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Monetary Policy Report

February 26, 2013


Board of Governors of the Federal Reserve System

Letter of Transmittal

Board of Governors of the
Federal Reserve System

Washington, D.C., February 26, 2013

The President of the Senate
The Speaker of the House of Representatives

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

Sincerely,

Ben Bernanke, Chairman

Contents

Summary

The U.S. economy continued to expand at a moderate rate, on average, over the second half of 2012. The housing recovery appeared to gain additional traction, consumer spending rose moderately, and business investment advanced further. Financial conditions eased over the period but credit remained tight for many households and businesses, and concerns about the course of federal fiscal policy and the ongoing European situation likely restrained private-sector demand. In addition, total government purchases continued to move lower in an environment of budget restraint, while export growth was held back by slow foreign economic growth. All told, real gross domestic product (GDP) is estimated to have increased at an average annual rate of 1½ percent in the second half of the year, similar to the pace in the first half.

Conditions in the labor market gradually improved. Employment increased at an average monthly pace of 175,000 in the second half of the year, about the same as in the first half. The unemployment rate moved down from 8¼ percent last summer to a little below 8 percent in January. Even so, the unemployment rate was still well above levels observed prior to the recent recession. Moreover, it remained the case that a large share of the unemployed had been out of work for more than six months, and that a significant portion of the employed had part-time jobs because they were unable to find full-time employment. Meanwhile, consumer price inflation remained subdued amid stable long-term inflation expectations and persistent slack in labor markets. Over the second half of the year, the price index for personal consumption expenditures increased at an annual rate of 1½ percent.

During the summer and fall, the Federal Open Market Committee (FOMC) judged that the economic recovery would strengthen only gradually over time, as some of the factors restraining activity—including restrictive credit for some borrowers, continuing concerns about the domestic and international economic environments, and the ongoing shift toward tighter federal fiscal policy—were thought likely to recede only slowly. Moreover, the Committee judged that the possibility of an escalation of the financial crisis in Europe and uncertainty about the course of fiscal policy in the United States posed significant downside risks to the outlook for economic activity. However, the Committee expected that, with appropriate monetary accommodation, economic growth would proceed at a moderate pace, with the unemployment rate gradually declining toward levels consistent with the FOMC's dual mandate of maximum employment and price stability. Against this backdrop, and with long-run inflation expectations well anchored, the FOMC projected that inflation would remain at or below the rate consistent with the Committee's dual mandate.

Accordingly, to promote its objectives, the FOMC provided additional monetary accommodation during the second half of 2012 by both strengthening its forward guidance regarding the federal funds rate and initiating additional asset purchases. In September, the Committee announced that it would continue its program to extend the average maturity of its Treasury holdings and would begin purchasing additional agency-guaranteed mortgage-backed securities (MBS) at a pace of $40 billion per month. The Committee also stated its intention to continue its purchases of agency MBS, undertake additional asset purchases, and employ its other policy tools as appropriate until the outlook for the labor market improves substantially in a context of price stability. The Committee agreed that in determining the size, pace, and composition of its asset purchases,

it would, as always, take account of the likely efficacy and costs of such purchases. The Committee also modified its forward guidance regarding the federal funds rate at the September meeting, noting that exceptionally low levels for the federal funds rate were likely to be warranted at least through mid-2015, longer than had been indicated in previous FOMC statements. Moreover, the Committee stated its expectation that a highly accommodative stance of monetary policy would remain appropriate for a considerable time after the economic recovery strengthens.

In December, the Committee announced that in addition to continuing its purchases of agency MBS, it would purchase longer-term Treasury securities, initially at a pace of \$45 billion per month, starting after the completion at the end of the year of its program to extend the maturity of its Treasury holdings. It also further modified its forward rate guidance, replacing the earlier date-based guidance with numerical thresholds for the unemployment rate and projected inflation. In particular, the Committee indicated that it expected the exceptionally low range for the federal funds rate would remain appropriate at least as long as the unemployment rate remains above 6½ percent, inflation between one and two years ahead is projected to be no more than ½ percentage point above the Committee's 2 percent longer-run goal, and longer-term inflation expectations continue to be well anchored.

Partly in response to this additional monetary accommodation, as well as to improved sentiment regarding the situation in Europe, broad financial conditions eased over the second half of 2012. Although yields on nominal Treasury securities rose, on net, yields on inflation-protected Treasury securities declined, and longer-term interest rates paid by households and firms generally fell. Yields on agency MBS and investment- and speculative-grade corporate bonds touched record lows, and broad equity price indexes rose. Conditions in short-term dollar funding markets eased over the summer and remained stable thereafter, and market sentiment toward the banking industry improved. Nonetheless, credit remained tight for borrowers with lower credit scores, and borrowing conditions for small businesses continued to improve more gradually than for large firms.

At the time of the most recent FOMC meeting in January, Committee participants saw the economic outlook as little changed or modestly improved from the time of their December meeting, when the most recent Summary of Economic Projections (SEP) was compiled. (The December SEP is included as Part 3 of this report.) Participants generally judged that strains in global financial markets had eased somewhat, and that the downside risks to the economic outlook had lessened. Under the assumption of appropriate monetary policy—that is, policy consistent with the Committee's Statement on Longer-Run Goals and Monetary Policy Strategy (see box)—FOMC participants expected the economy to expand at a moderate pace, with the unemployment rate gradually declining and inflation remaining at or below the Committee's 2 percent longer-run goal.

Statement on Longer-Run Goals and Monetary Policy Strategy

As amended effective on January 29, 2013

The Federal Open Market Committee (FOMC) is firmly committed to fulfilling its statutory mandate from the Congress of promoting maximum employment, stable prices, and moderate long-term interest rates. The Committee seeks to explain its monetary policy decisions to the public as clearly as possible. Such clarity facilitates well-informed decisionmaking by households and businesses, reduces economic and financial uncertainty, increases the effectiveness of monetary policy, and enhances transparency and accountability, which are essential in a democratic society.

Inflation, employment, and long-term interest rates fluctuate over time in response to economic and financial disturbances. Moreover, monetary policy actions tend to influence economic activity and prices with a lag. Therefore, the Committee's policy decisions reflect its longer-run goals, its medium-term outlook, and its assessments of the balance of risks, including risks to the financial system that could impede the attainment of the Committee's goals.

The inflation rate over the longer run is primarily determined by monetary policy, and hence the Committee has the ability to specify a longer-run goal for inflation. The Committee judges that inflation at the rate of 2 percent, as measured by the annual change in the price index for personal consumption expenditures, is most consistent over the longer run with the Federal Reserve's statutory mandate. Communicating this inflation goal clearly to the public helps keep longer-term inflation expectations firmly anchored, thereby fostering price stability and moderate long-term interest rates and enhancing the Committee's ability to promote maximum employment in the face of significant economic disturbances.

The maximum level of employment is largely determined by nonmonetary factors that affect the structure and dynamics of the labor market. These factors may change over time and may not be directly measurable. Consequently, it would not be appropriate to specify a fixed goal for employment; rather, the Committee's policy decisions must be informed by assessments of the maximum level of employment, recognizing that such assessments are necessarily uncertain and subject to revision. The Committee considers a wide range of indicators in making these assessments. Information about Committee participants' estimates of the longer-run normal rates of output growth and unemployment is published four times per year in the FOMC's Summary of Economic Projections. For example, in the most recent projections, FOMC participants' estimates of the longer-run normal rate of unemployment had a central tendency of 5.2 percent to 6.0 percent, unchanged from one year ago but substantially higher than the corresponding interval several years earlier.

In setting monetary policy, the Committee seeks to mitigate deviations of inflation from its longer-run goal and deviations of employment from the Committee's assessments of its maximum level. These objectives are generally complementary. However, under circumstances in which the Committee judges that the objectives are not complementary, it follows a balanced approach in promoting them, taking into account the magnitude of the deviations and the potentially different time horizons over which employment and inflation are projected to return to levels judged consistent with its mandate.

The Committee intends to reaffirm these principles and to make adjustments as appropriate at its annual organizational meeting each January.

Part 1
Recent Economic and Financial Developments

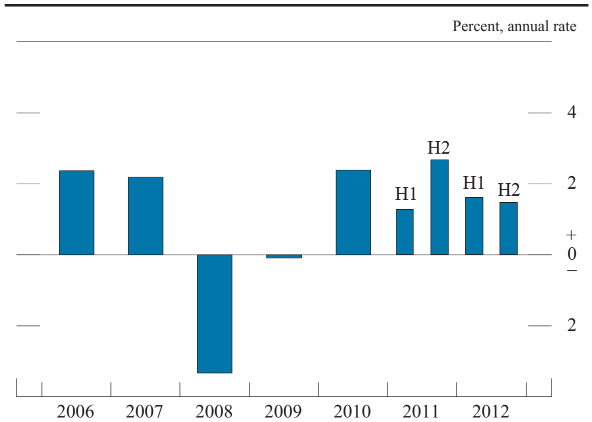
Real gross domestic product (GDP) increased at a moderate annual rate of 1½ percent, on average, in the second half of 2012—similar to the rate of increase in the first half—as various headwinds continued to restrain growth. Financial conditions eased over the second half in response to the additional monetary accommodation provided by the Federal Open Market Committee (FOMC) and to improved sentiment regarding the crisis in Europe. However, credit availability remained tight for many households and businesses. In addition, declines in real government purchases continued to weigh on economic activity, as did household and business concerns about the economic outlook, while weak foreign demand restrained exports. In this environment, conditions in the labor market continued to improve gradually but remained weak. At a little under 8 percent in January, the unemployment rate was still well above levels prevailing prior to the recent recession. Inflation remained subdued at the end of last year, with consumer prices rising at about a 1½ percent annual rate in the second half, and measures of longer-run inflation expectations remained in the narrow ranges seen over the past several years.

Domestic Developments

GDP increased moderately but continued to be restrained by various headwinds

Real GDP is estimated to have increased at an annual rate of 3 percent in the third quarter but to have been essentially flat in the fourth, as economic activity was temporarily restrained by weather-related disruptions and declines in some erratic categories of spending, including inventory investment and federal defense spending.[1] On average, real GDP expanded at an annual rate of 1½ percent in the second half of 2012, similar to the pace of increase in the first half of the year (figure 1). The housing recovery gained additional traction, consumer spending continued to increase moderately, and business investment rose further. However, a severe drought in much of the country held down farm production, and disruptions from Hurricane Sandy also likely held back economic activity somewhat in the fourth quarter. More fundamentally, some of the same factors that restrained growth in the first half of last year likely continued to weigh on activity. Although financial conditions continued to

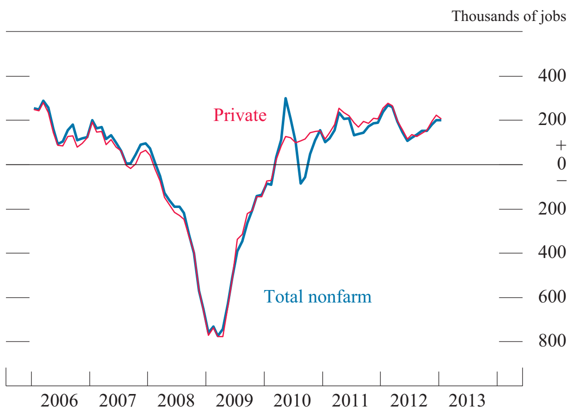
1. Change in real gross domestic product, 2006–12



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.

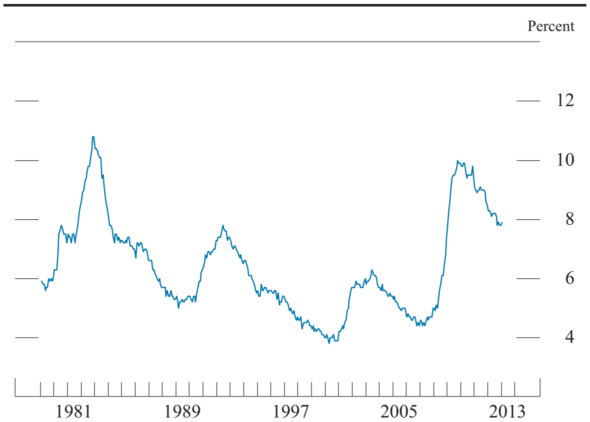
1. Data for the fourth quarter of 2012 from the national income and product accounts reflect the advance estimate released on January 30, 2013.

2. Net change in payroll employment, 2006–13



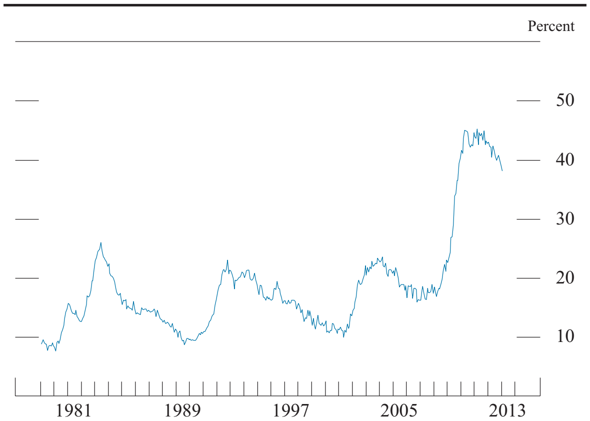
NOTE: The data are three-month moving averages and extend through January 2013.
SOURCE: Department of Labor, Bureau of Labor Statistics.

3. Civilian unemployment rate, 1979–2013



NOTE: The data are monthly and extend through January 2013.
SOURCE: Department of Labor, Bureau of Labor Statistics.

4. Long-term unemployed, 1979–2013



NOTE: The data are monthly and extend through January 2013. The series shown is the percentage of total unemployed persons who have been unemployed for 27 weeks or more.
SOURCE: Department of Labor, Bureau of Labor Statistics.

improve overall, the financial system has not fully recovered from the financial crisis, and banks remained cautious in their lending to many households and businesses. In particular, restricted financing for home mortgages and new-home construction projects, along with the depressing effects on housing demand of an uncertain outlook for house prices and jobs, kept the level of activity in the housing sector well below longer-run norms. Budgetary pressures at all levels of government also continued to weigh on GDP growth. Moreover, businesses and households remained concerned about many aspects of the economic environment, including the uncertain course of U.S. fiscal policy at the turn of the year as well as the still-worrisome European situation and the slow recovery more generally.

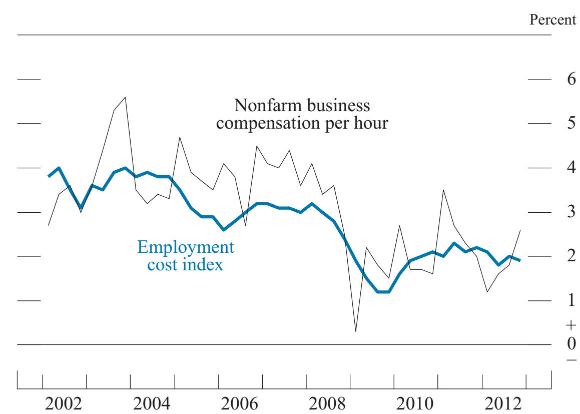
The labor market improved somewhat, but the unemployment rate remained high

In this economic environment, firms increased their workforces moderately. Over the second half of last year, nonfarm payroll employment rose an average of about 175,000 per month, similar to the average increase in the first half (figure 2). These job gains helped lower the unemployment rate from 8.2 percent in the second quarter of last year to 7.9 percent in January (figure 3). Nevertheless, the unemployment rate remained much higher than it was prior to the recent recession, and long-term unemployment continued to be widespread. In the fourth quarter, about 40 percent of the unemployed had been out of work for more than six months (figure 4). Moreover, the proportion of workers employed part time because they were unable to find full-time work remained elevated. Some of the increase in the unemployment rate since the beginning of the recent recession could reflect structural changes in the labor market—such as a greater mismatch between the types of jobs that are open and the skills of workers available to fill them—that would reduce the maximum sustainable level of employment. However, most of the economic analysis on this subject suggests that the bulk of the increase in unemployment probably reflects a deficiency in labor demand.[2] As a result, the unemployment rate likely remains well above levels consistent with maximum sustainable employment.

As described in the box "Assessing Conditions in the Labor Market," the unemployment rate appears to be a very good indicator of labor market conditions. That said, other indicators also provide important perspectives on the health of the labor market, and the most accurate assessment of labor market conditions can be obtained by combining the signals from many such indicators. Aside from the decline in the unemployment rate, probably the most important other pieces of evidence corroborating the gradual improvement in labor market conditions over the second half of last year were the gains in nonfarm payrolls noted earlier and the slight net reduction in initial claims for unemployment insurance.

Restrained by the ongoing weak conditions in the labor market, labor compensation has increased slowly. The employment cost index for private industry workers, which encompasses both wages and the cost to employers of providing benefits, increased only 2 percent over the 12 months of 2012, similar to the rate of gain since 2010 (figure 5). Similarly, nominal compensation per hour in the nonfarm business sector—a measure derived from the labor compensation data in the national income and product accounts (NIPA)—increased 2½ percent over the four quarters of 2012, well below average increases

5. Measures of change in hourly compensation, 2002–12



NOTE: The data are quarterly and extend through 2012: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.

SOURCE: Department of Labor, Bureau of Labor Statistics.

2. See, for example, Mary C. Daly, Bart Hobijn, Ayşegül Şahin, and Robert G. Valletta (2012), "A Search and Matching Approach to Labor Markets: Did the Natural Rate of Unemployment Rise?" *Journal of Economic Perspectives*, vol. 26 (Summer), pp. 3–26; Michael W. L. Elsby, Bart Hobijn, Ayşegül Şahin, and Robert G. Valletta (2011), "The Labor Market in the Great Recession—An Update to September 2011," *Brookings Papers on Economic Activity*, Fall, pp. 353–71; and Jesse Rothstein (2012), "The Labor Market Four Years into the Crisis: Assessing Structural Explanations," *ILRReview*, vol. 65 (July), pp. 467–500.

Assessing Conditions in the Labor Market

No single statistic can provide a complete picture of a labor market as large and diverse as that in the United States. The evidence suggests that the unemployment rate is probably the most useful single summary indicator of labor market conditions. However, other indicators, prominently including but not limited to nonfarm payroll employment, provide important additional information.

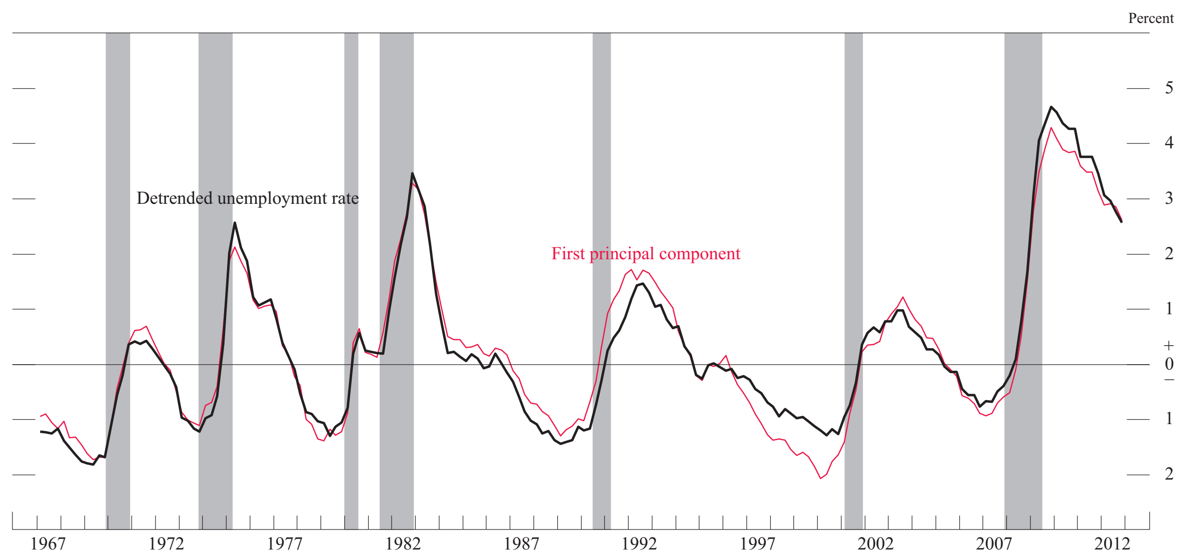
The unemployment rate is intended to measure the extent of the most obvious, and arguably the most important, problem in a slack labor market: the inability of some people who are looking for work to find acceptable jobs. The unemployment rate is also well correlated with, and representative of, a broad set of labor market indicators that portray many aspects of the job market. This relationship is demonstrated in figure A, which plots the detrended unemployment rate along with the first principal component from a factor model of labor market indicators described in a paper by Barnes and others.[1] In addition, other research suggests that the unemployment rate is generally a reliable indicator of the overall state of the business cycle.[2]

Of course, the unemployment rate does not, by itself, provide a complete and fully accurate portrait of labor market conditions. As with most indicators, the unemployment rate is subject to sampling and other measurement errors, so month-to-month movements should be interpreted with some caution. Even over longer periods, the unemployment rate may not always characterize the situation in the labor market altogether accurately. For example, if many unemployed individuals cease looking for work (and so are no longer counted as unemployed) because they have become discouraged about their job prospects, the measured unemployment rate could decline even if the demand for labor has not improved. Also, the unemployment rate may not always move in step with other types of underemployment, such as

1. The first principal component is a summary statistic that captures the common movement among a variety of indicators. See Michelle Barnes, Ryan Chahrour, Giovanni Olivei, and Gaoyan Tang (2007), "A Principal Components Approach to Estimating Labor Market Pressure and Its Implications for Inflation," Public Policy Briefs 07-2 (Boston: Federal Reserve Bank of Boston, December), www.bostonfed.org/economic/ppb/2007/ppb072.pdf.

2. For two examples, see Charles A. Fleischman and John M. Roberts (2011), "From Many Series, One Cycle: Improved Estimates of the Business Cycle from a Multivariate Unobserved Components Model," Finance and Economics Discussion Series 2011-46 (Washington: Board of Governors of the Federal Reserve System, October), www.federalreserve.gov/pubs/feds/2011/201146/201146pap.pdf; and Jeremy J. Nalewaik (2011), "Forecasting Recessions Using Stall Speeds," Finance and Economics Discussion Series 2011-24 (Washington: Board of Governors of the Federal Reserve System, April), www.federalreserve.gov/pubs/feds/2011/201124/201124pap.pdf.

A. Detrended unemployment rate and principal component, 1967–2012



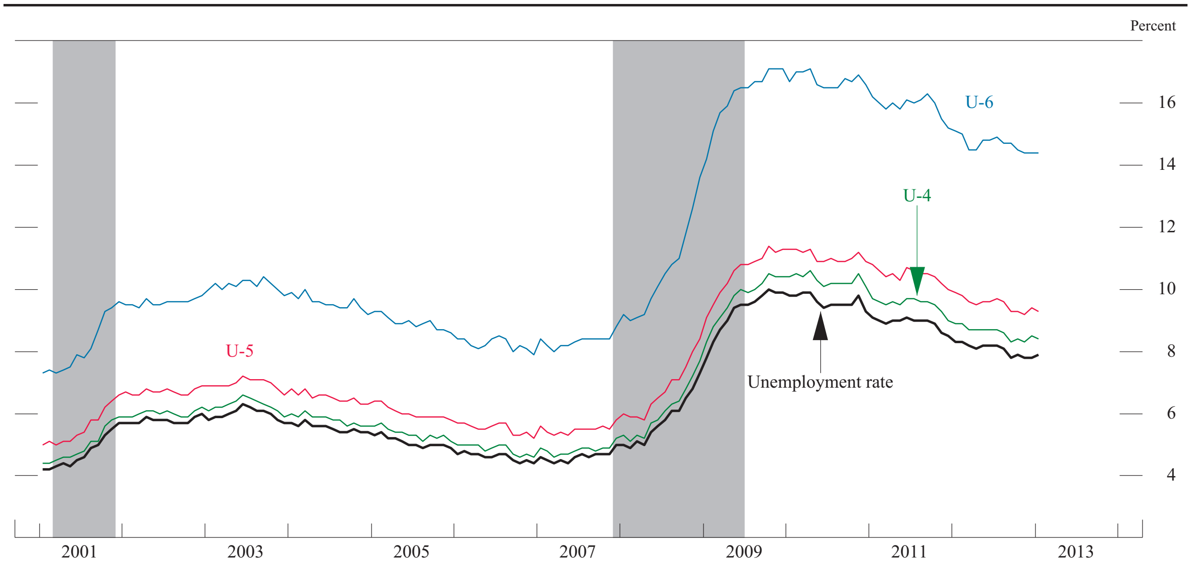
NOTE: The shaded bars indicate periods of business recession as defined by the National Bureau of Economic Research.
SOURCE: Federal Reserve Bank of Boston staff.

persons working part time because they cannot find full-time jobs. For this reason, broader measures of labor underutilization, such as the Bureau of Labor Statistics' (BLS) U-4, U-5, and U-6 rates, can be useful supplements to the standard unemployment rate. These measures include the number of discouraged workers and part-time workers who are unable to find a full-time job, and they are derived from the same survey of households as is the official unemployment rate (figure B).

Other than the unemployment rate, payroll employment as measured in the BLS survey of establishments may be the most useful labor market indicator. A decline in the unemployment rate that is accompanied by a roughly proportionate increase in payroll employment is more likely to truly reflect improvement in the labor market. Of course, payroll employment is also an imperfect measure, and on some occasions the initial estimates of payrolls have been revised to show a substantially different picture than they originally did. Therefore, it can be useful to also look at a variety of other labor market indicators. These indicators may be less broad-based than either the unemployment rate or payroll employment, but—collectively—they may reduce the uncertainty surrounding the message from the primary measures and provide information about some specific aspects of the labor market.

One set of useful supplementary indicators consists of measures of job losses and hiring. These measures describe the large gross flows of workers in and out of employment that underlie the net changes reflected in the unemployment rate and payroll employment. For example, the improvements in the employment situation thus far during the current recovery have been driven more by reductions in job losses than by increases in hiring. A second set of indicators, the rate of job vacancies and measures of firms' hiring plans, may be informative about the sustainability of any increase in hiring. Quit rates, a third set, are useful because workers have, historically, been much more likely to quit their jobs when they perceive or anticipate a strong labor market. In addition, surveys of consumers and businesses provide information about the perceptions of a large number of individuals about labor market conditions. As with the unemployment rate and payroll employment, these other indicators have, for the most part, improved considerably during the economic recovery but remain substantially weaker than would normally be associated with a healthy labor market.

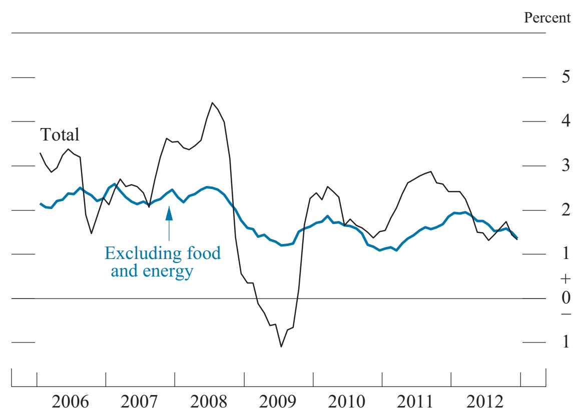
B. Measures of labor underutilization, 2001–13



NOTE: The data are monthly and extend through January 2013. U-4 measures total unemployed plus discouraged workers, as a percent of the labor force plus discouraged workers. Discouraged workers are not currently looking for work because they believe no jobs are available for them. U-5 measures total unemployed plus all marginally attached to the labor force, as a percent of the labor force plus persons marginally attached to the labor force. Marginally attached workers are not in the labor force, want and are available for work, and have looked for a job in the prior 12 months. U-6 measures total unemployed plus all marginally attached workers plus total employed part time for economic reasons, as a percent of labor force plus all marginally attached workers. The shaded bars indicate periods of business recession as defined by the National Bureau of Economic Research.

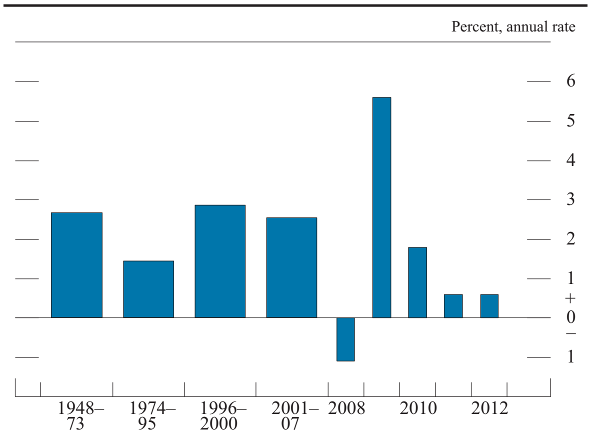
SOURCE: Department of Labor, Bureau of Labor Statistics.

6. Change in the chain-type price index for personal consumption expenditures, 2006–12



NOTE: The data are monthly and extend through December 2012; changes are from one year earlier.
SOURCE: Department of Commerce, Bureau of Economic Analysis.

7. Change in output per hour, 1948–2012



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.

of close to 4 percent in the years prior to the recent recession. As a result of these modest gains, nominal compensation has increased only about as fast as consumer prices over the recovery.

Inflation remained low . . .

Consumer price inflation was low over the second half of 2012. With considerable slack in labor markets and limited increases in labor costs, relatively stable prices for commodities and imports, and well-anchored longer-term inflation expectations, prices for personal consumption expenditures (PCE) increased at an annual rate of 1½ percent in the second half of the year, similar to the rate of increase in the first half (figure 6). Excluding food and energy prices, consumer prices increased only 1 percent in the second half of the year, down from 2 percent in the first half. A deceleration in prices of imported goods likely contributed to the low rate of inflation seen in the second half, though price increases for non-energy services were also low.

As noted, gains in labor compensation have been subdued given the weak conditions in labor markets, and unit labor costs—which measure the extent to which compensation rises in excess of productivity—have increased very little over the recovery. That said, compensation per hour rose more rapidly last year, and productivity growth, which has averaged 1½ percent per year over the recovery, was relatively low (figure 7). As a result, unit labor costs rose 2 percent in 2012, well above average increases earlier in the recovery.

Global oil prices rose in early 2012 but subsequently gave up those gains and remained about flat through the later part of the year (figure 8). Developments related to Iran, including a tightening embargo on Iranian oil exports, likely put upward pressure on prices, but these pressures were apparently offset by continued concerns about weak global demand. However, in recent weeks, global oil prices have increased in response to generally positive demand indicators from China and some reductions in Saudi production. Partly in response to this rise, retail gasoline prices, which changed little, on net, over 2012, have moved up appreciably.

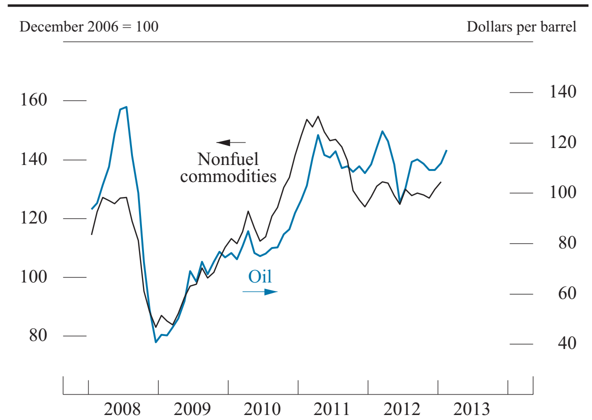
Nonfuel commodity prices have remained relatively flat over the past year despite significant movements in the prices of a few specific commodities. Of particular interest, prices for corn and soybeans eased some over the fall after having risen sharply during the summer as the scale of the drought affecting much of the United States became apparent. Given this easing and the small share of grain costs in the retail price of food, the effect of the drought on U.S. consumer food prices is likely to be modest: Consumer food prices rose at an annual rate of 2 percent in the fourth quarter following increases of less than 1 percent in the middle of last year.

In line with these flat overall commodity prices, as well as earlier dollar appreciation, prices for imported goods excluding oil were about unchanged on average over the last five months of 2012 and the early part of 2013.

. . . and longer-term inflation expectations stayed in their historical range

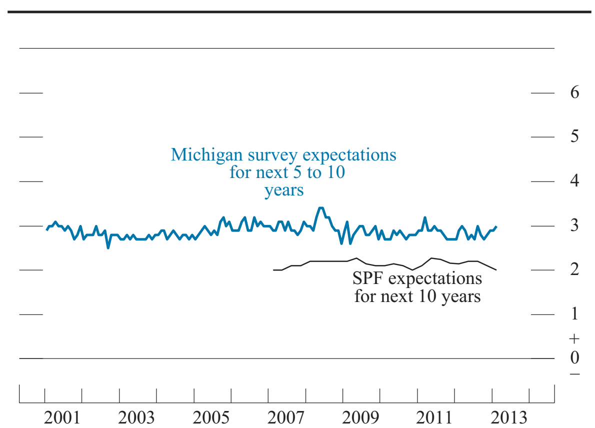
Survey measures of longer-term inflation expectations have changed little, on net, since last summer. Median expected inflation over the next 5 to 10 years, as reported in the Thomson Reuters/University of Michigan Surveys of Consumers, was 3 percent in early February, within the narrow range of the past 10 years (figure 9). In the Survey of Professional Forecasters, conducted by the Federal Reserve Bank of Philadelphia, the median expectation for the increase in the price index for PCE over the next 10 years was 2 percent in the first quarter of this year, similar to its level in recent years. A measure of 5-year inflation compensation derived from nominal and inflation-protected

8. Prices of oil and nonfuel commodities, 2008–13



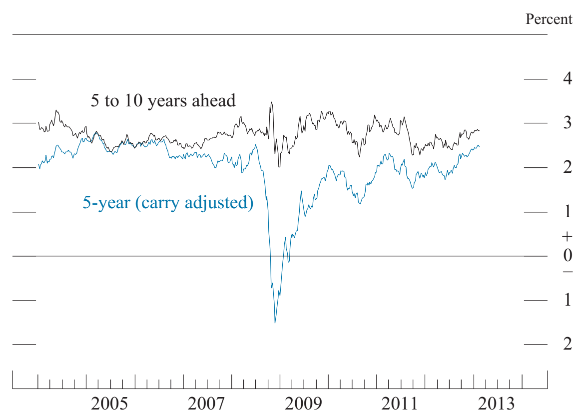
NOTE: The data are monthly. The oil price is the spot price of Brent crude oil, and the last observation is the average for February 1–21, 2013. The price of nonfuel commodities is an index of 45 primary-commodity prices and extends through January 2013.
SOURCE: For oil, the Commodity Research Bureau; for nonfuel commodities, International Monetary Fund.

9. Median inflation expectations, 2001–13



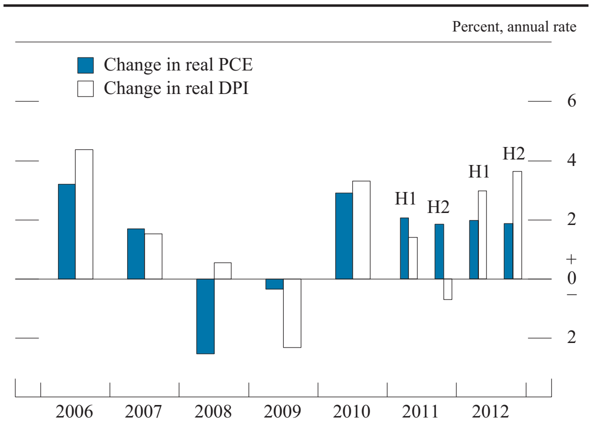
NOTE: The Michigan survey data are monthly and extend from January 2001 through a preliminary estimate for February 2013. The SPF data are quarterly and extend from 2007:Q1 through 2013:Q1.
SOURCE: Thomson Reuters/University of Michigan Surveys of Consumers and Survey of Professional Forecasters (SPF).

10. Inflation compensation, 2004–13



NOTE: The data are weekly averages of daily data and extend through February 15, 2013. Inflation compensation is the difference between yields on nominal Treasury securities and Treasury inflation-protected securities (TIPS) of comparable maturities, based on yield curves fitted to off-the-run nominal Treasury securities and on- and off-the-run TIPS. The 5-year measure is adjusted for the effect of indexation lags.
SOURCE: Federal Reserve Bank of New York; Barclays; Federal Reserve Board staff estimates.

11. Change in real personal consumption expenditures and disposable personal income, 2006–12



NOTE: The data are quarterly and extend through 2012:Q4.
SOURCE: Department of Commerce, Bureau of Economic Analysis.

Treasury securities has increased 55 basis points since the end of June, while a similar measure of inflation compensation for the period 5 to 10 years ahead has increased about 30 basis points; both measures are within their respective ranges observed in the several years before the recent financial crisis (figure 10). While the increases in these measures could reflect changes in market participants' expectations of future inflation, they may also have been affected by improved investor risk sentiment and an associated reduction in demand for the relatively greater liquidity of nominal Treasury securities.

Consumer spending continued to increase moderately

Turning to some important components of final demand, real PCE increased at a moderate annual rate of 2 percent over the second half of 2012, similar to the rate of increase in the first half (figure 11). Household wealth—buoyed by increases in house prices and equity values—moved up over the second half of the year and provided some support for consumer spending (figure 12). In addition, for those households with access to credit, low interest rates spurred spending on motor vehicles and other consumer durables, which increased at an annual rate of 11 percent over the second half of last year. But increases in real wages and salaries were modest over the second half of the year, and overall growth in consumer spending continued to be held back by concerns about the economic outlook and limited access to credit for some households. After rising earlier in the year, consumer sentiment—which reflects household views on their own financial situations as well as broader economic conditions—fell back at the end of the year and stood well below longer-run norms (figure 13).

Real disposable personal income (DPI) rose at an annual rate of 3½ percent over the second half of 2012. However, much of this increase was a result of unusually large increases in dividends and employee bonuses, as many firms apparently shifted income disbursements into 2012 in anticipation of an increase in marginal tax rates for high-income households at the beginning of this year. Excluding these special payments, real DPI is estimated to have increased at a modest annual rate of 1¼ percent over the second half of the year, similar to the average pace of increase over the recovery. The surge in dividend and bonus payments also led the personal saving rate to jump from 3.8 percent in the second quarter to 4.7 percent in the fourth quarter (figure 14). In their absence, the saving rate would have likely been little changed over the second half of the year.

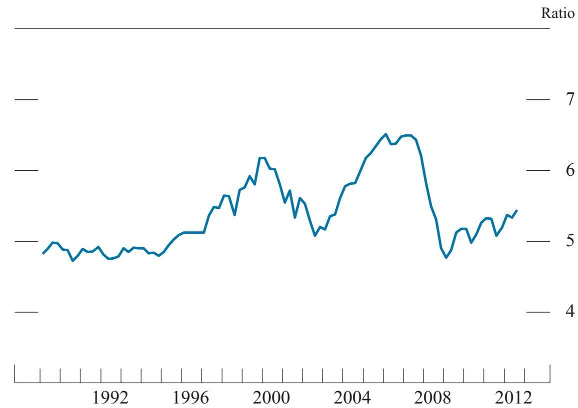
Households continue to pay down debt and gain access to credit

Household debt—the sum of mortgage and consumer debt—edged down further in the third quarter of 2012 as a continued contraction in mortgage debt more than offset a solid expansion in consumer credit. With the reduction in household debt, low levels of most interest rates, and modest income growth, the household debt service ratio—the ratio of required principal and interest payments on outstanding household debt to DPI—decreased further and, at the end of the third quarter, stood at a level last seen in 1983 (figure 15).

Consumer credit expanded at an annual rate of about 5¼ percent in the second half of 2012. Nonrevolving credit (mostly auto loans and student loans), which accounts for about two-thirds of total consumer credit outstanding, drove the increase. Revolving consumer credit (primarily credit card lending) was about flat on net. Overall, the increase in nonrevolving consumer credit is consistent with banks' recent responses to the Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS), which indicated that demand had strengthened and standards eased, on net, for auto loans (figure 16).[3]

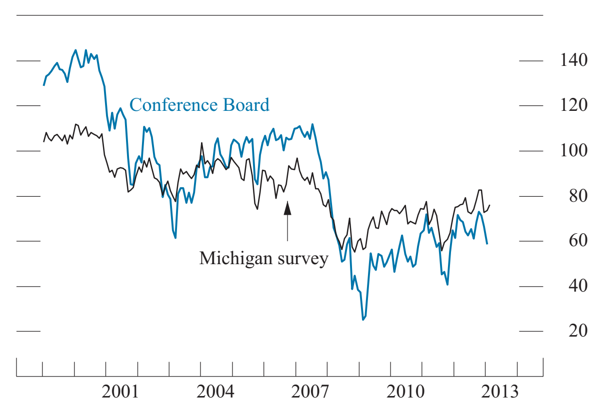
3. The SLOOS is available on the Federal Reserve Board's website at www.federalreserve.gov/boarddocs/SnLoanSurvey.

12. Wealth-to-income ratio, 1989–2012



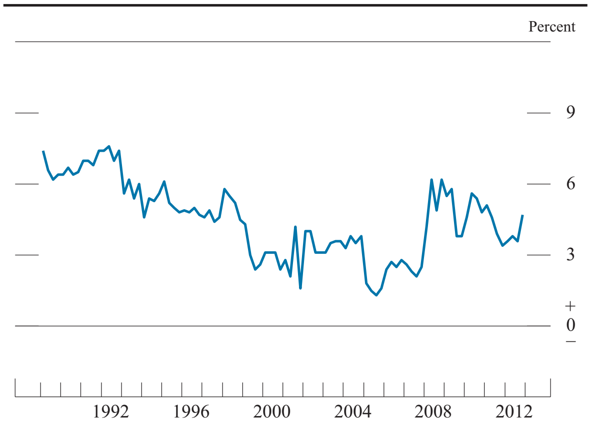
NOTE: The data are quarterly and extend through 2012:Q3. The series is the ratio of household net worth to disposable personal income.
SOURCE: For net worth, Federal Reserve Board, flow of funds data; for income, Department of Commerce, Bureau of Economic Analysis.

13. Consumer sentiment indexes, 1999–2013



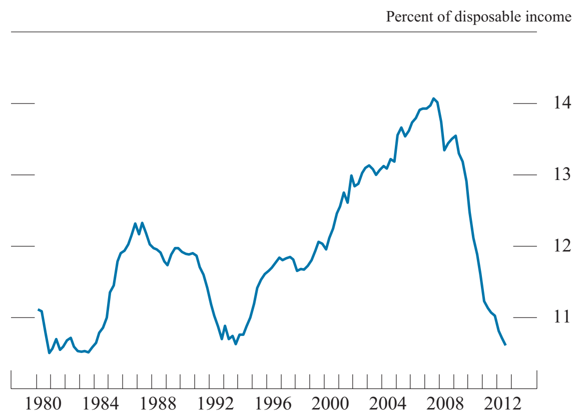
NOTE: The Conference Board data, indexed to 100 in 1985, are monthly and extend through Jan. 2013. The Mich. survey data, indexed to 100 in 1966, are monthly and extend through a preliminary Feb. 2013 estimate.
SOURCE: The Conference Board and Thomson Reuters/University of Michigan Surveys of Consumers.

14. Personal saving rate, 1989–2012



NOTE: The data are quarterly and extend through 2012:Q4.
SOURCE: Department of Commerce, Bureau of Economic Analysis.

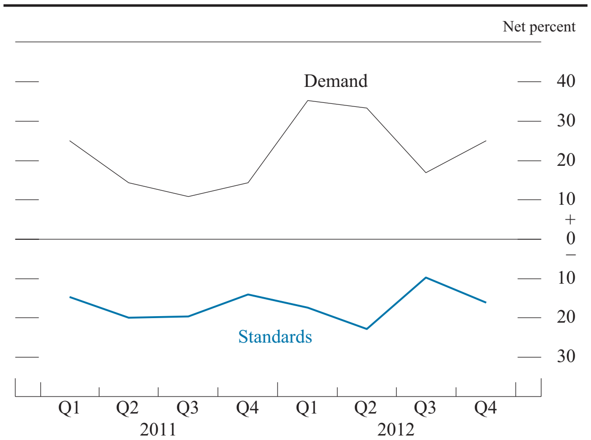
15. Household debt service, 1980–2012



NOTE: The data are quarterly and extend through 2012: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.

16. Change in standards and demand for auto loans, 2011–12



NOTE: The data are from a survey generally conducted 4 times per year; the last observation is from the Jan. 2013 survey, which covers 2012:Q4. Each series represents the net percent of surveyed banks that reported a tightening of standards or stronger demand for auto loans over the past 3 months.

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

Changes in interest rates on consumer loans were mixed over the second half of 2012. Interest rates on auto loans declined a bit, as did most measures of the spreads of rates on these loans over yields on Treasury securities of comparable maturity. Interest rates on credit card debt quoted by banks generally declined slightly, while rates observed in credit card offer mailings continued to increase.

The housing market recovery gained traction . . .

The housing market has continued to recover. Housing starts, sales of new and existing homes, and builder and realtor sentiment all increased over the second half of last year, and residential investment rose at an annual rate of nearly 15 percent. Combined, single-family and multifamily housing starts rose from an average annual rate of 740,000 in the second quarter of last year to 900,000 in the fourth quarter (figure 17). Activity increased most noticeably in the smaller multifamily sector—where starts have nearly reached pre-recession levels—as demand for new housing has apparently shifted toward smaller rental units and away from larger, typically owner-occupied single-family units.

. . . as mortgage interest rates reached record lows and house prices rose . . .

Mortgage interest rates declined to historically low levels toward the end of 2012—importantly reflecting Federal Reserve policy actions—making housing quite affordable for households with good credit ratings (figure 18). However, the spread between mortgage rates and yields on agency-guaranteed mortgage-backed securities (MBS) remained elevated by historical standards. This unusually wide spread probably reflects still-elevated risk aversion and some capacity constraints among mortgage originators. Overall, refinance activity increased briskly over the second half of 2012—though it was still less than might have been expected, given the level of interest rates—while the pace of mortgage applications for home purchases remained sluggish (figure 19). Recent responses to the SLOOS indicate that banks' lending standards for residential mortgage loans were little changed over the second half of 2012.

House prices, as measured by several national indexes, continued to increase in the second half of 2012. For example, the CoreLogic repeat-sales index rose 3½ percent (not an annual rate) over the last six months of the year to reach its highest level since late 2008 (figure 20). This recent improvement notwithstanding, this measure of house prices remained 27 percent below its peak in early 2006.

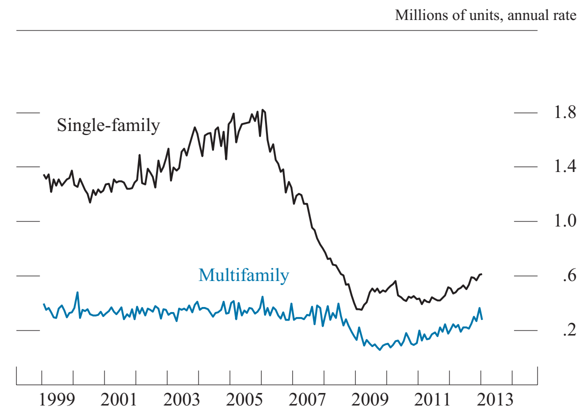
. . . but the level of new construction remained low, and mortgage delinquencies remained elevated

Despite the improvements seen over the second half of 2012, housing starts remained well below the 1960–2000 average of 1.5 million per year, as concerns about the job market and tight mortgage credit for less-credit-worthy households continued to restrain demand for housing. In addition, although the number of vacant homes for sale has declined significantly, the stock of vacant homes held off the market remained quite elevated. Once put on the market, this "shadow" inventory, which likely includes many bank-owned properties, may redirect some demand away from new homes and toward attractively priced existing homes. With home values depressed and unemployment still high, measures of late-stage mortgage delinquency, such as the inventory of properties in foreclosure, remained elevated, keeping high the risk of homes transitioning to vacant bank-owned properties (figure 21).

Growth of business investment has slowed since earlier in the recovery

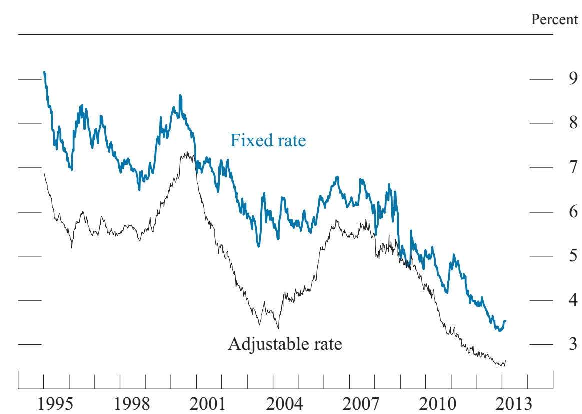
After increasing at double-digit rates in 2010 and 2011, business expenditures on equipment and software (E&S) decelerated in 2012 (figure 22). Pent-up demand for capital goods, an important contributor to earlier increases

17. Private housing starts, 1999–2013



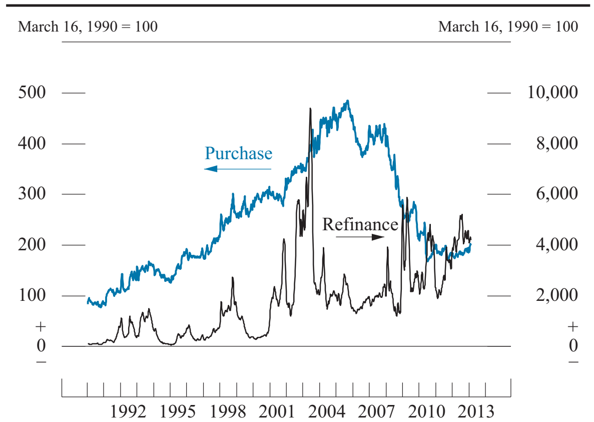
NOTE: The data are monthly and extend through January 2013.
SOURCE: Department of Commerce, Bureau of the Census.

18. Mortgage interest rates, 1995–2013



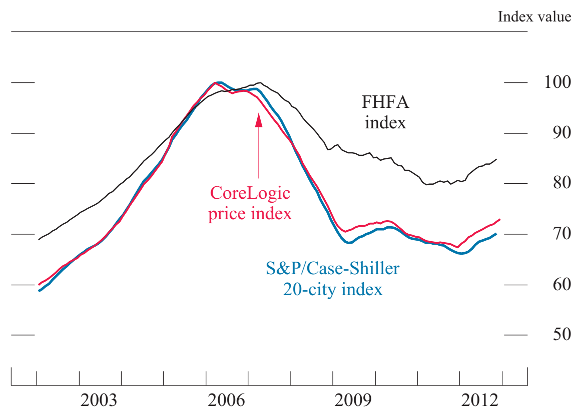
NOTE: The data, which are weekly and extend through February 20, 2013, are contract rates on 30-year mortgages.
SOURCE: Federal Home Loan Mortgage Corporation.

19. Mortgage Bankers Association purchase and refinance indexes, 1990–2013



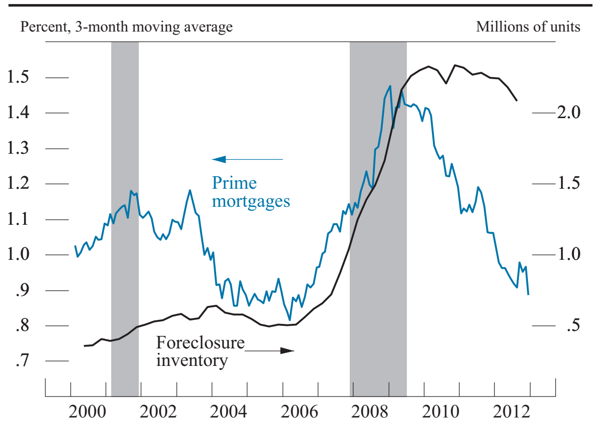
NOTE: The data, which are seasonally adjusted, are a four-week moving average and extend through February 15, 2013.
SOURCE: Mortgage Bankers Association.

20. Prices of existing single-family houses, 2002–12



NOTE: The data are monthly and extend into 2012:Q4. Each index has been normalized so that its peak is 100. Both the CoreLogic price index and the FHFA index include purchase transactions only. The S&P/Case-Shiller index reflects all arm's-length sales transactions in selected metropolitan areas.
SOURCE: For CoreLogic, CoreLogic; for FHFA, Federal Housing Finance Agency; for S&P/Case-Shiller, Standard & Poor's.

21. Current prime mortgages becoming delinquent and foreclosure inventory, 2000–12



NOTE: The data for prime mortgages becoming delinquent are monthly and extend through December 2012. The data represent the percentage of mortgages that transition from being current to being at least 30 days delinquent each month. The data for foreclosure inventory are quarterly and extend through 2012:Q3. The shaded bars indicate periods of business recession as defined by the National Bureau of Economic Research.
SOURCE: For prime mortgages, LPS Applied Analytics; for foreclosure inventory, Federal Reserve Board staff calculations based on data from Mortgage Bankers Association.

in E&S spending, has likely diminished as the recovery has aged. In addition, concerns about possible threats to economic growth and stability from U.S. fiscal policy and the situation in Europe may have contributed to soft investment spending in the middle of last year. As a result, despite a pickup in the pace of gains toward the end of the year, E&S investment increased at an annual rate of 5 percent in the second half of the year, similar to the first-half pace. As for business investment in structures, a sustained recovery has yet to take hold, as high vacancy rates, tight credit for new construction, and low prices for commercial real estate (CRE) are still hampering investment in new buildings. However, in the drilling and mining sector, elevated oil prices and new drilling technologies have kept investment in structures at a relatively high level.

Inventory investment remained at a moderate level in the second half of last year, as limited growth in final sales and the uncertain economic environment continued to limit firms' incentives to accumulate inventories. Census Bureau measures of book-value inventory-to-sales ratios, as well as surveys of private inventory satisfaction and plans, generally suggest that stocks were fairly well aligned with sales at the end of 2012.

Corporate earnings growth slowed, but firms' balance sheets remained strong

After having risen 6 percent over the first half of 2012, aggregate operating earnings per share for S&P 500 firms were about flat on a seasonally adjusted basis in the second half of 2012, held down, in part, by weak demand from Europe and some emerging market economies (EMEs). However, the ratio of corporate profits to gross national product in the second half of 2012 hovered around its historical high, and cash flow remained solid. In addition, the ratio of liquid assets to total assets for nonfinancial corporations was close to its highest level in more than 20 years, and the aggregate debt-to-asset ratio remained low by historical standards (figure 23).

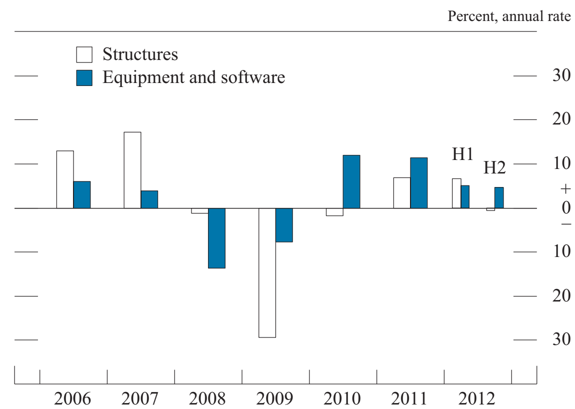
With corporate credit quality remaining robust and interest rates at historically low levels, nonfinancial firms continued to raise funds at a strong pace in the second half of 2012. Bond issuance by both investment- and speculative-grade nonfinancial firms was extraordinarily strong, although much of the proceeds from bond issuance appeared to be earmarked for the refinancing of existing debt (figure 24). Meanwhile, nonfinancial commercial paper (CP) outstanding was about unchanged. Issuance in the institutional segment of the syndicated leveraged loan market accelerated in the second half of the year, boosted by rapid growth of newly established collateralized loan obligations. Commercial and industrial (C&I) loans outstanding at commercial banking organizations in the United States continued to expand at a brisk pace in the second half of 2012. Moreover, according to the SLOOS, modest net fractions of banks continued to report having eased their lending standards on C&I loans over the second half of the year, and large net fractions of banks indicated having reduced the spread of rates on C&I loans over their cost of funds, largely in response to increased competition from other banks or nonbank lenders (figure 25).

Gross public equity issuance by nonfinancial firms slowed a bit in the second half of 2012, held down by a moderate pace of initial public offerings. Meanwhile, data for the third quarter of 2012 indicate that net equity issuance remained deeply negative, as share repurchases and cash-financed mergers by nonfinancial firms remained robust (figure 26).

Borrowing conditions for small businesses continued to improve, albeit more gradually than for large firms

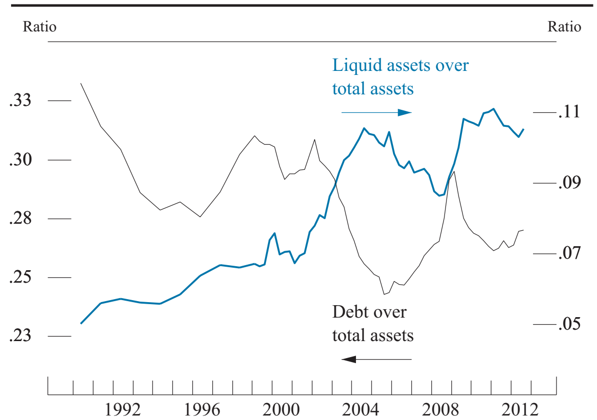
Borrowing conditions for small businesses continued to improve over the second half of 2012, but as has been the case in recent years, the improvement was more gradual than for larger firms. Moreover, the demand for credit from small firms apparently remained subdued. C&I loans with original amounts

22. Change in real business fixed investment, 2006–12



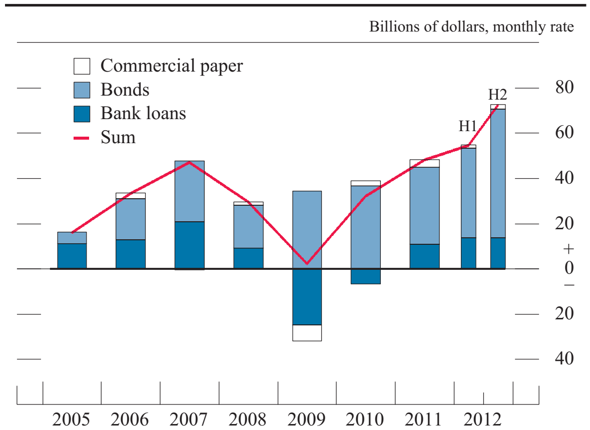
SOURCE: Department of Commerce, Bureau of Economic Analysis.

23. Financial ratios for nonfinancial corporations, 1990–2012



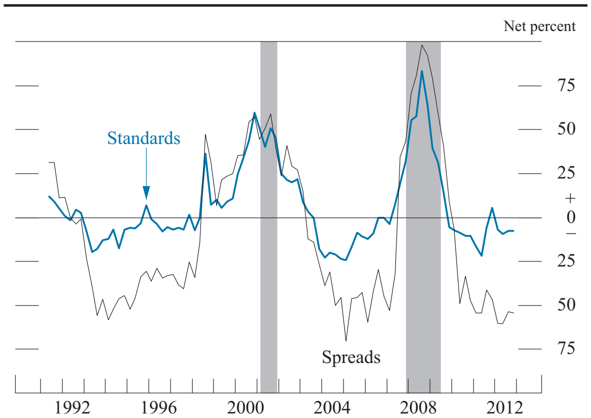
NOTE: The data are annual through 1998, quarterly thereafter, and extend through 2012:Q3.
SOURCE: Compustat.

24. Selected components of net financing for nonfinancial businesses, 2005–12



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

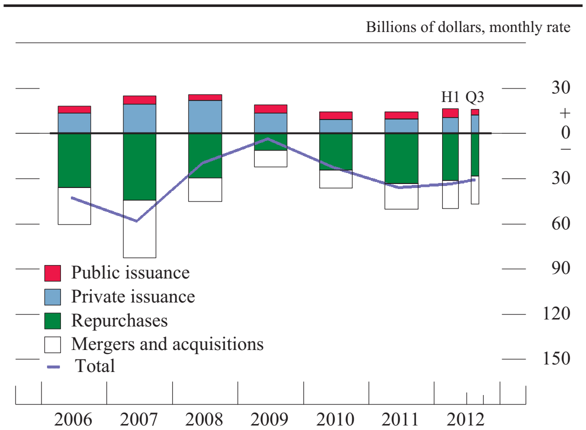
25. Change in standards and spreads of loan rates over banks' cost of funds for commercial and industrial loans, 1991–2012



NOTE: The data are drawn from a survey generally conducted four times per year; the last observation is from the January 2013 survey, which covers 2012:Q4. Each series represents the net percent of surveyed banks that reported a tightening of standards or increasing spreads of loan rates over the bank's cost of funds for commercial and industrial loans over the past three months. The shaded bars indicate periods of business recession as defined by the National Bureau of Economic Research.

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

26. Components of net equity issuance, 2006–12



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 Reuters Financial, Investment Benchmark Report; PricewaterhouseCoopers and National Venture Capital Association, MoneyTree Report.

of $1 million or less—a large share of which likely consist of loans to small businesses—rose slightly in the second half of 2012, at about the same rate that prevailed in the first half. Recent readings from the Survey of Terms of Business Lending indicate that the spreads charged by commercial banks on newly originated C&I loans with original amounts less than $1 million, while still quite elevated, continued to decline.[4]

According to surveys conducted by the National Federation of Independent Business during the second half of 2012, the fraction of small businesses with borrowing needs stayed low. The net percentage of respondents that found credit more difficult to obtain than three months prior edged up, on balance, over this period, as did the net percentage that expected tighter credit conditions over the next three months; both measures remained at relatively high levels in the January survey.

Financial conditions in the commercial real estate sector eased but remained relatively tight

Financial conditions in the CRE sector continued to ease but remained relatively tight amid weak fundamentals. According to the SLOOS, a modest net fraction of banks reported having eased standards on CRE loans over the second half of last year, and a significant net fraction of banks reported increased demand for such loans. Consistent with these readings, the multiyear contraction in banks' holdings of CRE loans continued to slow and, indeed, came roughly to a halt as banks' holdings of CRE loans were about flat over the last quarter of 2012. Issuance of commercial mortgage-backed securities (CMBS) continued to increase over the second half of 2012 from the low levels observed in 2011. Nonetheless, the delinquency rate on loans in CMBS pools remained extremely

4. Data releases for the Survey of Terms of Business Lending are available on the Federal Reserve Board's website at www.federalreserve.gov/releases/e2/default.htm.

high, as some borrowers with five-year loans issued in 2007 were unable to refinance upon the maturity of those loans because of high loan-to-value ratios. While delinquency rates for CRE loans at commercial banks continued to decline, they remained somewhat elevated, especially for construction and land development loans.

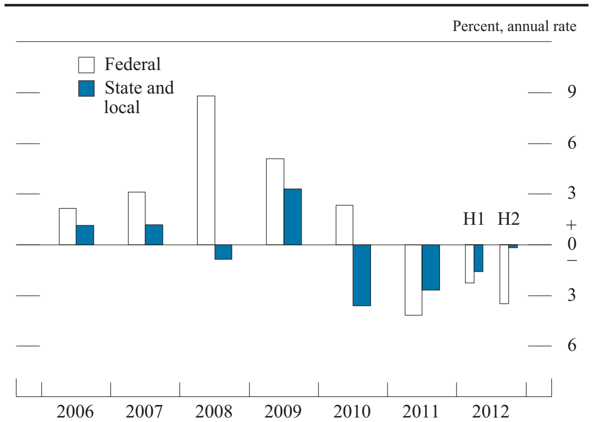
Budget strains for state and local governments eased, but federal purchases continued to decline

Strains on state and local government budgets appear to have lessened some since earlier in the recovery. Although federal grants provided to state governments in the American Recovery and Reinvestment Act have essentially phased out, state and local tax receipts, which have been increasing since 2010, rose moderately further over the second half of last year. Accordingly, after declining at an annual rate of 1½ percent in the first half of last year, real government purchases at the state and local level changed little in the second half (figure 27). Similarly, employment levels at states and municipalities, which had been declining since 2009, changed little, on balance, over the second half of last year.

Federal purchases continued to decline over the second half of 2012, reflecting ongoing efforts to reduce the budget deficit and the scaling back of overseas military activities. As measured in the NIPA, real federal expenditures on consumption and gross investment—the part of federal spending included in the calculation of GDP—fell at an annual rate of 3½ percent over the second half of 2012. Real defense spending fell at an annual rate of a little over 6 percent, while nondefense purchases increased at an annual rate of 2 percent.

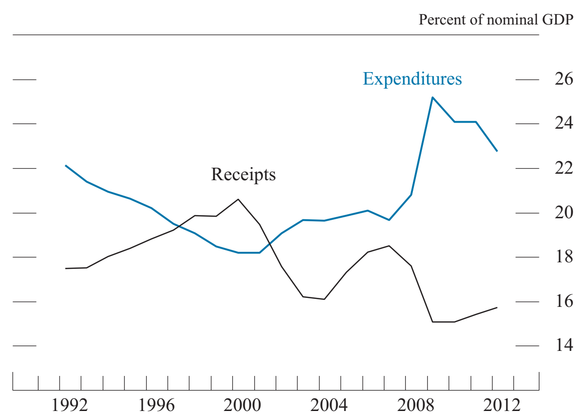
The deficit in the federal unified budget remains high. The budget deficit for fiscal year 2012 was $1.1 trillion, or 7 percent of nominal GDP, down from the deficit recorded in 2011 but still sharply higher than the

27. Change in real government expenditures on consumption and investment, 2006–12



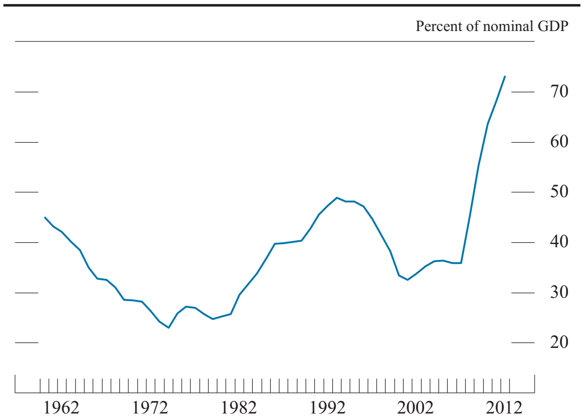
SOURCE: Department of Commerce, Bureau of Economic Analysis.

28. Federal receipts and expenditures, 1992–2012



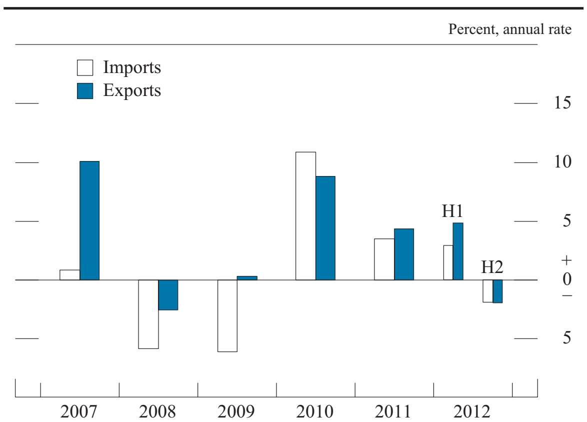
NOTE: The receipts and expenditures data are on a unified-budget basis and are for fiscal years (October through September); gross domestic product (GDP) is for the four quarters ending in Q3.
SOURCE: Office of Management and Budget.

29. Federal government debt held by the public, 1960–2012



NOTE: The data for debt through 2012 are as of year-end, and the corresponding values for gross domestic product (GDP) are for Q4 at an annual rate. Excludes securities held as investments of federal government accounts.
SOURCE: Bureau of Economic Analysis; Department of the Treasury, Financial Management Service.

30. Change in real imports and exports of goods and services, 2007–12



SOURCE: Department of Commerce, Bureau of Economic Analysis.

deficits recorded prior to the onset of the last recession. The narrowing of the budget deficit relative to fiscal 2011 reflected an increase in tax revenues that largely stemmed from the gradual increase in economic activity as well as a decline in spending. Despite the rise in tax revenues, the ratio of federal receipts to national income, at 16 percent in fiscal 2012, remained near the low end of the range for this ratio over the past 60 years (figure 28). The ratio of federal outlays to GDP declined but was still high by historical standards, at 23 percent. With deficits still large, federal debt held by the public rose to 73 percent of nominal GDP in the fourth quarter of 2012, 5 percentage points higher than at the end of 2011 (figure 29).

Net exports added modestly to real GDP growth

Real imports of goods and services contracted at an annual rate of nearly 2 percent over the second half of 2012, held back by the sluggish pace of U.S. demand (figure 30). The decline in imports was fairly broad based across major trading partners and categories of trade.

Real exports of goods and services also fell at an annual rate of about 2 percent in the second half despite continued expansion in demand from EMEs. Exports were dragged down by a steep falloff in demand from the euro area and declining export sales to Japan, consistent with weak economic conditions in those areas. In contrast, exports to Canada remained essentially flat. Across the major categories of exports, industrial supplies, automotive products, and agricultural goods contributed to the overall decrease.

Overall, real net exports added an estimated 0.1 percentage point to real GDP growth in the second half of 2012, according to the advance estimate of GDP from the Bureau of Economic Analysis, but data received since then suggest a somewhat larger positive contribution.

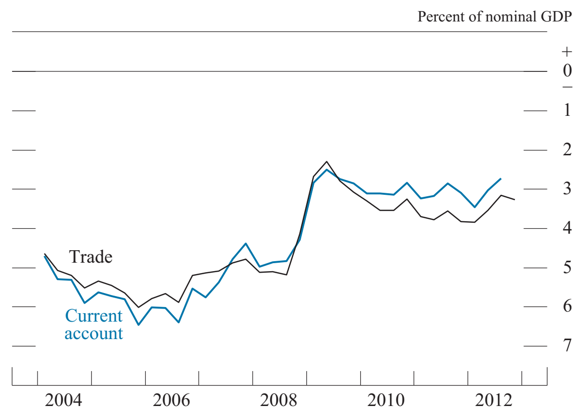
The nominal trade deficit shrank, on net, over the second half of 2012, contributing to the narrowing of the current account deficit to 2¾ percent of GDP in the third quarter (figure 31). The trade deficit as a share of GDP narrowed substantially in late 2008 and early 2009 when U.S. imports dropped sharply, in part reflecting the steep decline in oil prices. Since then, the trade deficit as a share of GDP has remained close to its 2009 level: Although imports recovered from their earlier drop, exports strengthened as well.

The current account deficit in the third quarter was financed by strong inflows from foreign official institutions and by foreign private purchases of Treasury securities and equities (figure 32). More-recent data suggest continued strong foreign purchases of Treasury securities and equities in the fourth quarter of 2012. Consistent with improved market sentiment over the third quarter, U.S. investors also increased their holdings of foreign assets, as shown in figure 32.

National saving is very low

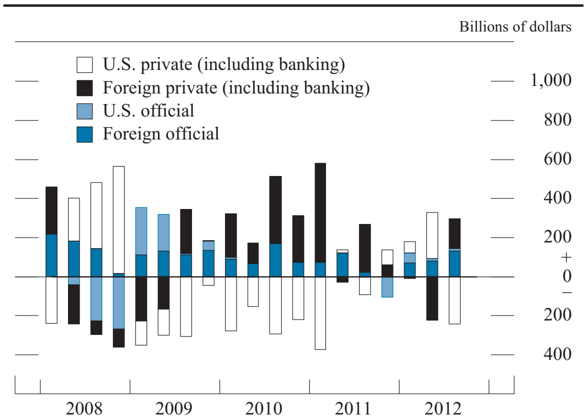
Total U.S. net national saving—that is, the saving of U.S. households, businesses, and governments, net of depreciation charges—remains extremely low by historical standards (figure 33). In the third quarter of last year, net national saving as a percent of nominal GDP was close to zero. The relative flatness of the national saving rate over the past few years reflects the offsetting effects of a narrowing in the federal budget deficit as a share of nominal GDP and a downward movement in the private saving rate. National saving will likely remain low this year, in light of the still-large federal budget deficit. A portion of the decline in federal savings relative to pre-recession levels is cyclical and would be expected to reverse as the economy recovers. If low levels of national saving persist over the longer run, they will likely be associated with both low rates of capital formation and heavy borrowing from abroad, limiting the rise in the standard of living for U.S. residents over time.

31. U.S. trade and current account balances, 2004–12



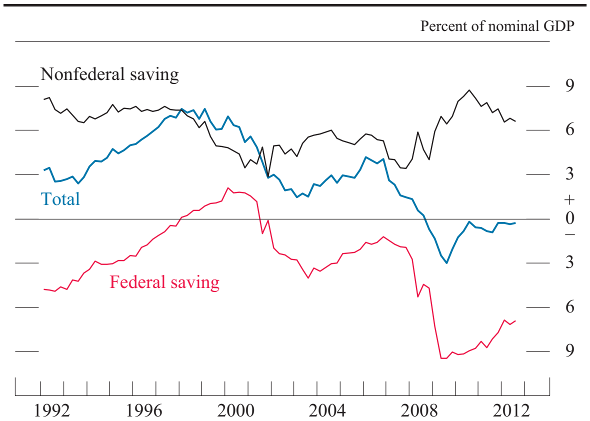
Note: The data are quarterly and extend through 2012:Q3 for the current account and 2012:Q4 for trade. GDP is gross domestic product.
Source: Department of Commerce, Bureau of Economic Analysis.

32. U.S. net financial inflows, 2008–12



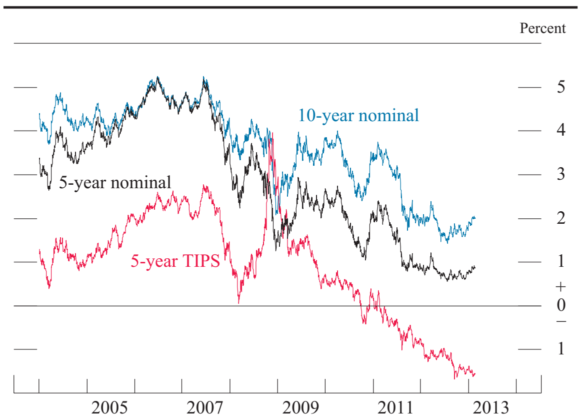
Note: The data are quarterly and extend through 2012:Q3. Negative numbers indicate a balance of payments outflow, generated when U.S. residents, on net, purchase foreign assets or when foreign residents, on net, sell U.S. assets. Therefore, a negative number for "U.S. private" or "U.S. official" indicates an increase in foreign positions. U.S. official flows include the foreign currency acquired when foreign central banks draw on their swap lines with the Federal Reserve.
Source: Department of Commerce, Bureau of Economic Analysis.

33. Net saving, 1992–2012



NOTE: The data are quarterly and extend through 2012: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.

34. Interest rates on Treasury securities at selected maturities, 2004–13



NOTE: The data are daily and extend through February 21, 2013. Treasury inflation-protected securities (TIPS) are based on yield curves fitted by Federal Reserve staff to on- and off-the-run TIPS.
SOURCE: Department of the Treasury; Barclays; Federal Reserve Board staff estimates.

Financial Developments

Expectations regarding the future stance of monetary policy reflected the additional accommodation provided by the Federal Open Market Committee . . .

In response to the steps taken by the FOMC to provide additional monetary policy accommodation over the second half of 2012, market participants pushed out the date when they expect the federal funds rate to first rise above its current target range of 0 to ¼ percent. In particular, interest rates on overnight index swaps indicate that investors currently anticipate that the effective federal funds rate will rise above its current target range around the fourth quarter of 2014, roughly four quarters later than they expected at the end of June 2012. Meanwhile, the modal target rate path—the most likely values for future federal funds rates derived from interest rate options—suggests that investors think the rate is most likely to remain in its current range through the first quarter of 2016. In addition, recent readings from the Survey of Primary Dealers conducted by the Open Market Desk at the Federal Reserve Bank of New York suggest that market participants expect the Federal Reserve to hold about $3.75 trillion of Treasury and agency securities at the end of 2014, roughly $1 trillion more than was expected in the middle of 2012.[5]

. . . and held yields on longer-term Treasury securities and agency mortgage-backed securities near historic lows

Yields on nominal and inflation-protected Treasury securities remained near historic lows over the second half of 2012 and into 2013. Yields on longer-term nominal Treasury securities rose, on balance, over this period, while yields on inflation-protected securities fell (figure 34). These changes likely

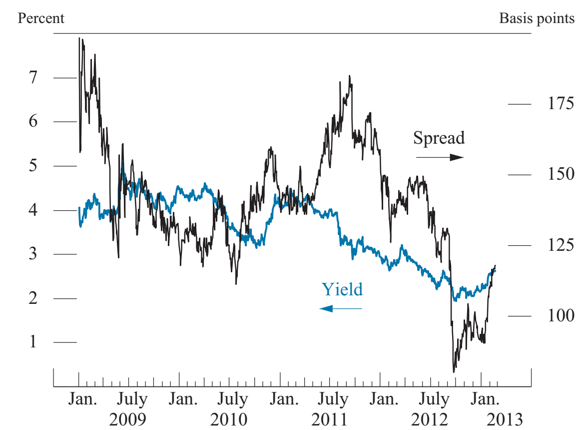
5. The Survey of Primary Dealers is available on the Federal Reserve Bank of New York's website at www.newyorkfed.org/markets/primarydealer_survey_questions.html.

reflect the effects of additional monetary accommodation, a substantial improvement in sentiment regarding the crisis in Europe that reduced demand for the relative safety and liquidity of nominal Treasury securities, and increases in the prices of key commodities since the end of June 2012. On balance, yields on 5-, 10-, and 30-year nominal Treasury securities increased roughly 15 basis points, 30 basis points, and 40 basis points, respectively, from their levels at the end of June 2012, while yields on 5- and 10-year inflation-protected securities decreased roughly 55 basis points and 15 basis points, respectively. Treasury auctions generally continued to be well received by investors, and the Desk's outright purchases and sales of Treasury securities did not appear to have a material adverse effect on liquidity or market functioning.

Yields on agency MBS were little changed, on net, over the second half of 2012 and into 2013. They fell sharply following the FOMC's announcement of additional agency MBS purchases in September but retraced over subsequent months. Spreads of yields on agency MBS over yields on nominal Treasury securities narrowed, largely reflecting the effects of the additional monetary accommodation (figure 35). The Desk's outright purchases of agency MBS did not appear to have a material adverse effect on liquidity or market functioning, although implied financing rates for some securities in the MBS dollar roll market declined in the second half of 2012, and the Desk responded by postponing settlement of some purchases using dollar roll transactions.[6]

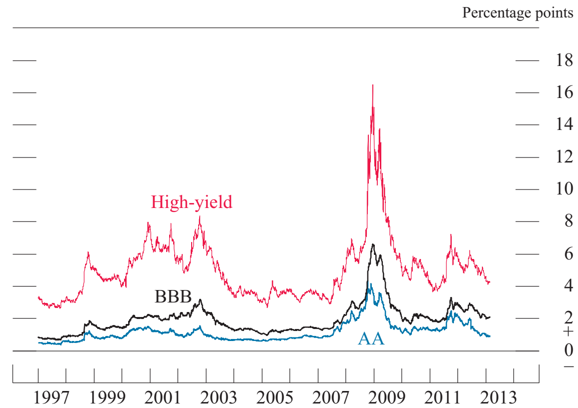
6. Dollar roll transactions consist of a purchase or sale of agency MBS with the simultaneous agreement to sell or purchase substantially similar securities on a specified future date. The Committee directs the Desk to engage in these transactions as necessary to facilitate settlement of the Federal Reserve's agency MBS purchases.

35. Current-coupon yield and spread for agency-guaranteed mortgage-backed securities, 2009–13



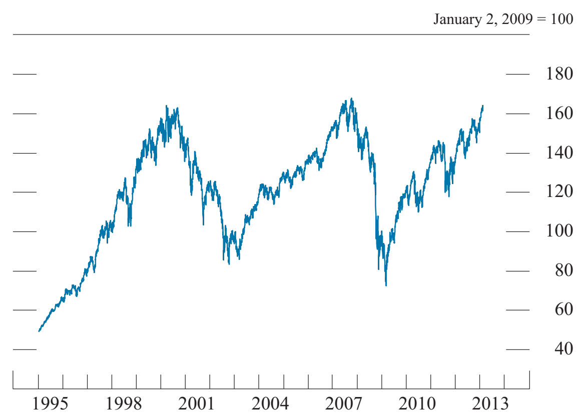
NOTE: The data are daily and extend through February 21, 2013. Yield shown is for the Fannie Mae 30-year currrent coupon, the coupon rate at which new mortgage-backed securities would be priced at par, or face, value. Spread shown is to the average of the 5- and 10-year nominal Treasury yields.
SOURCE: Department of the Treasury; Barclays.

36. Spreads of corporate bond yields over comparable off-the-run Treasury yields, by securities rating, 1997–2013



NOTE: The data are daily and extend through February 21, 2013. 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.

37. S&P 500 index, 1995–2013



NOTE: The data are daily and extend through February 21, 2013.
SOURCE: Standard & Poor's.

Yields on corporate bonds reached record lows, and equity prices increased

Yields on investment- and speculative-grade bonds reached record lows in the second half of 2012 and early 2013, respectively, partly reflecting the effects of the FOMC's additional monetary policy accommodation and increased investor appetite for bearing risk. Spreads to comparable-maturity Treasury securities also narrowed substantially but remained above the narrowest levels that they reached prior to the financial crisis (figure 36). Prices in the secondary market for syndicated leveraged loans have increased, on balance, since the middle of 2012.

Broad equity price indexes have increased about 10 percent since the end of June 2012, boosted by the same factors that contributed to the narrowing in bond spreads (figure 37). Nevertheless, the spread between the 12-month forward earnings–price ratio for the S&P 500 and a long-run real Treasury yield—a rough gauge of the equity risk premium—remained at the high end of its historical range (figure 38). Implied volatility for the S&P 500 index, as calculated from option prices, spiked at times but is currently near the bottom end of the range it has occupied since the onset of the financial crisis (figure 39).

Conditions in short-term dollar funding markets improved some in the third quarter and remained stable thereafter

Measures of stress in unsecured dollar funding markets eased somewhat in the third quarter of 2012 and remained stable at relatively low levels thereafter, reflecting improved sentiment regarding the crisis in Europe. For example, the average maturity of unsecured financial CP issued by institutions with European parents increased, on net, to around the same length as such CP issued by institutions with U.S. parents.

Signs of stress were largely absent in secured short-term dollar funding markets. In the market for repurchase agreements (repos), bid-asked spreads and haircuts for most collateral types have changed little since the middle of 2012. However, repo rates continued to edge up over the second half of 2012, likely reflecting in part the financing of the increase in dealers' inventories of shorter-term Treasury securities that resulted from the maturity extension program (MEP). Following year-end, repo rates fell back as the MEP came to an end and the level of reserve balances began to increase. In asset-backed commercial paper (ABCP) markets, volumes outstanding declined a bit for programs with European and U.S. sponsors, while spreads on ABCP with European bank sponsors remained slightly above those on ABCP with U.S. bank sponsors.

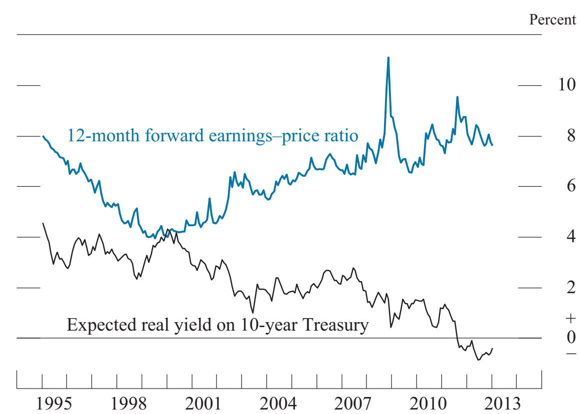
Year-end pressures in short-term funding markets were generally modest and roughly in line with the experiences during other years since the financial crisis.

Market sentiment toward the banking industry improved as the profitability of banks increased

Market sentiment toward the banking industry improved in the second half of 2012, reportedly driven in large part by perceptions of reduced downside risks stemming from the European crisis. Equity prices for bank holding companies (BHCs) increased, outpacing the increases in broad equity price indexes, and BHC credit default swap (CDS) spreads declined (figure 40).

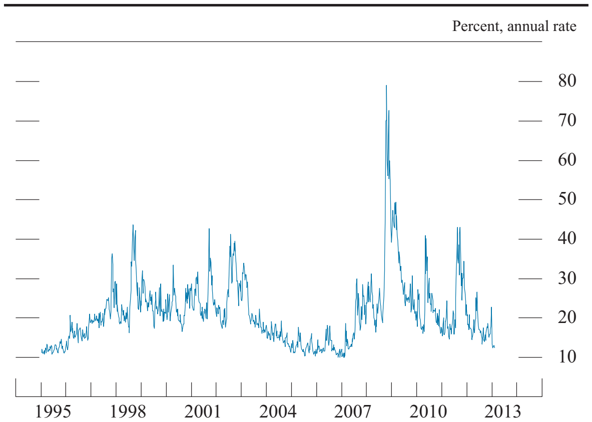
The profitability of BHCs increased in the second half of 2012 but continued to run well below the levels that prevailed before the financial crisis (figure 41). Measures of asset quality generally improved further, as delinquency and charge-off rates decreased for almost all major loan categories, although the recent improvement in delinquency rates for consumer credit in part reflects a compositional shift of credit supply toward higher-credit-quality borrowers. Loan loss provisions were flat at around the slightly elevated levels seen prior to the crisis, though they continued to be outpaced by charge-offs. Regulatory

38. Real long-run Treasury yield and 12-month forward earnings–price ratio for the S&P 500, 1995–2013



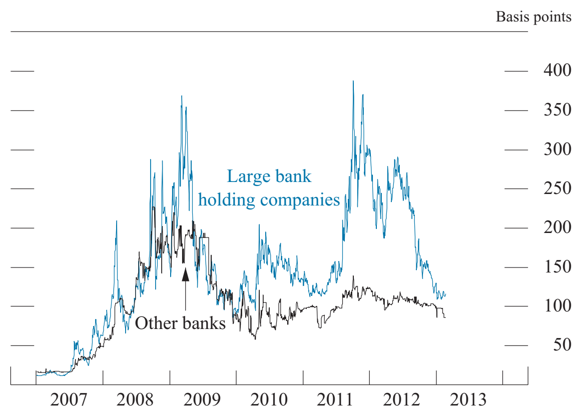
NOTE: The data are monthly and extend through January 2013. The expected real yield on 10-year Treasury is defined as the off-the-run 10-year Treasury yield less the Federal Reserve Bank of Philadelphia's 10-year expected inflation.
SOURCE: Standard & Poor's; Thomson Reuters Financial; Federal Reserve Board; Federal Reserve Bank of Philadelphia.

39. Implied S&P 500 volatility, 1995–2013



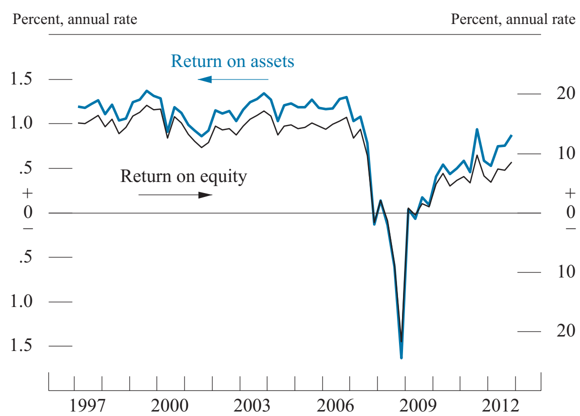
NOTE: The data are weekly and extend through the week ending February 15, 2013. The series shown—the VIX—is the implied 30-day volatility of the S&P 500 stock price index as calculated from a weighted average of options prices.
SOURCE: Chicago Board Options Exchange.

40. Spreads on credit default swaps for selected U.S. banking organizations, 2007–13



NOTE: The data are daily and extend through February 21, 2013. Median spreads for six large bank holding companies and nine other banks.
SOURCE: Markit.

41. Profitability of bank holding companies, 1997–2012



NOTE: The data, which are seasonally adjusted, are quarterly and extend through 2012:Q4.
SOURCE: Federal Reserve Board, FR Y-9C, Consolidated Financial Statements for Bank Holding Companies.

capital ratios remained at high levels based on current standards, but the implementation of generally more stringent Basel III capital requirements will likely lead to some decline in reported regulatory capital ratios at the largest banks. Overall, banks remain well funded with deposits, and their reliance on short-term wholesale funding stayed near its low levels seen in recent quarters. The expiration of the Federal Deposit Insurance Corporation's Transaction Account Guarantee program on December 31, 2012, does not appear to have caused any significant change in the availability of deposit funding for banks.

Credit provided by commercial banking organizations in the United States increased in the second half of 2012 at about the same moderate pace as in the first half of the year. Core loans—the sum of C&I loans, real estate loans, and consumer loans—expanded modestly, with strong growth in C&I loans offsetting weakness in real estate and credit card loans (figure 42). Banks' holdings of securities continued to rise moderately overall, as strong growth in holdings of Treasury and municipal securities more than offset modest declines in holdings of agency MBS.

Despite continued improvements in market conditions, risks to the stability of financial markets remain

While conditions in short-term dollar funding markets have improved, these markets remain vulnerable to potential stresses. Money market funds (MMFs) have sharply reduced their overall exposures to Europe since the middle of 2011, but prime fund exposures to Europe continue to be substantial. MMFs also remain susceptible to the risk of investor runs due to structural vulnerabilities posed by the rounding of net asset values and the absence of loss-absorbing capital.[7]

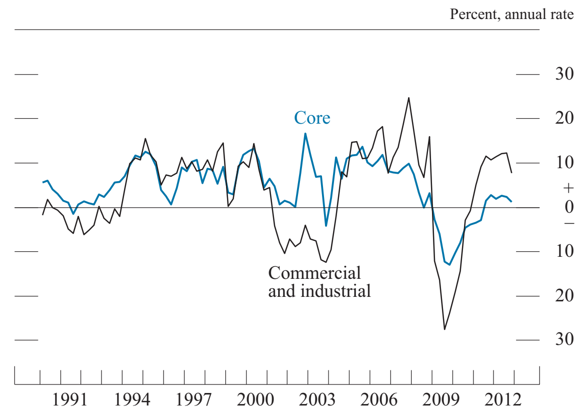
7. In November 2012, the Financial Stability Oversight Council proposed recommendations for structural reforms of U.S. MMFs to reduce their vulnerability to runs and mitigate associated risks to the financial system.

Dealer firms have reduced their wholesale short-term funding ratios and have increased their liquidity buffers in recent years, but they still heavily rely on wholesale short-term funding. As a result, they remain susceptible to swings in market confidence and a possible resurgence of anxiety regarding counterparty credit risk. Respondents to the Senior Credit Officer Opinion Survey on Dealer Financing Terms indicated that credit terms applicable to important classes of counterparties were little changed over the second half of 2012.[8] Dealers reported increased demand for funding of securitized products and indicated that the use of financial leverage among trading real estate investment trusts, or REITs, had increased somewhat. However, respondents continued to note an increase in the amount of resources and attention devoted to the management of concentrated exposures to central counterparties and other financial utilities as well as, to a smaller extent, dealers and other financial intermediaries.

With prospective returns on safe assets remaining low, some financial market participants appeared willing to take on more duration and credit risk to boost returns. The pace of speculative-grade corporate bond issuance has been rapid in recent months, and while most of this issuance appears to have been earmarked for the refinancing of existing debt, there has also been an increase in debt to facilitate transactions involving significant risks. In particular, in bonds issued to finance private equity transactions, there has been a reemergence of payment-in-kind options that permit the issuer to increase the face value of debt in lieu of a cash interest payment, and anecdotal reports indicate that bond covenants are becoming less restrictive. Similarly, issuance of bank loans to finance dividend recapitalization deals as well as covenant-lite loans was robust over the second half of the

8. The Senior Credit Officer Opinion Survey on Dealer Financing Terms is available on the Federal Reserve Board's website at www.federalreserve.gov/econresdata/releases/scoos.htm.

42. Change in commercial and industrial loans and core loans, 1990–2012



NOTE: The data, which are seasonally adjusted, are quarterly and extend through 2012:Q4. Core loans consist of commercial and industrial loans, real estate loans, and consumer loans. Data have been adjusted for banks' implementation of certain accounting rule changes (including the Financial Accounting Standards Board's Statements of Financial Accounting Standards Nos. 166 and 167) and for the effects of large nonbank institutions converting to commercial banks or merging with a commercial bank.

SOURCE: Federal Reserve Board, Statistical Release H.8, "Assets and Liabilities of Commercial Banks in the United States."

Table 1. Selected components of the Federal Reserve balance sheet, 2012–13

Millions of dollars

Balance sheet item	Feb. 22, 2012	June 27, 2012	Feb. 20, 2013
Total assets	**2,935,149**	**2,865,698**	**3,096,802**
Selected assets			
Credit extended to depository institutions and dealers			
Primary credit	3	18	8
Central bank liquidity swaps	107,959	27,059	5,192
Credit extended to other market participants			
Term Asset-Backed Securities Loan Facility (TALF)	7,629	4,773	439
Net portfolio holdings of TALF LLC	825	845	507
Support of critical institutions			
Net portfolio holdings of Maiden Lane LLC, Maiden Lane II LLC, and Maiden Lane III LLC[1]	30,822	15,031	1,483
Securities held outright			
U.S. Treasury securities	1,656,581	1,666,530	1,736,456
Agency debt securities	100,817	91,484	74,613
Agency mortgage-backed securities (MBS)[2]	853,045	854,979	1,032,712
Total liabilities	**2,880,556**	**2,811,029**	**3,041,820**
Selected liabilities			
Federal Reserve notes in circulation	1,048,004	1,067,917	1,127,723
Reverse repurchase agreements	89,824	83,737	93,121
Deposits held by depository institutions	1,622,800	1,491,988	1,668,383
Of which: Term deposits	0	0	0
U.S. Treasury, general account	36,033	117,923	40,703
U.S. Treasury, Supplementary Financing Account	0	0	0
Total capital	**54,594**	**54,669**	**54,982**

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 multisector 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.

SOURCE: Federal Reserve Board, Statistical Release H.4.1, "Factors Affecting Reserve Balances of Depository Institutions and Condition Statement of Federal Reserve Banks."

year. (For a discussion of regulatory steps taken related to financial stability, see the box "The Federal Reserve's Actions to Foster Financial Stability.")

Federal Reserve assets increased, and the average maturity of its Treasury holdings lengthened . . .

Total assets of the Federal Reserve increased to $3,097 billion as of February 20, 2013, $231 billion more than at the end of June 2012 (table 1). The increase primarily reflects growth in Federal Reserve holdings of Treasury securities and agency MBS as a result of the purchase programs initiated at the September 2012 and December 2012 FOMC meetings. As of February 20, 2013, the par value of Treasury securities and agency MBS held by the Federal Reserve had increased $70 billion and $178 billion, respectively, since the end of June 2012. The composition of Treasury securities holdings also changed over the second half of 2012 as a result of the continuation of the MEP, which was announced at the June 2012 FOMC meeting. Under this program, between July and December, the Desk purchased $267 billion in Treasury securities with remaining maturities of 6 to 30 years and sold or redeemed an equal par value of Treasury securities with maturities of 3 years or less. As a result, the average maturity of the Federal Reserve's Treasury holdings increased 1.7 years over the second half of 2012 and into 2013 and, as of February 2013, stood at 10.5 years.

. . . while exposure to facilities established during the crisis continued to wind down

In the second half of 2012, the Federal Reserve continued to reduce its exposure to facilities established during the financial crisis to support specific institutions. The portfolio holdings of Maiden Lane LLC and Maiden Lane III LLC—entities that were created during the crisis to acquire certain assets from The Bear Stearns Companies, Inc., and American International Group, Inc., to avoid the disorderly failures of those institutions—declined $14 billion to approximately $1 billion, primarily reflecting the sale of the remaining securities in Maiden Lane III LLC that was announced in August 2012. These sales resulted in a net gain of $6.6 billion for the benefit of the U.S. public. The Federal Reserve's loans to Maiden Lane LLC and Maiden Lane III LLC had been fully repaid, with interest, as of June 2012. Loans outstanding under the Term Asset-Backed Securities Loan Facility (TALF) decreased $4 billion to under $1 billion because of prepayments and maturities of TALF loans. With accumulated fees collected through TALF exceeding the amount of TALF loans outstanding, the Federal Reserve and the Treasury agreed in January to end the backstop for TALF provided by the Troubled Asset Relief Program.

The improvement in offshore U.S. dollar funding markets over the second half of 2012 led to a decline in the outstanding amount of dollars provided through the temporary U.S. dollar liquidity swap arrangements with other central banks. As of February 20, 2013, draws on the liquidity swap lines were $5 billion, down from $27 billion at the end of June 2012. On December 13, 2012, the Federal Reserve announced the extension of these arrangements through February 1, 2014.

On the liability side of the Federal Reserve's balance sheet, deposits held by depository institutions increased $176 billion since June 2012, while Federal Reserve notes in circulation rose $60 billion, reflecting solid demand both at home and abroad. M2 has increased at an annual rate of about 8 percent since June 2012. Holdings of M2 assets, including its largest component, liquid deposits, remain elevated relative to what would have been expected based on historical relationships with nominal income and interest rates, likely due to investors' continued preference to hold safe and liquid assets.

As part of its ongoing program to ensure the readiness of tools to manage reserves, the Federal Reserve conducted a series of small-value reverse repurchase transactions using all eligible collateral types with its expanded list of counterparties, as well as a few small-value repurchase agreements with primary dealers. In the same vein, the Federal Reserve continued to offer small-value term deposits through the Term Deposit Facility to provide eligible institutions with an opportunity to become familiar with term deposit operations.

International Developments

Foreign financial market stresses abated . . .

Since mid-July, global financial market conditions have improved, on balance, in part reflecting reduced fears of a significant worsening of the European fiscal and financial crisis. Market sentiment was bolstered by a new European Central Bank (ECB) framework for purchases of sovereign debt known as Outright Monetary Transactions (OMT), agreements on continued official-sector support for Greece, progress by Spain in recapitalizing its troubled banks, and some steps toward fiscal and financial integration in Europe. Nevertheless, financial market stresses in Europe remained elevated, and policymakers still face significant challenges (see the box "An Update on the European Fiscal and Banking Crisis").

The Federal Reserve's Actions to Foster Financial Stability

The Federal Reserve continued to take actions in the second half of 2012 and early 2013 to meet its financial stability responsibilities. Although much remains to be done, the Federal Reserve has implemented regulatory reforms to strengthen the U.S. financial system, and it has taken further steps to gather information from the supervision of large banks, market reports, and other economic and financial sources to assess threats to financial stability. The Federal Reserve also has continued to work closely with its domestic regulatory counterparts and has taken actions to increase the resilience of the international financial regulatory architecture.

Regulation

A core element of the global regulatory community's efforts to improve banking regulation has been the development of the Basel III capital reforms. In June 2012, the Federal Reserve Board and the other U.S. banking agencies issued a proposal to amend the U.S. bank capital rules to implement these reforms. The Basel III reforms will raise the quantity of capital that must be held by U.S. banking firms, improve the quality of regulatory capital of those firms, and strengthen the risk-weight framework of U.S. bank capital rules.

Consistent with the requirements of the Dodd–Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd–Frank Act), the Board has also proposed rules to strengthen the oversight of the U.S. operations of foreign banks. Under the Board's December 2012 proposal, foreign banking organizations (FBOs) with a large U.S. presence would be required to create an intermediate holding company (IHC) over their U.S. subsidiaries, which would help facilitate consistent and enhanced supervision and regulation of the U.S. operations of these foreign banks. An IHC of a foreign bank would be required to meet the same U.S. risk-based capital and leverage rules as a U.S. bank holding company (BHC). In addition, IHCs and the U.S. branches and agencies of foreign banks with a large U.S. presence would need to meet liquidity requirements similar to those imposed on U.S. BHCs.

Progress in regulatory reform outside of the traditional banking sector has been notable as well. For example, as mandated by the Dodd–Frank Act, the new supervisory framework for systemically important financial market utilities (FMUs)—that is, those entities that provide the infrastructure to make payments and clear and settle financial transactions—has continued to take shape. In July 2012, the Financial Stability Oversight Council (FSOC) designated eight FMUs as systemically important and thus subject to enhanced risk-management standards. On July 30, the Federal Reserve Board approved a final rule establishing enhanced risk-management standards for designated FMUs supervised by the Federal Reserve. The rule also establishes processes to review and consult with the Securities and Exchange Commission (SEC) and the Commodity Futures Trading Commission (CFTC) on any proposed changes to the rules, procedures, or operations of certain designated FMUs that could materially affect the nature or level of their risk.

The FSOC has also continued to make progress in its work to designate systemically important nonbank financial companies for consolidated supervision by the Federal Reserve. Relying primarily on data from publicly available reports, the FSOC is evaluating the potential systemic importance of a number of nonbank firms that meet the quantitative criteria for a first-stage review; to date, it has concluded that some firms warranted further consideration and has advanced them to the third and final stage of the determination process. Meanwhile, the International Association of Insurance Supervisors, under the oversight of the Financial Stability Board, has continued to move forward on crafting a methodology to identify global systemically important insurers and developing policy measures that would be applicable to those institutions.

In addition, efforts to increase the resilience of "shadow banking," which refers to credit intermediation that occurs at least partly outside of the traditional banking system, are continuing. In November 2012, the FSOC proposed recommendations for structural reforms of U.S. money market funds to reduce their vulnerability to runs and mitigate associated risks to the financial system. Another set of reforms has been aimed at the triparty repurchase agreement markets, including efforts by the Federal Reserve to reduce the vulnerabilities created by the large amounts of intraday credit provided by clearing banks in these markets. International regulatory groups have also been addressing the financial stability risks of shadow banking.

Supervision

The Federal Reserve has continued to work to embed its supervisory practices within a broader macroprudential framework. Annual stress tests, which assess the internal capital planning processes and capital adequacy of the largest BHCs, continue to be an important element in its strengthened, cross-firm supervisory approach. The latest Comprehensive Capital Analysis and Review (CCAR 2013), which covers the 18 largest BHCs (and is being conducted in a modified form for 11 other large BHCs), is now under way. In October 2012, the Board published final stress-testing rules under the Dodd–Frank Act, and it released the economic and financial market stress scenarios for CCAR 2013 in November.[1] CCAR 2013 results will be released in March of this year.

The Federal Reserve has also been working to improve the resolvability of the largest, most complex banking firms. The Dodd–Frank Act created the Orderly Liquidation Authority (OLA) to improve the prospects for an orderly liquidation of a systemic financial firm and requires that all large BHCs submit resolution plans to their supervisors. The Federal Deposit Insurance Corporation (FDIC) has been developing a single-point-of-entry strategy for resolving systemic financial firms under OLA, and the Federal Reserve, working closely with the FDIC, has been carefully reviewing the resolution plans (the so-called living wills) submitted in the summer and fall of 2012 by the largest and most complex BHCs and FBOs.

In line with a joint agency report to the Congress in July 2011, the Federal Reserve has continued to work with the SEC and the CFTC to develop and implement effective supervisory practices and techniques for designated FMUs, including appropriate information-sharing arrangements and Federal Reserve participation in SEC and CFTC examinations of designated FMUs.

Monitoring

The Federal Reserve has continued to pursue an active program of research and data collection, often in conjunction with other U.S. and foreign regulators and supervisors, and to work on developing a framework and infrastructure for monitoring risks to financial stability. It continues to regularly monitor a variety of items that measure key financial vulnerabilities, such as leverage, maturity mismatch, interconnectedness, and complexity of financial institutions, markets, and products. In a context of adverse shocks, such vulnerabilities could lead to fire sales and an adverse feedback loop with credit availability, which could, in turn, inflict harm on the real economy.

The Federal Reserve pays special attention to developments at the largest, most complex financial firms, using both information gathered through supervision and indicators of financial conditions and systemic risk from financial markets. It has been analyzing the consequences for firms and markets resulting from the ongoing strains in European financial markets as well as those associated with the fiscal situation in the United States. Another issue that the Federal Reserve is monitoring closely is the potential incentive for some investors and institutions to take on excessive risk—for example, by increasing leverage, credit risk, and duration risk—in an attempt to reach for yield in a sustained low interest rate environment. Moreover, efforts are ongoing, both at the Federal Reserve and elsewhere, to evaluate and develop new macroprudential tools that could help limit buildups of systemic risk or increase the resilience of financial institutions and markets to potential adverse shocks.

1. Information on the Dodd–Frank Act stress tests and CCAR are available on the Federal Reserve Board's website at www.federalreserve.gov/bankinforeg/stress-tests-capital-planning.htm.

An Update on the European Fiscal and Banking Crisis

In the second half of 2012, European policymakers stepped up efforts to support vulnerable euro-area economies, strengthen domestic public finances and banking systems, and reinforce the monetary union. As a result, European financial stresses have moderated over the past several months. Nevertheless, they remain elevated, and European policymakers still face significant challenges as they seek to improve fiscal positions, implement growth-augmenting structural reforms, and bolster regional integration in a difficult economic environment.

A key turning point in the euro-area crisis occurred in late July, when Mario Draghi, the European Central Bank (ECB) president, stated, "Within our mandate, the ECB is ready to do whatever it takes to preserve the euro."[1] The ECB subsequently unveiled a framework for Outright Monetary Transactions (OMT) to address distortions in euro-area government bond markets that undermine the transmission of monetary policy. Under certain conditions, the ECB can purchase potentially unlimited amounts of government bonds.[2] To date, the ECB has not purchased any bonds under the OMT framework. Nevertheless, the announcement of the framework has mitigated investors' concerns about the adequacy of financial backstops for the Italian and Spanish governments and, more generally, about the integrity of the euro area.

Vulnerable euro-area countries have made progress in strengthening their banking systems and public finances in recent months. The governments of Ireland and Portugal have been generally fulfilling their policy commitments under their official financial assistance programs. In Spain, the government secured euro-area official approval and financing for its bank restructuring and recapitalization plans. In Greece, the government reinvigorated its long-stalled austerity and reform initiatives. In response, European authorities resumed financial assistance to the Greek government and took steps to address Greece's public debt burden, including easing the terms of euro-area official financing and funding a discounted buyback of roughly €30 billion in privately held Greek government debt. More generally, official financial assistance is continuing to provide vulnerable countries with breathing room to make the difficult adjustments needed to resolve their crises.

European governments have also made some progress toward a European banking union. After protracted negotiations, European leaders agreed in December on key details of a single supervisory mechanism (SSM) for European banks with the ECB at its center. The SSM is expected to be established sometime this spring and should enter into force in early 2014. The ECB will directly supervise large euro-area banks and will be able to assume (from national authorities) supervision of any euro-area bank when necessary to ensure consistent application of high supervisory standards. Establishment of the SSM is viewed as a necessary precondition for euro-area governments to share more directly the fiscal burden of resolving national banking crises. In addition, European governments recently set objectives to accelerate the harmonization of national policy frameworks for bank resolution and deposit insurance and, further down the road, to create a single mechanism for bank resolution and recovery.

In part because of the positive developments highlighted previously, financial stresses facing vulnerable European governments and banks—though still elevated—moderated substantially in the second half of 2012 and early 2013. Sovereign yields declined significantly even as the Italian and Spanish governments issued substantial amounts of debt. In addition, the Irish and Portuguese governments began returning to bond markets; each conducted a limited, yet successful, sale of bonds in January.

1. See Mario Draghi (2012), "Verbatim of the Remarks Made by Mario Draghi," speech delivered at the Global Investment Conference, London, July 26, www.ecb.int/press/key/date/2012/html/sp120726.en.html.

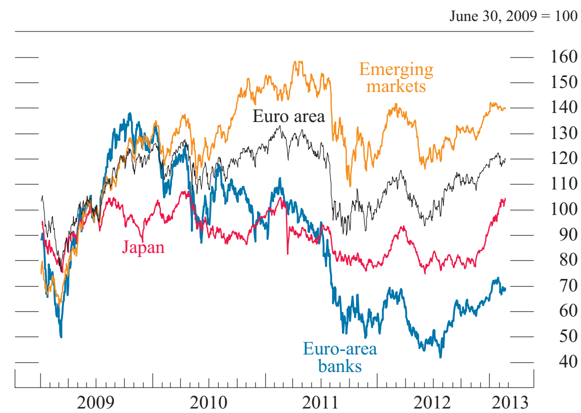
2. The ECB's purchases will focus on government bonds with maturities of one to three years. The ECB will have full discretion over these purchases. A necessary condition for ECB purchases is that a government request a full or precautionary financial assistance program from the European Financial Stability Facility or the European Stability Mechanism. A government that already has such a program must regain market access. In addition, governments must fulfill their policy commitments under their programs and the euro-area governance framework.

Reduced concerns about the European crisis contributed to an easing of funding conditions for European banks. Euro-area banks have relied somewhat less on ECB funding in recent months, and use of central bank dollar liquidity swap lines declined significantly. Reflecting market views of the decreased risk of default, CDS premiums on the debt of many large banks in Europe dropped significantly, on net, especially for Italy and Spain, and euro-area bank stocks increased about 30 percent since mid-2012 (figure 43).

As risk sentiment improved, foreign equity indexes rose significantly: Over the second half of 2012 and into early 2013, equity indexes increased about 10 percent for the United Kingdom and Canada, about 15 percent in the euro area, and about 25 percent in Japan; equity indexes in EMEs also moved up across the board, as shown in figure 43. Likewise, yields on 10-year government bonds in many countries increased moderately, though Japanese yields remained below 1 percent. Spreads of peripheral European sovereign yields over German bond yields of comparable maturity declined significantly as overall euro-area financial strains abated (figure 44). Corporate credit spreads also declined, and bond issuance picked up.

The U.S. dollar depreciated nearly 1 percent against a broad set of currencies over the second half of 2012 and into early 2013 (figure 45). Some of this depreciation reflected a reversal of flight-to-safety flows, in part stemming from the reduction in European financial stress. Indeed, the dollar depreciated 4 percent against the euro. In contrast, the dollar appreciated 17 percent against the Japanese yen. Most of this rise came in recent months, as Shinzo Abe, the newly elected prime minister of Japan, called for the Bank of Japan to employ "unlimited easing" of monetary policy to overcome deflation.

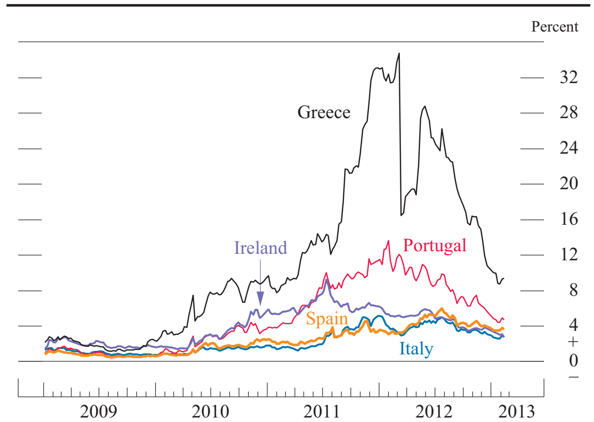
43. Equity indexes for selected foreign economies, 2009–13



NOTE: The data are daily. The last observation for each series is February 20, 2013. Emerging markets are Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Malaysia, Mexico, Morocco, Peru, the Philippines, Poland, Russia, South Africa, South Korea, Taiwan, Thailand, and Turkey.

SOURCE: For emerging markets, Morgan Stanley Emerging Markets MXEF Capital Index; for the euro area, Dow Jones Euro STOXX Index; for euro-area banks, Dow Jones Euro STOXX Bank Index; for Japan, Tokyo Stock Exchange (TOPIX); all via Bloomberg.

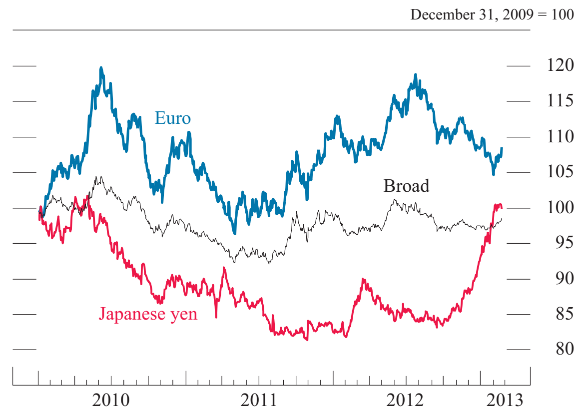
44. Government debt spreads for peripheral European economies, 2009–13



NOTE: The data are weekly. The last observation for each series is February 15, 2013. The spreads shown are the yields on 10-year bonds less the 10-year German bond yield.

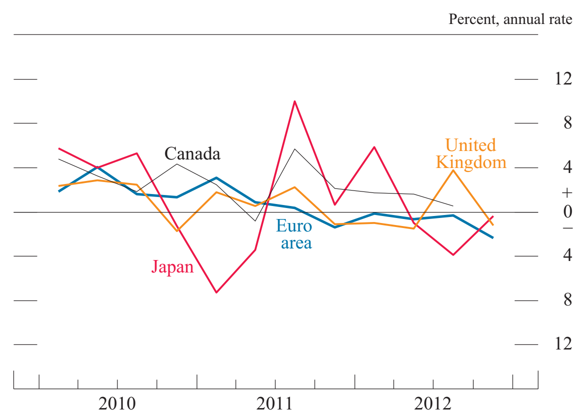
SOURCE: For Greece, Italy, Portugal, and Spain, Bloomberg; for Ireland, staff estimates using traded bond prices from Thomson Reuters and Bloomberg.

45. U.S. dollar exchange rate against broad index and selected major currencies, 2010–13



NOTE: The data, which are in foreign currency units per dollar, are daily. The last observation for each series is February 21, 2013.
SOURCE: Federal Reserve Board, Statistical Release H.10, "Foreign Exchange Rates."

46. Real gross domestic product growth in selected advanced foreign economies, 2010–12



NOTE: The data are quarterly and extend through 2012:Q3 for Canada and 2012:Q4 for the euro area, Japan, and the United Kingdom.
SOURCE: For Canada, Statistics Canada; for the euro area, Eurostat; for Japan, Cabinet Office of Japan; and for the United Kingdom, Office for National Statistics.

. . . but economic activity in the advanced foreign economies continued to weaken . . .

Despite the easing of financial stresses in the euro area and some improvement in global financial markets, activity in the advanced foreign economies (AFEs) continued to lose steam in the second half of 2012 (figure 46). The euro area fell further into recession, as fiscal austerity, rising unemployment, and depressed confidence restrained spending, especially in the countries at the center of the crisis. Real GDP also contracted in Japan, reflecting plummeting exports. In the United Kingdom, real GDP growth resumed in the third quarter, partly thanks to a temporary boost to demand from the London Olympics, but contracted again in the fourth quarter. Canadian real GDP growth remained positive but also weakened, largely owing to lower external demand. Survey indicators suggest that conditions in the AFEs improved only marginally around the turn of the year. Amid this weakness in economic activity and limited pressures from commodity prices, inflation readings for most AFEs remained contained.

Several foreign central banks expanded their balance sheets further and took other actions to support their economies (figure 47). In addition to its introduction of the OMT, the ECB lowered its main policy rate. The Bank of England completed its latest round of asset purchases, bringing its holdings to £375 billion, and began the implementation of its Funding for Lending Scheme, designed to boost lending to households and firms. The Bank of Japan took a number of steps. It introduced a new Stimulating Bank Lending Facility in October and raised its inflation target from 1 percent to 2 percent in January. In addition, it increased the size of its Asset Purchase Program by ¥30 trillion, to ¥101 trillion, by the end of 2013 and announced that purchases would be open ended beginning in 2014.

. . . even as economic growth stabilized in emerging market economies

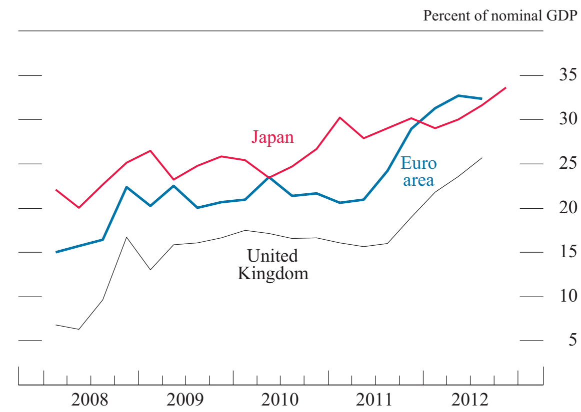
After slowing earlier in the year, in part because of headwinds associated with Europe's troubles, economic growth in EMEs stabilized in the third quarter and appeared to pick up in the fourth. This modest pickup in economic activity in the face of continued weakness in exports to advanced economies was supported by monetary and fiscal policy stimulus.

In China, following slower growth in the first half of 2012, stimulus measures helped boost the pace of real GDP growth in the second half of the year. Improved economic conditions in China also provided a lift to other emerging Asian economies. GDP accelerated in Hong Kong and Taiwan in the third quarter; in the fourth quarter, exports and purchasing managers indexes moved higher in most of the region, and GDP growth rebounded in a number of economies.

After stagnating for about a year, economic activity in Brazil picked up in the third quarter to a still-lackluster pace of 2½ percent. Indicators for the fourth quarter suggest a further modest pickup, supported by accommodative policies. In contrast, GDP growth in Mexico continued to fall in the third quarter as the growth of U.S. manufacturing production slowed; however, Mexican growth picked up to 3 percent in the fourth quarter, boosted by services and the volatile agricultural sector.

Despite occasional spikes in food prices, inflation in most emerging Asian economies remained well contained as moderate output growth limited broader price pressures. India was a notable exception, with 12-month inflation around 10 percent in recent months. In some Latin American economies, increases in food prices had a greater effect on inflation than in Asia, leading to 12-month price increases of around 5½ percent in Brazil and around 4¼ percent in Mexico over the second half of last year.

47. Central bank assets in selected advanced economies, 2008–12



NOTE: The data are quarterly and extend through 2012:Q3 for the euro area and the United Kingdom and 2012:Q4 for Japan.

SOURCE: For the euro area, European Central Bank and Eurostat; for Japan, Bank of Japan and Cabinet Office of Japan; and for the United Kingdom, Bank of England and Office for National Statistics.

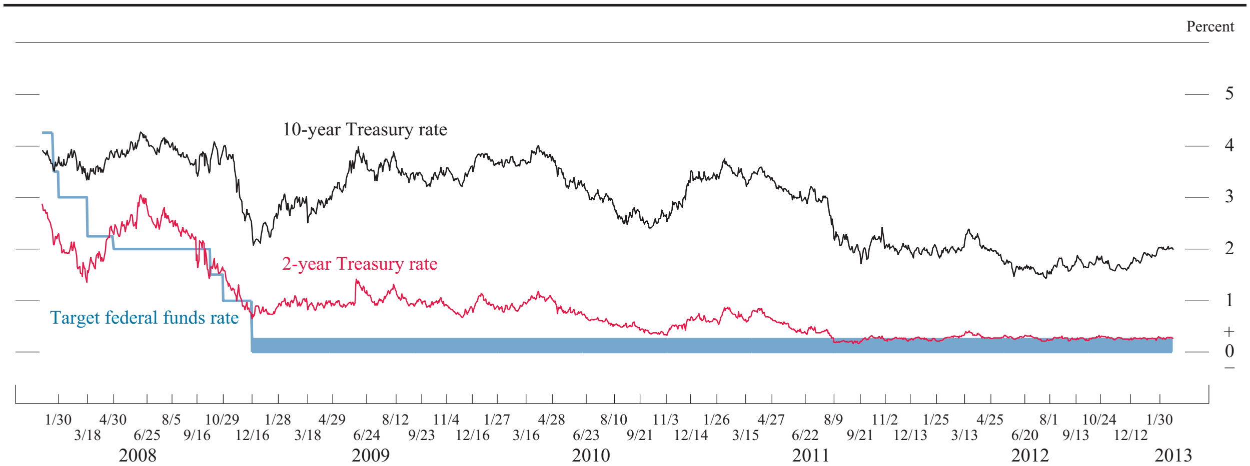
Part 2
Monetary Policy

To promote the objectives given to it by the Congress, the Federal Open Market Committee (FOMC) provided additional monetary accommodation at its September 2012 and December 2012 meetings, by both strengthening its forward guidance regarding the federal funds rate and initiating additional asset purchases.

As discussed in Part 1, incoming economic data throughout the second half of 2012 and into 2013 indicated that economic activity was expanding at a moderate pace. Employment gains were modest, and although the unemployment rate declined somewhat over the period, it remained elevated relative to levels that almost all members of the FOMC viewed as consistent with the Committee's dual mandate. Inflation remained subdued, apart from some temporary variations that largely reflected fluctuations in commodities prices. Members generally attached an unusually high level of uncertainty to their assessments of the economic outlook. Moreover, they continued to judge that the risks to economic growth were tilted to the downside because of strains in financial markets stemming from the sovereign debt and banking situation in Europe, as well as the potential for a significant slowdown in global economic growth and for a sharper-than-anticipated fiscal contraction in the United States. With longer-term inflation expectations stable and still-considerable slack in resource markets, most members anticipated that inflation over the medium term would run at or below the Committee's longer-run goal of 2 percent.

Accordingly, to promote the FOMC's objectives of maximum employment and price stability, the Committee maintained a target range for the federal funds rate of 0 to ¼ percent throughout the second half of 2012 and provided additional monetary accommodation at its September and December meetings, by both strengthening its forward guidance regarding the federal funds rate and initiating additional purchases of longer-term securities (figure 48). The Committee also completed at year-end the continuation of the program to extend the average maturity of its holdings

48. Selected interest rates, 2008–13



Note: The data are daily and extend through February 21, 2013. The 2-year and 10-year Treasury rates are the constant-maturity yields 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.

of Treasury securities that was announced in June 2012 and continued its policy of reinvesting principal payments from its holdings of agency debt and agency-guaranteed mortgage-backed securities (MBS) into agency MBS.

At the September 12–13 meeting, the Committee agreed that the outlook called for additional monetary accommodation, and that such accommodation should be provided by both strengthening its forward guidance regarding the federal funds rate and initiating additional purchases of agency MBS at a pace of $40 billion per month. Along with the ongoing purchases of $45 billion per month of longer-term Treasury securities under the maturity extension program announced in June, these purchases increased the Committee's holdings of longer-term securities by about $85 billion each month through the end of the year. These actions were taken to put downward pressure on longer-term interest rates, support mortgage markets, and help make broader financial conditions more accommodative (see the box "Efficacy and Costs of Large-Scale Asset Purchases"). The Committee agreed that it would closely monitor incoming information on economic and financial developments in coming months, and that if the outlook for the labor market did not improve substantially, it would continue its purchases of agency MBS, undertake additional asset purchases, and employ its other policy tools as appropriate until such improvement is achieved in a context of price stability. The Committee also agreed that in determining the size, pace, and composition of its asset purchases, it would, as always, take appropriate account of the likely efficacy and costs of such purchases. This flexible approach was seen as allowing the Committee to tailor its policy over time in response to incoming information while clarifying its intention to improve labor market conditions, thereby enhancing the effectiveness of the action by helping to bolster business and consumer confidence.

The Committee also modified its forward guidance regarding the federal funds rate at the September meeting, noting that exceptionally low levels for the federal funds rate were likely to be warranted at least through mid-2015, longer than had been indicated in previous FOMC statements. Moreover, the Committee stated its expectation that a highly accommodative stance of monetary policy would remain appropriate for a considerable time after the economic recovery strengthens. The new language was meant to clarify that the Committee's anticipation that exceptionally low levels for the federal funds rate were likely to be warranted at least through mid-2015 did not reflect an expectation that the economy would remain weak, but rather reflected the Committee's determination to support a stronger economic recovery.

At the December 11–12 meeting, members judged that continued provision of monetary accommodation was warranted in order to support further progress toward the Committee's goals of maximum employment and price stability. The Committee judged that, following the completion of the maturity extension program at the end of the year, such accommodation should be provided in part by continuing to purchase agency MBS at a pace of $40 billion per month and by purchasing longer-term Treasury securities at a pace initially set at $45 billion per month. The Committee also decided that, starting in January, it would resume rolling over maturing Treasury securities at auction.

With regard to its forward rate guidance, the Committee decided to indicate in the statement that it expects the highly accommodative stance of monetary policy to remain appropriate for a considerable time after the asset purchase program ends and the economic recovery strengthens. In addition, it replaced the date-based guidance for the federal funds rate with numerical thresholds linked to the unemployment rate and projected inflation.

Efficacy and Costs of Large-Scale Asset Purchases

In order to provide additional monetary stimulus when short-term interest rates are near zero, the Federal Reserve has undertaken a series of large-scale asset purchase (LSAP) programs. Between late 2008 and early 2010, the Federal Reserve purchased approximately $1.7 trillion in longer-term Treasury securities, agency debt, and agency mortgage-backed securities (MBS). From late 2010 to mid-2011, a second round of LSAPs was implemented, consisting of purchases of $600 billion in longer-term Treasury securities. Between September 2011 and the end of 2012, the Federal Reserve implemented the maturity extension program and its continuation, under which it purchased approximately $700 billion in longer-term Treasury securities and sold or allowed to run off an equal amount of shorter-term Treasury securities. And in September and December 2012, the Federal Reserve announced flow-based purchases of agency MBS and longer-term Treasury securities at initial paces of $40 billion and $45 billion per month, respectively.

These purchases were undertaken in order to put downward pressure on longer-term interest rates, support mortgage markets, and help to make broader financial conditions more accommodative, thereby supporting the economic recovery. One mechanism through which asset purchases can affect financial conditions is the "portfolio balance channel," which is based on the premise that different financial assets may be reasonably close but imperfect substitutes in investors' portfolios. This assumption implies that changes in the supplies of various assets available to private investors may affect the prices or yields of those assets and the prices of assets that may be reasonably close substitutes. As a result, the Federal Reserve's asset purchases can push up the prices and lower the yields on the securities purchased and influence other asset prices as well. As investors further rebalance their portfolios, overall financial conditions should ease more generally, stimulating economic activity through channels similar to those for conventional monetary policy. In addition, asset purchases could also signal that the central bank intends to pursue a more accommodative policy stance than previously thought, thereby lowering investor expectations about the future path of the federal funds rate and putting additional downward pressure on longer-term yields.

A substantial body of empirical research finds that the Federal Reserve's asset purchase programs have significantly lowered longer-term Treasury yields.[1] More important, the effects of LSAPs do not seem to be restricted to Treasury yields. In particular, LSAPs have been found to be associated with significant declines in MBS yields and corporate bond yields as well as with increases in equity prices.

Continued on next page

1. For a selective list of references regarding the effect of the first LSAP, see the box "The Effects of Federal Reserve Asset Purchases" in Board of Governors of the Federal Reserve System (2011), *Monetary Policy Report to the Congress* (Washington: Board of Governors, March), www.federalreserve.gov/monetarypolicy/mpr_20110301_part2.htm. For additional references, including those that analyze the effect of the second LSAP as well as the maturity extension program, see, for example, Stefania D'Amico, William English, David López-Salido, and Edward Nelson (2012), "The Federal Reserve's Large-Scale Asset Purchase Programmes: Rationale and Effects," *Economic Journal*, vol. 122 (November), pp. F415–45; Arvind Krishnamurthy and Annette Vissing-Jorgensen (2011), "The Effects of Quantitative Easing on Interest Rates: Channels and Implications for Policy," *Brookings Papers on Economic Activity*, Fall, pp. 215–65; Canlin Li and Min Wei (2012), "Term Structure Modelling with Supply Factors and the Federal Reserve's Large Scale Asset Purchase Programs," Finance and Economics Discussion Series 2012-37 (Washington: Board of Governors of the Federal Reserve System, May), www.federalreserve.gov/pubs/feds/2012/201237/201237pap.pdf; and references in those studies. For work that specifically emphasizes the signaling channel of LSAPs, see, for example, Michael D. Bauer and Glenn D. Rudebusch (2012), "The Signaling Channel for Federal Reserve Bond Purchases," Working Paper Series 2011-21 (San Francisco: Federal Reserve Bank of San Francisco, August), www.frbsf.org/publications/economics/papers/2011/wp11-21bk.pdf. For work that focuses on the effects on credit default risk, see, for example, Simon Gilchrist and Egon Zakrajšek (2012), "The Impact of the Federal Reserve's Large-Scale Asset Purchase Programs on Default Risk," paper presented at "Macroeconomics and Financial Intermediation: Directions since the Crisis," a conference held at the National Bank of Belgium, Brussels, December 9–10, 2011. Although the majority of research on the effects of LSAPs appears to support a significant influence on asset prices, the overall result of such programs is generally difficult to estimate precisely: Event studies can make only sharp predictions on the effects within a relatively short time horizon, whereas approaches based on time-series models tend to face challenges in isolating the effects of the programs from other economic developments. For a more skeptical view on the effect of LSAPs, see, for example, Daniel L. Thornton (2012), "Evidence on the Portfolio Balance Channel of Quantitative Easing," Working Paper Series 2012-015A (St. Louis: Federal Reserve Bank of St. Louis, October), http://research.stlouisfed.org/wp/2012/2012-015.pdf.

Efficacy and Costs of Large-Scale Asset Purchases, *continued*

While there seems to be substantial evidence that LSAPs have lowered longer-term yields and eased broader financial conditions, obtaining accurate estimates of the effects of LSAPs on the macroeconomy is inherently difficult, as the counterfactual case—how the economy would have performed without LSAPs—cannot be directly observed. However, econometric models can be used to estimate the effects of LSAPs on the economy under the assumption that the economic effects of the easier financial conditions that are induced by LSAPs are similar to those that are induced by conventional monetary policy easing. Model simulations conducted at the Federal Reserve have generally found that asset purchases provide a significant boost to the economy. For example, a study based on the Federal Reserve Board's FRB/US model estimated that, as of 2012, the first two rounds of LSAPs had raised real gross domestic product almost 3 percent and increased private payroll employment by about 3 million jobs, while lowering the unemployment rate about 1.5 percentage points, relative to what would have been expected otherwise. These simulations also suggest that the program materially reduced the risk of deflation.[2]

Of course, all model-based estimates of the macroeconomic effects of LSAPs are subject to considerable statistical and modeling uncertainty and thus should be treated with caution. Indeed, while some other studies also report significant macroeconomic effects from asset purchases, other research finds smaller effects.[3] Nonetheless, a balanced reading of the evidence supports the conclusion that LSAPs have provided meaningful support to the economic recovery while mitigating deflationary risks.

The potential benefits of LSAPs must be considered alongside their possible costs. One potential cost of conducting additional LSAPs is that the operations could lead to a deterioration in market functioning or liquidity in markets where the Federal Reserve is engaged in purchasing. More specifically, if the Federal Reserve becomes too dominant a buyer in a certain market, trading among private participants could decrease enough that market liquidity and price discovery become impaired. As the global financial system relies on deep and liquid markets for U.S. Treasury securities, significant impairment of this market would be especially costly; impairment of this market could also impede the transmission of monetary policy. Although the large volume of the Federal Reserve's purchases relative to the size of the markets for Treasury or agency securities could ultimately become an issue, few if any problems have been observed in those markets thus far.

A second potential cost of LSAPs is that they may undermine public confidence in the Federal Reserve's ability to exit smoothly from its accommodative policies at the appropriate time. Such a reduction in confidence might increase the risk that long-term inflation expectations become unanchored. The Federal Reserve is certainly aware of these concerns and accordingly has placed great emphasis on developing the necessary tools to ensure that policy accommodation can be removed when appropriate. For example, the Federal Reserve will be able to put upward pressure on short-term interest rates at the appropriate time by raising the interest rate it pays on reserves, using draining tools like reverse repurchase agreements or term deposits with depository institutions, or selling securities from the Federal Reserve's portfolio. To date, the expansion of the balance sheet does not appear to have materially affected long-term inflation expectations.

A third cost to be weighed is that of risks to financial stability. For example, some observers have

2. These results are discussed further in Hess Chung, Jean-Philippe Laforte, David Reifschneider, and John C. Williams (2012), "Have We Underestimated the Likelihood and Severity of Zero Lower Bound Events?" *Journal of Money, Credit and Banking*, vol. 44 (February supplement), pp. 47–82.

3. For studies reporting significant macroeconomic effects from asset purchases, see, for example, Jeffrey C. Fuhrer and Giovanni P. Olivei (2011), "The Estimated Macroeconomic Effects of the Federal Reserve's Large-Scale Treasury Purchase Program," Public Policy Briefs 11-02 (Boston: Federal Reserve Bank of Boston, April), www.bos.frb.org/economic/ppb/2011/ppb112.pdf; and Christiane Baumeister and Luca Benati (2012), "Unconventional Monetary Policy and the Great Recession: Estimating the Macroeconomic Effects of a Spread Compression at the Zero Lower Bound," Working Papers 2012-21 (Ottawa: Bank of Canada, July), www.bankofcanada.ca/wp-content/uploads/2012/07/wp2012-21.pdf. Also, the Bank of England has implemented LSAPs similar to those undertaken by the Federal Reserve, and its staff research finds that the effects appear to be quantitatively similar to those in the United States.

For studies reporting smaller effects from asset purchases, see, for example, Michael T. Kiley (2012), "The Aggregate Demand Effects of Short- and Long-Term Interest Rates," Finance and Economics Discussion Series 2012-54 (Washington: Board of Governors of the Federal Reserve System, August), www.federalreserve.gov/pubs/feds/2012/201254/201254pap.pdf; and Han Chen, Vasco Curdia, and Andrea Ferrero (2012), "The Macroeconomic Effects of Large-Scale Asset Purchase Programmes," *Economic Journal*, vol. 122 (November), pp. F289–315.

raised concerns that, by driving longer-term yields lower, nontraditional policies could induce imprudent risk-taking by some investors. Of course, some risk-taking is a necessary element of a healthy economic recovery, and accommodative monetary policies could even serve to reduce the risk in the system by strengthening the overall economy. Nonetheless, the Federal Reserve has substantially expanded its monitoring of the financial system and modified its supervisory approach to take a more systemic perspective.

There has been limited evidence so far of excessive buildups of duration, credit risk, or leverage, but the Federal Reserve will continue both its careful oversight and its implementation of financial regulatory reforms designed to reduce systemic risk.[4]

The Federal Reserve has remitted substantial income to the Treasury from its earnings on securities, totaling some $290 billion since 2009. However, if the economy continues to strengthen and policy accommodation is withdrawn, remittances will likely decline in coming years. Indeed, in some scenarios, particularly if interest rates were to rise quickly, remittances to the Treasury could be quite low for a time.[5] Even in such scenarios, however, average annual remittances over the period affected by the Federal Reserve's purchases are highly likely to be greater than the pre-crisis norm, perhaps substantially so. Moreover, if monetary policy promotes a stronger recovery, the associated reduction in the federal deficit would far exceed any variation in the Federal Reserve's remittances to the Treasury. That said, the Federal Reserve conducts monetary policy to meet its congressionally mandated objectives of maximum employment and price stability and not primarily for the purpose of turning a profit for the U.S. Department of the Treasury.

4. For additional details, see the box "The Federal Reserve's Actions to Foster Financial Stability" in Part 1.

5. For additional details, see Seth B. Carpenter, Jane E. Ihrig, Elizabeth C. Klee, Daniel W. Quinn, and Alexander H. Boote (2013), "The Federal Reserve's Balance Sheet and Earnings: A Primer and Projections," Finance and Economics Discussion Series 2013-01 (Washington: Board of Governors of the Federal Reserve System, January), www.federalreserve.gov/pubs/feds/2013/201301/201301abs.html.

In particular, the Committee indicated that it expected that the exceptionally low range for the federal funds rate would be appropriate at least as long as the unemployment rate remains above 6½ percent, inflation between one and two years ahead is projected to be no more than ½ percentage point above the Committee's 2 percent longer-run goal, and longer-term inflation expectations continue to be well anchored. These thresholds were seen as helping the public to more readily understand how the likely timing of an eventual increase in the federal funds rate would shift in response to unanticipated changes in economic conditions and the outlook. Accordingly, thresholds could increase the probability that market reactions to economic developments would move longer-term interest rates in a manner consistent with the Committee's assessment of the likely future path of short-term interest rates. The Committee indicated in its December statement that it viewed the economic thresholds, at least initially, as consistent with its earlier, date-based guidance. The new language noted that the Committee would also consider other information when determining how long to maintain the highly accommodative stance of monetary policy, including additional measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial developments.

At the conclusion of its January 29–30 meeting, the Committee made no changes to its target range for the federal funds rate, its asset purchase program, or its forward guidance for the federal funds rate. The Committee stated that, with appropriate policy accommodation, it expected that economic growth would proceed at a moderate pace and the unemployment rate would gradually decline toward levels the Committee judges consistent with its dual mandate. It noted that strains in global financial markets had eased somewhat, but that it continued to see downside risks to the economic outlook. The Committee continued to anticipate that inflation over the medium term likely would run at or below its 2 percent objective.

Part 3
Summary of Economic Projections

The following material appeared as an addendum to the minutes of the December 11–12, 2012, meeting of the Federal Open Market Committee.

In conjunction with the December 11–12, 2012, Federal Open Market Committee (FOMC) meeting, meeting participants—the 7 members of the Board of Governors and the 12 presidents of the Federal Reserve Banks, all of whom participate in the deliberations of the FOMC—submitted their assessments of real output growth, the unemployment rate, inflation, and the target federal funds rate for each year from 2012 through 2015 and over the longer run. Each participant's assessment was based on information available at the time of the meeting plus his or her judgment of appropriate monetary policy and assumptions about the factors likely to affect economic outcomes. The longer-run projections represent each participant's judgment of the value to which each variable would be expected to converge, over time, under appropriate monetary policy and in the absence of further shocks to the economy. "Appropriate monetary policy" is defined as the future path of policy that each participant deems most likely to foster outcomes for economic activity and inflation that best satisfy his or her individual interpretation of the Federal Reserve's objectives of maximum employment and stable prices.

Overall, the assessments submitted in December indicated that FOMC participants projected that, under appropriate monetary policy, the pace of economic recovery would gradually pick up over the 2012–15 period and inflation would remain subdued (table 1 and figure 1). Participants anticipated that the growth rate of real gross domestic product (GDP) would increase somewhat in 2013 and again in 2014, and that economic growth in 2014 and 2015 would exceed their estimates of the longer-run sustainable rate of growth, while the unemployment rate would decline gradually through 2015. Participants projected that each year's inflation, as measured by the annual change in the price index for personal consumption expenditures (PCE), would run

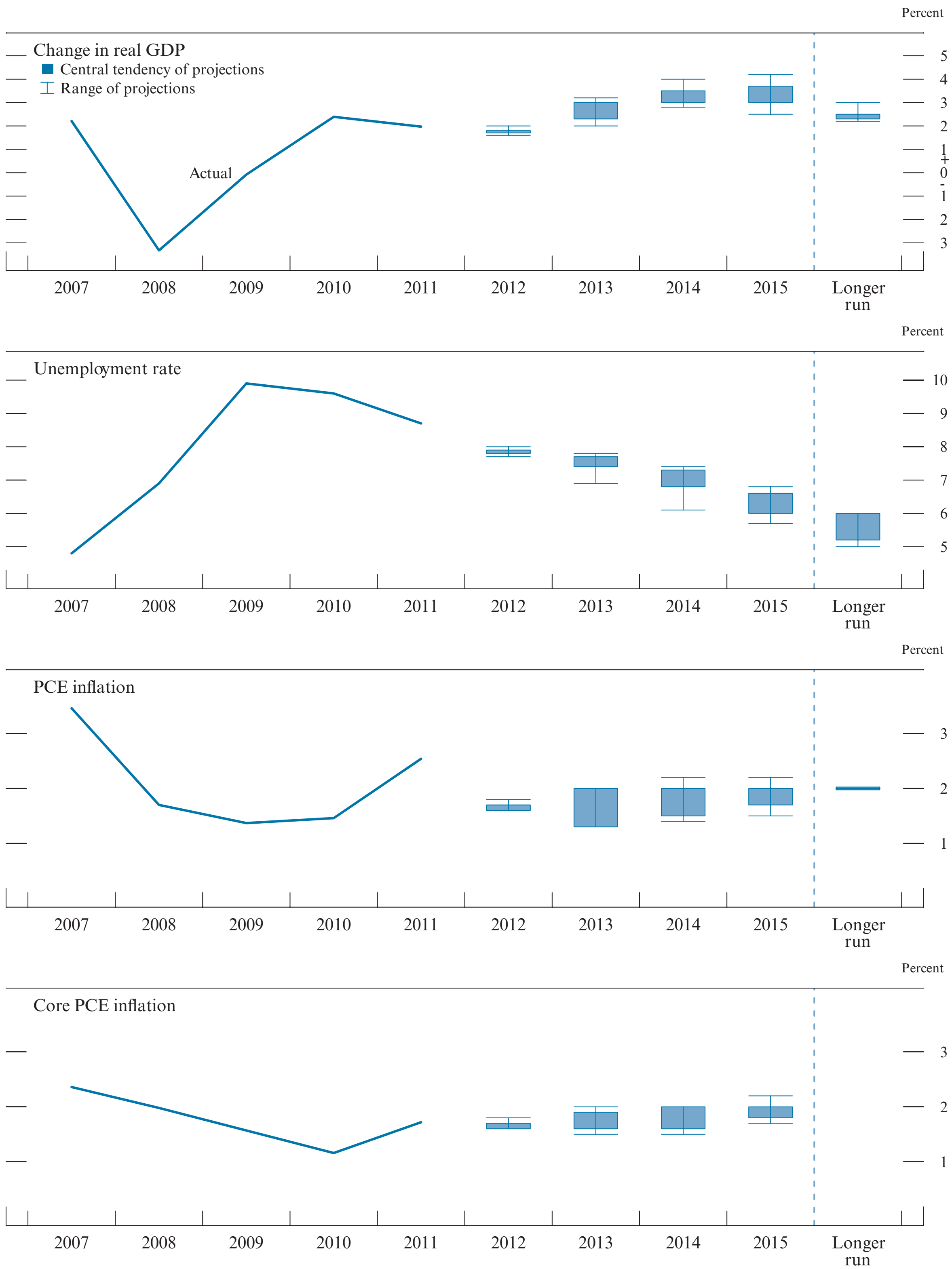
Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, December 2012
Percent

Variable	Central tendency[1]					Range[2]				
	2012	2013	2014	2015	Longer run	2012	2013	2014	2015	Longer run
Change in real GDP	1.7 to 1.8	2.3 to 3.0	3.0 to 3.5	3.0 to 3.7	2.3 to 2.5	1.6 to 2.0	2.0 to 3.2	2.8 to 4.0	2.5 to 4.2	2.2 to 3.0
September projection	1.7 to 2.0	2.5 to 3.0	3.0 to 3.8	3.0 to 3.8	2.3 to 2.5	1.6 to 2.0	2.3 to 3.5	2.7 to 4.1	2.5 to 4.2	2.2 to 3.0
Unemployment rate	7.8 to 7.9	7.4 to 7.7	6.8 to 7.3	6.0 to 6.6	5.2 to 6.0	7.7 to 8.0	6.9 to 7.8	6.1 to 7.4	5.7 to 6.8	5.0 to 6.0
September projection	8.0 to 8.2	7.6 to 7.9	6.7 to 7.3	6.0 to 6.8	5.2 to 6.0	8.0 to 8.3	7.0 to 8.0	6.3 to 7.5	5.7 to 6.9	5.0 to 6.3
PCE inflation	1.6 to 1.7	1.3 to 2.0	1.5 to 2.0	1.7 to 2.0	2.0	1.6 to 1.8	1.3 to 2.0	1.4 to 2.2	1.5 to 2.2	2.0
September projection	1.7 to 1.8	1.6 to 2.0	1.6 to 2.0	1.8 to 2.0	2.0	1.5 to 1.9	1.5 to 2.1	1.6 to 2.2	1.8 to 2.3	2.0
Core PCE inflation[3]	1.6 to 1.7	1.6 to 1.9	1.6 to 2.0	1.8 to 2.0		1.6 to 1.8	1.5 to 2.0	1.5 to 2.0	1.7 to 2.2	
September projection	1.7 to 1.9	1.7 to 2.0	1.8 to 2.0	1.9 to 2.0		1.6 to 2.0	1.6 to 2.0	1.6 to 2.2	1.8 to 2.3	

Note: Projections of change in real gross domestic product (GDP) and projections for both measures of inflation are from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption expenditures (PCE) and the price index for PCE excluding food and energy. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. Each participant's projections are based on his or her assessment of appropriate monetary policy. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy. The September projections were made in conjunction with the meeting of the Federal Open Market Committee on September 12–13, 2012.

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

Figure 1. Central tendencies and ranges of economic projections, 2012–15 and over the longer run



Note: Definitions of variables are in the general note to table 1. The data for the actual values of the variables are annual.

close to or below the FOMC's longer-run inflation objective of 2 percent.

As shown in figure 2, most participants judged that highly accommodative monetary policy was likely to be warranted over the next few years. In particular, 14 participants thought that it would be appropriate for the first increase in the target federal funds rate to occur during 2015 or later. Most participants judged that appropriate monetary policy would include purchasing agency mortgage-backed securities (MBS) and longer-term Treasury securities after the completion of the maturity extension program at the end of 2012.

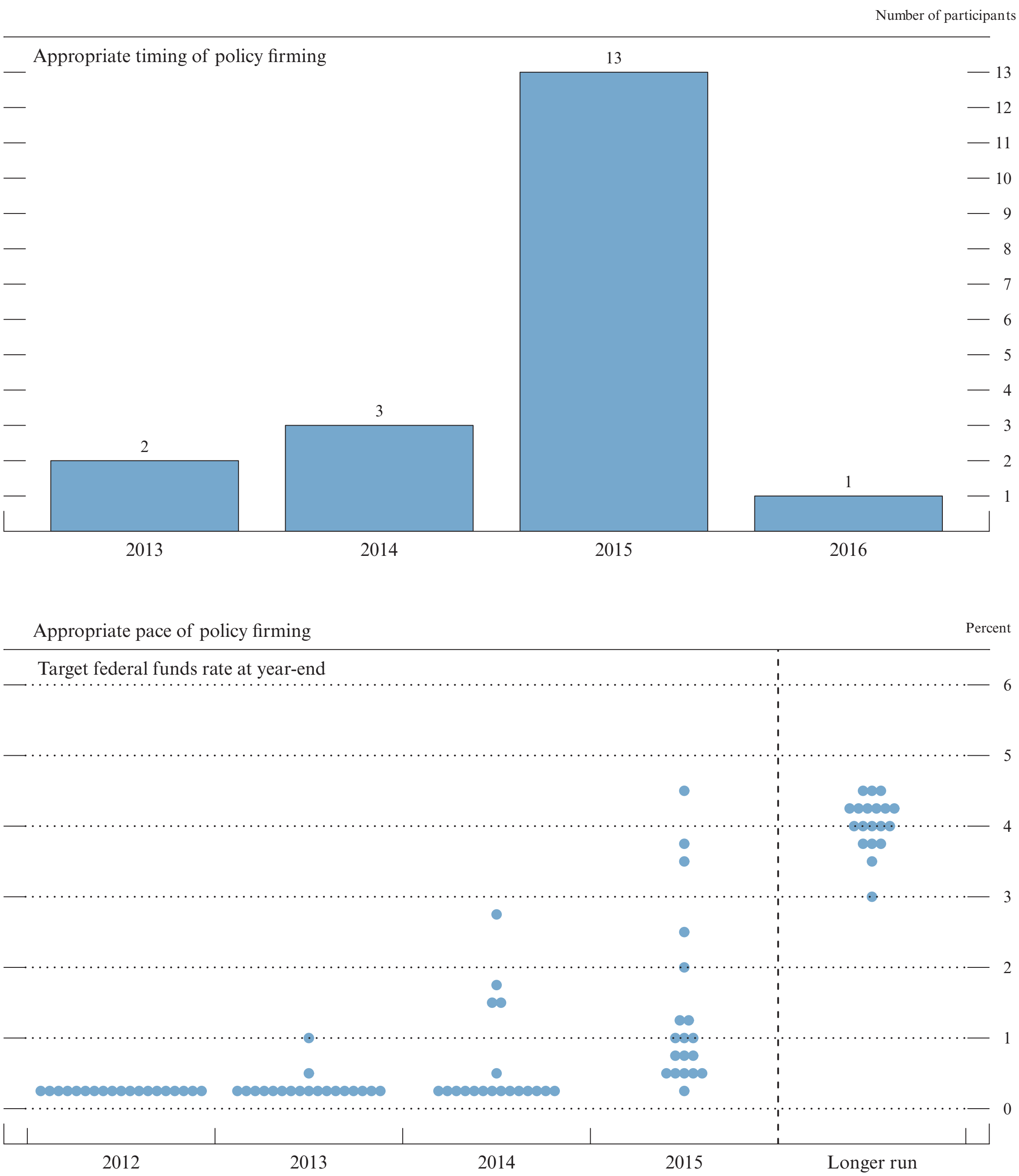
As in September, participants judged the uncertainty associated with the outlook for real activity and the unemployment rate to be unusually high compared with historical norms, with the risks weighted mainly toward slower economic growth and a higher unemployment rate. While a number of participants viewed the uncertainty surrounding their projections for inflation to be unusually high, more saw the level of uncertainty to be broadly similar to historical norms; most considered the risks to inflation to be roughly balanced.

The Outlook for Economic Activity

Participants judged that the economy grew at a moderate pace over the second half of 2012 and projected that, conditional on their individual assumptions about appropriate monetary policy, the economy would grow at a somewhat faster pace in 2013 before expanding in 2014 and 2015 at a rate above what participants saw as the longer-run rate of output growth. The central tendency of their projections for the change in real GDP in 2012 was 1.7 to 1.8 percent, slightly lower than in September. A number of participants mentioned that last summer's drought and the effects of Hurricane Sandy likely had held down economic activity in the second half of this year. Many participants also noted that, while conditions in the housing and labor markets appeared to have improved recently, uncertainty about fiscal policy appeared to be holding back business and household spending. Participants' projections for 2013 through 2015 were generally little changed relative to their September projections. The central tendency of participants' projections for real GDP growth in 2013 was 2.3 to 3.0 percent, followed by a central tendency of 3.0 to 3.5 percent for 2014 and one of 3.0 to 3.7 percent for 2015. The central tendency for the longer-run rate of increase of real GDP remained 2.3 to 2.5 percent, unchanged from September. Most participants noted that the high degree of monetary policy accommodation assumed in their projections would help promote the economic recovery over the forecast period; however, they also judged that several factors would likely hold back the pace of economic expansion, including slower growth abroad, a still-weak housing market, the difficult fiscal and financial situation in Europe, and fiscal restraint in the United States.

Participants projected the unemployment rate for the final quarter of 2012 to be close to its average level in October and November, implying a rate somewhat below that projected in September. Participants anticipated a gradual decline in the unemployment rate over the forecast period; even so, they generally thought that the unemployment rate at the end of 2015 would still be well above their individual estimates of its longer-run normal level. The central tendencies of participants' forecasts for the unemployment rate were 7.4 to 7.7 percent at the end of 2013, 6.8 to 7.3 percent at the end of 2014, and 6.0 to 6.6 percent at the end of 2015. The central tendency of participants' estimates of the longer-run normal rate of unemployment that would prevail under appropriate monetary policy and in the absence of further shocks to the economy was 5.2 to 6.0 percent, unchanged from September. Most participants projected that the unemployment rate would converge

Figure 2. Overview of FOMC participants' assessments of appropriate monetary policy, December 2012



Note: In the upper panel, the height of each bar denotes the number of FOMC participants who judge that, under appropriate monetary policy, the first increase in the target federal funds rate from its current range of 0 to ¼ percent will occur in the specified calendar year. In September 2012, the numbers of FOMC participants who judged that the first increase in the target federal funds rate would occur in 2012, 2013, 2014, 2015, and 2016 were, respectively, 1, 3, 2, 12, and 1. In the lower panel, each shaded circle indicates the value (rounded to the nearest ¼ percentage point) of an individual participant's judgment of the appropriate level of the target federal funds rate at the end of the specified calendar year or over the longer run.

to their estimates of its longer-run normal rate in five or six years, while a few judged that less time would be needed.

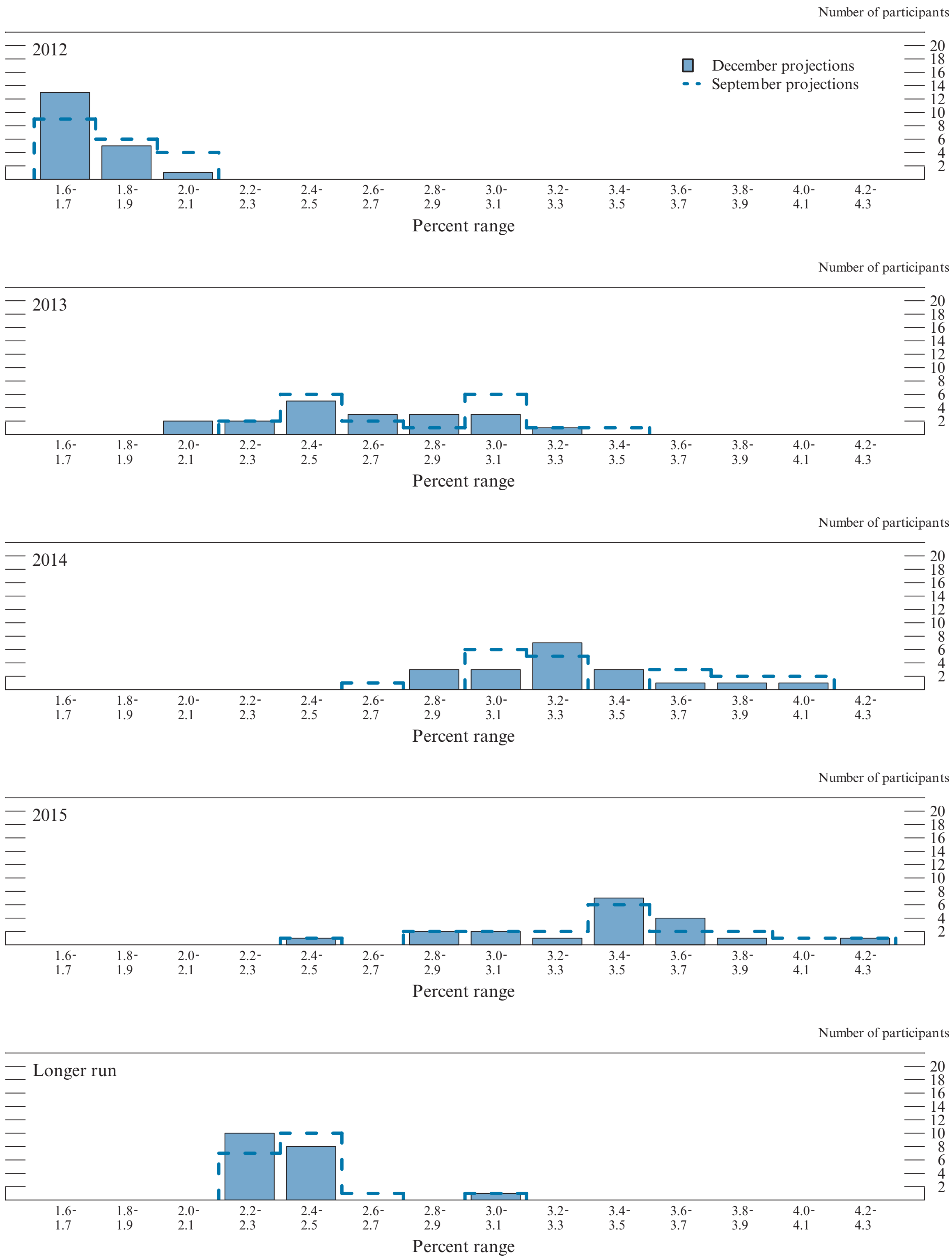
Figures 3.A and 3.B provide details on the diversity of participants' views regarding the likely outcomes for real GDP growth and the unemployment rate over the next three years and over the longer run. The dispersion in these projections reflects differences in participants' assessments of many factors, including appropriate monetary policy and its effects on the economy, the rate of improvement in the housing sector, the spillover effects of the fiscal and financial situation in Europe, the prospective path for U.S. fiscal policy, the extent of structural dislocations in the labor market, the likely evolution of credit and financial market conditions, and longer-term trends in productivity and the labor force. With the data for much of 2012 now in hand, the dispersion of participants' projections of real GDP growth and the unemployment rate this year narrowed compared with their September submissions. Meanwhile, the distribution of participants' forecasts for the change in real GDP in 2013 shifted down a bit, and that for 2014 narrowed slightly. However, the range of projections for real GDP growth in 2015 was little changed from September. The distributions of the unemployment rate projections at the end of 2012, 2013, and 2014 all shifted lower, while the range of projections for the unemployment rate for 2015, at 5.7 to 6.8 percent, remained close to its September level. The dispersion of estimates for the longer-run rate of output growth stayed fairly narrow, with all but one between 2.2 and 2.5 percent. The range of participants' estimates of the longer-run rate of unemployment, at 5.0 to 6.0 percent, narrowed relative to September. This range reflected different judgments among participants about several factors, including the outlook for labor force participation and the structure of the labor market.

The Outlook for Inflation

Participants' views on the broad outlook for inflation under appropriate monetary policy were little changed from September. Most anticipated that inflation for 2012 as a whole would be close to 1.6 percent, somewhat lower than projected in September. A number of participants remarked that recent inflation readings had come in below their expectations. Almost all of the participants judged that both headline and core inflation would remain subdued over the 2013–15 period, running at rates equal to or below the FOMC's longer-run objective of 2 percent. Specifically, the central tendency of participants' projections for inflation, as measured by the PCE price index, moved down to 1.3 to 2.0 percent for 2013 and was little changed for 2014 and 2015 at 1.5 to 2.0 percent and 1.7 to 2.0 percent, respectively. The central tendencies of the forecasts for core inflation were broadly similar to those for the headline measure for 2013 through 2015. In discussing factors likely to sustain low inflation, several participants cited stable inflation expectations and expectations for continued sizable resource slack.

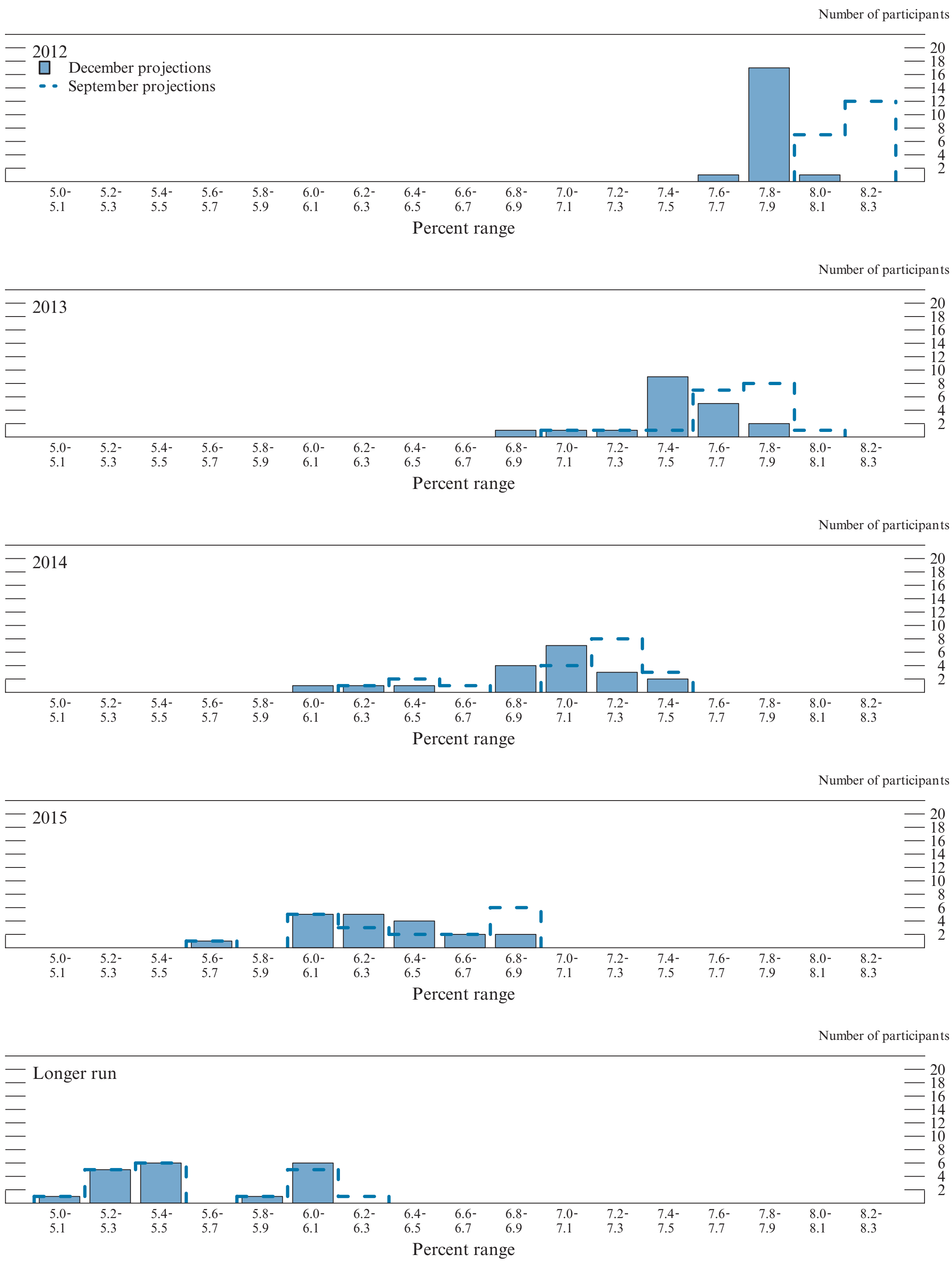
Figures 3.C and 3.D provide information about the diversity of participants' views about the outlook for inflation. The range of participants' projections for headline inflation for 2012 narrowed from 1.5 to 1.9 percent in September to 1.6 to 1.8 percent in December; nearly all participants' projections in December were at 1.6 percent or 1.7 percent, broadly in line with recent inflation readings. The distributions of participants' projections for headline inflation in 2013 and 2014 shifted lower compared with the corresponding distributions for September, while the range of projections for core inflation narrowed slightly for both years. The distributions for core and overall inflation in 2015 were concentrated near the Committee's longer-run inflation objective of 2 percent, although somewhat less so than in September.

Figure 3.A. Distribution of participants' projections for the change in real GDP, 2012–15 and over the longer run



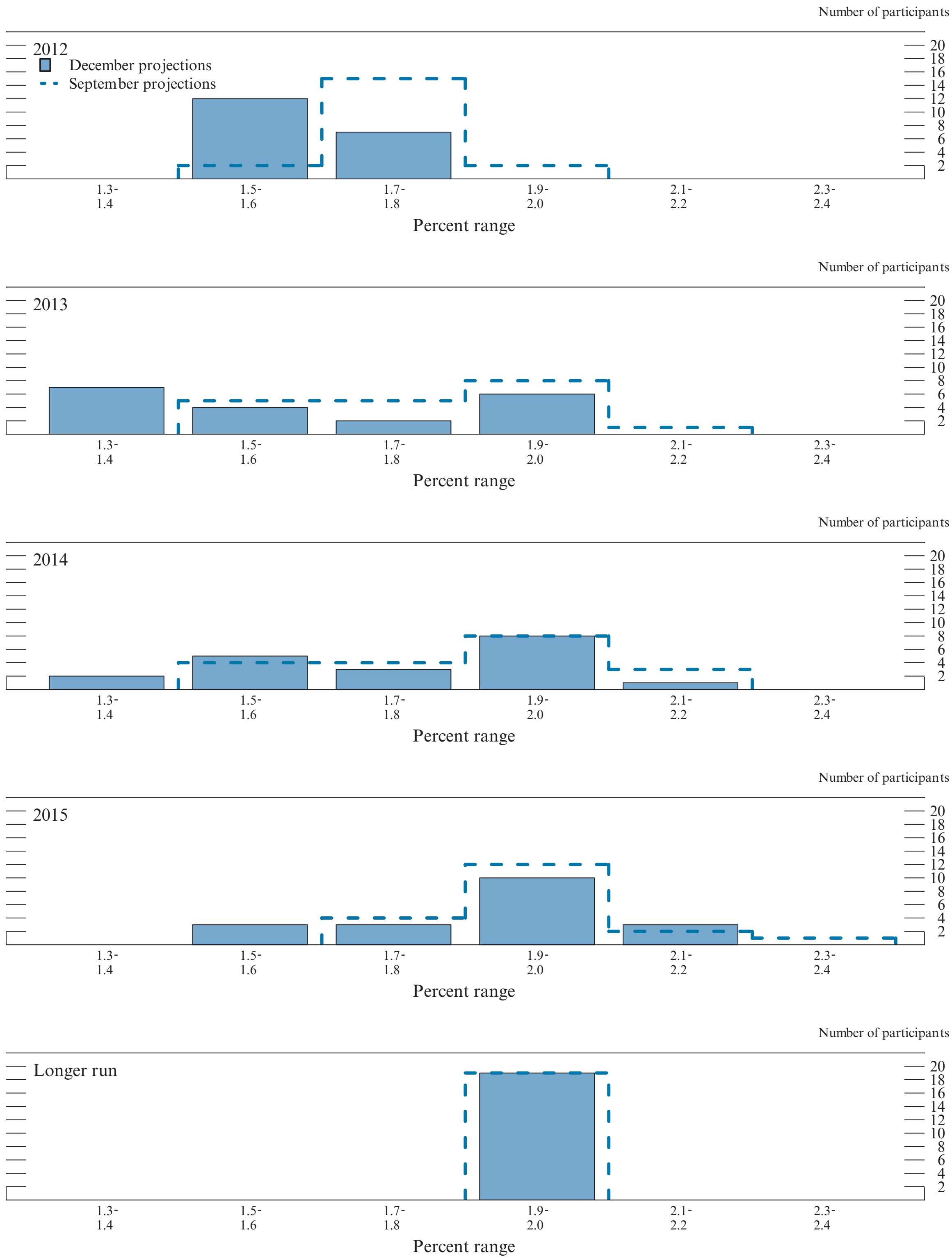
Note: Definitions of variables are in the general note to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2012–15 and over the longer run



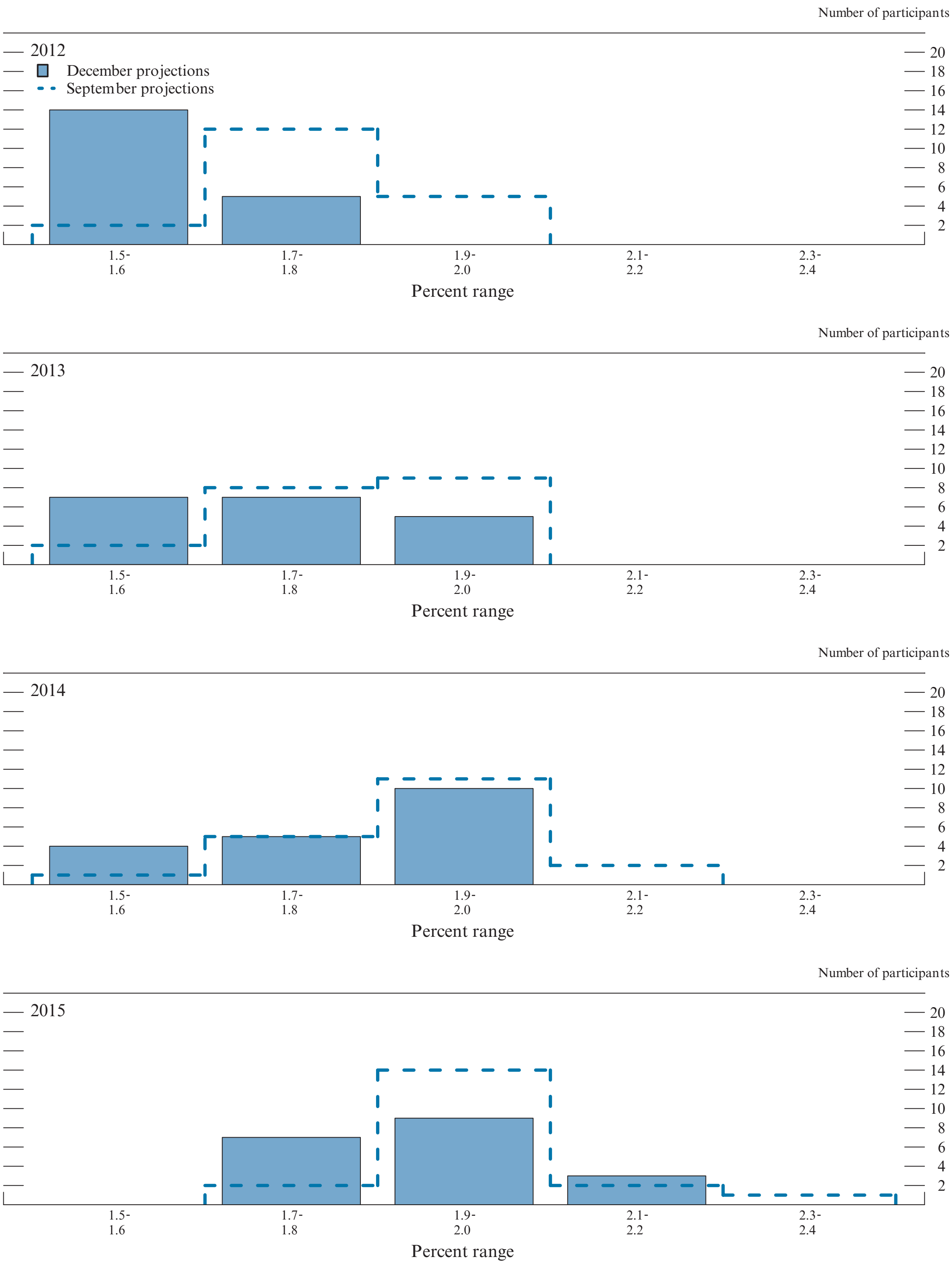
Note: Definitions of variables are in the general note to table 1.

Figure 3.C. Distribution of participants' projections for PCE inflation, 2012–15 and over the longer run



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

Figure 3.D. Distribution of participants' projections for core PCE inflation, 2012–15



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

Appropriate Monetary Policy

As indicated in figure 2, most participants judged that exceptionally low levels of the federal funds rate would remain appropriate for several more years. In particular, 13 participants thought that the first increase in the target federal funds rate would not be warranted until 2015, and 1 judged that policy firming would likely not be appropriate until 2016 (upper panel). The 13 participants who expected that the target federal funds rate would not move above its effective lower bound until 2015 thought the federal funds rate would be 1¼ percent or lower at the end of that year, while the 1 participant who expected that policy firming would commence in 2016 saw the federal funds rate target at 50 basis points at the end of that year. Five participants judged that an earlier increase in the federal funds rate, in 2013 or 2014, would be most consistent with the Committee's statutory mandate. Those participants judged that the appropriate value for the federal funds rate would range from ½ to 2¾ percent at the end of 2014 and from 2 to 4½ percent at the end of 2015.

Among the participants who saw a later tightening of policy, a majority indicated that they believed it was appropriate to maintain the current level of the federal funds rate until the unemployment rate is less than or equal to 6½ percent. In contrast, a majority of those who favored an earlier tightening of policy pointed to concerns about inflation as a primary reason for expecting that it would be appropriate to tighten policy sooner. Participants were about evenly split between those who judged the appropriate path for the federal funds rate to be unchanged relative to September and those who saw the appropriate path as lower.

Nearly all participants saw the appropriate target for the federal funds rate at the end of 2015 as still well below its expected longer-run value. Estimates of the longer-run target federal funds rate ranged from 3 to 4½ percent, reflecting the Committee's inflation objective of 2 percent and participants' judgments about the longer-run equilibrium level of the real federal funds rate.

Participants also provided information on their views regarding the appropriate path of the Federal Reserve's balance sheet. Most participants thought it was appropriate for the Committee to continue purchasing MBS and longer-term Treasury securities after completing the maturity extension program at the end of this year. In their projections, taking into account the likely benefits and costs of purchases as well as the expected evolution of the outlook, these participants were approximately evenly divided between those who judged that it would likely be appropriate for the Committee to complete its asset purchases sometime around the middle of 2013 and those who judged that it would likely be appropriate for the asset purchases to continue beyond that date. In contrast, several participants believed the Committee would best foster its dual objectives by ending its purchases of Treasury securities or all of its asset purchases at the end of this year when the maturity extension program was completed.

Key factors informing participants' views of the economic outlook and the appropriate setting for monetary policy include their judgments regarding labor market conditions that would be consistent with maximum employment, the extent to which employment currently deviated from maximum employment, the extent to which projected inflation over the medium term deviated from the Committee's longer-term objective of 2 percent, and participants' projections of the likely time horizon necessary to return employment and inflation to mandate-consistent levels. Many participants mentioned economic thresholds based on the unemployment rate and the inflation outlook that were consistent with their judgments of when it would be appropriate to consider beginning to raise the federal funds rate. A couple of participants noted that their assessments of the appropriate path for the federal funds rate took into account the likelihood that the neutral level of the federal funds rate was somewhat below its historical norm. There was some concern expressed that a protracted period of very accommodative monetary policy could lead to imbalances in the financial system. It was also noted that because the appropriate stance of monetary policy is conditional on the evolution of real activity and inflation over time, assessments of the appropriate future path of the federal funds rate and the balance sheet could change if economic conditions were to evolve in an unexpected manner.

Figure 3.E details the distribution of participants' judgments regarding the appropriate level of the target federal funds rate at the end of each calendar year from 2012 to 2015 and over the longer run. As previously noted, most participants judged that economic conditions would warrant maintaining the current low level of the federal funds rate until 2015. Views on the appropriate level of the federal funds rate by the end of 2015 varied, with 12 participants seeing the appropriate level of the federal funds rate as 1 percent or lower and 4 of them seeing the appropriate level as 2½ percent or higher. Generally, the participants who judged that a longer period of very accommodative monetary policy would be appropriate were those who projected that a sizable gap between the unemployment rate and the longer-run normal level of the unemployment rate would persist until 2015 or later. In contrast, the majority of the 5 participants who judged that policy firming should begin in 2013 or 2014 indicated that the Committee would need to act relatively soon in order to keep inflation near the FOMC's longer-run objective of 2 percent and to prevent a rise in inflation expectations.

Table 2. Average historical projection error ranges
Percentage points

Variable	2012	2013	2014	2015
Change in real GDP[1]	±0.6	±1.4	±1.7	±1.7
Unemployment rate[1]	±0.2	±0.9	±1.5	±1.9
Total consumer prices[2]	±0.5	±0.9	±1.1	±1.0

NOTE: Error ranges shown are measured as plus or minus the root mean squared error of projections for 1992 through 2011 that were released in the fall 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 may be found 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. Definitions of variables are in the general note to table 1.

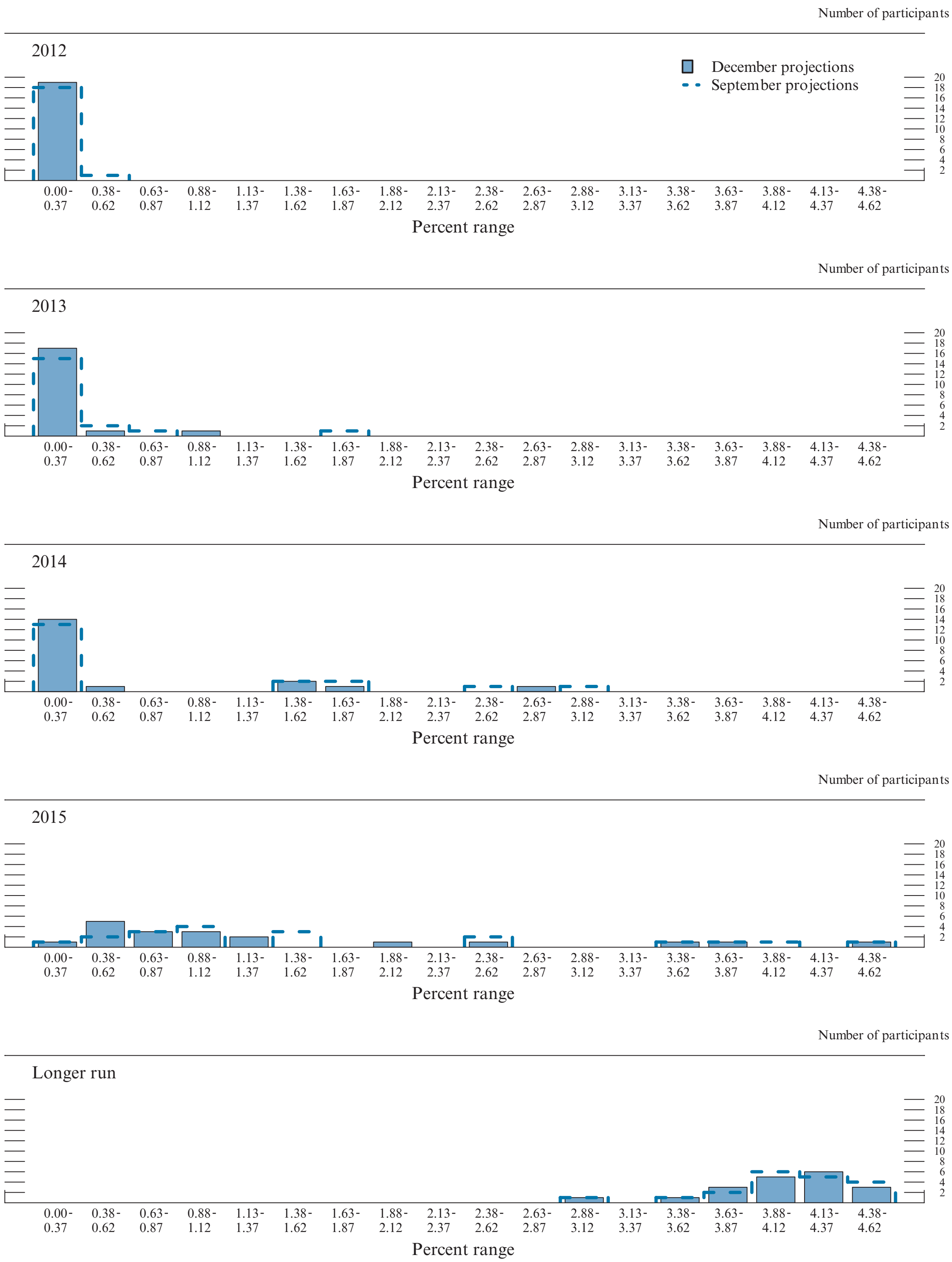
2. Measure is the overall consumer price index, the price measure that has been most widely used in government and private economic forecasts. Projection is percent change, fourth quarter of the previous year to the fourth quarter of the year indicated.

Uncertainty and Risks

Nearly all of the participants judged their current levels of uncertainty about real GDP growth and unemployment to be higher than was the norm during the previous 20 years (figure 4).[1] Seven participants judged that the levels of uncertainty associated with their forecasts of total PCE inflation were higher as well, while another 10 participants viewed uncertainty about inflation as broadly similar to historical norms. The main factors cited as contributing to the elevated uncertainty about economic outcomes were the difficulties involved in predicting fiscal policy in the United States, the continuing potential for European developments to threaten financial stability, and the possibility of a general slowdown in global economic growth. As in September, participants noted the challenges associated with forecasting the path of the

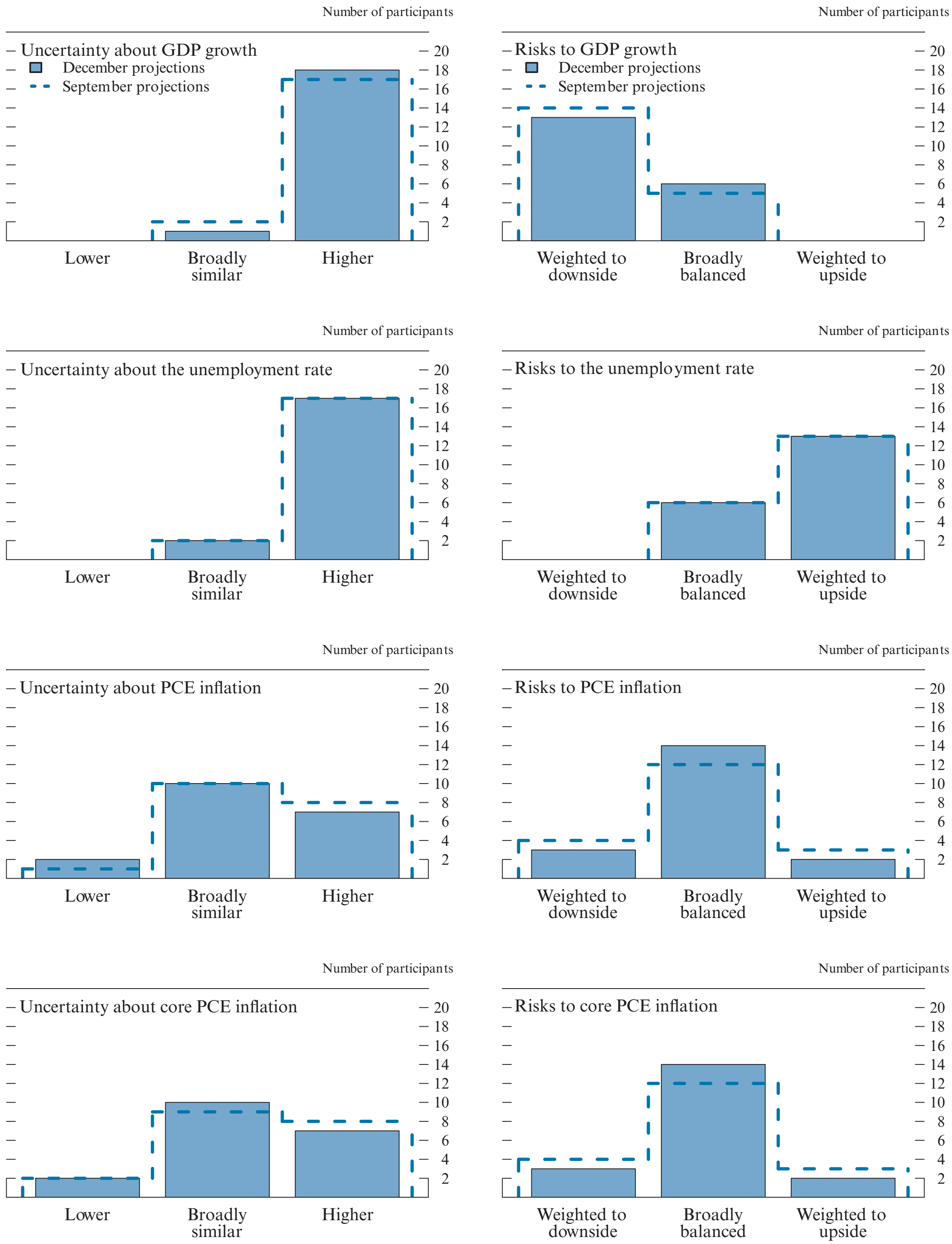
1. Table 2 provides estimates of the forecast uncertainty for the change in real GDP, the unemployment rate, and total consumer price inflation over the period from 1992 through 2011. At the end of this summary, the box "Forecast Uncertainty" discusses the sources and interpretation of uncertainty in the economic forecasts and explains the approach used to assess the uncertainty and risks attending the participants' projections.

Figure 3.E. Distribution of participants' projections for the target federal funds rate, 2012–15 and over the longer run



Note: The target federal funds rate is measured as the level of the target rate at the end of the calendar year or in the longer run.

Figure 4. Uncertainty and risks in economic projections



Note: For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty." Definitions of variables are in the general note to table 1.

U.S. economic recovery following a financial crisis and recession that differed markedly from recent historical experience. A number of participants also commented that in the aftermath of the financial crisis, they were more uncertain about the level of potential output and its rate of growth. It was noted that some of the uncertainty about potential output arose from the risk that a continuation of elevated levels of long-term unemployment might impair the skills of the affected individuals or cause some of them to drop out of the labor force, thereby reducing potential output in the medium term.

A majority of participants reported that they saw the risks to their forecasts of real GDP growth as weighted toward the downside and, accordingly, the risks to their projections of the unemployment rate as tilted to the upside. The most frequently identified sources of risk were U.S. fiscal policy, which many participants thought had the potential to slow economic activity significantly over the near term, and the situation in Europe.

Most participants continued to judge the risks to their projections for inflation as broadly balanced, with several highlighting the recent stability of longer-term inflation expectations. However, three participants saw the risks to inflation as tilted to the downside, reflecting, for example, risks of disinflation that could arise from adverse shocks to the economy that policy would have limited scope to offset. A couple of participants saw the risks to inflation as weighted to the upside in light of concerns about U.S. fiscal imbalances, the current highly accommodative stance of monetary policy, and uncertainty about the Committee's ability to shift to a less accommodative policy stance when it becomes appropriate to do so.

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 policymakers 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 Report*s and those prepared by the Federal Reserve Board's 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 2.4 to 3.6 percent in the current year, 1.6 to 4.4 percent in the second year, and 1.3 to 4.7 percent in the third and fourth years. The corresponding 70 percent confidence intervals for overall inflation would be 1.5 to 2.5 percent in the current year, 1.1 to 2.9 percent in the second year, 0.9 to 3.1 percent in the third year, and 1.0 to 3.0 percent in the fourth year.

Because current conditions may differ from those that prevailed, on average, over history, participants provide judgments as to whether the uncertainty attached to their projections of each variable is greater than, smaller than, or broadly similar to typical levels of forecast uncertainty in the past, as shown in table 2. Participants also provide judgments as to whether the risks to their projections are weighted to the upside, 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.

As with real activity and inflation, the outlook for the future path of the federal funds rate is subject to considerable uncertainty. This uncertainty arises primarily because each participant's assessment of the appropriate stance of monetary policy depends importantly on the evolution of real activity and inflation over time. If economic conditions evolve in an unexpected manner, then assessments of the appropriate setting of the federal funds rate would change from that point forward.

Abbreviations

ABCP	asset-backed commercial paper
AFE	advanced foreign economy
BHC	bank holding company
CDS	credit default swaps
C&I	commercial and industrial
CMBS	commercial mortgage-backed securities
CP	commercial paper
CRE	commercial real estate
DPI	disposable personal income
ECB	European Central Bank
EME	emerging market economy
E&S	equipment and software
FOMC	Federal Open Market Committee; also, the Committee
GDP	gross domestic product
MBS	mortgage-backed securities
MEP	maturity extension program
MMF	money market fund
NIPA	national income and product accounts
OMT	Outright Monetary Transactions
PCE	personal consumption expenditures
REIT	real estate investment trust
repo	repurchase agreement
SEP	Summary of Economic Projections
SLOOS	Senior Loan Officer Opinion Survey on Bank Lending Practices
S&P	Standard and Poor's
TALF	Term Asset-Backed Securities Loan Facility