unemployment rate, delinquency rates on all types of residential mortgages continued to move higher (figure 5). As of December, serious delinquency rates on prime and near-prime loans had climbed to 16 percent for variable-rate loans and to over 5 percent for fixed rate loans.[4] The delinquency rate on all subprime loans was about 35 percent in December. Loans backed by the Federal Housing Administration (FHA) also showed increasing strains, with delinquency rates moving up to 9 percent at the end of 2009.

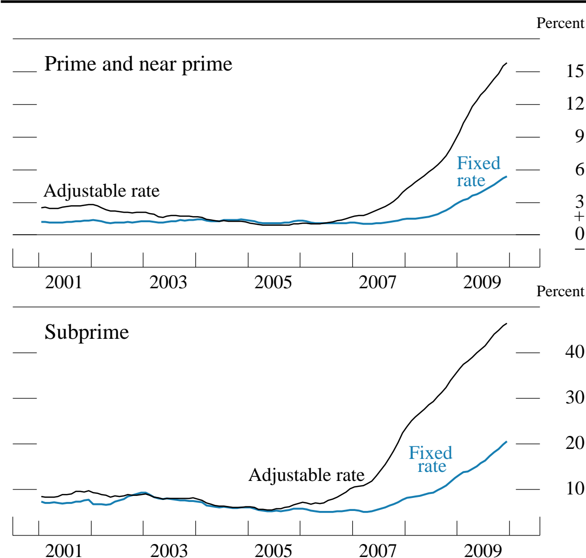
Foreclosures remained exceptionally elevated in the second half of 2009. About 1.4 million homes entered foreclosure during that period, similar to the pace earlier in the year. Historically, about one-half of foreclosure starts have resulted in homeowners losing the home. The heightened level of foreclosures has been particularly notable among prime borrowers, for whom the number of foreclosure starts moved up a bit in the second half of the year; by contrast foreclosure starts for subprime borrowers dropped back somewhat. To address the foreclosure problem, the Treasury has intensified efforts through its Making Home Affordable program to encourage loan modifications and to allow borrowers to refinance into mortgages with more-affordable payments.

Interest rates on 30-year fixed-rate conforming mortgages moved down in the second half of 2009, and despite a modest upturn around the start of 2010, they remained near the lowest levels on record (figure 6).[5] The low mortgage rates reflected the generally low level of Treasury yields and the large purchases of agency mortgage-backed securities (MBS) by the Federal Reserve, which were reportedly an important factor behind the narrow spread between these conforming mortgage rates and yields on Treasury securities. Interest rates on nonconforming mortgages, which are not included in the mortgage pools backing MBS that are eligible for purchase by the Federal Reserve,

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

5. 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 in size 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 the area's median house price, and it cannot exceed $729,750.

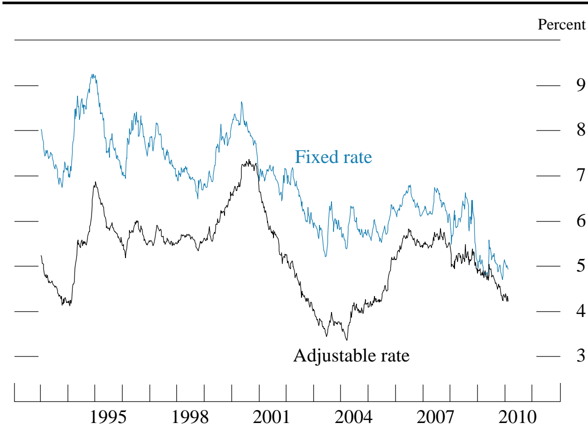
5. Mortgage delinquency rates, 2001–09



NOTE: The data are monthly and extend through December 2009. Delinquency rate is the percent of loans 90 days or more past due or in foreclosure.

SOURCE: For subprime, LoanPerformance, a division of First American CoreLogic; for prime and near prime, Lender Processing Services, Inc.

6. Mortgage interest rates, 1993–2010



NOTE: The data, which are weekly and extend through February 17, 2010, are contract rates on 30-year mortgages.

SOURCE: Federal Home Loan Mortgage Corporation.

also generally declined, but the spreads between nonconforming mortgage rates and rates on conforming mortgages remained wide by historical standards.

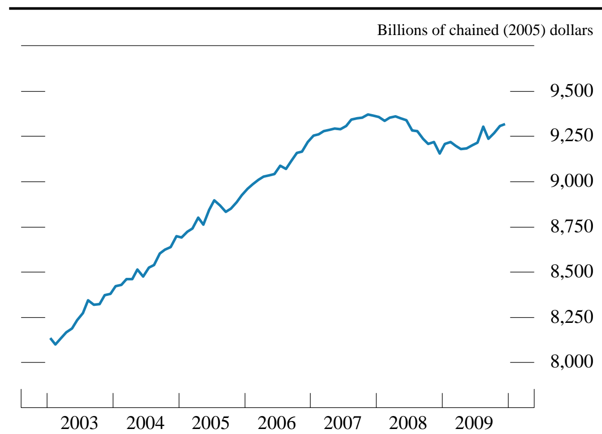
Although mortgage rates fell to low levels, the availability of mortgage financing continued to be sharply constrained. Respondents to the Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS) indicated throughout 2009 that banks continued to tighten their lending standards for all types of mortgage loans, though smaller net fractions reported doing so in the January 2010 survey than had been the case in earlier surveys. Lenders' reluctance to extend mortgage credit in an environment of declining home values also likely held down refinancing activity, which remained subdued in the second half of 2009 even though mortgage rates decreased. The FHA announced that it was raising mortgage insurance premiums because its capital reserve ratio had fallen below the required threshold; at the same time, the FHA announced that it was increasing down-payment requirements for borrowers with very low credit scores. In recent years, the FHA has assumed a greater role in mortgage markets, especially for borrowers with high loan-to-value ratios or lower credit quality. Overall, residential mortgage debt outstanding contracted at an even faster pace in the second half than in the first half of the year. Net issuance of MBS by Fannie Mae, Freddie Mac, and Ginnie Mae, although brisk in the second half of 2009, was down a bit from the levels seen earlier in the year. The securitization market for mortgage loans not guaranteed by a housing-related government-sponsored enterprise (GSE) or the FHA remained closed.

Consumer Spending and Household Finance

After having been roughly constant in the first half of last year, real personal consumption expenditures (PCE) rose at an annual rate of about 2½ percent in the second half (figure 7). Sales of new light motor vehicles jumped from an average annual rate of 9½ million units in the first half of 2009 to a rate of 11¼ million units in the second half.[6] Part of this rebound likely reflected the "cash for clunkers" program, but even after the expiration of that program, sales remained close to 11 million units, supported in part by improved credit conditions for auto buyers as the ABS market revived. Real spending on goods excluding motor vehicles also increased at a robust pace in the second half of the year, while real outlays for services rose more modestly.

6. Sales dropped back in January, but the decline occurred largely at Toyota, which was confronted by widely publicized problems.

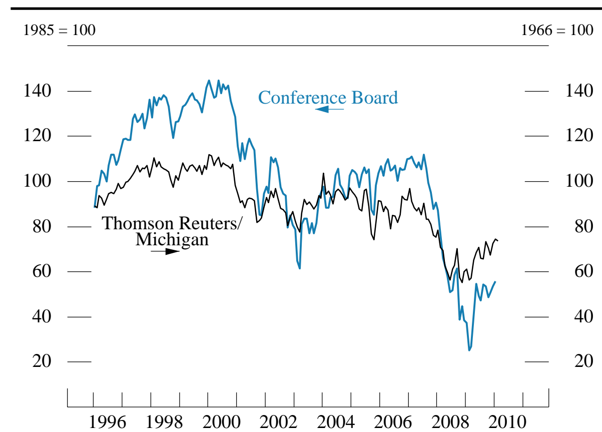
7. Real personal consumption expenditures, 2003–09



NOTE: The data are monthly and extend through December 2009.
SOURCE: Department of Commerce, Bureau of Economic Analysis.

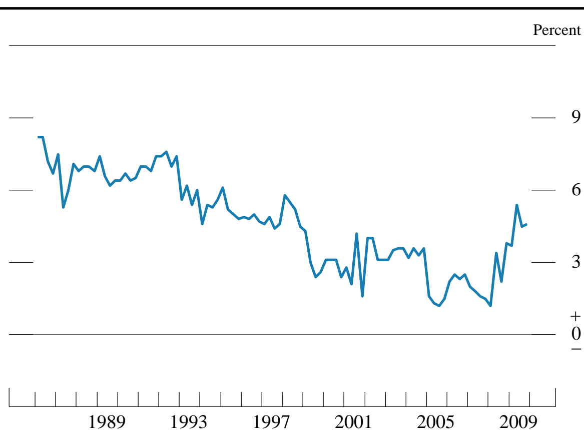
The rise in consumer spending in 2009 was buoyed by improvements in some of its underlying determinants: Equity prices moved up from their lows reached last March, a development that helped to rebuild household wealth, and household income was lifted by provisions in the fiscal stimulus package. Accordingly, consumer sentiment has rebounded from the very low levels seen earlier in 2009, though it remains low by historical standards (figure 8). Consumer spending appears to have been financed largely out of current income over the past year, and households were also able to increase their personal saving and begin

8. Consumer sentiment, 1996–2010



NOTE: The Conference Board data are monthly and extend through January 2010. The Thomson Reuters/Michigan data are monthly and extend through a preliminary estimate for February 2010; the survey in which the data are collected, formerly the Reuters/University of Michigan Surveys of Consumers, was renamed the Thomson Reuters/University of Michigan Surveys of Consumers as of January 1, 2010.
SOURCE: The Conference Board and Thomson Reuters/University of Michigan Surveys of Consumers.

9. Personal saving rate, 1986–2009



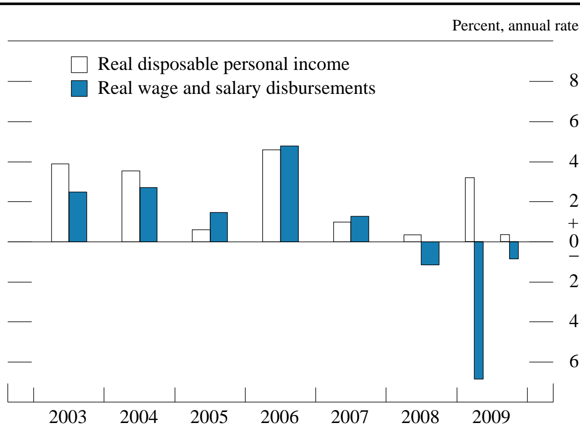
Note: The data are quarterly and extend through 2009:Q4.
Source: Department of Commerce, Bureau of Economic Analysis.

deleveraging their balance sheets. After increasing sharply in 2008, the saving rate moved up a bit further in 2009 (figure 9).

Real disposable personal income—after-tax income adjusted for inflation—increased about 1¾ percent last year, with the effects of the tax cuts and higher social benefit payments included in the 2009 fiscal stimulus package accounting for most of the increase.[7] Real labor income—that is, total wages, salaries, and employee benefits, adjusted for inflation—fell sharply in the first half of the 2009, and edged down a bit further in the second half, as the decline in total employee work hours more than offset an increase in real hourly compensation (figure 10).

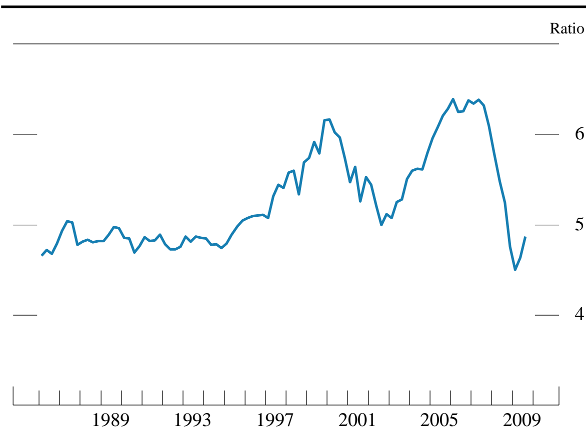
7. The increases in benefit payments under the American Recovery and Reinvestment Act included an expansion of unemployment benefits, increases in food stamps and Pell grants, subsidies for health insurance coverage for the unemployed, and a one-time $250 payment to retirees and veterans.

10. Change in real income and in real wage and salary disbursements, 2003–09



Source: Department of Commerce, Bureau of Economic Analysis.

11. Wealth-to-income ratio, 1986–2009



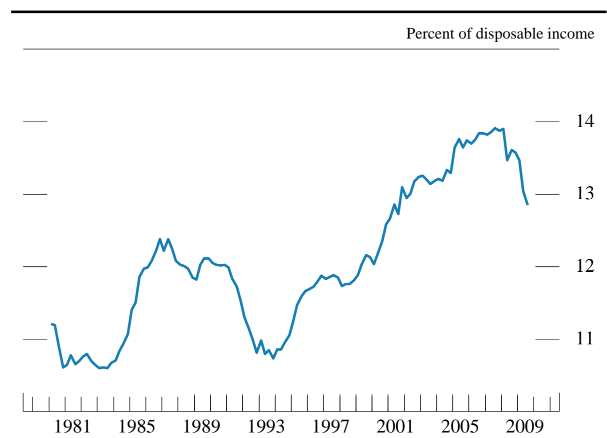
Note: The data are quarterly and extend through 2009:Q3. The wealth-to-income ratio is the ratio of household net worth to disposable personal income.
Source: For net worth, Federal Reserve Board, flow of funds data; for income, Department of Commerce, Bureau of Economic Analysis.

After dropping during the preceding 2½ years, household net worth turned up in the second and third quarters of 2009 and likely rose further in the fourth quarter. Much of the recovery reflected a rebound in equity prices, although the modest gain, on net, in the value of owner-occupied real estate also contributed. With the rise in net worth, the ratio of household wealth to disposable income increased in the second half of the year to about its historical average (figure 11).

Households began to deleverage around the third quarter of 2008, at the height of the financial crisis, and that process continued during the second half of 2009. The decline in nonmortgage consumer debt intensified during the latter part of last year. The contraction was most pronounced in revolving credit, which fell at about a 10 percent annual rate during the second half of 2009. Nonrevolving credit also decreased. Including the drop in mortgage debt, the Federal Reserve's flow of funds data indicate that total household debt declined in 2009 for the first time since the data series began in 1951. Reflecting these developments, debt service payments—the required principal and interest on existing mortgages and consumer debt—fell as a share of disposable income. At the end of the third quarter, the ratio of debt service payments to disposable income had declined to its lowest level since 2001 (figure 12).

Results from the recent SLOOS suggest that the contraction in consumer credit has been the result of both weak demand and tight supply. A net fraction of about one-third of the bank loan officers that responded to the

12. Household debt service, 1980–2009



NOTE: The data are quarterly and extend through 2009:Q3. Debt service payments consist of estimated required payments on outstanding mortgage and consumer debt.

SOURCE: Federal Reserve Board, "Household Debt Service and Financial Obligations Ratios," statistical release.

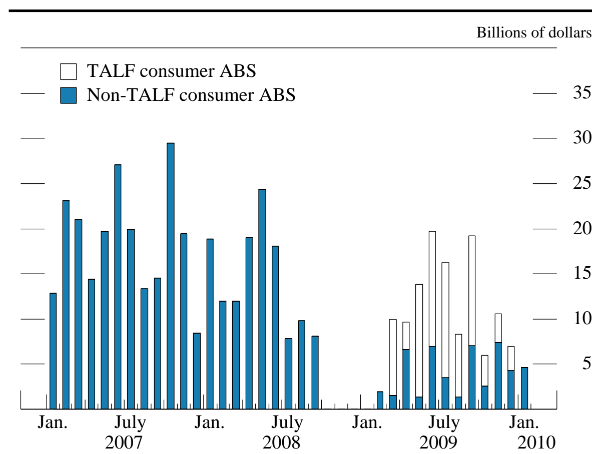
January SLOOS reported weaker demand for all types of consumer loans. The same survey also indicated that banks continued to tighten terms on credit card loans over the final three months of 2009 by reducing credit limits and raising interest rates charged, though smaller net fractions reported doing so than in previous surveys. After having been tightened significantly in the summer and fall of 2009, standards and terms on consumer loans other than credit card loans were little changed, on balance, in the January survey.

Changes in interest rates on consumer loans were mixed during the second half of 2009. Interest rates on new auto loans generally continued to trend lower, and spreads on these loans relative to comparable-maturity Treasury securities narrowed further. Interest rates on credit card loans, however, jumped near midyear and increased further toward year-end. According to the October SLOOS, some of the increases in credit card interest rates and the tightening of other lending terms reflected adjustments made by banks in anticipation of the imposition of new rules under the Credit Card Accountability Responsibility and Disclosure (Credit CARD) Act.[8]

Concerns about the ability of households to repay loans may also have contributed to the tightening of lending policies for consumer credit over the second half of 2009. Delinquency rates on auto loans at captive finance companies remained elevated, and credit card delinquency rates at commercial banks stayed high at around 6½ percent in the fourth quarter of 2009. In addition, the pace at which lenders were charging off these loans increased sharply in recent quarters. On a more positive note, respondents to the January SLOOS indicated that they expected the credit quality of their consumer loans, other than credit card loans, to stabilize during 2010.

Prior to the crisis, a large portion of consumer credit was funded through the ABS market. After having essentially ground to a halt at the end of 2008, consumer ABS markets recovered in 2009 with the important support of the TALF (figure 13). Much of the ABS issuance through the summer relied heavily on the TALF for financing. By the end of the year, the yields on such securities dropped markedly, and issuance of ABS without TALF support increased accordingly. (Indeed, the interest rates on TALF loans were chosen so that they would become unattractive as market conditions improved.) Issuance of ABS backed by auto loans in the second half of 2009 was roughly on par with issuance prior to the financial crisis, and only a small portion was purchased using loans from the TALF. A renewed ability to securitize auto loans may have contributed to the reduction in the interest rates on these loans. Similarly, ABS issuance backed by credit card receivables gained strength through most of the year, though it experienced a drop early in the fourth quarter because of uncertainty about how the Federal Deposit Insurance Corporation (FDIC) would treat securitized receivables should a sponsoring bank fail. Issuance picked up slightly after

13. Gross issuance of selected asset-backed securities, 2007–10



NOTE: Consumer ABS (asset-backed securities) are securities backed by credit card loans, nonrevolving consumer loans, and auto loans. Data for consumer ABS show gross issuance facilitated by the Term Asset-Backed Securities Loan Facility (TALF) and such issuance outside the TALF.

SOURCE: Bloomberg and the Federal Reserve Bank of New York.

8. The Credit CARD Act includes some provisions that place restrictions on issuers' ability to impose certain fees and to engage in risk-based pricing. Some provisions took effect in August 2009, and others did so in February 2010.

the FDIC provided a temporary extension of safe-harbor rules for its handling of securitized assets in a receivership. By contrast, issuance of ABS backed by private student loans remained almost entirely dependent on financing from the TALF.

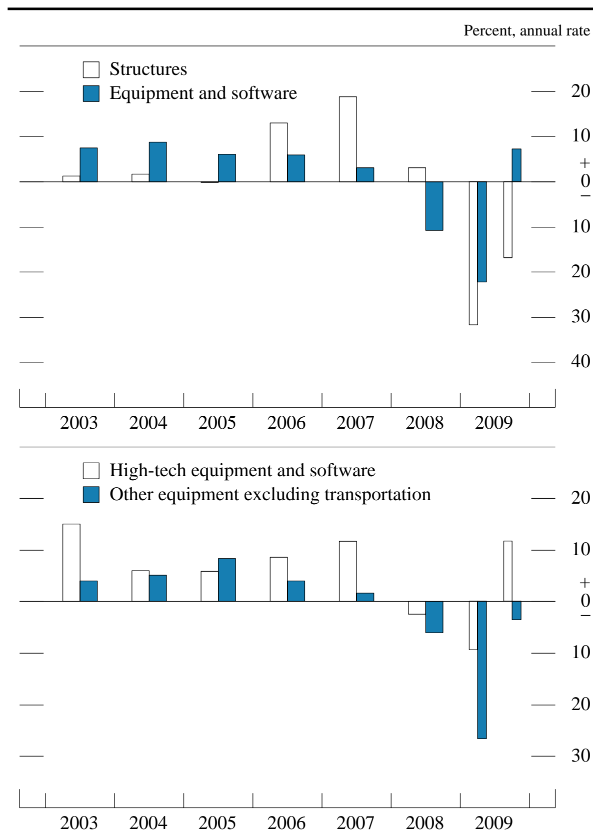
The Business Sector

Fixed Investment

After falling throughout 2008 and the first half of 2009, business spending on equipment and software (E&S) began to expand in the second half of last year, as sales prospects picked up, corporate profits increased, and financial conditions for many businesses (especially those with direct access to capital markets) improved (figure 14). Business outlays on transportation equipment rose sharply in the second half as firms rebuilt their fleets of light motor vehicles and accelerated their purchases of large trucks in advance of new environmental regulations on diesel engines. Real spending on information technology capital—computers, software, and communications equipment—also accelerated toward the end of 2009, likely boosted by the desire to replace older, less-efficient equipment. Investment in equipment other than information processing and transportation, which accounts for nearly one-half of E&S outlays, continued to fall during the second half of 2009, but much more slowly than earlier in the year. More recently, orders of nondefense capital goods other than transportation items posted a second strong monthly increase in December, and recent surveys of business conditions have been more upbeat than in several years.

In contrast to the upturn in equipment investment, real spending on nonresidential structures continued to decline steeply throughout 2009. Real outlays for construction of structures other than those used for drilling and mining fell at an annual rate of 25 percent in the second half of 2009, likely reflecting the drag from rising vacancy rates and plunging property prices for commercial and office buildings, as well as difficult financing conditions for new projects. Following a steep drop in the first half of the year, real spending on drilling and mining structures increased sharply in the second half, likely in response to the rebound in oil prices.

14. Change in real business fixed investment, 2003–09

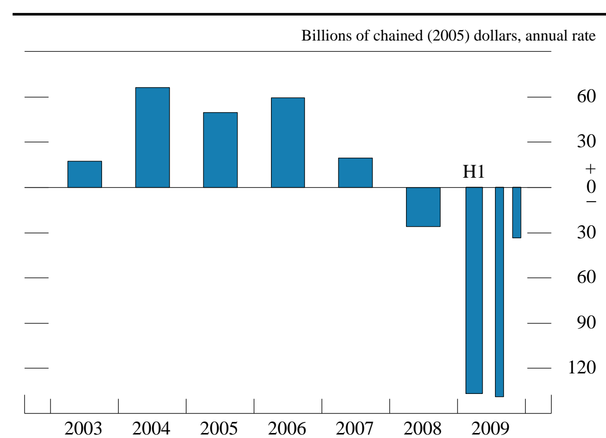


NOTE: High-tech equipment consists of computers and peripheral equipment and communications equipment.
SOURCE: Department of Commerce, Bureau of Economic Analysis.

Inventory Investment

After running off inventories aggressively during the first three quarters of 2009, firms moved to stem the pace of liquidation in the fourth quarter (figure 15). Automakers added to their dealers' stocks after cutbacks in production earlier in the year had reduced

15. Change in real business inventories, 2003–09



SOURCE: Department of Commerce, Bureau of Economic Analysis.

days' supply of domestic light vehicles to below their preferred levels. Outside of motor vehicles, firms continued to draw down inventories in the fourth quarter, but at a much slower pace than earlier in the year. Indeed, purchasing managers in the manufacturing sector report that their customers' inventories are relatively lean, a development that could lead to some restocking in the coming months.

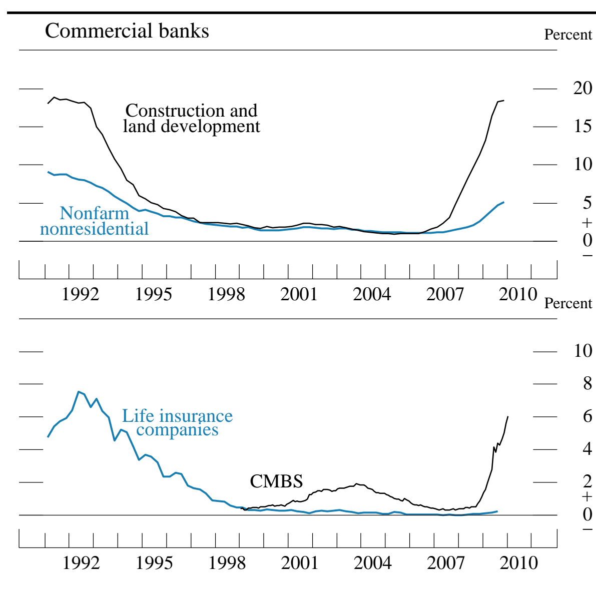
Corporate Profits and Business Finance

Overall, operating earnings per share for S&P 500 firms rebounded over the course of 2009. Still, earnings were well below the levels experienced prior to the financial market turmoil and the accompanying recession. Within the S&P 500, earnings for financial firms fluctuated around low levels, while earnings for nonfinancial firms rebounded sharply as the economic recovery began to take hold. Data from firms that have reported for the fourth quarter suggest that earnings for nonfinancial firms continued to recover.

The credit quality of nonfinancial corporations improved somewhat over the second part of last year, although signs of stress persisted. Business leverage, as measured by the ratio of debt to assets, fell in the third quarter. Credit rating downgrades outpaced upgrades early in 2009, but the pace of downgrades moderated substantially in the second half of the year, and by the fourth quarter upgrades were outpacing downgrades. In addition, the corporate bond default rate dropped into the range that had prevailed before the financial crisis began in August 2007.

Delinquency rates on loans to nonfinancial businesses, however, rose throughout the year. For commercial and industrial (C&I) loans, delinquencies in the fourth quarter reached 4.5 percent. In response to a special question on the January 2010 SLOOS, a large net fraction of banks reported that in the fourth quarter, the credit quality of their existing C&I loans to small firms was worse than the quality of their loans to larger firms. While survey respondents generally expected the credit quality of their C&I loan portfolios to improve during 2010, banks' outlook for C&I loans to larger firms was more optimistic than it was for such loans to smaller firms. Reflecting deterioration in commercial property markets, delinquency rates on commercial real estate (CRE) loans both in securitized pools and on banks' books moved up sharply in the second half of 2009 (figure 16). Delinquency rates on construction and land development loans climbed to especially high levels. In October 2009, the Federal Reserve joined with other banking regulators to provide guidelines to banks in their efforts to work constructively with troubled CRE borrowers.[9]

16. Delinquency rates on commercial real estate loans, 1991–2010



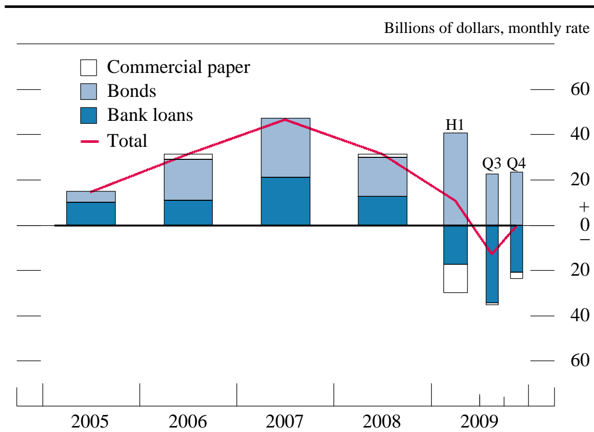
NOTE: The data for commercial banks and life insurance companies are quarterly and extend through 2009:Q4 and 2009:Q3, respectively. The data for commercial mortgage-backed securities (CMBS) are monthly and extend through January 2010. The delinquency rates for commercial banks and CMBS are the percent 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.

The debt of domestic nonfinancial businesses contracted slightly during the second half of 2009, and the composition of borrowing continued to shift toward longer-term debt (figure 17). Net issuance of corporate bonds remained strong as businesses took advantage of favorable market conditions to issue longer-term debt; at the same time, bank loans to businesses—both C&I and CRE loans—contracted, as did commercial paper.

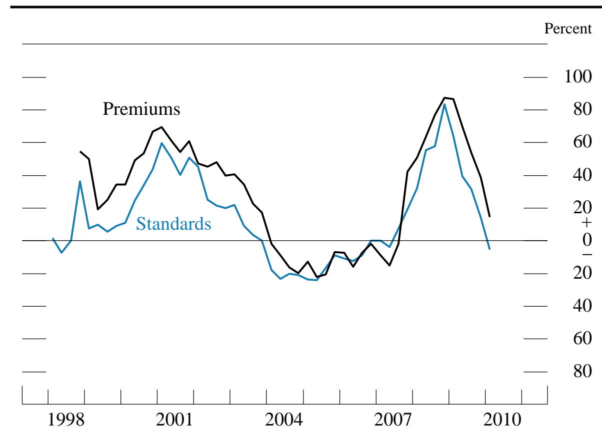
9. This statement updated and replaced existing supervisory guidance to assist examiners in evaluating institutions' efforts to renew or restructure loans to creditworthy CRE borrowers. The statement was intended to promote supervisory consistency, enhance the transparency of CRE workout transactions (that is, transactions intended to renew and restructure the loans), and ensure that supervisory policies and actions do not inadvertently curtail the availability of credit to sound borrowers. For more information, see Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, National Credit Union Administration, Office of the Comptroller of the Currency, Office of Thrift Supervision, and Federal Financial Institutions Examination Council State Liaison Committee (2009), "Policy Statement on Prudent Commercial Real Estate Loan Workouts," attachment to Supervision and Regulation Letter SR 09-7 (October 30), www.federalreserve.gov/boarddocs/srletters/2009/sr0907a1.pdf.

17. Selected components of net financing for nonfinancial businesses, 2005–09



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

18. Net percentage of domestic banks tightening standards and increasing premiums charged on riskier loans to large and medium-sized borrowers, 1998–2010



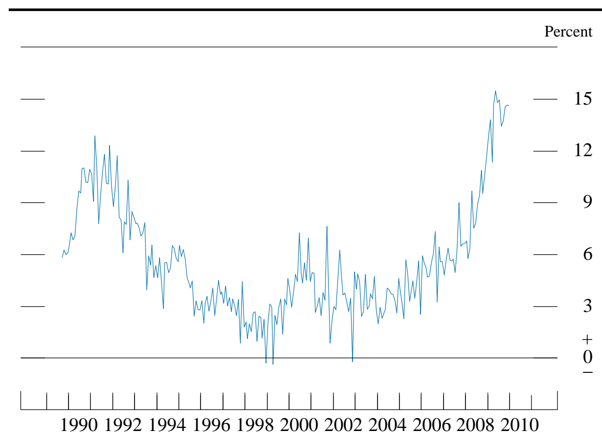
NOTE: The data are drawn from a survey generally conducted four times per year; the last observation is from the January 2010 survey, which covers 2009:Q4. Net percentage is the percentage of banks reporting a tightening of standards or an increase in premiums less the percentage reporting an easing or a decrease. 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 decline in bank lending to businesses was due partly to the weakness in loan demand. Many banks experiencing steep declines in C&I loans reported that existing loans were paid down across a wide swath of industries. Respondents to the January 2010 SLOOS indicated that weak demand for C&I loans during the second half of 2009 reflected their customers' reduced need to use these loans to finance investment in plant and equipment as well as to finance accounts receivable, inventories, and mergers and acquisitions. In addition, demand was reportedly low for CRE loans amid weak fundamentals in the sector.

The weakness in bank lending to businesses in 2009 was also a consequence of a tightening in lending standards. Responses to the SLOOS indicated that lending standards for C&I loans were tightened significantly in the summer and fall of 2009 and that they remained about unchanged in the final months of the year (figure 18). In addition, many banks continued to tighten some terms throughout the year—for example, by increasing the interest rate premiums charged on riskier loans. Considerable net fractions of banks also continued to report tightening lending standards on CRE loans.

Small businesses have been particularly affected by tight bank lending standards because of their lack of direct access to capital markets. In surveys conducted by the National Federation of Independent Business (NFIB), the net fraction of small businesses reporting that credit had become more difficult to obtain over the preceding three months remained at extremely elevated levels during the second half of 2009 (figure 19). Moreover, considerable net fractions of NFIB survey respondents expected lending conditions to tighten further in the near term. However, when asked about the most important problem they faced, small businesses most frequently cited poor sales, while only a small fraction cited credit availability. Recognizing that small businesses play a crucial role in the economy and that some are experiencing difficulty in obtaining or renewing credit, the federal financial regulatory agencies and the

19. Net percentage of small businesses that reported more difficulty in obtaining credit, 1989–2010



NOTE: The data are drawn from a survey conducted monthly and are seasonally adjusted; the last observation is from the January 2010 survey, which covers December 2009. The data reflect the proportion of borrowers who sought credit in the past three months that reported more difficulty in obtaining credit less the proportion that reported more ease in obtaining credit.
SOURCE: National Federation of Independent Business.

Conference of State Bank Supervisors issued a statement on February 5, 2010, regarding lending to these businesses.[10] The statement emphasized that financial institutions that engage in prudent small business lending will not be subject to supervisory criticism for small business loans made on that basis. Further, the statement emphasized that regulators are working with the industry and supervisory staff to ensure that supervisory policies and actions do not inadvertently curtail the availability of credit to financially sound small business borrowers.

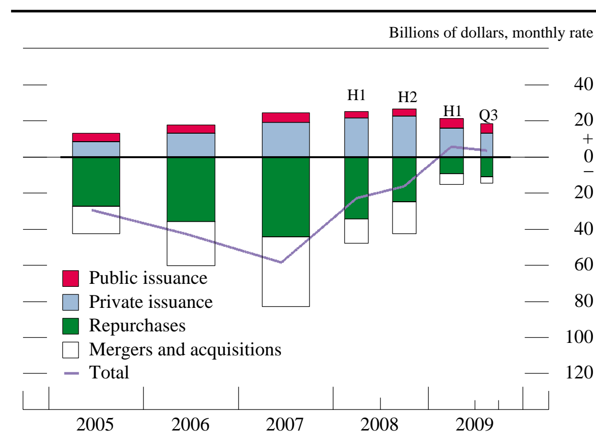
In the equity market, both seasoned and initial offerings by nonfinancial firms were solid in the second half of 2009 (figure 20). After nearly ceasing earlier in the year, cash-financed mergers picked up toward year-end, mostly as the result of a few large deals. Share repurchases continued to be light.

New issuance in the commercial mortgage-backed securities (CMBS) market—which had ceased in the third quarter of 2008, thus eliminating an important source of financing for many lenders—resumed in November 2009 with a securitization supported by the Federal Reserve's TALF program. A handful of subsequent small securitizations, with more-conservative underwriting and simpler structures than had prevailed during the credit boom, were brought to market and successfully completed without support from the TALF. Nevertheless, issuance of CMBS remains very light, and material increases in issuance appeared unlikely in the near term. Trading in existing CMBS picked up during the second half of 2009, and yield spreads relative to Treasury securities narrowed, although they remain very high by historical standards. Some of the improvement likely reflected support provided by the Federal Reserve through the part of the TALF program that provides loans for the purchase of "legacy" CMBS.

Issuance of leveraged loans, which often involves loan extensions by nonbank financial institutions, also remained weak throughout 2009 although market conditions reportedly improved. Prior to the crisis, this segment of the syndicated loan market provided considerable financing to lower-rated nonfinancial firms. However, issuance of leveraged loans fell to low levels when investors moved away from structured finance products such as collateralized loan obligations, which had been substantial purchasers of such credits. The market began to show signs of recovery last year with secondary-market prices of loans moving higher, and, by late in the year, new loans had found increased investor interest amid some easing in loan terms.

10. For more information, see Federal Deposit Insurance Corporation, Office of the Comptroller of the Currency, Board of Governors of the Federal Reserve System, the Office of Thrift Supervision, National Credit Union Administration, and Conference of State Bank Supervisors (2010), "Interagency Statement on Meeting the Credit Needs of Creditworthy Small Business Borrowers," attachment to "Regulators Issue Statement on Lending to Creditworthy Small Businesses," joint press release, February 5, www.occ.treas.gov/ftp/release/2010-14.htm.

20. Components of net equity issuance, 2005–09



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.

The Government Sector

Federal Government

The deficit in the federal unified budget rose markedly in fiscal year 2009 and reached $1.4 trillion, about $1 trillion higher than in fiscal 2008. The effects of the weak economy on revenues and outlays, along with the budget costs associated with the fiscal stimulus legislation enacted last February (the American Recovery and Reinvestment Act (ARRA)), the Troubled Asset Relief Program, and the conservatorship of the mortgage-related GSEs, all contributed to the widening of the budget gap. The deficit is expected to remain sharply elevated in fiscal 2010. Although the budget costs of the financial stabilization programs are expected to be lower than in the last fiscal year, the spend-out from last year's fiscal stimulus package is expected to be higher, and tax revenues are anticipated to remain weak. The Congressional Budget Office projects that the deficit will be about $1.3 trillion this fiscal year, just a touch below last year's deficit, and that federal debt held by the public will reach 60 percent of nominal GDP, the highest level recorded since the early 1950s.

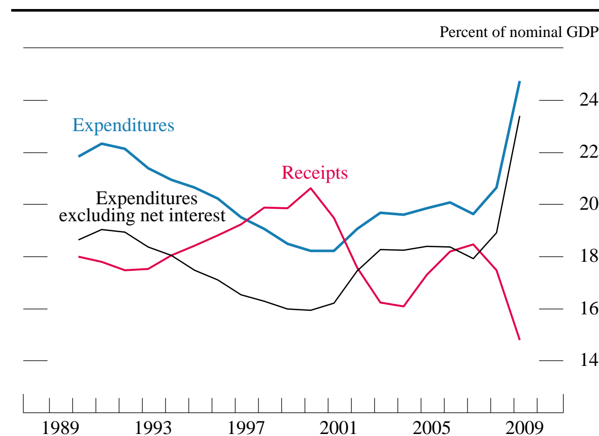
The steep drop in economic activity during 2008 and the first half of 2009 resulted in sharply lower tax receipts (figure 21). After falling about 2 percent in fiscal 2008, federal receipts plunged 18 percent in fiscal 2009, and tax receipts over the first four months of the current fiscal year have continued to decline relative to the comparable year-earlier period. The decline in revenues in fiscal 2009 was particularly steep for corporate taxes, mostly as a result of the sharp contraction in corporate profits in 2008.[11] Individual income and payroll taxes also declined substantially, reflecting the effects of the weak labor market on nominal wage and salary income, a decline in capital gains realizations, and the revenue-reducing provisions of the 2009 fiscal stimulus legislation.

While the outlays associated with the TARP and the conservatorship of the GSEs contributed importantly to the rapid rise in federal spending in fiscal 2009, outlays excluding these extraordinary costs rose a relatively steep 10 percent.[12] Spending for Medicaid and income support programs jumped almost 25 percent in fiscal 2009 as a result of the deterioration in the labor market as well as policy decisions to expand funding for a number of such programs. This category of spending has continued to rise rapidly thus far in fiscal 2010, and most other categories of spending have increased fairly briskly as well.

11. Because final payments on 2008 liabilities were not due until April of 2009 and because of the difference between fiscal and calendar years, much of the contraction in 2008 corporate profits did not show through to tax revenues until fiscal 2009.

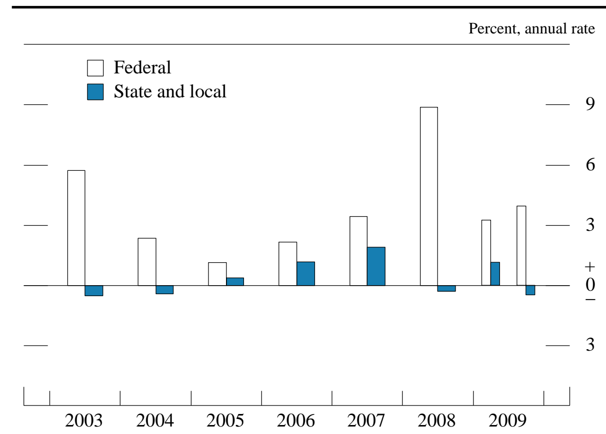
12. In the Monthly Treasury Statements, equity purchases and debt-related transactions under the TARP are recorded on a net present value basis, taking into account market risk, as are the Treasury's purchases of the GSE's MBS. However, equity purchases from the GSEs in conservatorship are recorded on a cash flow basis.

21. Federal receipts and expenditures, 1989–2009



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.

22. Change in real government expenditures on consumption and investment, 2003–09



SOURCE: Department of Commerce, Bureau of Economic Analysis.

As measured in the national income and product accounts (NIPA), real federal expenditures on consumption and gross investment—the part of federal spending that is a direct component of GDP—rose at a 4 percent pace in the second half of 2009 (figure 22). Nondefense outlays increased rapidly, in part reflecting the boost in spending from the 2009 fiscal stimulus legislation, while real defense outlays rose modestly.

Federal Borrowing

Federal debt expanded rapidly throughout 2009 and rose to more than 50 percent of nominal GDP by the end of 2009, up from around 35 percent earlier in the decade. To fund the increased borrowing needs, Treasury auctions grew to record sizes. However, demand for Treasury issues kept pace, and bid-to-cover ratios at these auctions were generally strong. Foreign demand was solid, and foreign custody holdings of Treasury securities at the Federal Reserve Bank of New York increased considerably over the year.

State and Local Government

Despite the substantial federal aid provided by the ARRA, the fiscal situations of state and local governments remain challenging. At the state level, revenues from income, business, and sales taxes continued to

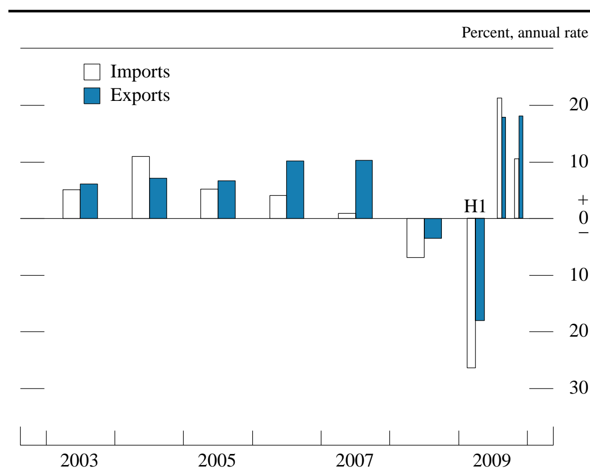
fall in the second half of last year, and many states are currently in the process of addressing shortfalls in their fiscal 2010 budgets. At the local level, revenues have held up fairly well, as receipts from property taxes, on which these jurisdictions rely heavily, have continued to rise moderately, reflecting the typically slow response of property assessments to changes in home values. Nevertheless, the sharp fall in house prices over the past few years is likely to put some downward pressure on local revenues before long. Moreover, many state and local governments have experienced significant capital losses in their employee pension funds, and they will need to set aside resources in coming years to rebuild pension assets.

These budget pressures showed through to state and local spending. As measured in the NIPA, real consumption expenditures of state and local governments declined over the second half of 2009.[13] In particular, these jurisdictions began to reduce employment in mid-2009, and those cuts continued in January. In contrast, investment spending by state and local governments rose moderately during the second half of 2009. The rise in investment spending was supported by infrastructure grants provided by the federal government as part of the ARRA, as well as by a recovery of activity in municipal bond markets that increased the availability and lowered the cost of financing. Also, because capital budgets are typically not encompassed within balanced budget requirements, states were under less pressure to restrain their investment spending.

State and Local Government Borrowing

Borrowing by state and local governments picked up a bit in the second half of the year from its already solid pace in the first half. Gross issuance of long-term bonds, primarily to finance new capital projects, was strong. Issuance was supported by the Build America Bonds program, which was authorized under the ARRA.[14] Short-term issuance was more moderate and generally consistent with typical seasonal patterns. Market participants reported that the market for variable-rate demand obligations, which became severely strained during the financial crisis, had largely recovered.[15]

23. Change in real imports and exports of goods and services, 2003–09



SOURCE: Department of Commerce, Bureau of Economic Analysis.

Interest rates on long-term municipal bonds declined during the year, but the ratio of their yields to those on comparable-maturity Treasury securities remained somewhat elevated by historical standards. Credit ratings of state and local governments deteriorated over 2009 as a consequence of budgetary problems faced by many of these governments.

The External Sector

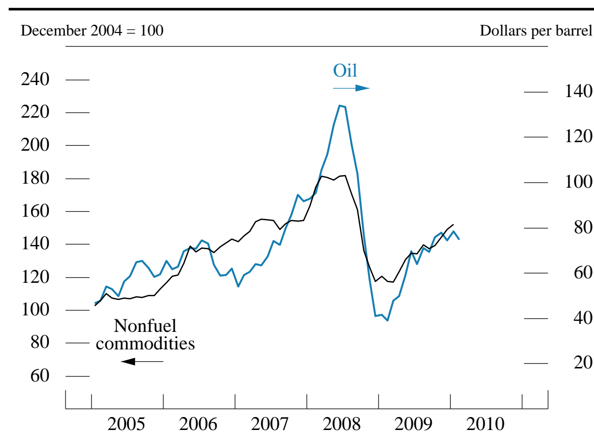
Both exports and imports rebounded in the second half of 2009 from precipitous falls earlier in the year (figure 23). As foreign economic activity began to improve, real exports rose at an annual rate of nearly 20 percent in the second half of the year. Real imports increased at about the same pace, supported by the recovery under way in U.S. demand. The pickup in trade flows was widespread across major types of products and U.S. trading partners but was particularly pronounced for both exports and imports of capital goods. Exports and imports of automotive products also picked up sharply in the second half of last year, reflecting the rise in motor vehicle production in North America, which depends importantly on flows of parts and finished vehicles between the United States, Canada, and Mexico. Despite the bounceback, trade flows only par-

13. Consumption expenditures by state and local governments include all outlays other than those associated with investment projects.

14. The Build America Bonds program allows state and local governments to issue taxable bonds for capital projects and receive a subsidy payment from the Treasury for 35 percent of interest costs.

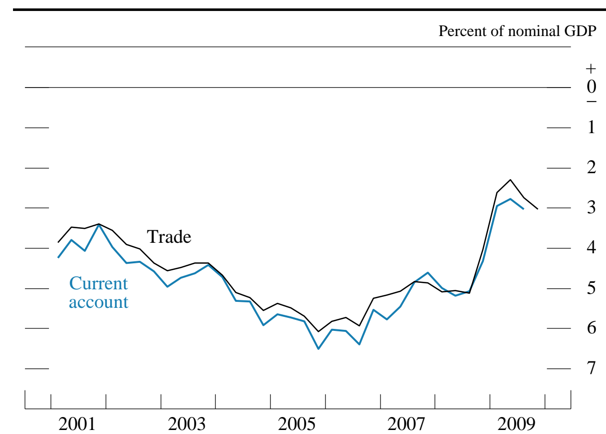
15. Variable-rate demand obligations (VRDOs) are taxable or tax-exempt bonds that combine long maturities with floating short-term interest rates that are reset on a weekly, monthly, or other periodic basis. VRDOs also have a contractual liquidity backstop, typically provided by a commercial or investment bank, that ensures that bondholders are able to redeem their investment at par plus accrued interest even if the securities cannot be successfully remarketed to other investors.

24. Prices of oil and nonfuel commodities, 2005–10



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 1–17, 2010. The price of nonfuel commodities is an index of 45 primary-commodity prices and extends through January 2010.
SOURCE: For oil, the Commodity Research Bureau; for nonfuel commodities, International Monetary Fund.

25. U.S. trade and current account balances, 2001–09



NOTE: The data are quarterly. For the trade account, the data extend through 2009:Q4; for the current account, they extend through 2009:Q3.
SOURCE: Department of Commerce, Bureau of Economic Analysis.

tially retraced the unusually steep declines registered in late 2008 and early 2009. This pattern was also true for global trade flows, as discussed in the box "Developments in Global Trade." The strength of the recovery in global trade so far, however, differs substantially across countries and regions.

Oil and nonfuel commodity prices increased substantially over the year (figure 24). After plunging from a daily high of about $145 per barrel in mid-2008 to a low of less than $40 per barrel early in 2009, the spot price of West Texas Intermediate crude oil rose rapidly to reach about $70 per barrel by the middle of 2009. The price of oil rose further over the second half of the year to reach about $80 per barrel in November and has fluctuated between $70 and $80 per barrel through mid-February 2010. The increase in the price of oil over the course of 2009 was driven in large measure by strengthening global activity, particularly in the emerging market economies. The ongoing effects of earlier restrictions in OPEC supply were another likely contributing factor. The prices of longer-term futures contracts (that is, those expiring in December 2018) for crude oil also moved up and, as of mid-February, were about $96 per barrel. The upward-sloping futures curve is consistent with a view by market participants that oil prices will continue to rise as global demand strengthens over the medium term.

Broad indexes of nonfuel commodity prices also rose from lows near the start of 2009. As with the rise in oil prices, a key driver of the increase in commodity prices has been resurgent demand from emerging market economies, especially China. Market participants expect some further increases in commodity prices as the economic recovery gains strength, albeit increases that are less pronounced than those recorded during last year's rebound.

The steep decline in commodity prices in late 2008 put considerable downward pressure on U.S. import prices for the first half of 2009. Overall for 2009, prices of imported goods fell 1 percent while prices for goods excluding oil fell 2½ percent. Recent upward moves in commodity prices suggest that some of this downward pressure on import prices will be reversed in 2010.

The U.S. trade deficit narrowed considerably in the first half of 2009. Nominal imports fell more than nominal exports early in the year, partly reflecting a substantial decline in the value of oil imports. The trade deficit widened moderately over the remainder of the year, however, as both imports and exports picked up in subsequent quarters and oil prices moved higher. In the fourth quarter of 2009, the trade deficit was $440 billion (annual rate), or about 3 percent of nominal GDP, compared with a deficit of 4 percent of nominal GDP a year earlier (figure 25).

National Saving

Total U.S. net national saving—that is, the saving of households, businesses, and governments, excluding depreciation charges—remained extremely low by historical standards in 2009, averaging about negative 2½ percent of nominal GDP over the first three quarters of the year (figure 26). After having reached nearly 4 percent of nominal GDP in early 2006, net national saving dropped over the subsequent three years as the federal budget deficit widened substantially and the

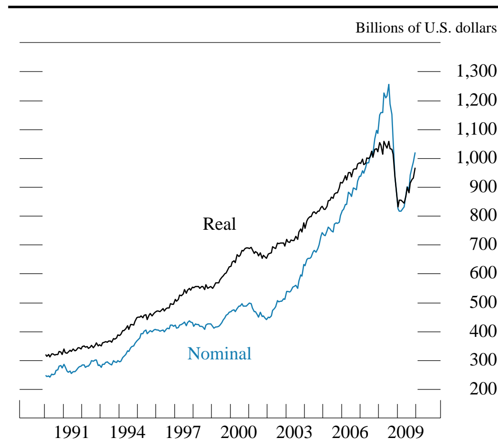
Developments in Global Trade

The downturn in global activity was accompanied by a dramatic collapse in global trade. Measured in U.S. dollars, global exports fell about 35 percent between July 2008 and February 2009.[1] About one-third of the decline was a result of falling prices, notably for oil and other commodities. The volume of global exports is estimated to have contracted about 20 percent between mid-2008 and early 2009, a larger and more abrupt decline than has been observed in previous cycles (figure A).

The fall in global exports was also more widespread across countries and regions than has typically been the case in past recessions. The severity of the decline in trade was a major factor in the spread of the economic downturn to the emerging market economies in Asia and Latin America, which were generally less directly exposed to the financial crisis than were the advanced economies. Early on, financial and economic indicators in the emerging market economies appeared to be relatively resilient, raising the possibility that those economies had "decoupled" from developments in the advanced economies. However, the trade channel proved quite potent, and most of the emerging market economies experienced deep recessions. A major exception was China, which provided considerable fiscal stimulus to its own economy.

1. The total includes 44 countries. The emerging Asian economies consist of China, Hong Kong, India, Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan, Thailand, and Vietnam; the Latin American economies consist of Argentina, Brazil, Chile, Colombia, Mexico, and Venezuela; the other emerging market economies consist of Hungary, Israel, Poland, Russia, South Africa, and Turkey; and the advanced economies consist of Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

A. Real and nominal global exports, 1990–2009



NOTE: The data are monthly and extend through December 2009. Real global exports are staff estimates expressed in billions of 2007 U.S. dollars.

SOURCE: The nominal data are the sum of U.S. dollar exports from individual country sources via databases maintained by Haver Analytics, CEIC, and the IMF Direction of Trade Statistics, in some cases seasonally adjusted by Federal Reserve staff. Forty-four countries are included. The real data are calculated using trade prices from country sources via Haver Analytics (in some cases interpolated from quarterly or annual data), which are converted to U.S. dollar prices using each country's dollar exchange rate and rebased to 2007.

The primary explanation for the deep and abrupt collapse in global trade seems to be that the contraction in global demand was much more severe than in the past. Constraints on the supply of trade finance related to the general credit crunch may have played a role at the beginning, but the fall in demand soon became the more important factor. The sensitivity of trade to the decline in gross domestic product also appears to have been stronger in this cycle than in past cycles, although there is no real agreement on why this might be the case. Greater integration of production across coun-

fiscal positions of state and local governments deteriorated. In contrast, private saving rose considerably, on balance, over this period. National saving will likely remain relatively low this year in light of the continuing high federal budget deficit. If not raised over the longer run, persistent low levels of national saving will likely be associated with both low rates of capital formation and heavy borrowing from abroad, limiting the rise in the standard of living of U.S. residents over time.

The Labor Market

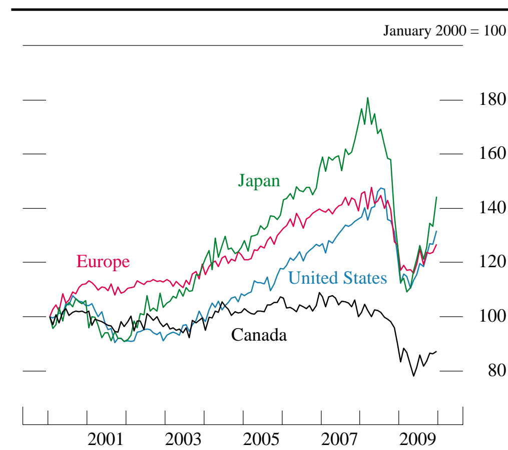
Employment and Unemployment

After falling sharply in the first half of 2009, employment continued to contract through the remainder of the year, but at a gradually moderating pace. Nonfarm private payroll employment fell 725,000 jobs per month, on average, from January to April of 2009; the pace of

tries and an increase in exports of products for which there are shorter lags between changes in demand and changes in exports—such as electronics—may also have added to the speed and synchronicity of the collapse.

Exports appear to have stopped declining in most economies in the first half of 2009, but so far the strength of the recovery in trade has differed across countries. In particular, exports of the emerging Asian economies are much closer to their previous peaks than are exports of the advanced economies (figures B and C), as the strength of the Chinese economy has so far been a key factor driving exports of the other emerging Asian economies.

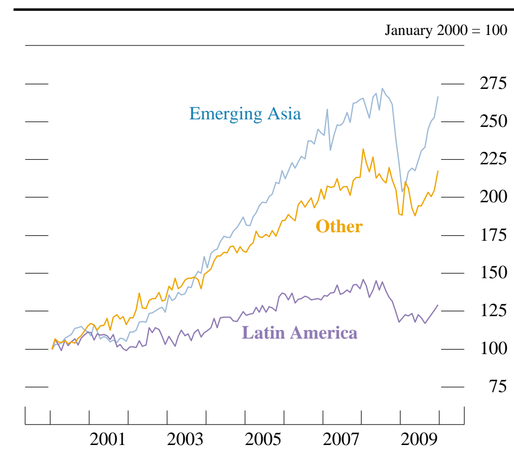
B. Real export indexes for advanced economies, 2000–09



NOTE: The data are monthly and extend through December 2009. In this figure, the European economies are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

SOURCE: The nominal data are U.S. dollar exports from individual country sources via databases maintained by Haver Analytics and the IMF Direction of Trade Statistics, in some cases seasonally adjusted by Federal Reserve staff. The real data are calculated using trade prices from country sources via Haver Analytics (in some cases interpolated from quarterly or annual data), which are converted to U.S. dollar prices using each country's dollar exchange rate and rebased to 2007.

C. Real export indexes for emerging market economies, 2000–09



NOTE: The data are monthly and extend through December 2009. In this figure, the emerging Asian economies are China, Hong Kong, India, Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan, Thailand, and Vietnam; the Latin American economies are Argentina, Brazil, Chile, Colombia, Mexico, and Venezuela; and the other economies are Hungary, Israel, Poland, Russia, South Africa, and Turkey.

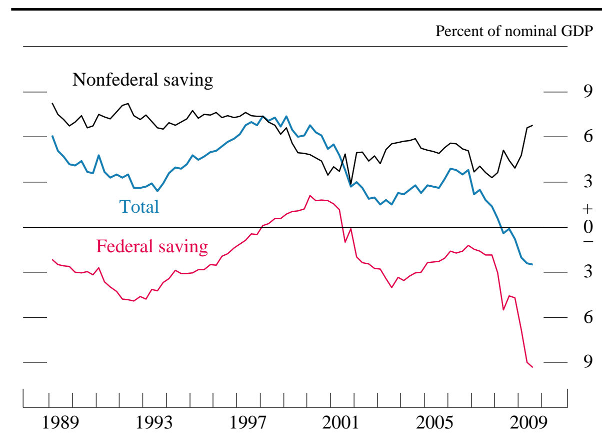
SOURCE: The nominal data are U.S. dollar exports from individual country sources via databases maintained by Haver Analytics, CEIC, and the IMF Direction of Trade Statistics, in some cases seasonally adjusted by Federal Reserve staff. The real data are calculated using trade prices from country sources via Haver Analytics (in some cases interpolated from quarterly or annual data), which are converted to U.S. dollar prices using each country's dollar exchange rate and rebased to 2007.

job loss slowed to about 300,000 per month from May to October, and to an average of 20,000 jobs per month from November to January (figure 27). The moderation in the pace of job losses was relatively widespread across sectors, although cutbacks in employment in the construction industry continued to be sizable through January.

After rising rapidly for more than a year, the unemployment rate stabilized at 10 percent in the fourth quarter of 2009 (figure 28). In January, the jobless rate dropped to 9.7 percent, though it remained 4.7 percentage points higher than its level two years ago.

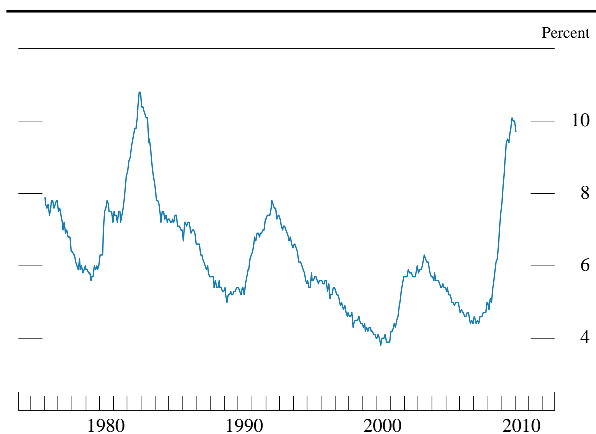
The slowing in net job losses since mid-2009 primarily reflected a reduction in layoffs rather than an improvement in hiring. Both the number of new job losses and initial claims for unemployment insurance are down significantly from their highs in the spring of 2009, while most indicators of hiring conditions, such

26. Net saving, 1989–2009



NOTE: The data are quarterly and extend through 2009:Q3. Nonfederal saving is the sum of personal and net business saving and the net saving of state and local governments. GDP is gross domestic product.
SOURCE: Department of Commerce, Bureau of Economic Analysis.

28. Civilian unemployment rate, 1976–2010

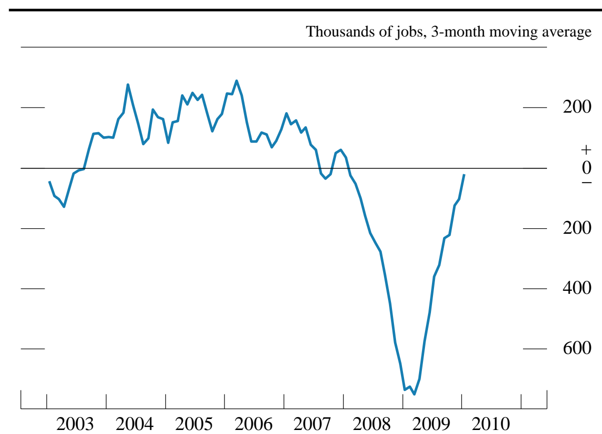


NOTE: The data are monthly and extend through January 2010.
SOURCE: Department of Labor, Bureau of Labor Statistics.

as the Bureau of Labor Statistics survey of job openings, remain weak. The average duration of an ongoing spell of unemployment continued to lengthen markedly in the second half of 2009, and joblessness became increasingly concentrated among the long-term unemployed. In January, 6.3 million individuals—more than 40 percent of the unemployed—had been out of work for at least six months. Furthermore, the labor force participation rate has declined steeply since last spring, a development likely related, at least in part, to the reactions of potential workers to the scarcity of employment opportunities (figure 29).

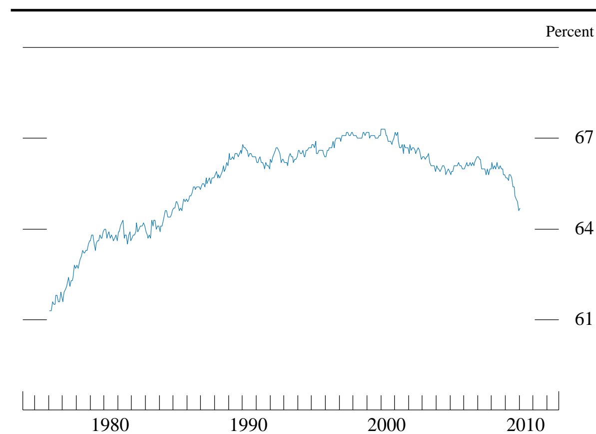
However, in recent months, labor market reports have included some encouraging signs that labor demand may be firming. For example, employment in the temporary help industry, which frequently is one of the first to see an improvement in hiring, has been increasing since October. In addition, after steep declines in 2008 and the first quarter of 2009, the average workweek of production and nonsupervisory employees stabilized at roughly 33.1 hours per week through the remainder of the year, before ticking up to 33.2 hours in November and December and 33.3 hours in January. Another indicator of an improvement in work hours, the fraction of workers on part-time schedules for economic reasons, increased only slightly, on net, in the second half of the year after a sharp rise in the first half and then turned down noticeably in January.

27. Net change in private payroll employment, 2003–10



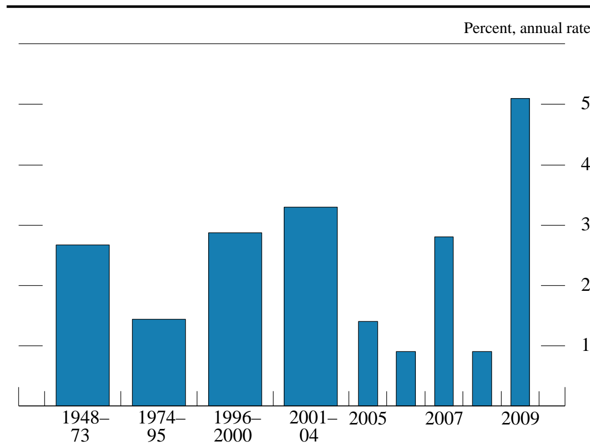
NOTE: The data are monthly and extend through January 2010.
SOURCE: Department of Labor, Bureau of Labor Statistics.

29. Labor force participation rate, 1976–2010



NOTE: The data are monthly and extend through January 2010.
SOURCE: Department of Labor, Bureau of Labor Statistics.

30. Change in output per hour, 1948–2009



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.

Productivity and Labor Compensation

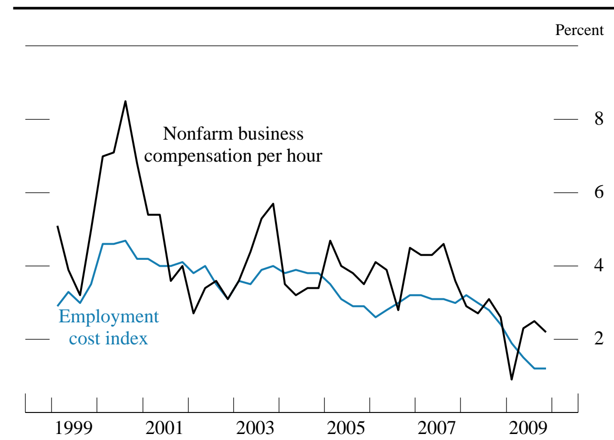
Labor productivity surged in 2009, reflecting, at least to some extent, the reluctance of firms to increase hiring even as demand expanded. According to the latest available published data, output per hour in the nonfarm business sector increased at an annual rate of 6¾ percent in the second half of 2009, after rising 3½ percent in the first half, and about 1 percent in 2008 (figure 30).

Despite large gains in productivity, increases in hourly worker compensation have remained subdued. The employment cost index for private industry workers, which measures both wages and the cost to employers of providing benefits, rose only 1¼ percent in nominal terms in 2009 after rising almost 2½ percent in 2008. Compensation per hour in the nonfarm business sector—a measure derived from the worker compensation data in the NIPA—showed less deceleration, rising 2.2 percent in nominal terms in 2009, only slightly slower than the 2.6 percent rise recorded for 2008 (figure 31). Real hourly compensation—that is, adjusted for the rise in consumer prices—increased only modestly. Reflecting the subdued increase in nominal hourly compensation, along with the outsized gain in labor productivity noted earlier, unit labor costs in the nonfarm business sector declined 2¾ percent in 2009.

Prices

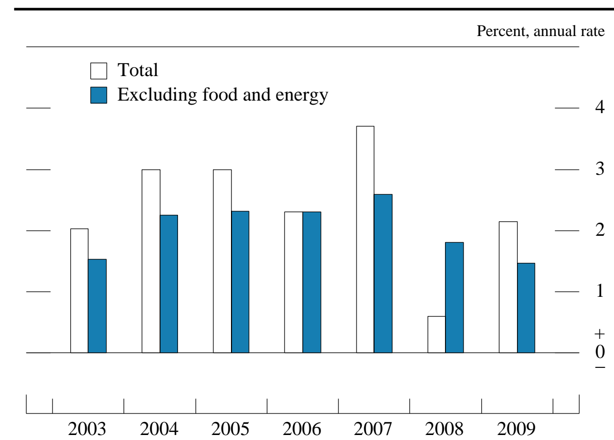
Headline consumer price inflation picked up in 2009, as sharp increases in energy prices offset reductions in food prices and a deceleration in other prices. After rising ½ percent over the 12 months of 2008, overall prices for personal consumption expenditures rose about 2 percent in 2009. In contrast, the core PCE price index—which excludes the prices of energy items as well as those of food and beverages—increased a little less than 1½ percent in 2009, compared with a rise of roughly 1¾ percent in 2008 (figure 32). Data for PCE prices in January 2010 are not yet available, but information from the consumer price index and other sources suggests that inflation remained subdued.

31. Measures of change in hourly compensation, 1999–2009



NOTE: The data are quarterly and extend through 2009:Q4. For nonfarm business compensation, change is over four quarters; for the employment cost index (ECI), change is over the 12 months ending in the last month of each quarter. The nonfarm business sector excludes farms, government, nonprofit institutions, and households. The sector covered by the ECI used here is the nonfarm business sector plus nonprofit institutions. A new ECI series was introduced for data as of 2001, but the new series is continuous with the old.
SOURCE: Department of Labor, Bureau of Labor Statistics.

32. Change in the chain-type price index for personal consumption expenditures, 2003–09



NOTE: Change is from December to December.
SOURCE: Department of Commerce, Bureau of Economic Analysis.

Consumer energy prices rose sharply in 2009, reversing much of the steep decline recorded in 2008. The retail price of gasoline was up more than 60 percent for the year as a whole, driven higher by a resurgence in the cost of crude oil. Reflecting the burgeoning supplies from new domestic wells, consumer natural gas prices fell sharply over the first half of 2009, before increasing again in the last few months of the year as the economic outlook improved. Electricity prices also fell during the early part of 2009 before retracing part of that decline later in the year. Overall, natural gas prices were down almost 20 percent in 2009, while electricity prices were about unchanged.

After posting sizable declines throughout much of 2009, food prices turned up modestly in the fourth quarter of last year. For the year as a whole, consumer food prices fell 1½ percent after rising 6¾ percent in 2008; these changes largely reflected the pass-through to retail of huge swings in spot prices of crops and livestock over the past two years.

Excluding food and energy, PCE price inflation slowed last year. Core PCE prices rose at an annual rate of 1¾ percent in the first half of 2009, similar to the pace in 2008, and then increased at an annual rate of only a little above 1 percent over the final six months of the year. This slowdown in core inflation was centered in a noticeable deceleration in the prices of nonenergy services. For those prices, firms' widespread cost-cutting efforts over the past year and the continued weakness in the housing market that has put downward pressure on housing costs have likely been important factors. The prices of many core consumer goods continued to rise only moderately in 2009; a notable exception was tobacco, for which tax-induced price hikes were substantial.

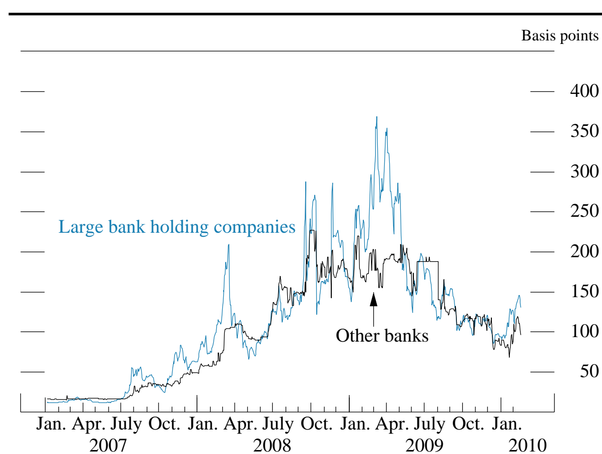
Survey-based measures of near-term inflation expectations, which were unusually low in the beginning of 2009, moved up, on average, over the remainder of the year. According to the Thomson Reuters/University of Michigan Surveys of Consumers, median expectations for year-ahead inflation stood at 2.8 percent in January, up from about 2 percent at the beginning of 2009. Historically, this short-term measure has been influenced fairly heavily by contemporaneous movements in energy prices. Longer-term inflation expectations, by contrast, have been relatively stable over the past year. For example, the Thomson Reuters/University of Michigan survey measure of median 5- to 10-year inflation expectations was 2.9 percent in January of this year, similar to the readings during most of 2009, and near the lower end of the narrow range that has prevailed over the past few years.

Financial Stability Developments

Evolution of the Financial Sector, Policy Actions, and Market Developments

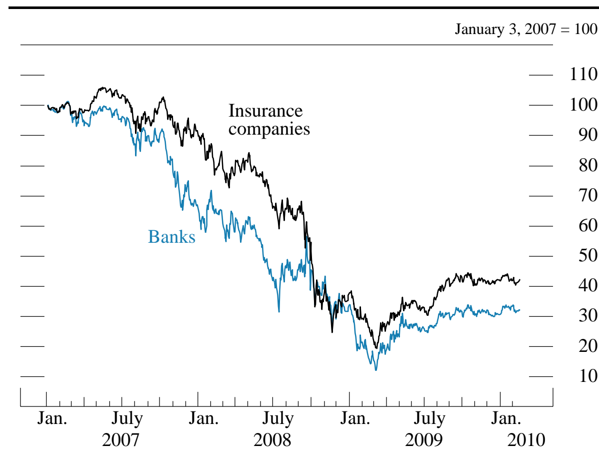
The recovery in the financial sector that began in the first half of 2009 continued through the second half of the year and into 2010, as investor concerns about the health of large financial institutions subsided further. Credit default swap (CDS) spreads for banking institutions—which primarily reflect investors' assessments of and willingness to bear the risk that those institutions will default on their debt obligations—fell considerably from their peaks early in 2009, although they remain above pre-crisis levels (figure 33). Bank equity prices have increased significantly since spring 2009 (figure 34). Many of the largest bank holding companies were able to issue equity and repurchase preferred shares that had been issued to the Treasury under the TARP. Nonetheless, conditions in many banking markets remain very challenging, with delinquency and charge-off rates still elevated, especially on commercial and residential real estate loans. Investor concerns about insurance companies—which had come under pressure in early 2009 and a few of which had received capital injections from the Treasury—also diminished, as indicated by narrowing CDS spreads for those firms and increases in their equity prices. In December, the Treasury announced that it was amending the cap on its Preferred Stock Purchase Agreements with Fannie Mae and Freddie Mac to ensure that each firm would maintain positive net worth for the next three years, and it

33. Spreads on credit default swaps for selected U.S. banks, 2007–10



NOTE: The data are daily and extend through February 18, 2010. Median spreads for six bank holding companies and nine other banks.
SOURCE: Markit.

34. Equity price indexes for banks and insurance companies, 2007–10



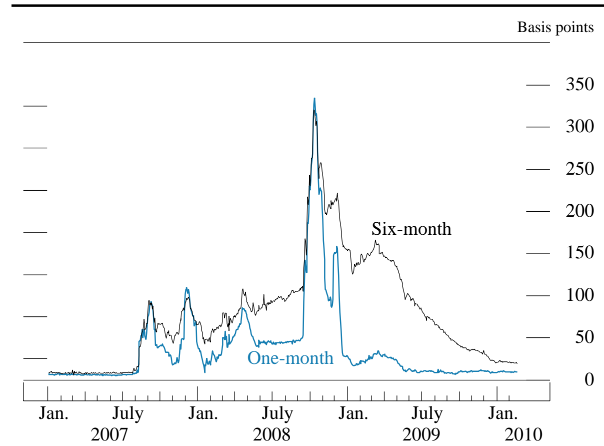
NOTE: The data are daily and extend through February 18, 2010.
SOURCE: Standard & Poor's.

also announced that it was providing additional capital to GMAC under the TARP.

Consistent with diminishing concerns about the conditions of banking institutions, functioning in bank funding markets has improved steadily since the spring of last year. A measure of stress in these markets—the spread between the London interbank offered rate (Libor) and the rate on comparable-maturity overnight index swaps (OIS)—narrowed at all maturities; spreads at shorter maturities reached pre-crisis levels, while those at longer maturities remained somewhat elevated by historical standards (figure 35). Liquidity in term bank funding markets also improved at terms up to six months. Conditions improved in other money markets as well. Bid-asked spreads and haircuts applied to collateral in repurchase agreement (repo) markets retraced some of the run-ups that had occurred during the financial market turmoil, though haircuts on most types of collateral continued to be sizable relative to pre-crisis levels. In the commercial paper market, spreads between rates on lower-quality A2/P2 paper and on asset-backed commercial paper over higher-quality AA nonfinancial paper fell to the low end of the range observed since the fall of 2007 (figure 36).

With improved conditions in financial markets, the Federal Reserve and other agencies removed some of the extraordinary support that had been provided during the crisis. Starting in the second half of 2009, the Federal Reserve began to normalize its lending to commercial banks. The amounts and maturity of credit auctioned through the Term Auction Facility (TAF) were reduced over time, and early in 2010 the Federal Reserve announced that the final TAF auction would be conducted in March 2010. Later, the Federal Reserve

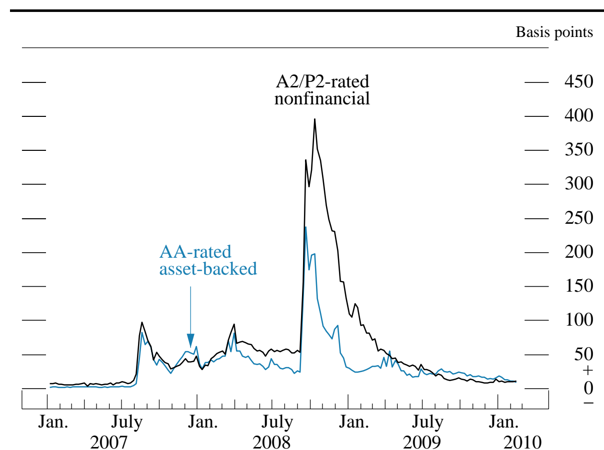
35. Libor minus overnight index swap rate, 2007–10



NOTE: The data are daily and extend through February 19, 2010. 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.

noted that the minimum bid rate for the final auction would be 50 basis points, ¼ percentage point higher than in recent auctions. The Federal Reserve also shortened the maximum maturity of loans provided under the primary credit program from 90 days to 28 days, effective on January 14, and announced a further reduction of the maximum maturity of those loans to overnight effective March 18. In addition, the rate charged on primary credit loans was increased from ½ percent to ¾ percent effective February 19. Amounts outstanding under many of the Federal Reserve's special

36. Commercial paper spreads, 2007–10

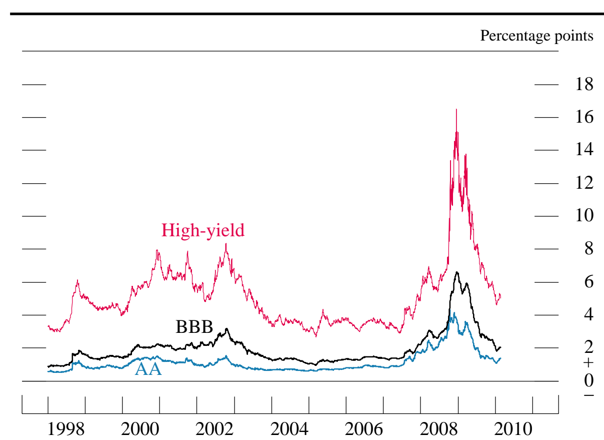


NOTE: The data are weekly and extend through February 17, 2010. Commercial paper yield spreads are for an overnight maturity and are expressed relative to the AA nonfinancial rate.
SOURCE: Depository Trust and Clearing Corporation.

liquidity facilities had dwindled to zero (or near zero) over the second half of 2009 as functioning of funding markets, both in the United States and abroad, continued to normalize. The Primary Dealer Credit Facility, the Term Securities Lending Facility, the Commercial Paper Funding Facility, the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, and the temporary liquidity swap lines with foreign central banks were all allowed to expire on February 1, 2010. Other government agencies also reduced their support to financial institutions. For instance, to buttress the liquidity of financial institutions, the FDIC had established in October 2008 a program to provide, in exchange for a fee, a guarantee on short- and medium-term debt issued by banking institutions. Financial institutions issued about $300 billion under this program, but use of the program declined after the summer of 2009 as financial institutions were able to successfully issue nonguaranteed debt. In light of these developments, the FDIC announced in late October 2009 that the guarantee program would be extended but with significant restrictions; no debt has been issued under the extended program.

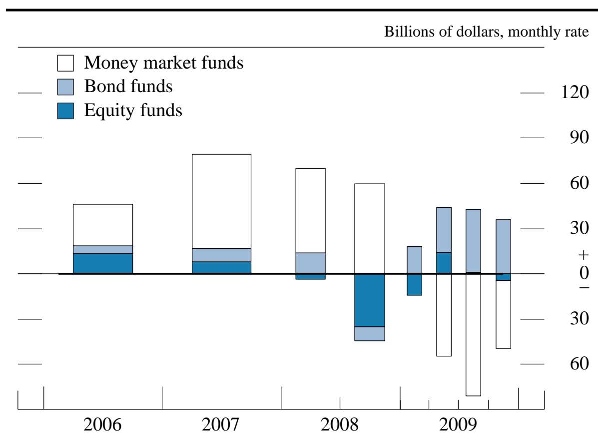
Asset prices in longer-term capital markets have also staged a noticeable recovery since the spring of 2009, and risk premiums have narrowed noticeably as investors' appetite for risk appears to be recovering. In the corporate bond market, risk spreads on both investment- and speculative-grade bonds—the difference between the yields on these securities and those on comparable-maturity Treasury securities—dropped, and by the end of last year those spreads were within ranges observed during the recoveries from previous recessions (figure 37). During the second half of 2009, the decline in risk spreads was accompanied by considerable inflows into mutual funds that invest in corporate bonds (figure 38). In the leveraged loan market, the average bid price climbed back toward par, and bid-asked spreads narrowed noticeably as trading conditions reportedly improved (figure 39). Equity markets rebounded significantly over the past few quarters, leaving broad equity market indexes about 65 percent above the low point reached in March 2009 (figure 40).

37. Spreads of corporate bond yields over comparable off-the-run Treasury yields, by securities rating, 1998–2010



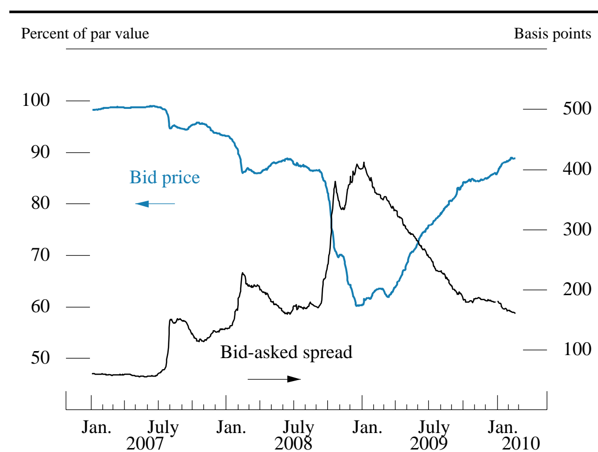
NOTE: The data are daily and extend through February 18, 2010. The spreads shown are the yields on 10-year bonds less the 10-year Treasury yield.
SOURCE: Derived from smoothed corporate yield curves using Merrill Lynch bond data.

38. Net flows into mutual funds, 2006–09



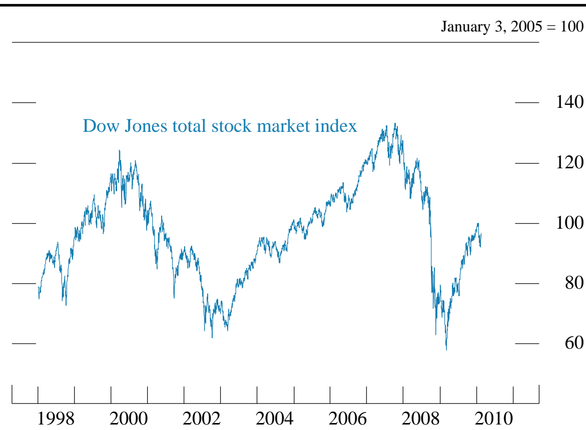
NOTE: The data exclude reinvested dividends and are not seasonally adjusted.
SOURCE: Federal Reserve Board, flow of funds data.

39. Secondary-market pricing for syndicated loans, 2007–10



NOTE: The data are daily and extend through February 18, 2010.
SOURCE: LSTA/Thomson Reuters Mark-to-Market Pricing.

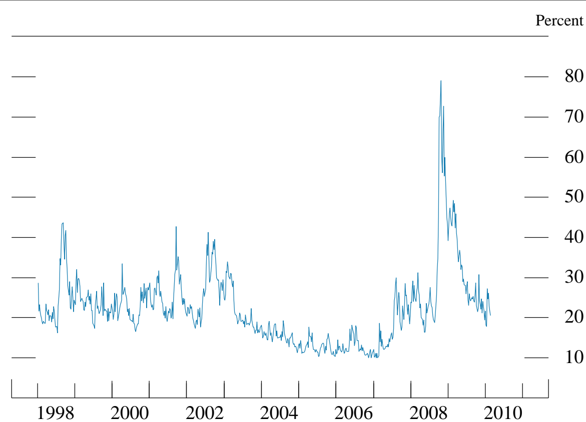
40. Stock price index, 1998–2010



NOTE: The data are daily and extend through February 18, 2010.
SOURCE: Dow Jones Indexes.

Overall, the rebound in asset prices likely reflected corporate earnings that were generally above market expectations, improved measures of corporate credit quality, and brighter economic prospects. Apparently, investors also became somewhat less concerned about the downside risks to the economic outlook, as suggested by declines in measures of uncertainty and risk premiums. Implied volatility on the S&P 500, as calculated from option prices, held at moderate levels during the second half of 2009 and was well off the peak reached in November 2008 (figure 41). Moreover, a measure of the premium that investors require for holding equity shares—the difference between the ratio of 12-month forward expected earnings to equity prices for S&P 500 firms and the long-term real Treasury yield—narrowed in 2009, though it remains elevated by historical standards.

41. Implied S&P 500 volatility, 1998–2010



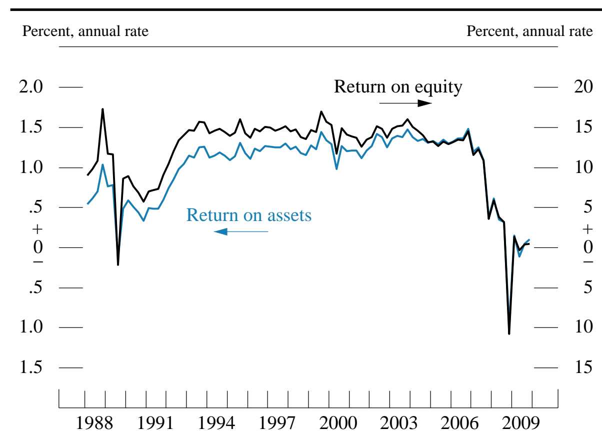
NOTE: The data are weekly and extend through the week ending February 19, 2010. The final observation is an estimate based on data through February 18, 2010. The series shown—the VIX—is the implied 30-day volatility of the S&P 500 stock price index as calculated from a weighted average of options prices.
SOURCE: Chicago Board Options Exchange.

Banking Institutions

The profitability of the commercial banking sector, as measured by the return on equity, continued to be quite low during the second half of 2009 (figure 42). Elevated loan loss provisioning continued to be the largest factor restraining earnings; however, provisioning decreased significantly in the second half of the year, suggesting that banks believe that credit losses may be stabilizing. While some banks saw earnings boosted earlier last year by gains in trading and investment banking activities, revenue from these sources is reported to have dropped back in the fourth quarter. Although delinquency and charge-off rates for residential mortgages and commercial real estate loans continued to climb in the second half of 2009, for most other types of loans these metrics declined or showed signs of leveling out.

During the year, bank holding companies issued substantial amounts of common equity. Significant issuance occurred in the wake of the release of the Supervisory Capital Assessment Program (SCAP) results, which indicated that some firms needed to augment or improve the quality of their capital in order to assure that, even under a macroeconomic scenario that was more adverse than expected, they would emerge from the subsequent two-year period still capable of meeting the needs of creditworthy borrowers. The 19 SCAP firms issued about $110 billion in new common equity; combined with conversions of preferred stock, asset

42. Commercial bank profitability, 1988–2009



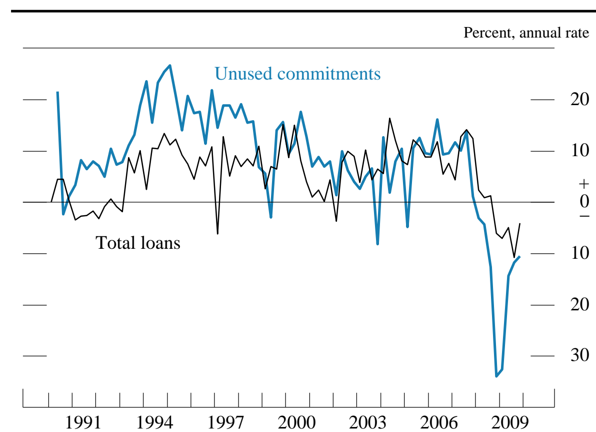
NOTE: The data are quarterly and extend through 2009:Q4.
SOURCE: Federal Financial Institutions Examination Council, Consolidated Reports of Condition and Income (Call Report).

sales, and other capital actions, these steps have added more than $200 billion to common equity since the beginning of 2009. Equity offerings were also undertaken by other financial firms, and some used the proceeds to repay funds received as part of the Capital Purchase Program.

Against a backdrop of weak loan demand and tight credit policies throughout 2009, total loans on banks' books contracted even more sharply in the last two quarters taken together than in the first half of the year (figure 43). Outstanding unused loan commitments to both businesses and households also declined, albeit at a slower pace than in early 2009. The decline in loans was partially offset by an increase in holdings of securities, particularly Treasury securities and agency MBS, and a further rise in balances at the Federal Reserve. On balance, total industry assets declined. The decline in assets combined with an increase in capital to push regulatory capital ratios considerably higher.

The Financial Accounting Standards Board published Statements of Financial Accounting Standards Nos. 166 and 167 (FAS 166 and 167) in June 2009. The new standards modified the basis for determining whether a firm must consolidate securitized assets (as well as the associated liabilities and equity) onto its balance sheet; most banking organizations must implement the standards in the first quarter of 2010. Industry analysts estimate that banking organizations will consolidate approximately $600 billion of additional assets as a result of implementing FAS 166 and 167. A small number of institutions with large securitization programs will be most affected. While the regulatory capital ratios of the affected banking organizations may decrease after implementation of FAS 166 and 167, the ratios of organizations most affected by the accounting change are expected to remain substantially in excess of regulatory minimums. The federal banking agencies recently published a related risk-based capital rule that includes an optional one-year phase-in of certain risk-based capital impacts resulting from implementation of FAS 166 and 167.[16]

43. Change in total bank loans and unused bank loan commitments to businesses and households, 1990–2009



Note: The data, which are not seasonally adjusted, are quarterly and extend through 2009:Q4. Total loans are adjusted to remove the effects of large thrifts converting to commercial banks or merging with a commercial bank.

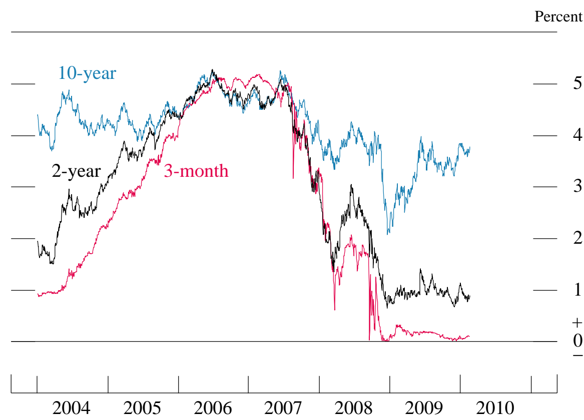
Source: Federal Financial Institutions Examination Council, Consolidated Reports of Condition and Income (Call Report).

Monetary Policy Expectations and Treasury Rates

In July 2009, market participants had expected the target federal funds rate to be close to the current target range of 0 to ¼ percent in early 2010, but they had also anticipated that the removal of policy accommodation would be imminent. Over the second half of 2009, however, investors marked down their expectations for the path of the federal funds rate. Quotes on futures contracts imply that, as of mid-February 2010, market participants anticipate that policy will be tightened beginning in the third quarter of 2010, and that the tightening will proceed at a pace slower than was expected last summer. However, uncertainty about the size of term premiums and potential distortions created by the zero lower bound for the federal funds rate continue to make it difficult to obtain a definitive reading on the policy expectations of market participants from futures prices. The downward revision in policy expectations since July likely has reflected incoming economic data pointing to a somewhat weaker trajectory for employment and a lower path for inflation than had been anticipated. Another contributing factor likely was Federal Reserve communications, including the reiteration in the statement released after each meeting of the Federal Open Market Committee that economic conditions are likely

16. For more information and the text of the final rule, see Office of the Comptroller of the Currency, Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, and Office of Thrift Supervision (2010), "Agencies Issue Final Rule for Regulatory Capital Standards Related to Statements of Financial Accounting Standards Nos. 166 and 167," press release, January 21, www.federalreserve.gov/newsevents/press/bcreg/20100121a.htm. The final rule was also published in the *Federal Register*; see Office of the Comptroller of the Currency, Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, and Office of Thrift Supervision (2010), "Risk-Based Capital Guidelines; Capital Adequacy Guidelines; Capital Maintenance: Regulatory Capital; Impact of Modifications to Generally Accepted Accounting Principles; Consolidation of Asset-Backed Commercial Paper Programs; and Other Related Issues," final rule, *Federal Register*, vol. 75 (January 28), pp. 4636–54.

44. Interest rates on selected Treasury securities, 2004–10



NOTE: The data are daily and extend through February 18, 2010.
SOURCE: Department of the Treasury.

to warrant exceptionally low levels of the federal funds rate for an extended period.

Yields on shorter-maturity Treasury securities have edged lower since last summer, consistent with the downward shift in the expected policy path (figure 44). However, yields on longer-maturity nominal Treasury securities have increased slightly, on net, likely in response to generally positive news about the economy and declines in the weight investors had placed on extremely adverse economic outcomes. The gradual tapering and the completion of the Federal Reserve's large-scale asset purchases of Treasury securities in October 2009 appeared to put little upward pressure on Treasury yields.

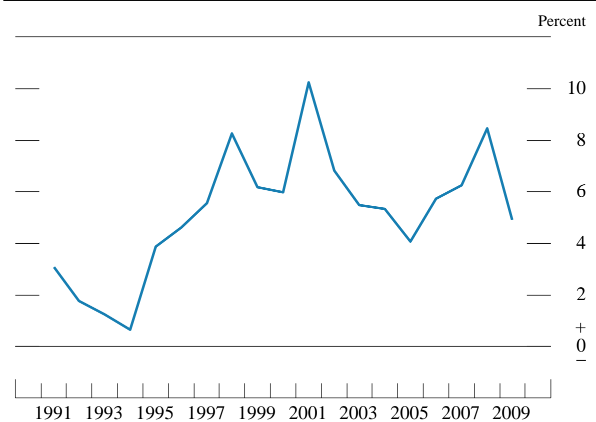
Yields on Treasury inflation-protected securities (TIPS) declined somewhat in the second half of 2009 and into 2010. The result was an increase in inflation compensation—the difference between comparable-maturity nominal yields and TIPS yields. The increase was concentrated at shorter-maturities and was partly a response to rising prices of oil and other commodities. Inflation compensation at more distant horizons was somewhat volatile and was little changed on net. Inferences about investors' inflation expectations have been more difficult to make since the second half of 2008 because special factors, such as safe-haven demands and an increased preference of investors for liquid assets, appear to have significantly affected the relative demand for nominal and inflation-indexed securities. These special factors began to abate in the first half of 2009 and receded further in the second half of the year, and the resulting changes in nominal and inflation-adjusted yields may have accounted for part of the recent increase in inflation compensation. On net, survey measures of longer-run inflation expectations have remained stable.

Monetary Aggregates and the Federal Reserve's Balance Sheet

After a brisk increase in the first half of the year, the M2 monetary aggregate expanded slowly in the second half of 2009 and in early 2010 (annual growth rate shown in figure 45).[17] The rise in the latter part of the year was driven largely by increases in liquid deposits, as interest rates on savings deposits were reduced more slowly than rates on other types of deposits, and households and firms maintained some preference for safe and liquid assets. Outflows from small time deposits and retail money market mutual funds intensified during the second half of 2009, likely because of ongoing declines in the interest rates offered on these products. The currency component of the money stock expanded

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

45. M2 growth rate, 1991–2009



NOTE: The data extend through 2009 and are annual on a fourth-quarter over fourth-quarter basis. For definition of M2, see text note 17.
SOURCE: Federal Reserve Board, Statistical Release H.6, "Money Stock Measures."

modestly in the second half of the year. The monetary base—essentially the sum of currency in circulation and the reserve balances of depository institutions held at the Federal Reserve—expanded rapidly for much of the second half of 2009, as the increase in reserve balances resulting from the large-scale asset purchases more than offset the decline caused by reduced usage of the Federal Reserve's credit programs. However, the monetary base increased more slowly toward the end of 2009 and early 2010 as these purchases were tapered and as use of Federal Reserve liquidity facilities declined.

1. Selected components of the Federal Reserve balance sheet, 2008–10

Millions of dollars

Balance sheet item	Dec. 31, 2008	July 15, 2009	Feb. 17, 2010
Total assets	**2,240,946**	**2,074,822**	**2,280,952**
Selected assets			
Credit extended to depository institutions and dealers			
Primary credit	93,769	34,743	14,156
Term auction credit	450,219	273,691	15,426
Central bank liquidity swaps	553,728	111,641	0
Primary Dealer Credit Facility and other broker-dealer credit	37,404	0	0
Credit extended to other market participants			
Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility	23,765	5,469	0
Net portfolio holdings of Commercial Paper Funding Facility LLC	334,102	111,053	7,721
Net portfolio holdings of LLCs funded through the Money Market Investor Funding Facility	0	0	0
Term Asset-Backed Securities Loan Facility	...	30,121	47,182
Support of critical institutions			
Net portfolio holdings of Maiden Lane LLC, Maiden Lane II LLC, and Maiden Lane III LLC[1]	73,925	60,546	65,089
Credit extended to American International Group, Inc.	38,914	42,871	25,535
Preferred interests in AIA Aurora LLC, and ALICO Holdings LLC	...	...	25,106
Securities held outright			
U.S. Treasury securities	475,921	684,030	776,571
Agency debt securities	19,708	101,701	165,587
Agency mortgage-backed securities (MBS)[2]	...	526,418	1,025,541
Memo			
Term Securities Lending Facility[3]	171,600	4,250	0
Total liabilities	**2,198,794**	**2,025,348**	**2,228,425**
Selected liabilities			
Federal Reserve notes in circulation	853,168	870,327	892,985
Reserve balances of depository institutions	860,000	808,824	1,205,165
U.S. Treasury, general account	106,123	65,234	49,702
U.S. Treasury, supplemental financing account	259,325	199,939	5,000
Total capital	**42,152**	**49,474**	**52,527**

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 had written credit default swap contracts.

2. Includes only MBS purchases that have already settled.

3. The Federal Reserve retained ownership of securities lent through the Term Securities Lending Facility.

... Not applicable.

Source: Federal Reserve Board.

The nontraditional monetary policy actions taken by the Federal Reserve since the onset of the financial crisis expanded the size of the Federal Reserve's balance sheet considerably during 2008, and it remained very large throughout 2009 and into 2010 (table 1). Total Federal Reserve assets on February 17, 2010, stood at about $2.3 trillion. The compositional shifts that had been under way in the first half of 2009 continued during the remainder of the year. Lending to depository institutions as well as credit extended under special liquidity facilities and the temporary liquidity swaps with foreign central banks contracted sharply. By contrast, the large-scale asset purchases conducted by the Federal Reserve boosted securities held outright. Holdings of agency MBS surpassed $1 trillion early this year, up from about $525 billion in mid-July 2009. For other types of securities, the increases were more modest, with holdings of agency debt expanding from about $100 billion in July 2009 to $165 billion in February and holdings of Treasury securities rising from nearly $700 billion to approximately $775 billion over the same period. The revolving credit provided to American International Group, Inc. (AIG), declined near year-end, as the outstanding balance was reduced in exchange for preferred interests in AIA Aurora LLC and ALICO Holdings LLC, which are life insurance holding company subsidiaries of AIG. Loans related to the Maiden Lane facilities—which represent credit extended in conjunction with efforts to avoid disorderly failures of The Bear Stearns Companies, Inc., and AIG—stayed roughly steady. On the liability side of the Federal Reserve's balance sheet, reserve balances increased from slightly more than $800 billion in July to about $1.2 trillion as of February 17, 2010, while the Treasury's supplementary financing account fell to $5 billion; the decline in the supplementary financing account occurred late in 2009 as part of the Treasury's efforts to retain flexibility in debt management as federal debt approached the debt ceiling.

International Developments

International Financial Markets

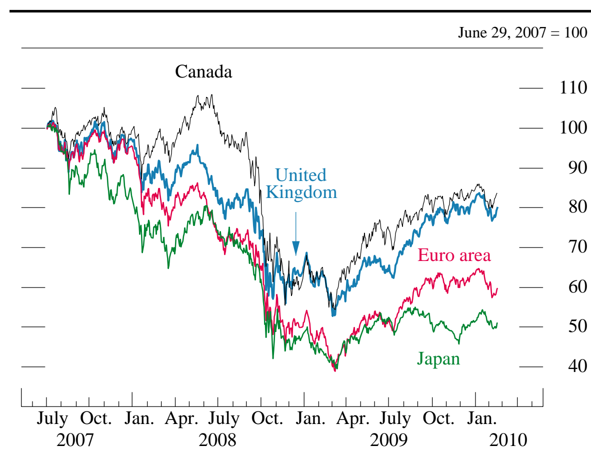
Global financial markets recovered considerably in 2009 as the effectiveness of central bank and govern-

ment actions in stabilizing the financial system became more apparent and as signs of economic recovery began to take hold. Stock markets in the advanced foreign economies registered gains of about 50 percent from their troughs in early March, although they remain below their levels at the start of the financial crisis in August 2007 (figure 46). Stock markets in the emerging market economies rebounded even more impressively over the year. Most Latin American and many emerging Asian stock markets are now close to their levels at the start of the crisis (figure 47).

As global prospects improved, investors shifted away from the safe-haven investments in U.S. securities they had made at the height of the crisis. As a result, the dollar, which had appreciated sharply in late 2008, depreciated against most other currencies in the second and third quarters of 2009. The dollar depreciated particularly sharply against the currencies of major commodity-producing nations, such as Australia and Brazil, as rising commodity prices supported economic recovery in those countries. In the fourth quarter, the dollar stabilized and has since appreciated somewhat, on net, as investors began to focus more on economic news and prospects for the relative strength of the economic recoveries in the United States and elsewhere (figure 48). Chinese authorities held the renminbi steady against the dollar throughout the year. For 2009 as a whole, the dollar depreciated roughly 4½ percent on a trade-weighted basis against the major foreign currencies (figure 49) and 3½ percent against the currencies of the other important trading partners of the United States.

Sovereign bond yields in the advanced economies rose over most of 2009 as investors moved out of safe investments in government securities and became more willing to purchase riskier securities. Concerns about rising budget deficits in many countries and the asso-

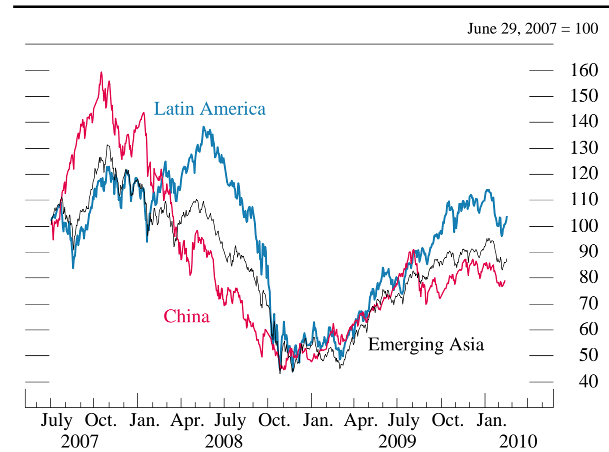
46. Equity indexes in selected advanced foreign economies, 2007–10



Note: The data are daily. The last observation is February 18, 2010, for the euro area, Japan, and the United Kingdom and February 17, 2010, for Canada.

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.

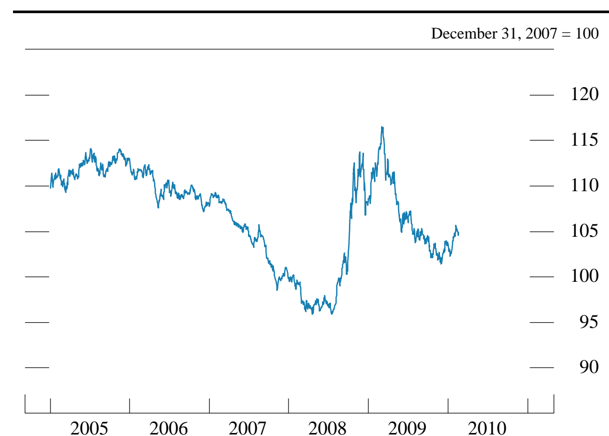
47. Equity indexes in selected emerging market economies, 2007–10



Note: The data are daily. The last observation is February 17, 2010, for Latin America and emerging Asia and February 12, 2010, for China. In this figure, 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.

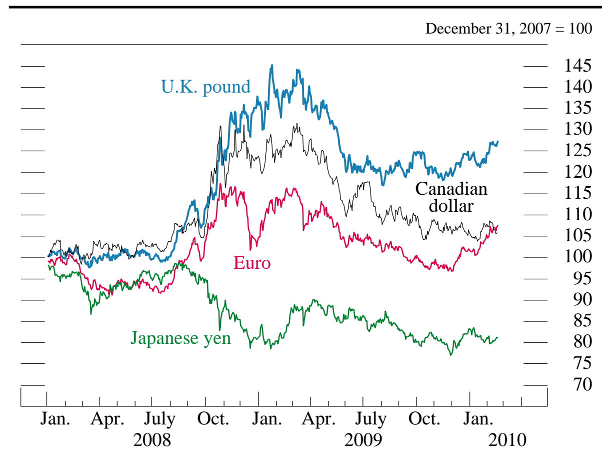
48. U.S. dollar nominal exchange rate, broad index, 2005–10



Note: The data, which are in foreign currency units per dollar, are daily. The last observation for the series is February 18, 2010. 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.

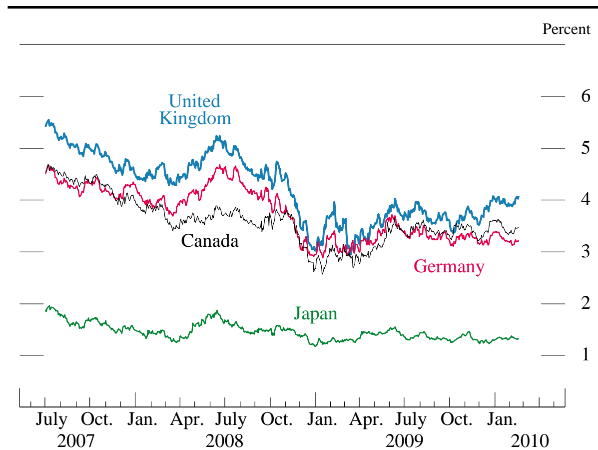
Source: Federal Reserve Board, Statistical Release H.10, "Foreign Exchange Rates."

49. U.S. dollar exchange rate against selected major currencies, 2008–10



NOTE: The data, which are in foreign currency units per dollar, are daily. The last observation for each series is February 18, 2010.
SOURCE: Federal Reserve Board, Statistical Release H.10, "Foreign Exchange Rates."

50. Yields on benchmark government bonds in selected advanced foreign economies, 2007–10



NOTE: The data, which are for 10-year bonds, are daily. The last observation for each series is February 18, 2010.
SOURCE: Bloomberg.

ciated borrowing needs also likely contributed to the increase in yields. Late in the year, the announcement of a substantial upward revision to the budget deficit in Greece led to a sharp rise in spreads of Greece's sovereign debt over comparable yields on Germany's sovereign debt. These spreads remained elevated in early 2010 and also increased in other euro-area countries with sizable budget deficits, especially Portugal and Spain. Sovereign yields in most of the advanced economies, however, remained significantly lower than prior to the financial crisis, as contained inflation, expectations of only slow economic recovery, and easing of monetary policy by central banks have all worked to keep long-term nominal interest rates low (figure 50).

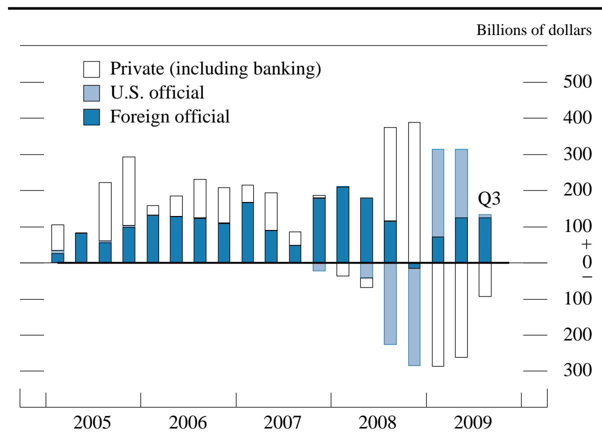
Conditions in global money markets have continued to improve. One-month Libor-OIS spreads in euros and sterling are now less than 10 basis points, near their levels before the crisis. Dollar funding pressures abroad have also substantially abated, and foreign firms are more easily able to obtain dollar funding through private markets such as those for foreign exchange swaps. As a result, drawings on the Federal Reserve's temporary liquidity swap lines by foreign central banks declined in the second half of 2009 to only about $10 billion by the end of the year, and funding markets continued to function without disruption as these swap lines expired on February 1, 2010.

The Financial Account

The pattern of financial flows between the United States and the rest of the world in 2009 reflected the recovery under way in global markets. As the financial crisis eased, net bank lending abroad resumed, but the recovery in portfolio flows was mixed.

Total private financial flows reversed from the large net inflows that had characterized the second half of 2008 to large net outflows in the first half of 2009 (figure 51). This reversal primarily reflected changes in net bank lending. Banks located in the United States had sharply curtailed their lending abroad as the financial crisis intensified in the third and fourth quarters of 2008, and they renewed their net lending as functioning of interbank markets improved in the first half of 2009. During the second half of 2009, interbank market

51. U.S. net financial inflows, 2005–09



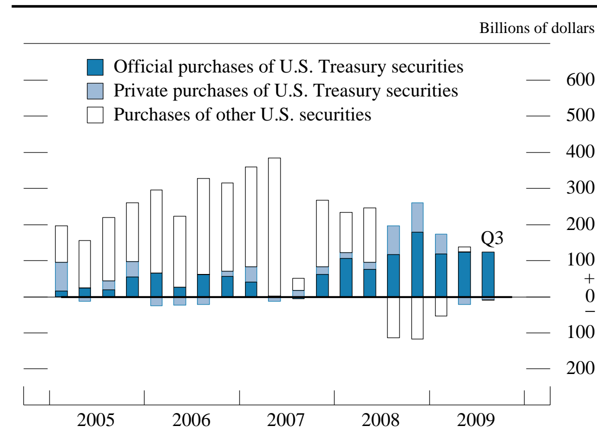
NOTE: U.S. official flows include foreign central banks' drawings on their swap lines with the Federal Reserve.
SOURCE: Department of Commerce, Bureau of Economic Analysis.

conditions continued to normalize, and net bank lending proceeded at a moderate pace. The increased availability of funding in private markets also led to reduced demand from foreign central banks for drawings on the liquidity swap lines with the Federal Reserve. Repayment of the drawings in the first half of 2009 generated sizable U.S. official inflows that offset the large private banking outflows.

Foreign official institutions continued purchasing U.S. Treasury securities at a strong pace throughout 2009, as they had during most of the crisis (figure 52). Foreign exchange intervention by several countries to counteract upward pressure on their currencies gave a boost to these purchases. Countries conducting such intervention bought U.S. dollars in foreign currency markets and acquired U.S. assets, primarily Treasury securities, with the proceeds.

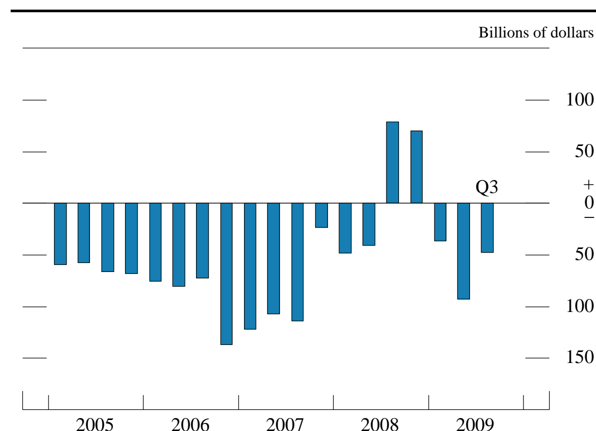
During the height of the crisis, private foreign investors had also purchased record amounts of U.S. Treasury securities, likely reflecting safe-haven demands. Starting in April 2009, as improvement in financial conditions became more apparent, private foreigners began to sell U.S. Treasury securities, but net sales in the second and third quarters were modest compared with the amounts acquired in previous quarters. The recovery in foreign demand for riskier U.S. securities was mixed. Foreign investment in U.S. equities picked up briskly after the first quarter of 2009, nearly reaching a pre-crisis pace. However, foreign investors continued small net sales of U.S. corporate and agency debt. Meanwhile, U.S. investment in foreign securities bounced back quickly and remained strong throughout 2009 (figure 53).

52. Net foreign purchases of U.S. securities, 2005–09



NOTE: Other U.S. securities include corporate equities and bonds, agency bonds, and municipal bonds.
SOURCE: Department of Commerce, Bureau of Economic Analysis.

53. Net U.S. purchases of foreign securities, 2005–09



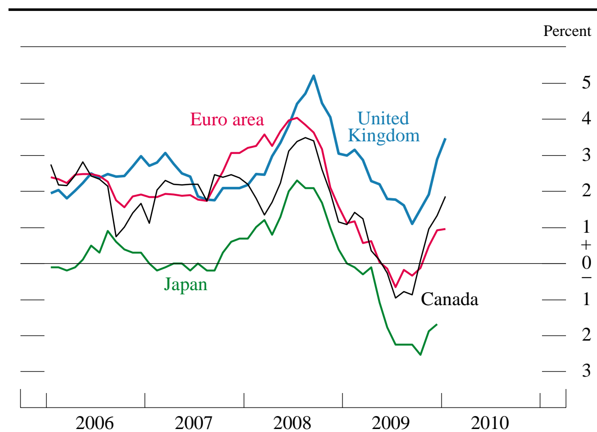
NOTE: Negative numbers indicate a balance of payments outflow associated with positive U.S. purchases of foreign securities.
SOURCE: Department of Commerce, Bureau of Economic Analysis.

Advanced Foreign Economies

Economic activity in the advanced foreign economies continued to fall sharply in early 2009 but began to recover later in the year as financial conditions improved and world trade rebounded. The robust recovery in emerging Asia helped the Japanese economy to turn up in the second quarter, and other major foreign economies returned to positive economic growth in the second half. Nevertheless, performance has been mixed. Spurred by external demand and a reduction in the pace of inventory destocking, industrial production has risen in most countries but remains well below pre-crisis levels. Business confidence has shown considerable improvement, and survey measures of manufacturing activity have risen as well. Consumer confidence also has improved as financial markets have stabilized, but household finances remain stressed, with unemployment at high levels and wage gains subdued. Although government incentives helped motor vehicle purchases to bounce back from the slump in early 2009, other household spending has remained sluggish in most countries. Housing prices have recovered somewhat in the United Kingdom and more in Canada but have continued to decline in Japan and in some euro-area countries.

Twelve-month consumer price inflation moved lower through the summer, with headline inflation turning negative in all the major advanced foreign countries except the United Kingdom. However, higher energy prices in the second half of 2009 pushed inflation back into positive territory except in Japan (figure 54). Core consumer price inflation, which excludes food and energy, has fluctuated less.

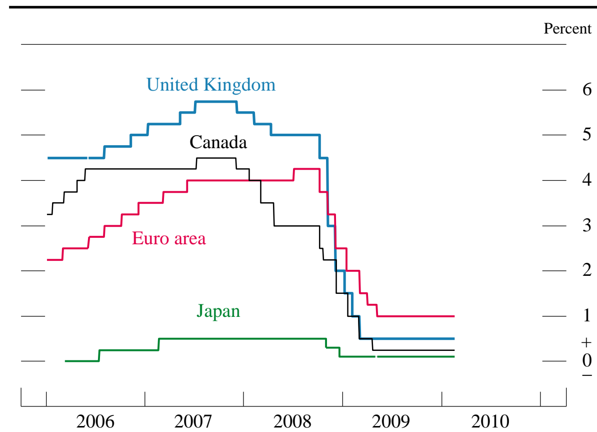
54. Change in consumer prices for major foreign economies, 2006–10



NOTE: The data are monthly, and the percent change is from one year earlier. The data extend through January 2010 for the euro area, Japan, and the United Kingdom and through December 2009 for Canada.
SOURCE: For the euro area, the European Central Bank; for the United Kingdom, the U.K. Office for National Statistics; for Japan, the Japan Statistics Bureau; and, for Canada, Statistics Canada; all via Haver Analytics.

Foreign central banks cut policy rates aggressively during the first half of 2009 and left those rates at historically low levels through year-end (figure 55). The European Central Bank (ECB) has held its main policy rate at 1 percent since May and has made significant amounts of long-term funding available at this rate, allowing overnight interest rates to fall to around 0.35 percent. The Bank of Canada has indicated that it expects to keep its target for the overnight rate at a

55. Official or targeted interest rates in selected advanced foreign economies, 2006–10



NOTE: The data are daily and extend through February 18, 2010. The data shown are, for Canada, the overnight rate; for the euro area, the minimum bid rate on main refinancing operations; for Japan, the uncollateralized overnight call rate; and, for the United Kingdom, the official bank rate paid on commercial reserves.
SOURCE: The central bank of each area or country shown.

record low 0.25 percent until at least mid-2010. In addition to their interest rate moves, foreign central banks pursued unconventional monetary easing. The Bank of England continued its purchases of British treasury securities, increasing its Asset Purchase Facility from £50 billion to £200 billion over the course of the year. Amid concerns about persistent deflation, the Bank of Japan announced a new ¥10 trillion three-month secured lending facility at an unscheduled meeting on December 1. The ECB has continued its planned purchases of up to €60 billion in covered bonds, but it has also taken some initial steps toward scaling back its enhanced credit support measures, as it sees reduced need for special programs to provide liquidity.

Emerging Market Economies

Recovery from the global financial crisis has been more pronounced in the emerging market economies than in the advanced foreign economies. In aggregate, emerging market economies continued to contract in the first quarter of 2009, but economic activity in many countries, particularly in emerging Asia, rebounded sharply in the second quarter and remained robust in the second half of the year. The upturn in economic activity was driven largely by domestic demand, which received strong boosts from monetary and fiscal stimulus. By the end of 2009, the level of real GDP in several emerging market economies had recovered to or was approaching pre-crisis peaks. With significant spare capacity as a result of the earlier steep contraction in activity in these economies, inflation remained generally subdued through the first half of last year but moved up in the fourth quarter as adverse weather conditions led to a sharp rise in food prices.

In China, the fiscal stimulus package enacted in November 2008, combined with a surge in bank lending, led to a sharp rise in investment and consumption. Strong domestic demand contributed to a rebound in imports, which helped support economic activity in the rest of Asia and in commodity-exporting countries. Chinese authorities halted the modest appreciation of their currency against the dollar in the middle of 2008, and the exchange rate between the renminbi and the dollar has been unchanged since then. In the second half of 2009, authorities acted to slow the increase in bank lending to a more sustainable pace after the level of outstanding loans rose in the first half of the year by nearly one-fourth of nominal GDP. With the economy booming and inflation picking up, the People's Bank of China (the central bank) increased the required reserve ratio for banks ½ percentage point in January 2010 and again

in February, the country's first significant monetary policy tightening moves since the financial crisis. In China and elsewhere in Asia, asset prices have rebounded sharply after falling steeply in the second half of 2008.

In Latin America, the rebound in activity has lagged that in Asia. Economic activity in Mexico, which is more closely tied to U.S. production and was adversely affected by the outbreak of the H1N1 virus last spring, did not turn up until the third quarter of 2009, but it then grew rapidly. In Brazil, the recession was less severe than in Mexico, and economic growth has been fairly strong since the second quarter of last year, supported in part by government stimulus and rising commodity prices.

Russia and many countries in emerging Europe suffered severe output contractions in the first half of 2009 and, in some cases, further financial stresses. In particular, Latvia faced difficulties meeting the fiscal conditions of its international assistance package, which heightened concerns about the survival of the Latvian currency regime. However, economic and financial conditions in emerging Europe began to recover in the second half of the year.

Part 3
Monetary Policy: Recent Developments and Outlook

Monetary Policy over the Second Half of 2009 and Early 2010

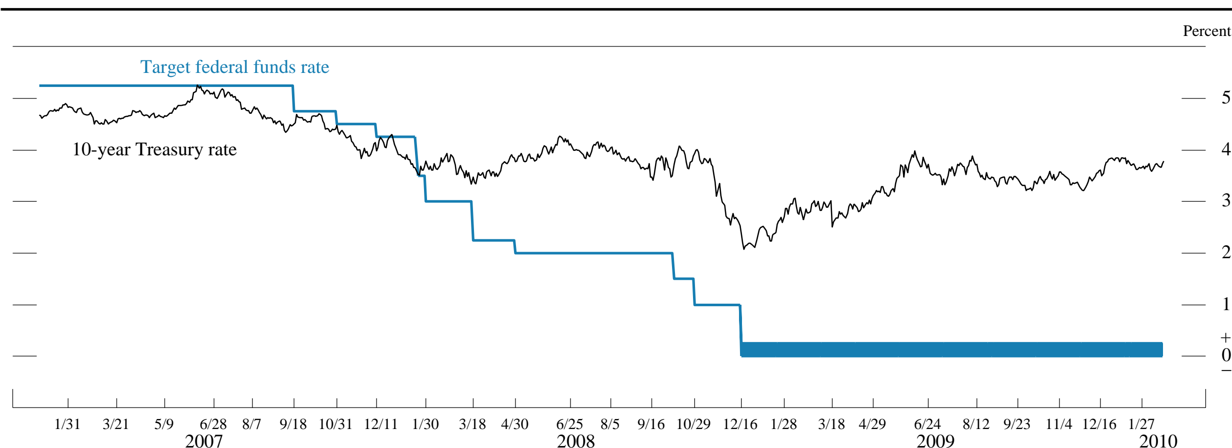
In order to provide monetary stimulus to support a sustainable economic expansion, the Federal Open Market Committee (FOMC) maintained a target range for the federal funds rate of 0 to ¼ percent throughout 2009 and into early 2010 (figure 56). The Federal Reserve also continued its program of large-scale asset purchases, completing purchases of $300 billion in Treasury securities and making considerable progress toward completing its announced purchases of $1.25 trillion of agency mortgage-backed securities (MBS) and about $175 billion of agency debt.

However, with financial market conditions improving, the Federal Reserve took steps to begin winding down many of its special credit and liquidity programs in 2009. On June 25, the Federal Reserve announced that it was extending the authorizations of several of these programs from October 30, 2009, to February 1, 2010. However, the terms of some of these facilities were tightened somewhat, the amounts to be offered under the Term Auction Facility (TAF) were reduced, and the authorization for the Money Market Investor Funding Facility was not extended.[18] Over the summer, the Federal Reserve continued to trim the amounts offered through the TAF.

The information reviewed at the August 11–12 FOMC meeting suggested that overall economic activity was stabilizing after having contracted during 2008 and early 2009. Nonetheless, meeting participants generally saw the economy as likely to recover only slowly during the second half of 2009 and as still vulnerable to adverse shocks. Although housing activity apparently was beginning to turn up, the weak labor market continued to restrain household income, and earlier declines in net worth were still holding back spending. Develop-

18. In particular, the Federal Reserve began requiring money market mutual funds to have experienced redemptions exceeding a certain threshold before becoming eligible to borrow from the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility. The Federal Reserve also suspended auctions conducted under the Term Securities Lending Facility (TSLF) involving only Schedule 1 collateral and reduced the frequency of TSLF auctions involving Schedule 2 collateral. Schedule 1 collateral refers to securities eligible for the open market operations arranged by the Federal Reserve's Open Market Trading Desk—generally Treasury securities, agency debt, or agency MBS. Schedule 2 collateral includes all Schedule 1 collateral as well as investment-grade corporate, municipal, mortgage-backed, and asset-backed securities.

56. Selected interest rates, 2007–10



Note: The data are daily and extend through February 18, 2010. 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.

ments in financial markets leading up to the meeting were broadly positive, and the cumulative improvement in market functioning since the spring was significant. However, the pickup in financial markets was seen as due, in part, to support from various government programs. Moreover, credit remained tight, with many banks reporting that they continued to tighten loan standards and terms. Overall prices for personal consumption expenditures (PCE) rose in June after changing little in each of the previous three months. Excluding food and energy, PCE prices moved up moderately in June.

Given the prospects for an initially modest economic recovery, substantial resource slack, and subdued inflation, the Committee agreed at its August meeting that it should maintain its target range for the federal funds rate at 0 to ¼ percent. FOMC participants expected only a gradual upturn in economic activity and subdued inflation and thought it most likely that the federal funds rate would need to be maintained at an exceptionally low level for an extended period. With the downside risks to the economic outlook now considerably reduced but the economic recovery likely to be subdued, the Committee also agreed that neither expansion nor contraction of its program of asset purchases was warranted at the time. The Committee did, however, decide to gradually slow the pace of the remainder of its purchases of $300 billion of Treasury securities and extend their completion to the end of October to help promote a smooth transition in financial markets. Policymakers noted that, with the programs for purchases of agency debt and MBS not due to expire until the end of the year, they did not need to make decisions at the meeting about any potential modifications to those programs.

By the time of the September 22–23 FOMC meeting, incoming data suggested that overall economic activity was beginning to pick up. Factory output, particularly motor vehicle production, rose in July and August. Consumer spending on motor vehicles during that period was boosted by government rebates and greater dealer incentives. Household spending outside of motor vehicles appeared to rise in August after having been roughly flat from May through July. Sales data for July indicated further increases in the demand for both new and existing single-family homes. Although employment continued to contract in August, the pace of job losses had slowed noticeably from earlier in the year. Developments in financial markets were again regarded as broadly positive; meeting participants saw the cumulative improvement in market functioning and pricing since the spring as substantial. Despite these positive factors, participants still viewed the economic recovery as likely to be quite restrained. Credit from banks remained difficult to obtain and costly for many borrowers; these conditions were expected to improve only gradually. Many regional and small banks were vulnerable to the deteriorating performance of commercial real estate loans. In light of recent experience, consumers were likely to be cautious in spending, and business contacts indicated that their firms would also be cautious in hiring and investing even as demand for their products picked up. Some of the recent gains in economic activity probably reflected support from government policies, and participants expressed considerable uncertainty about the likely strength of the upturn once those supports were withdrawn or their effects waned. Core consumer price inflation remained subdued, while overall consumer price inflation increased in August, boosted by a sharp upturn in energy prices.

Although the economic outlook had improved further and the risks to the forecast had become more balanced, the recovery in economic activity was likely to be protracted. With substantial resource slack likely to persist and longer-term inflation expectations stable, the Committee anticipated that inflation would remain subdued for some time. Under these circumstances, the Committee judged that the costs of the economic recovery turning out to be weaker than anticipated could be relatively high. Accordingly, the Committee agreed to maintain its target range for the federal funds rate at 0 to ¼ percent and to reiterate its view that economic conditions were likely to warrant an exceptionally low level of the federal funds rate for an extended period. With respect to the large-scale asset purchase programs, the Committee indicated its intention to purchase the full $1.25 trillion of agency MBS that it had previously established as the maximum for this program. With respect to agency debt, the Committee agreed to reiterate its intention to purchase up to $200 billion of these securities. To promote a smooth transition in markets as these programs concluded, the Committee decided to gradually slow the pace of both its agency MBS and agency debt purchases and to extend their completion through the end of the first quarter of 2010. To keep inflation expectations well anchored, policymakers agreed on the importance of the Federal Reserve continuing to communicate that it has the tools and willingness to begin withdrawing monetary policy accommodation at the appropriate time and pace to prevent any persistent increase in inflation.

On September 24, the Board of Governors announced a gradual reduction in amounts to be auctioned under the TAF through January and indicated that auctions of credit with maturities longer than 28 days would be phased out by the end of 2009. Usage

of the TAF had been declining in recent months as financial market conditions had continued to improve. The Money Market Investor Funding Facility, which had been established in October 2008 to help arrest a run on money market mutual funds, expired as scheduled on October 30, 2009.

At the November 3–4 FOMC meeting, participants agreed that the incoming information suggested that economic activity was picking up as anticipated, with output continuing to expand in the fourth quarter. Business inventories were being brought into better alignment with sales, and the pace of inventory runoff was slowing. The gradual recovery in construction of single-family homes from its extremely low level earlier in the year appeared to be continuing. Consumer spending appeared to be rising even apart from the effects of fiscal incentives to purchase autos. Financial market developments over recent months were generally regarded as supportive of continued economic recovery. Further, the outlook for growth abroad had improved since earlier in the year, especially in Asia, auguring well for U.S. exports. Meanwhile, consumer price inflation remained subdued. In spite of these largely positive developments, participants at the November meeting noted that they were unsure how much of the recent firming in final demand reflected the effects of temporary fiscal programs. Downside risks to economic activity included continued weakness in the labor market and its implications for the growth of household income and consumer confidence. Bank credit remained tight. Nonetheless, policymakers expected the recovery to continue in subsequent quarters, although at a pace that would be rather slow relative to historical experience after severe downturns. FOMC participants noted the possibility that some negative side effects might result from the maintenance of very low short-term interest rates for an extended period, including the possibility that such a policy stance could lead to excessive risk-taking in financial markets or an unanchoring of inflation expectations. The Committee agreed that it was important to remain alert to these risks.

Based on this outlook, the Committee decided to maintain the target range for the federal funds rate at 0 to ¼ percent and noted that economic conditions, including low levels of resource utilization, subdued inflation trends, and stable inflation expectations, were likely to warrant exceptionally low rates for an extended period. With respect to the large-scale asset purchase programs, the Committee reiterated its intention to purchase $1.25 trillion of agency MBS by the end of the first quarter of 2010. Because of the limited availability of agency debt and concerns that larger purchases could impair market functioning, the Committee also agreed to specify that its agency debt purchases would cumulate to about $175 billion by the end of the first quarter, $25 billion less than the previously announced maximum for these purchases. The Committee also decided to reiterate its intention to gradually slow the pace of purchases of agency MBS and agency debt to promote a smooth transition in markets as the announced purchases are completed.

On November 17, the Board of Governors announced that, in light of continued improvement in financial market conditions, in January 2010 the maximum maturity of primary credit loans at the discount window for depository institutions would be reduced to 28 days from 90 days.

The information reviewed at the December 15–16 FOMC meeting suggested that the recovery in economic activity was gaining momentum. Although the unemployment rate remained very elevated and capacity utilization low, the pace of job losses had slowed noticeably since the summer, and industrial production had sustained the broad-based expansion that began in the third quarter. Consumer spending expanded solidly in October. Sales of new homes had risen in October after two months of little change, while sales of existing homes continued to increase strongly. Financial market conditions were generally regarded as having become more supportive of continued economic recovery during the intermeeting period. A jump in energy prices pushed up headline inflation somewhat, but core consumer price inflation remained subdued. Although some of the recent data had been better than anticipated, policymakers generally saw the incoming information as broadly in line with their expectations for a moderate economic recovery and subdued inflation. Consistent with experience following previous financial crises here and abroad, FOMC participants broadly anticipated that the pickup in output and employment would be rather slow relative to past recoveries from deep recessions.

The Committee made no changes to either its large-scale asset purchase programs or its target range for the federal funds rate of 0 to ¼ percent and, based on the outlook for a relatively sluggish economic recovery, decided to reiterate its anticipation that economic conditions, including low levels of resource utilization, subdued inflation trends, and stable inflation expectations, were likely to warrant exceptionally low rates for an extended period. Committee members and Board members agreed that substantial improvements in the functioning of financial markets had occurred; accordingly, they agreed that the statement to be released following the meeting should note the anticipated expiration of most of the Federal Reserve's special liquidity facilities on February 1, 2010.

At the January 26–27 meeting, the Committee agreed that the incoming information, though mixed, indicated that overall economic activity had strengthened in recent months, about as expected. Consumer spending was well maintained in the fourth quarter, and business expenditures on equipment and software appeared to expand substantially. However, the improvement in the housing market slowed, and spending on nonresidential structures continued to fall. Recent data suggested that the pace of inventory liquidation diminished considerably last quarter, providing a sizable boost to economic activity. Indeed, industrial production advanced at a solid rate in the fourth quarter. In the labor market, layoffs subsided noticeably in the final months of last year, but the unemployment rate remained elevated and hiring stayed quite limited. The weakness in labor markets continued to be an important concern for the Committee; moreover, the prospects for job growth remained a significant source of uncertainty in the economic outlook, particularly in the outlook for consumer spending. Financial market conditions were supportive of economic growth. However, net debt financing by nonfinancial businesses was near zero in the fourth quarter after declining in the third, consistent with sluggish demand for credit and tight credit standards and terms at banks. Increases in energy prices pushed up headline consumer price inflation even as core consumer price inflation remained subdued.

In their discussion of monetary policy for the period ahead, the Committee agreed that neither the economic outlook nor financial conditions had changed appreciably since the December meeting and that no changes to the Committee's large-scale asset purchase programs or to its target range for the federal funds rate of 0 to ¼ percent were warranted at this meeting. Further, policymakers reiterated their anticipation that economic conditions, including low levels of resource utilization, subdued inflation trends, and stable inflation expectations, were likely to warrant exceptionally low rates for an extended period. The Committee affirmed its intention to purchase a total of $1.25 trillion of agency MBS and about $175 billion of agency debt by the end of the current quarter and to gradually slow the pace of these purchases to promote a smooth transition in markets. Committee members and Board members agreed that with substantial improvements in most financial markets, including interbank markets, the statement would indicate that on February 1, 2010, the Federal Reserve was closing several special liquidity facilities and that the temporary swap lines with foreign central banks would expire. In addition, the statement would say that the Federal Reserve was in the process of winding down the TAF and that the final auction would take place in March 2010.

On February 1, 2010, given the overall improvement in funding markets, the Federal Reserve allowed the Primary Dealer Credit Facility, the Term Securities Lending Facility, the Commercial Paper Funding Facility, and the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility to expire. The temporary swap lines with foreign central banks were closed on the same day. On February 18, 2010, the Federal Reserve announced a further normalization of the terms of loans made under the primary credit facility: The rate charged on these loans was increased from ½ percent to ¾ percent, effective on February 19, and the typical maximum maturity for such loans was shortened to overnight, effective on March 18, 2010. On the same day, the Federal Reserve also announced that the minimum bid rate on the final TAF auction on March 8 had been raised to 50 basis points, ¼ percentage point higher than in previous auctions. The Federal Reserve noted that the modifications are not expected to lead to tighter financial conditions for households and businesses and do not signal any change in the outlook for the economy or for monetary policy.

Over the course of 2009, the Federal Reserve continued to undertake initiatives to improve communications about its policy actions. These initiatives are described in detail in the box "Federal Reserve Initiatives to Increase Transparency."

Monetary Policy as the Economy Recovers

The actions taken by the Federal Reserve to support financial market functioning and provide extraordinary monetary stimulus to the economy have led to a rapid expansion of the Federal Reserve's balance sheet, from less than $900 billion before the crisis began in 2007 to about $2.3 trillion currently. The expansion of the Federal Reserve's balance sheet has been accompanied by a comparable increase in the quantity of reserve balances held by depository institutions. Bank reserves are currently far above their levels prior to the crisis. Even though, as noted in recent statements of the FOMC, economic conditions are likely to warrant exceptionally low rates for an extended period, in due course, as the expansion matures, the Federal Reserve will need to begin to tighten monetary conditions to prevent the development of inflation pressures. That tightening will be accomplished partly through changes that will affect the composition and size of the Federal Reserve's balance sheet. Eventually, the level of reserves and the size

of the Federal Reserve's balance sheet will be reduced substantially.

The Federal Reserve has a number of tools that will enable it to firm the stance of policy at the appropriate time and to the appropriate degree, some of which do not affect the size of the balance sheet or the quantity of reserves. Most importantly, in October 2008 the Congress gave the Federal Reserve statutory authority to pay interest on banks' holdings of reserve balances at Federal Reserve Banks. By increasing the interest rate paid on reserves, the Federal Reserve will be able to put significant upward pressure on all short-term interest rates, because banks will not supply short-term funds to the money markets at rates significantly below what they can earn by simply leaving funds on deposit at the Federal Reserve Banks. Actual and prospective increases in short-term interest rates will be reflected, in turn, in longer-term interest rates and in financial conditions more generally through standard transmission mechanisms, thus preventing inflationary pressures from developing.

The Federal Reserve has also been developing a number of additional tools that will reduce the quantity of reserves held by the banking system and lead to a tighter relationship between the interest rate that the Federal Reserve pays on banks' holdings of reserve balances and other short-term interest rates. Reverse repurchase agreements (reverse repos) are one such tool; in a reverse repo, the Federal Reserve sells a security to a counterparty with an agreement to repurchase it at some specified date in the future. The counterparty's payment to the Federal Reserve has the effect of draining an equal quantity of reserves from the banking system. Recently, by developing the capacity to conduct such transactions in the triparty repo market, the Federal Reserve has enhanced its ability to use reverse repos to absorb very large quantities of reserves. The capability to carry out these transactions with primary dealers, using the Federal Reserve's holdings of Treasury and agency debt securities, has already been tested and is currently available if and when needed. To further increase its capacity to drain reserves through reverse repos, the Federal Reserve is also in the process of expanding the set of counterparties with which it can transact and is developing the infrastructure necessary to use its MBS holdings as collateral in these transactions.

As a second means of draining reserves, the Federal Reserve is also developing plans to offer to depository institutions term deposits, which are roughly analogous to certificates of deposit that the institutions offer to their customers. The Federal Reserve would likely offer large blocks of such deposits through an auction mechanism. The effect of these transactions would be to convert a portion of depository institutions' holdings of reserve balances into deposits that could not be used to meet depository institutions' very short-term liquidity needs and could not be counted as reserves. The Federal Reserve published in the *Federal Register* a proposal for such a term deposit facility and is in the process of reviewing the public comments received. After a revised proposal is approved by the Board, the Federal Reserve expects to be able to conduct test transactions in the spring and to have the facility available if necessary shortly thereafter. Reverse repos and the deposit facility would together allow the Federal Reserve to drain hundreds of billions of dollars of reserves from the banking system quite quickly should it choose to do so.

The Federal Reserve also has the option of redeeming or selling securities as a means of applying monetary restraint. A reduction in securities holdings would have the effect of further reducing the quantity of reserves in the banking system as well as reducing the overall size of the Federal Reserve's balance sheet. It would likely also put at least some direct upward pressure on longer-term yields.

The Treasury's temporary Supplementary Financing Program (SFP)—through which the Treasury issues Treasury bills to the public and places the proceeds in a special deposit account at the Federal Reserve—could also be used to drain reserves and support the Federal Reserve's control of short-term interest rates. However, the use of the SFP must be compatible with the Treasury's debt-management objectives. The SFP is not a necessary element in the Federal Reserve's set of tools to achieve an appropriate monetary policy stance in the future; still, any amount outstanding under the SFP will result in a corresponding decrease in the quantity of reserves in the banking system, which could be helpful in the Federal Reserve's conduct of policy.

The exact sequence of steps and combination of tools that the Federal Reserve chooses to employ as it exits from its current very accommodative policy stance will depend on economic and financial developments. One possible trajectory would be for the Federal Reserve to continue to test its tools for draining reserves on a limited basis in order to further ensure preparedness and to give market participants a period of time to become familiar with their operation. As the time for the removal of policy accommodation draws near, those operations could be scaled up to drain more-significant volumes of reserve balances to provide tighter control over short-term interest rates. The actual firming of policy would then be implemented through an increase in the interest rate paid on reserves. If economic and

Federal Reserve Initiatives to Increase Transparency

Transparency is a key tenet of modern central banking both because it contributes importantly to the accountability of central banks to the government and the public and because it can enhance the effectiveness of central banks in achieving their macroeconomic objectives. In recognition of the importance of transparency, the Federal Reserve has provided detailed information on the nontraditional policy actions taken to address the financial crisis, and generally aims to maximize the amount of information it can provide to the public consistent with its broad policy objectives.

The Federal Reserve has significantly enhanced its transparency in a number of important dimensions over recent years. On matters related to the conduct of monetary policy, the Federal Reserve has long been one of the most transparent central banks in the world. Following each of its meetings, the Federal Open Market Committee (FOMC) releases statements that provide a rationale for the policy decision, along with a record of the Committee's vote and explanations for any dissents. In addition, detailed minutes of each FOMC meeting are made public three weeks following the meeting. The minutes provide a great deal of information about the range of policymakers' views on the economic situation and outlook as well as on their deliberations about the appropriate stance of monetary policy. Recently, the Federal Reserve further advanced transparency by initiating a quarterly Summary of Economic Projections of Federal Reserve Board members and Reserve Bank presidents. These projections and the accompanying summary analysis contain detailed information regarding policymakers' views about the future path of real gross domestic product, inflation, and unemployment, including the long-run values of these variables assuming appropriate monetary policy.[1]

During the financial crisis, the Federal Reserve implemented a number of credit and liquidity programs to support the functioning of key financial markets and institutions and took complementary steps to ensure appropriate transparency and accountability in operating these programs. The Board's weekly H.4.1 statistical release has been greatly expanded to provide detailed information on the Federal Reserve's balance sheet and the operation of the various credit and liquidity facilities.[2] The release is closely watched in financial markets and by the public for nearly real-time information on the evolution of the Federal Reserve's balance sheet.

The Federal Reserve also developed a public website focused on its credit and liquidity programs that provides background information on all the facilities.[3] In addition, starting in December 2008 the Federal Reserve has issued bimonthly reports to the Congress in fulfillment of section 129 of the Emergency Economic Stabi-

1. FOMC statements and minutes, the Summary of Economic Projections, and other related information are available on the Federal Reserve Board's website. See Board of Governors of the Federal Reserve System, "Federal Open Market Committee," webpage, www.federalreserve.gov/monetarypolicy/fomc.htm.

2. Board of Governors of the Federal Reserve System, Statistical Release H.4.1, "Factors Affecting Reserve Balances," webpage, www.federalreserve.gov/releases/h41.

3. Board of Governors of the Federal Reserve System, "Credit and Liquidity Programs and the Balance Sheet," webpage, www.federalreserve.gov/monetarypolicy/bst.htm.

financial developments were to require a more rapid exit from the current highly accommodative policy, however, the Federal Reserve could increase the interest rate on reserves at about the same time it commences draining operations.

The Federal Reserve currently does not anticipate that it will sell any of its securities holding in the near term, at least until after policy tightening has gotten under way and the economy is clearly in a sustainable recovery. However, to help reduce the size of its balance sheet and the quantity of reserves, the Federal Reserve is allowing agency debt and MBS to run off as they mature or are prepaid. The Federal Reserve is rolling over all maturing Treasury securities, but in the future it might decide not to do so in all cases. In the long run, the Federal Reserve anticipates that its balance sheet will shrink toward more historically normal levels and that most or all of its securities holdings will be Treasury securities. Although passively redeeming agency debt and MBS as they mature or are prepaid will move the Federal Reserve in that direction, the Federal Reserve may also choose to sell securities in the future when the economic recovery is sufficiently advanced and the FOMC has determined that the associated financial tightening is warranted. Any such sales would be gradual, would be clearly communicated to market participants, and would entail appropriate consideration of economic conditions.

lization Act of 2008; in October 2009, the Federal Reserve began incorporating these reports into its monthly report on credit and liquidity programs and the balance sheet.[4] The monthly report, which is available on the Federal Reserve's website, provides more-detailed information on the full range of credit and liquidity programs implemented during the crisis. This report includes data on the number and types of borrowers using various facilities and on the types and value of collateral pledged; information on the assets held in the so-called Maiden Lane facilities—created to acquire certain assets of The Bear Stearns Companies, Inc., and of American International Group, Inc. (AIG)—and in other special lending facilities; and quarterly financial statements for the Federal Reserve System. Furthermore, the monthly reports provide detailed information on all of the programs that rely on emergency lending authorities, including the Federal Reserve's assessment of the expected cost to the Federal Reserve and the U.S. taxpayer of various Federal Reserve programs implemented during the crisis. To provide further transparency regarding its transactions with AIG, the Federal Reserve recently indicated that it would welcome a full review by the Government Accountability Office of all aspects of the Federal Reserve's involvement with the extension of credit to AIG.[5]

4. Board of Governors of the Federal Reserve System, ***Federal Reserve System Monthly Report on Credit and Liquidity Programs and the Balance Sheet*** (Washington: Board of Governors).

5. Ben S. Bernanke (2010), letter to Gene L. Dodaro, January 19, www.federalreserve.gov/monetarypolicy/files/letter_aig_20100119.pdf.

The Federal Reserve has also been transparent about the management of its programs. Various programs employ private-sector firms as purchasing and settlement agents and to perform other functions; the contracts for all of these vendor arrangements are available on the website of the Federal Reserve Bank of New York.[6] Moreover, the Federal Reserve has recently begun to publish detailed CUSIP-number-level data regarding its holdings of Treasury, agency, and agency mortgage-backed securities; these data provide the public with precise information about the maturity and asset composition of the Federal Reserve's securities holdings.[7] On January 11, 2010, the Federal Reserve Bank of New York published a revised policy governing the designation of primary dealers.[8] An important motivation in issuing revised guidance in this area was to make the process for becoming a primary dealer more transparent.

6. Federal Reserve Bank of New York, "Vendor Information," webpage, www.newyorkfed.org/aboutthefed/vendor_information.html.

7. Federal Reserve Bank of New York, "System Open Market Account Holdings," webpage, www.newyorkfed.org/markets/soma/sysopen_accholdings.html.

CUSIP is the abbreviation for Committee on Uniform Securities Identification Procedures. A CUSIP number identifies most securities, including stocks of all registered U.S. and Canadian companies and U.S. government and municipal bonds. The CUSIP system—owned by the American Bankers Association and operated by Standard & Poor's—facilitates the clearing and settlement process of securities.

8. Federal Reserve Bank of New York (2010), "New York Fed Publishes Revised Policy for Administration of Primary Dealer Relationships," press release, January 11, www.newyorkfed.org/newsevents/news/markets/2010/ma100111.html.

As a result of the very large volume of reserves in the banking system, the level of activity and liquidity in the federal funds market has declined considerably, raising the possibility that the federal funds rate could for a time become a less reliable indicator than usual of conditions in short-term money markets. Accordingly, the Federal Reserve is considering the utility, during the transition to a more normal policy configuration, of communicating the stance of policy in terms of another operating target, such as an alternative short-term interest rate. In particular, it is possible that the Federal Reserve could for a time use the interest rate paid on reserves, in combination with targets for reserve quantities, as a guide to its policy stance, while simultaneously monitoring a range of market rates. No decision has been made on this issue, and any deliberation will be guided in part by the evolution of the federal funds market as policy accommodation is withdrawn. The Federal Reserve anticipates that it will eventually return to an operating framework with much lower reserve balances than at present and with the federal funds rate as the operating target for policy.

Part 4
Summary of Economic Projections

The following material appeared as an addendum to the minutes of the January 26–27, 2010, meeting of the Federal Open Market Committee.

In conjunction with the January 26–27, 2010, 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, submitted projections for output growth, unemployment, and inflation for the years 2010 to 2012 and over the longer run. The projections were based on information available through the end of the meeting and on each participant's assumptions about factors likely to affect economic outcomes, including his or her assessment of appropriate monetary policy. "Appropriate monetary policy" is defined as the future path of policy that the participant deems most likely to foster outcomes for economic activity and inflation that best satisfy his or her interpretation of the Federal Reserve's dual objectives of maximum employment and stable prices. 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' forecasts for economic activity and inflation were broadly similar to their previous projections, which were made in conjunction with the November 2009 FOMC meeting. As depicted in figure 1, the economic recovery from the recent recession was expected to be gradual, with real gross domestic product (GDP) expanding at a rate that was only moderately above participants' assessment of its longer-run sustainable growth rate and the unemployment rate declining slowly over the next few years. Most participants also anticipated that inflation would remain subdued over this period. As indicated in table 1, a few participants made modest upward revisions to their projections for real GDP growth in 2010. Beyond 2010, however, the contours of participants' projections for economic activity and inflation were little changed, with participants continuing to expect that the pace of the economic recovery will be restrained by household and business uncertainty, only gradual improvement in labor market conditions, and slow easing of credit conditions in the banking sector. Participants generally expected that it would take some time for the economy to converge fully to its longer-run path—characterized by a sustainable rate of output growth and by rates of employment and inflation consistent with their interpretation of the Federal Reserve's dual objectives—with a sizable minority of the view that the convergence process could take more than five to six years. As in

Table 1. Economic projections of Federal Reserve Governors and Reserve Bank presidents, January 2010
Percent

Variable	Central tendency[1]				Range[2]			
	2010	2011	2012	Longer run	2010	2011	2012	Longer run
Change in real GDP	2.8 to 3.5	3.4 to 4.5	3.5 to 4.5	2.5 to 2.8	2.3 to 4.0	2.7 to 4.7	3.0 to 5.0	2.4 to 3.0
November projection	2.5 to 3.5	3.4 to 4.5	3.5 to 4.8	2.5 to 2.8	2.0 to 4.0	2.5 to 4.6	2.8 to 5.0	2.4 to 3.0
Unemployment rate	9.5 to 9.7	8.2 to 8.5	6.6 to 7.5	5.0 to 5.2	8.6 to 10.0	7.2 to 8.8	6.1 to 7.6	4.9 to 6.3
November projection	9.3 to 9.7	8.2 to 8.6	6.8 to 7.5	5.0 to 5.2	8.6 to 10.2	7.2 to 8.7	6.1 to 7.6	4.8 to 6.3
PCE inflation	1.4 to 1.7	1.1 to 2.0	1.3 to 2.0	1.7 to 2.0	1.2 to 2.0	1.0 to 2.4	0.8 to 2.0	1.5 to 2.0
November projection	1.3 to 1.6	1.0 to 1.9	1.2 to 1.9	1.7 to 2.0	1.1 to 2.0	0.6 to 2.4	0.2 to 2.3	1.5 to 2.0
Core PCE inflation[3]	1.1 to 1.7	1.0 to 1.9	1.2 to 1.9		1.0 to 2.0	0.9 to 2.4	0.8 to 2.0	
November projection	1.0 to 1.5	1.0 to 1.6	1.0 to 1.7		0.9 to 2.0	0.5 to 2.4	0.2 to 2.3	

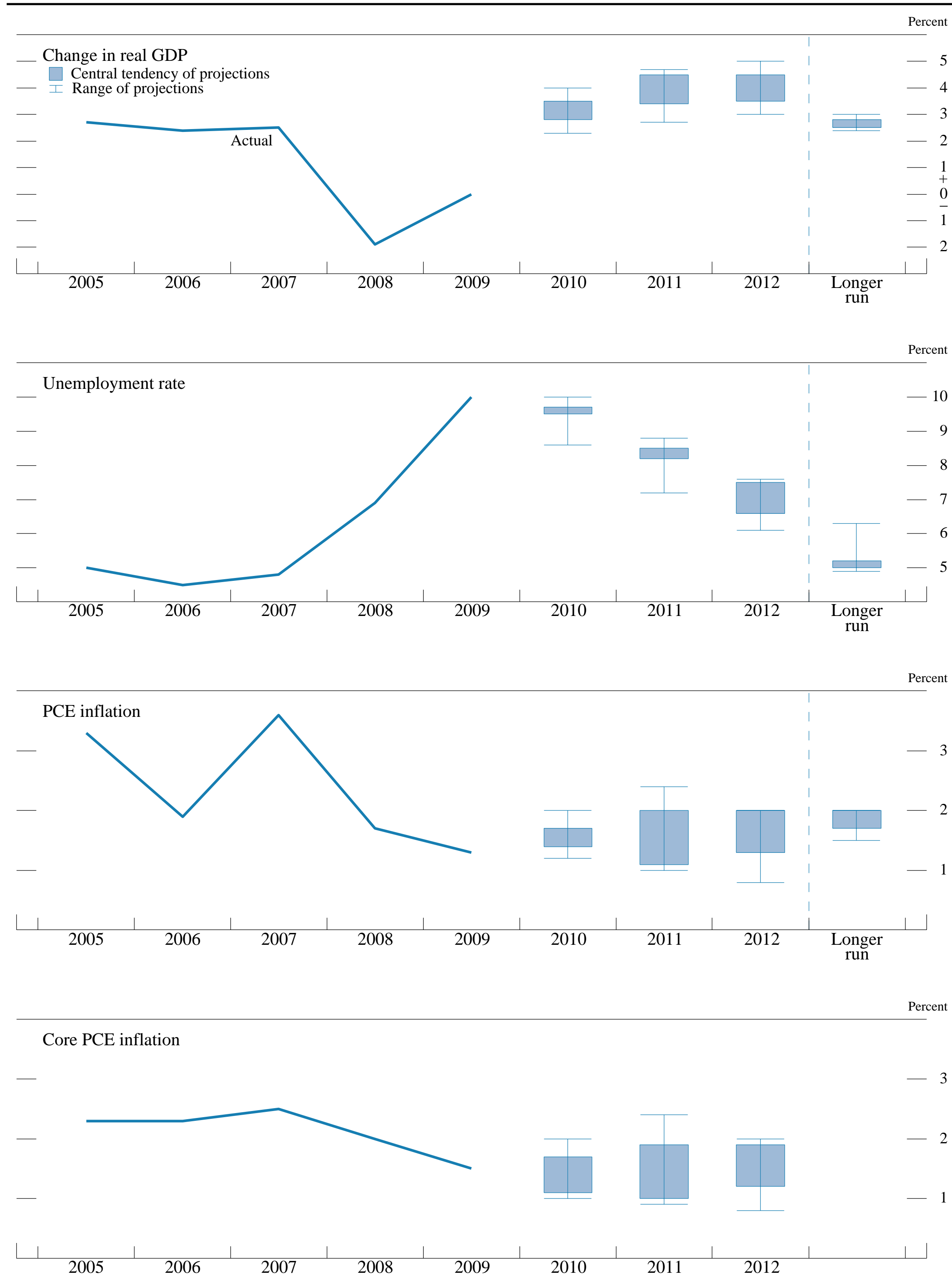
NOTE: Projections of change in real gross domestic product (GDP) and in inflation are from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption 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 November projections were made in conjunction with the meeting of the Federal Open Market Committee on November 3–4, 2009.

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 consists of 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, 2010–12 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 data for the change in real GDP, PCE inflation, and core PCE inflation shown for 2009 incorporate the advance estimate of GDP for the fourth quarter of 2009, which the Bureau of Economic Analysis released on January 29, 2010; this information was not available to FOMC meeting participants at the time of their meeting.

November, nearly all participants judged the risks to their growth outlook as generally balanced, and most also saw roughly balanced risks surrounding their inflation projections. Participants continued to judge the uncertainty surrounding their projections for economic activity and inflation as unusually high relative to historical norms.

The Outlook

Participants' projections for real GDP growth in 2010 had a central tendency of 2.8 to 3.5 percent, a somewhat narrower interval than in November. Recent readings on consumer spending, industrial production, and business outlays on equipment and software were seen as broadly consistent with the view that economic recovery was under way, albeit at a moderate pace. Businesses had apparently made progress in bringing their inventory stocks into closer alignment with sales and hence would be likely to raise production as spending gained further momentum. Participants pointed to a number of factors that would support the continued expansion of economic activity, including accommodative monetary policy, ongoing improvements in the conditions of financial markets and institutions, and a pickup in global economic growth, especially in emerging market economies. Several participants also noted that fiscal policy was currently providing substantial support to real activity, but said that they expected less impetus to GDP growth from this factor later in the year. Many participants indicated that the expansion was likely to be restrained not only by firms' caution in hiring and spending in light of the considerable uncertainty regarding the economic outlook and general business conditions, but also by limited access to credit by small businesses and consumers dependent on bank-intermediated finance.

Looking further ahead, participants' projections were for real GDP growth to pick up in 2011 and 2012; the projections for growth in both years had a central tendency of about 3½ to 4½ percent. As in November, participants generally expected that the continued repair of household balance sheets and gradual improvements in credit availability would bolster consumer spending. Responding to an improved sales outlook and readier access to bank credit, businesses were likely to increase production to rebuild their inventory stocks and increase their outlays on equipment and software. In addition, improved foreign economic conditions were viewed as supporting robust growth in U.S. exports. However, participants also indicated that elevated uncertainty on the part of households and businesses and the very slow recovery of labor markets would likely restrain the pace of expansion. Moreover, although conditions in the banking system appeared to have stabilized, distress in commercial real estate markets was expected to pose risks to the balance sheets of banking institutions for some time, thereby contributing to only gradual easing of credit conditions for many households and smaller firms. In the absence of further shocks, participants generally anticipated that real GDP growth would converge over time to an annual rate of 2.5 to 2.8 percent, the longer-run pace that appeared to be sustainable in view of expected demographic trends and improvements in labor productivity.

Participants anticipated that labor market conditions would improve only slowly over the next several years. Their projections for the average unemployment rate in the fourth quarter of 2010 had a central tendency of 9.5 to 9.7 percent, only a little below the levels of about 10 percent that prevailed late last year. Consistent with their outlook for moderate output growth, participants generally expected that the unemployment rate would decline only about 2½ percentage points by the end of 2012 and would still be well above its longer-run sustainable rate. Some participants also noted that considerable uncertainty surrounded their estimates of the productive potential of the economy and the sustainable rate of employment, owing partly to substantial ongoing structural adjustments in product and labor markets. Nonetheless, participants' longer-run unemployment projections had a central tendency of 5.0 to 5.2 percent, the same as in November.

Most participants anticipated that inflation would remain subdued over the next several years. The central tendency of their projections for personal consumption expenditures (PCE) inflation was 1.4 to 1.7 percent for 2010, 1.1 to 2.0 percent for 2011, and 1.3 to 2.0 percent for 2012. Many participants anticipated that global economic growth would spur increases in energy prices, and hence that headline PCE inflation would run slightly above core PCE inflation over the next year or two. Most expected that substantial resource slack would continue to restrain cost pressures, but that inflation would rise gradually toward their individual assessments of the measured rate of inflation judged to be most consistent with the Federal Reserve's dual mandate. As in November, the central tendency of projections of the longer-run inflation rate was 1.7 to 2.0 percent. A majority of participants anticipated that inflation in 2012 would still be below their assessments of the mandate-consistent inflation rate, while the remainder expected that inflation would be at or slightly above its longer-run value by that time.

Uncertainty and Risks

Nearly all participants shared the judgment that their projections of future economic activity and unemployment continued to be subject to greater-than-average uncertainty.[19] Participants generally saw the risks to these projections as roughly balanced, although a few indicated that the risks to the unemployment outlook remained tilted to the upside. As in November, many participants highlighted the difficulties inherent in predicting macroeconomic outcomes in the wake of a financial crisis and a severe recession. In addition, some pointed to uncertainties regarding the extent to which the recent run-up in labor productivity would prove to be persistent, while others noted the risk that the deteriorating performance of commercial real estate could adversely affect the still-fragile state of the banking system and restrain the growth of output and employment over coming quarters.

As in November, most participants continued to see the uncertainty surrounding their inflation projections as higher than historical norms. However, a few judged that uncertainty in the outlook for inflation was about in line with typical levels, and one viewed the uncertainty surrounding the inflation outlook as lower than average. Nearly all participants judged the risks to the inflation outlook as roughly balanced; however, two saw these risks as tilted to the upside, while one regarded the risks as weighted to the downside. Some participants noted that inflation expectations could drift downward in response to persistently low inflation and continued slack in resource utilization. Others pointed to the possibility of an upward shift in expected and actual inflation, especially if extraordinarily accommodative monetary policy measures were not unwound in a timely fashion. Participants also noted that an acceleration in global economic activity could induce a surge in the prices of energy and other commodities that would place upward pressure on overall inflation.

Diversity of Views

Figures 2.A and 2.B provide further details on the diversity of participants' views regarding the likely outcomes for real GDP growth and the unemployment rate in 2010, 2011, 2012, and over the longer run. The distribution of participants' projections for real GDP growth this year was slightly narrower than the distribution of their projections last November, but the distributions of the projections for real GDP growth in 2011 and in 2012 were little changed. The dispersion in participants' output growth projections reflected, among other factors, the diversity of their assessments regarding the current degree of underlying momentum in economic activity, the evolution of consumer and business sentiment, and the likely pace of easing of bank lending standards and terms. Regarding participants' unemployment rate projections, the distribution for 2010 narrowed slightly, but the distributions of their unemployment rate projections for 2011 and 2012 did not change appreciably. The distributions of participants' estimates of the longer-run sustainable rates of output growth and unemployment were essentially the same as in November.

Figures 2.C and 2.D provide corresponding information about the diversity of participants' views regarding the inflation outlook. For overall and core PCE inflation, the distributions of participants' projections for 2010 were nearly the same as in November. The distributions of overall and core inflation for 2011 and 2012, however, were noticeably more tightly concentrated than in November, reflecting the absence of forecasts of especially low inflation. The dispersion in participants' projections over the next few years was mainly due to differences in their judgments regarding the determinants of inflation, including their estimates of prevailing resource slack and their assessments of the extent to which such slack affects actual and expected inflation. In contrast, the relatively tight distribution of

Table 2. Average historical projection error ranges

Percentage points

Variable	2010	2011	2012
Change in real GDP[1]	±1.3	±1.5	±1.6
Unemployment rate[1]	±0.6	±0.8	±1.0
Total consumer prices[2]	±0.9	±1.0	±1.0

NOTE: Error ranges shown are measured as plus or minus the root mean squared error of projections for 1989 through 2008 that were released in the winter 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 (Washington: Board of Governors of the Federal Reserve System, November).

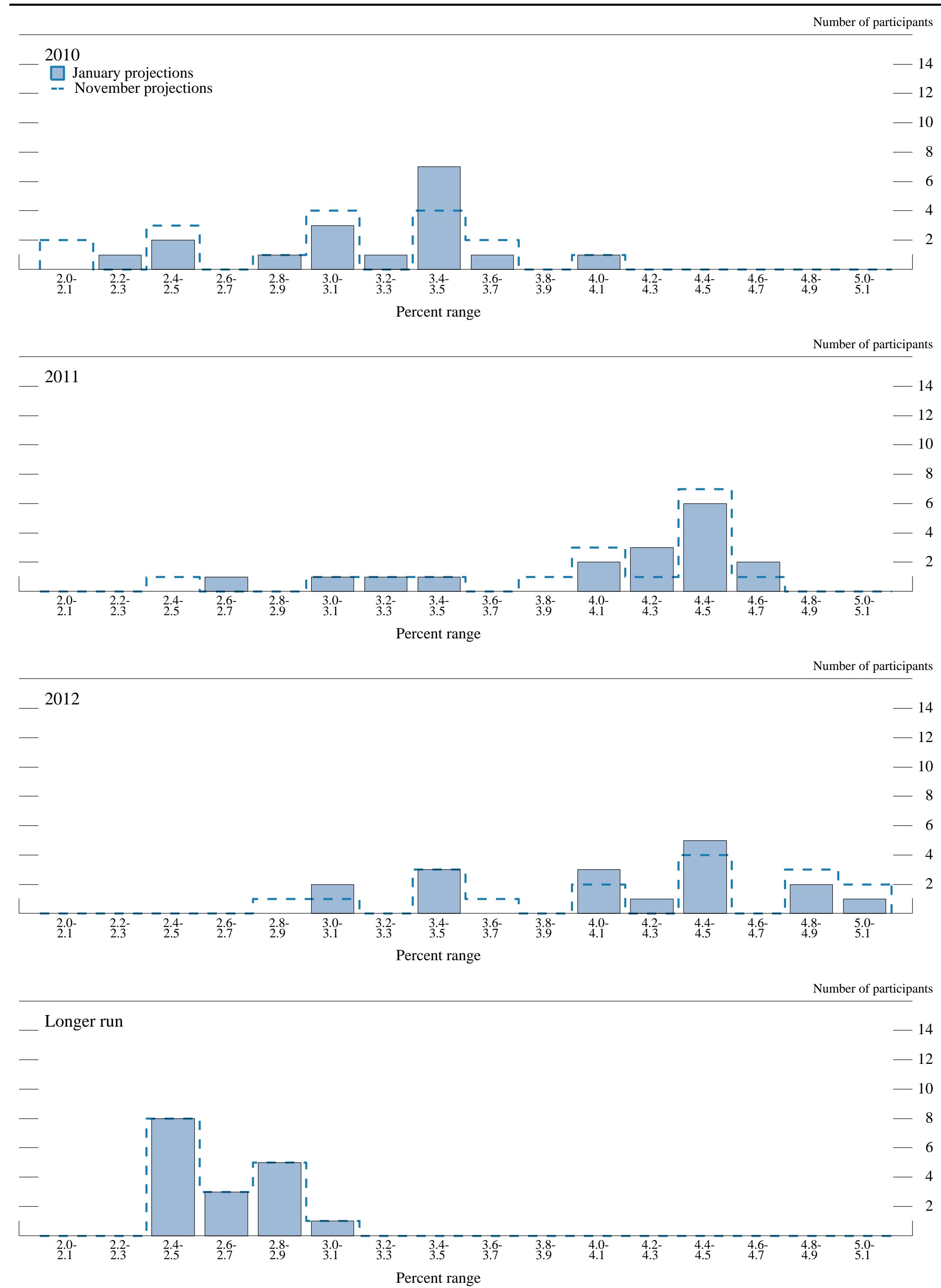
1. For definitions, refer to general note in table 1.

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.

19. 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 1989 to 2008. 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 risk attending participants' projections.

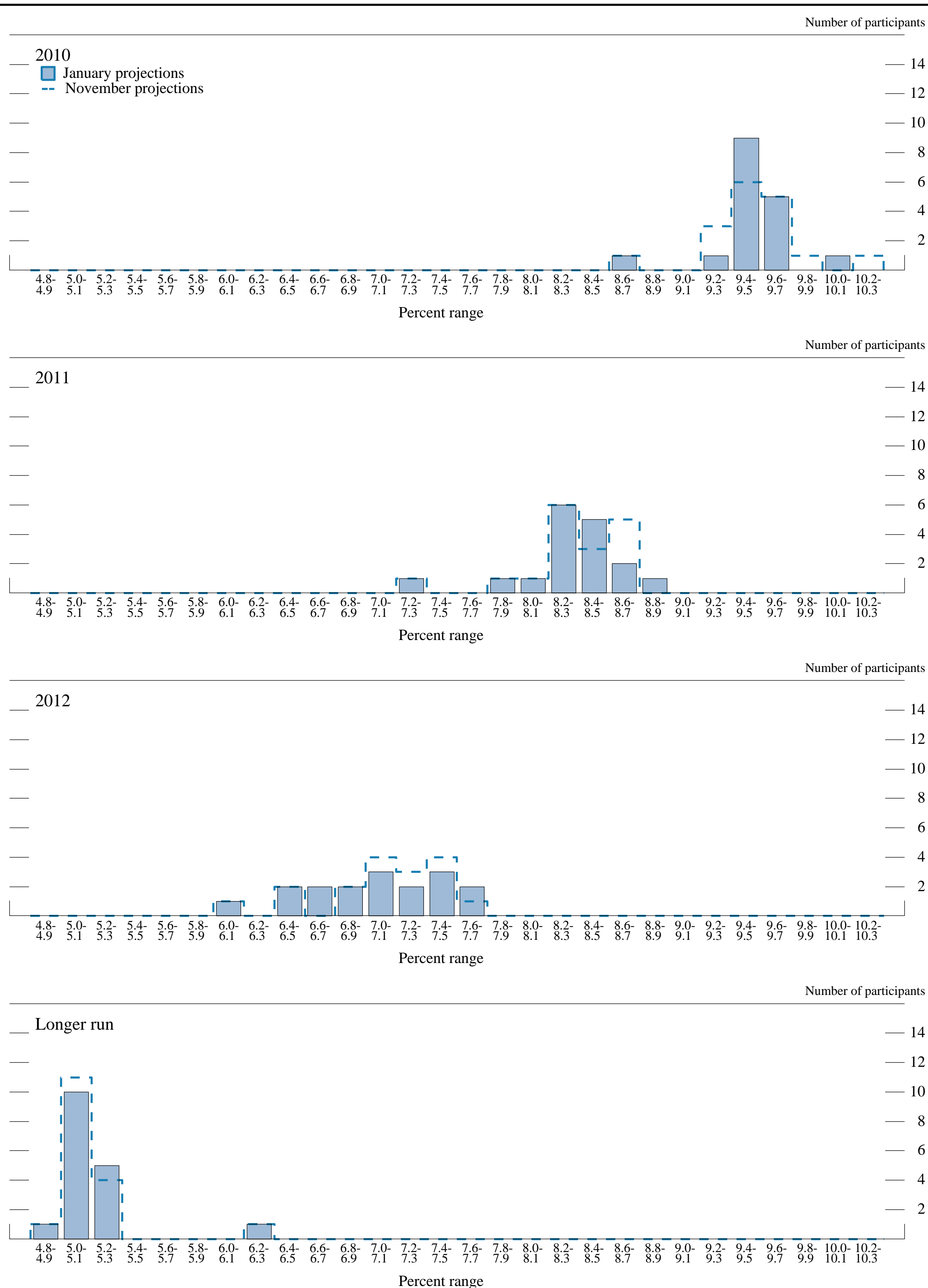
participants' projections for longer-run inflation illustrates their substantial agreement about the measured rate of inflation that is most consistent with the Federal Reserve's dual objectives of maximum employment and stable prices.

Figure 2.A. Distribution of participants' projections for the change in real GDP, 2010–12 and over the longer run



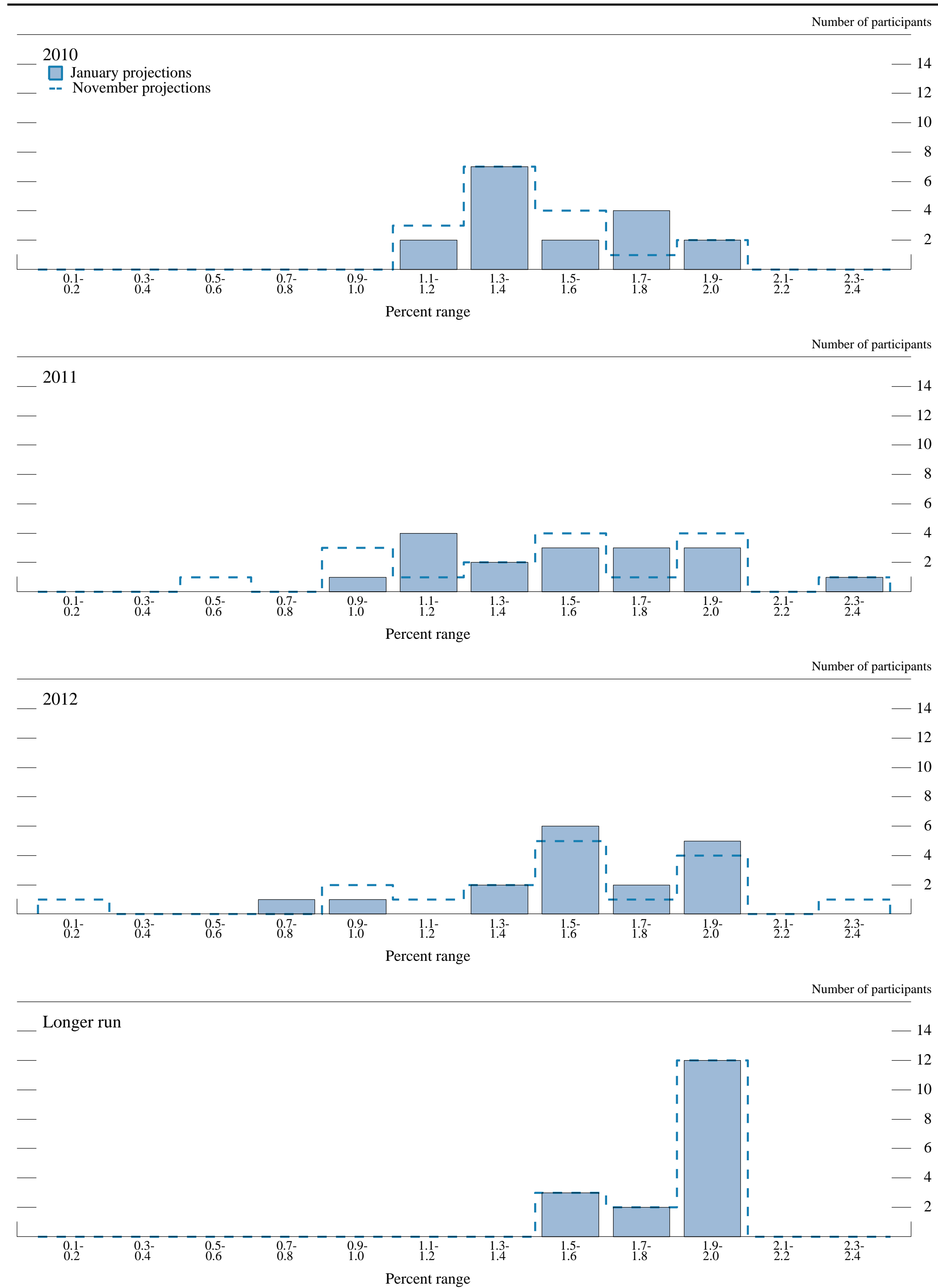
NOTE: Definitions of variables are in the general note to table 1.

Figure 2.B. Distribution of participants' projections for the unemployment rate, 2010–12 and over the longer run



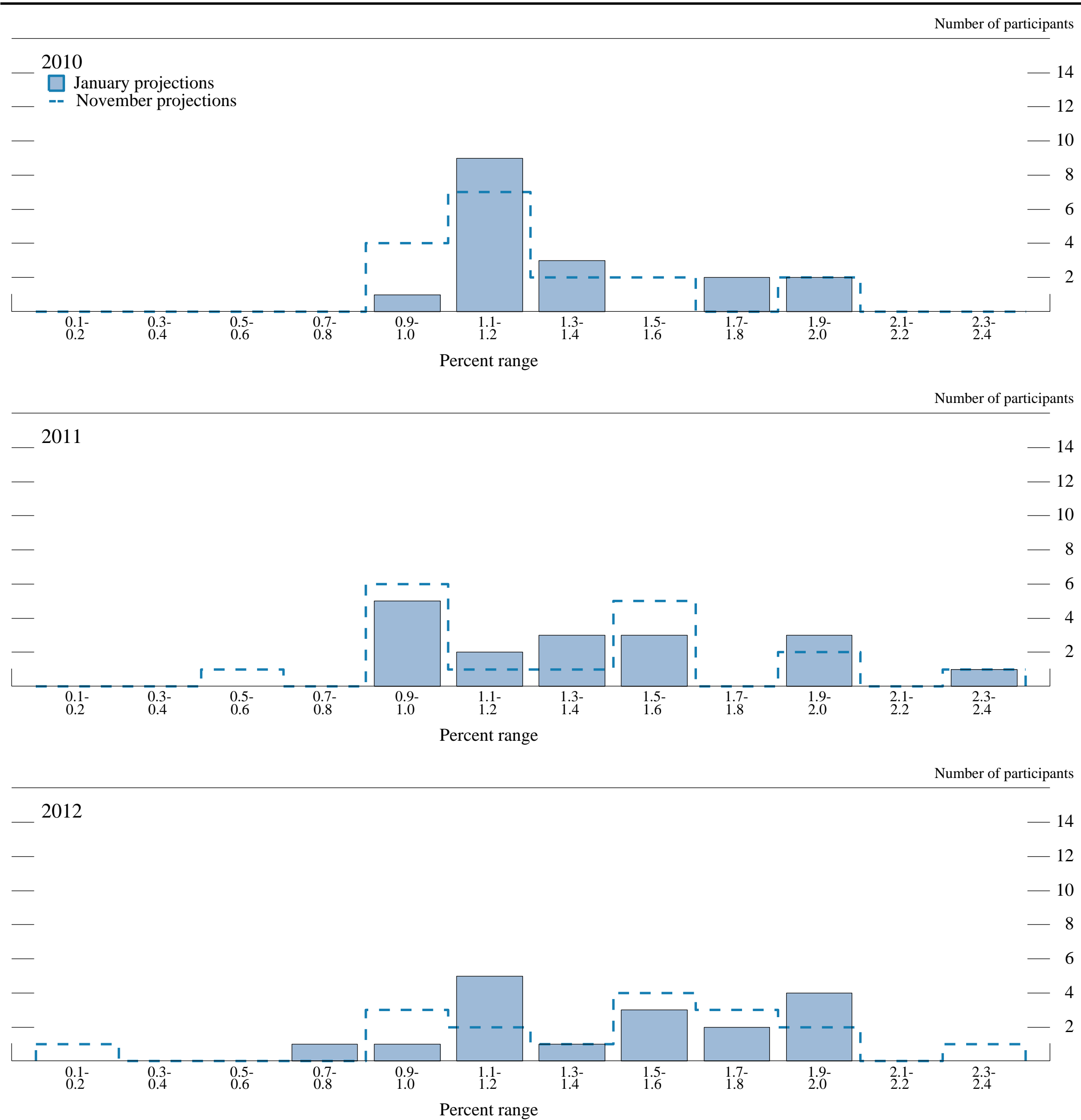
NOTE: Definitions of variables are in the general note to table 1.

Figure 2.C. Distribution of participants' projections for PCE inflation, 2010–12 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, 2010–12



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

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 gross domestic product (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 within a range of 1.7 to 4.3 percent in the current year, 1.5 to 4.5 percent in the second year, and 1.4 to 4.6 percent in the third year. The corresponding 70 percent confidence intervals for overall inflation would be 1.1 to 2.9 percent in the current year and 1.0 to 3.0 percent in the second and third years.

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, are weighted to the 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.

Abbreviations

ABS	asset-backed securities
AIG	American International Group, Inc.
ARRA	American Recovery and Reinvestment Act
CDS	credit default swap
C&I	commercial and industrial
CMBS	commercial mortgage-backed securities
CRE	commercial real estate
Credit CARD Act	Credit Card Accountability Responsibility and Disclosure Act
CUSIP	Committee on Uniform Securities Identification Procedures
ECB	European Central Bank
E&S	equipment and software
FAS	Financial Accounting Standards
FDIC	Federal Deposit Insurance Corporation
FHA	Federal Housing Administration
FOMC	Federal Open Market Committee; also, the Committee
GDP	gross domestic product
GSE	government-sponsored enterprise
Libor	London interbank offered rate
LLC	limited liability company
MBS	mortgage-backed securities
NFIB	National Federation of Independent Business
NIPA	national income and product accounts
OIS	overnight index swap
PCE	personal consumption expenditures
repo	repurchase agreement
SCAP	Supervisory Capital Assessment Program
SFP	Supplementary Financing Program
SLOOS	Senior Loan Officer Opinion Survey on Bank Lending Practices
TAF	Term Auction Facility
TALF	Term Asset-Backed Securities Loan Facility
TARP	Troubled Asset Relief Program
TIPS	Treasury inflation-protected securities