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Monetary Policy Report to the Congress

March 1, 2011

Board of Governors of the Federal Reserve System

Monetary Policy Report to the Congress

Submitted pursuant to section 2B of the Federal Reserve Act

March 1, 2011

Board of Governors of the Federal Reserve System

Letter of Transmittal

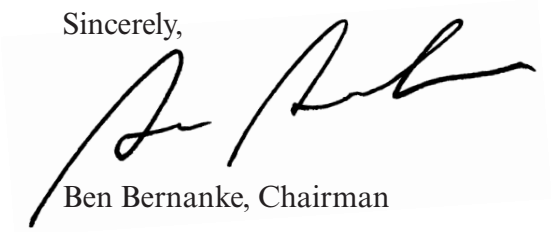
BOARD OF GOVERNORS OF THE
FEDERAL RESERVE SYSTEM

Washington, D.C., March 1, 2011

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

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

Sincerely,



Ben Bernanke, Chairman

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Part 1
Overview: Monetary Policy and the Economic Outlook

Economic activity in the United States expanded at a moderate pace, on average, in the second half of 2010 and early 2011. In the spring and early summer, a number of key indicators of economic activity softened relative to the readings posted in late 2009 and the first part of 2010, raising concerns about the durability of the recovery. In light of these developments—and in order to put the economic recovery on a firmer footing—the Federal Open Market Committee (FOMC) provided additional monetary policy stimulus during the second half of 2010 by reinvesting principal repayments from its holdings of agency debt and agency mortgage-backed securities in longer-term Treasury securities and by announcing its intention to purchase an additional $600 billion of Treasury securities by the end of the second quarter of 2011.

Financial market conditions improved notably in the fall of 2010, partly in response to actual and expected increases in monetary policy accommodation. In addition, later in the year, the tenor of incoming economic news strengthened somewhat, and the downside risks to economic growth appeared to recede. Nonetheless, the job market has improved only slowly. Employment gains have been modest, and although the unemployment rate fell noticeably in December and January, the margin of slack in the labor market remains wide. Meanwhile, despite rapid increases in commodity prices, longer-term inflation expectations remained stable, and measures of underlying consumer price inflation continued to trend downward on net.

Real gross domestic product (GDP) rose at a moderate rate in the third quarter. Inventories provided the principal impetus to growth while final sales showed little vigor—the same pattern that prevailed in the first half of the year. Less favorable readings that began to emerge during the second quarter for a range of indicators—new claims for unemployment insurance, industrial production, and numerous surveys of business activity, among others—pointed to a slowing in the pace of the recovery and suggested that the transition from a recovery boosted importantly by the inventory cycle to one propelled mainly by private final demand was proceeding only very gradually. Later in the year, however, this process appeared to gain traction. Indeed, real GDP is estimated to have risen a little faster in the fourth quarter than in the third quarter despite a substantial slowdown in the pace of inventory investment in the fourth quarter; final sales increased much more rapidly in the fourth quarter than earlier.

Over the second half of 2010, consumer spending posted a solid gain, boosted in part by continued, albeit modest, increases in real wage and salary income; some waning of the drag on outlays from earlier declines in household net worth; and a modest improvement in the availability of consumer credit. Businesses continued to step up their spending on equipment and software in response to a brighter outlook for sales as well as more favorable conditions in credit markets. In the external sector, the continued rebound in exports was supported by firming foreign demand. Meanwhile, the construction sector remained exceptionally weak.

The continued recovery in economic activity has been accompanied by only a slow improvement in labor market conditions. Private payroll employment has moved up at a relatively tepid rate—about 115,000 per month, on average, since the February 2010 trough in employment—recouping only a small portion of the 8¾ million jobs lost during 2008 and 2009. Over most of this period, the pace of hiring was insufficient to substantially reduce the unemployment rate. In December and January, however, the jobless rate was reported to have declined noticeably. In addition to the recent drop in the unemployment rate, some other indicators of labor market conditions—for example, measures of firms' hiring plans—have brightened a bit, raising the prospect that a pickup in the pace of hiring may be in the offing. That said, the level of the unemployment rate remains very elevated, and the long-term unemployed continue to account for a historically large fraction of overall joblessness.

Consumer price inflation trended down during 2010 as slack in resource utilization restrained cost pressures while longer-term inflation expectations remained stable. Although the prices of crude oil and many industrial and agricultural commodities rose rapidly in the latter half of 2010 and the early part of 2011, over-

all personal consumption expenditures (PCE) prices increased at an annual rate of just 1¼ percent over the 12 months ending in January, which compares with a 2½ percent rise during the preceding 12 months. Core PCE prices—which exclude prices for food and energy—rose ¾ percent in the 12 months ending in January.

Financial market conditions continued to be supportive of economic growth in the second half of 2010 and into 2011. Equity prices rose solidly, reflecting the more accommodative stance of monetary and fiscal policy, an improved economic outlook, and better-than-expected corporate earnings reports. Yields on longer-term Treasury securities declined in the summer and early autumn, reflecting in part anticipation of additional monetary policy stimulus, but subsequently rose as economic prospects improved and as market expectations of the ultimate size of FOMC Treasury purchases were revised down. Despite some volatility, yields on Treasury securities remained relatively low on balance. Medium- and longer-term inflation compensation derived from inflation-indexed Treasury securities increased since the summer as concerns about deflation eased, though these measures remained within historical ranges. Interest rates on fixed-rate residential mortgages moved broadly in line with yields on Treasury securities while the spreads between yields on corporate bonds and those on Treasury securities declined; overall, both mortgage rates and corporate yields continued to be at low levels. Although bank lending policies generally stayed tight, banks reported some easing in those conditions on net. After posting substantial declines since the third quarter of 2008, total loans held on the books of banks showed signs of stabilizing in recent months.

Larger nonfinancial corporations with access to capital markets took advantage of favorable financial conditions to issue debt at a robust pace. Bond and syndicated loan issuance was strong, particularly among lower-rated corporate borrowers. Commercial and industrial loans on banks' books started to expand around the end of 2010. Nevertheless, small, bank-dependent businesses remained constrained in their access to credit, although some indicators suggested that credit availability for these firms was beginning to improve.

Household debt appears to have contracted in the second half of 2010, but at a somewhat slower pace than earlier in the year. Household mortgage debt likely continued to decline, as housing demand remained weak and lending standards were reportedly still stringent. Revolving consumer credit also contracted. By contrast, nonrevolving consumer credit—primarily auto and student loans—increased solidly in the final quarter of 2010.

After first emerging during the spring, concerns about fiscal and banking developments in Europe resurfaced later in the year. Although some European sovereigns and financial institutions faced renewed funding pressures in the fourth quarter, the repercussions in broader global financial markets were muted. To help minimize the risk that strains abroad could spread to the United States, as well as to continue to support liquidity conditions in global money markets, the FOMC in December approved an extension of the temporary U.S. dollar liquidity swap arrangements with a number of foreign central banks.

Apparently seeking to boost returns in an environment of low interest rates, investors displayed an increased appetite for higher-yielding fixed-income instruments in the second half of 2010 and into 2011, which likely supported strong issuance of these products and contributed to a narrowing of risk spreads, such as those on corporate debt instruments. Information from a variety of sources, including the Federal Reserve Board's Senior Credit Officer Opinion Survey on Dealer Financing Terms, suggests that use of dealer-intermediated leverage by financial market participants rose a bit in recent quarters but remained well below its pre-crisis levels.[1] The condition of financial institutions generally appeared to improve further, and the regulatory capital ratios of commercial banks, particularly the largest banks, moved higher.

With the pace of recovery in output and employment seen as disappointingly slow and measures of inflation viewed as somewhat low relative to levels judged consistent with the Committee's mandate, the FOMC took several actions to provide additional support to the economic recovery during the second half of last year. In August, the FOMC decided to reinvest principal payments from agency debt and agency mortgage-backed securities held in the System Open Market Account (SOMA) in longer-term Treasury securities to keep constant the size of the SOMA portfolio and so avoid an implicit tightening of monetary policy. In November, to provide further policy accommodation to help support the economic recovery, the FOMC announced its intention to purchase an additional $600 billion in longer-term Treasury securities by the end of the second quarter of 2011. Throughout the second half of 2010 and early 2011, the FOMC maintained a target range for the federal funds rate of between 0 and ¼ percent and reiterated its expectation

1. The survey is conducted quarterly and is available at www.federalreserve.gov/econresdata/releases/scoos.htm.

that economic conditions, including low rates of resource utilization, subdued inflation trends, and stable inflation expectations, were likely to warrant exceptionally low levels for the federal funds rate for an extended period.

The Federal Reserve continued to develop and test tools to drain or immobilize large volumes of banking system reserves in order to ensure that it will be able to smoothly and effectively exit from the current extraordinarily accommodative policy stance at the appropriate time. The Committee continues to monitor the economic outlook and financial developments, and it will employ its policy tools as necessary to support the economic recovery and to help ensure that inflation, over time, returns to levels consistent with its mandate.

The economic projections prepared in conjunction with the January FOMC meeting are presented in Part 4 of this report. In broad terms, FOMC participants anticipated a sustained but modest recovery in real economic activity this year that would pick up somewhat in 2012 and 2013. The expansion was expected to be led by gains in consumer and business spending that are supported by improvements in household and business confidence. Nevertheless, economic growth was expected to be damped by a number of headwinds, including the gradual pace of improvements in the labor market, still-stringent borrowing conditions for households and bank-dependent small businesses, lingering household and business uncertainty, and ongoing weakness in real estate markets. On balance, FOMC participants anticipated that real GDP would increase at above-trend rates over the next three years, but not as rapidly as in previous recoveries. Meanwhile, the unemployment rate was projected to fall gradually. Inflation was expected to drift up slowly toward the levels that Committee participants believe to be most consistent with the Committee's mandate. Reflecting their assessment that the recovery appeared to be on a firmer footing, the participants upgraded slightly their projections for near-term economic growth relative to the ones they prepared in conjunction with the November FOMC meeting; otherwise, their projections for economic growth and inflation were little changed.

Participants generally judged that the uncertainty attached to their projections for both economic activity and inflation was greater than historical norms. A substantial majority of participants viewed the risks to both economic growth and inflation as balanced; only a few saw them as tilted either to the upside or to the downside. In November, a noticeable share of participants had seen the risks—particularly those to economic growth—as tilted to the downside. Participants also reported their assessments of the rates to which key macroeconomic variables would be expected to converge over the longer term under appropriate monetary policy and in the absence of further shocks to the economy. The central tendencies of these longer-run projections were 2.5 to 2.8 percent for real GDP growth, 5.0 to 6.0 percent for the unemployment rate, and 1.6 to 2.0 percent for the inflation rate.

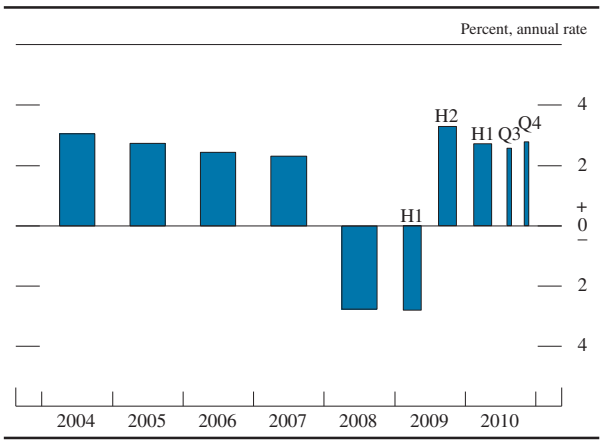
Part 2
Recent Economic and Financial Developments

Economic activity expanded at a moderate pace, on balance, in the second half of 2010. According to the currently available estimates from the Bureau of Economic Analysis, real gross domestic product (GDP) increased at an annual rate of about 2¾ percent, on average, over that period (figure 1). In the third quarter, as had been the case in the first half of the year, much of the increase was the result of inventory accumulation; in contrast, final sales continued to rise at a subdued rate. Meanwhile, several indicators of economic activity had softened from the readings observed earlier in the year, raising concerns about the durability of the recovery. Later in the year, however, the tone of the incoming data on economic activity brightened somewhat, final sales strengthened, and the recovery appeared to be on a firmer footing.

Since the middle of 2010, consumer spending has risen solidly on average, businesses have continued to increase their outlays for equipment and software, and exports have moved up further. In contrast, construction of new homes and nonresidential buildings remains exceptionally weak. Conditions in the labor market have improved only slowly, with payrolls increasing at a modest pace. Throughout nearly all of 2010, that pace of employment expansion was insufficient to bring the unemployment rate down meaningfully from its recent peak. In December 2010 and January of this year, however, the unemployment rate is estimated to have dropped more noticeably, even though payroll employment gains remained lackluster. Meanwhile, long-duration joblessness persisted at near-record levels. With regard to inflation developments, despite rapid increases in commodity prices, longer-term inflation expectations have remained stable and consumer price inflation has continued to trend downward on net (figure 2).

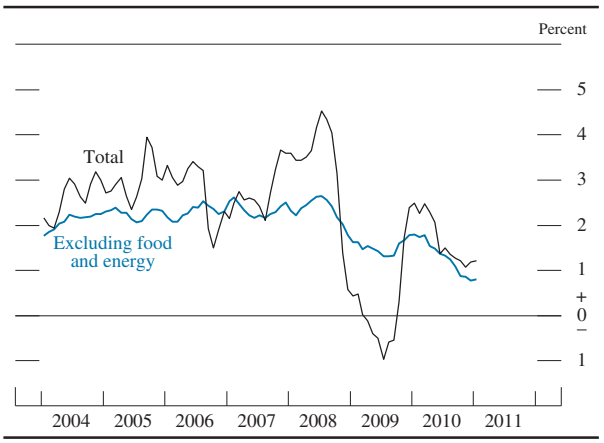
Conditions in financial markets generally improved over the course of the second half of 2010 and early 2011 and continued to be supportive of economic activity. This improvement reflected, in part, additional monetary policy stimulus provided by the Federal Reserve, as well as growing investor confidence in the sustainability of the economic recovery. Although yields on Treasury securities rose somewhat, on net, since mid-2010, yields on investment-grade corporate bonds were little changed at low levels, and yields on speculative-grade bonds declined. In equity markets, price indexes generally rose, buoyed by solid corporate earnings and a more positive economic outlook. Commercial banks reported that they had eased some of their lending standards and terms, though lending standards remained generally tight and some busi-

1. Change in real gross domestic product, 2004–10



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

2. Change in the chain-type price index for personal consumption expenditures, 2004–11



NOTE: The data are monthly and extend through January 2011; changes are from one year earlier.
SOURCE: Department of Commerce, Bureau of Economic Analysis.

nesses and households continued to face difficulties obtaining credit. Changes in interest rates faced by households were mixed. The improvement in financial conditions was accompanied by some signs of a pickup in the demand for credit. Borrower credit quality generally improved, although problems persisted in some sectors of the economy. Concerns about European banking and fiscal strains increased again in late 2010 after having eased for a time; however, in contrast to what was observed in the spring, these concerns left little imprint on U.S. financial markets.

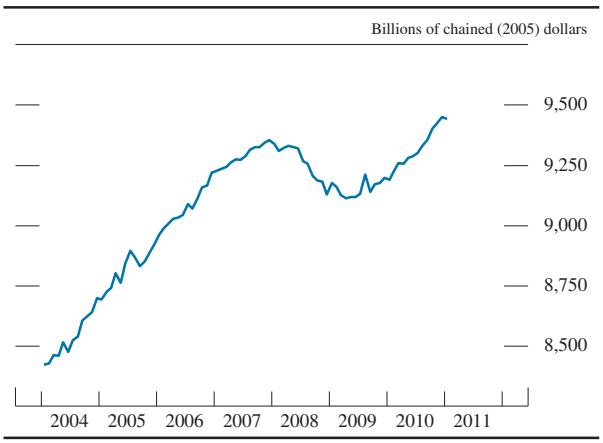
Domestic Developments

The Household Sector

Consumer Spending and Household Finance

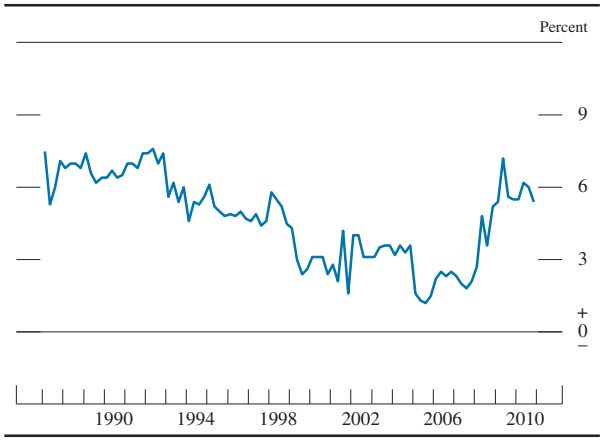
Real personal consumption expenditures (PCE) increased at an annual rate of about 3¼ percent in the second half of 2010, with a particularly brisk rise in the fourth quarter (figure 3). The spending gains were supported by the continued, though modest, pickup in real household incomes, by some fading of the restraining effects of the earlier sharp declines in households' net worth, and by a modest improvement in the availability of consumer credit. Outlays for durable goods also may have been boosted to some extent by purchases that had been deferred during the recession. The increases in spending exceeded the rise in income, and the saving rate edged down during the second half of the year, though it remains well above levels that prevailed prior to the recession (figure 4).

3. Real personal consumption expenditures, 2004–11



Note: The data are monthly and extend through January 2011.
Source: Department of Commerce, Bureau of Economic Analysis.

4. Personal saving rate, 1987–2010



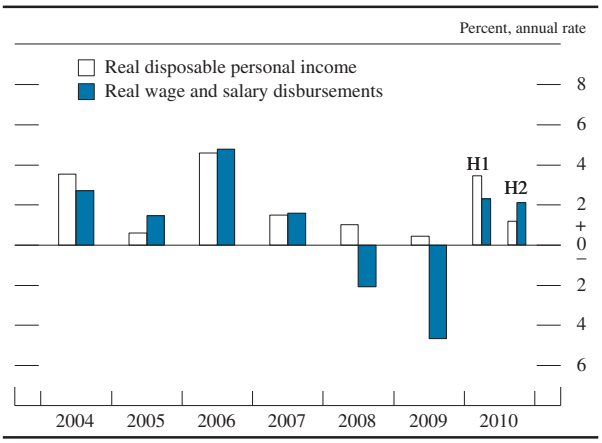
Note: The data are quarterly and extend through 2010:Q4.
Source: Department of Commerce, Bureau of Economic Analysis.

The increase in consumer outlays in the second half of 2010 partly reflected a step-up in sales of new light motor vehicles (cars, sport utility vehicles, and pickup trucks). Sales of light vehicles rose from an annual rate of 11¼ million units in the second quarter of 2010 to more than 12¼ million units in the fourth quarter and moved up further in the first part of 2011. Sales were supported, in part, by further improvements in credit conditions for auto buyers as well as by more-generous sales incentives from the automakers. Real spending in other goods categories also rose appreciably, while the increase in outlays for services was more subdued.

The determinants of consumer outlays showed further, albeit gradual, improvement during the second half of 2010. The level of real disposable personal income (DPI)—after-tax income adjusted for inflation—which rose rapidly in the first half of the year, continued to advance in the second half, as real wages and salaries moved up at an annual rate of 2 percent (figure 5). The increase in real wage and salary income reflected the continued, though tepid, recoveries in both employment and hours worked; in contrast, hourly pay was little changed in real terms.

The ratio of household net worth to DPI moved up a little in the third quarter of 2010 and appears to have risen further since then, as increases in equity values likely more than offset further declines in house prices (figure 6). Although the wealth-to-income ratio has trended up since the beginning of 2009 and has returned to the levels that prevailed prior to the late 1990s, it remains well below its highs in 2006 and 2007. Consumer sentiment rose late in the year, boosted by gradual improvements in household assessments of financial and business conditions as well as job prospects; nevertheless, these gains only moved sentiment

5. Change in real disposable personal income and in real wage and salary disbursements, 2004–10

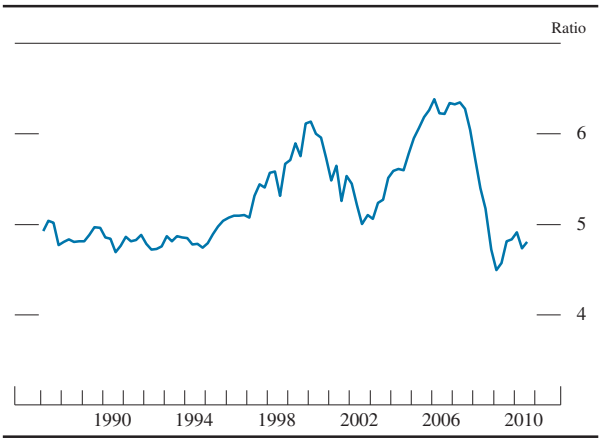


SOURCE: Department of Commerce, Bureau of Economic Analysis.

back to or a bit above the low levels that prevailed at the start of last year (figure 7).

Household debt likely fell at just under a 2 percent annual rate in the second half of 2010, a slightly slower pace than in the first half. The contraction for 2010 as a whole, which was due primarily to ongoing decreases in mortgage debt, marked the second consecutive annual decline. The reduction in overall household debt levels, combined with increases in personal income, resulted in a further decline in the ratio of household debt to income and in the debt service ratio—the required principal and interest payments on existing mortgage and consumer debt relative to income (figure 8).

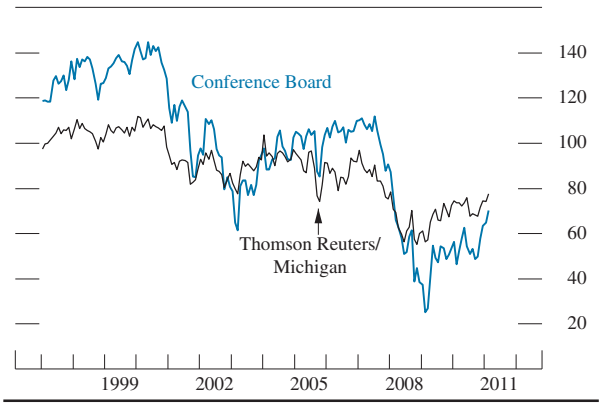
6. Wealth-to-income ratio, 1987–2010



NOTE: The data are quarterly and extend through 2010:Q3. The wealth-to-income ratio is the ratio of household net worth to disposable personal income.

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

7. Consumer sentiment indexes, 1997–2011

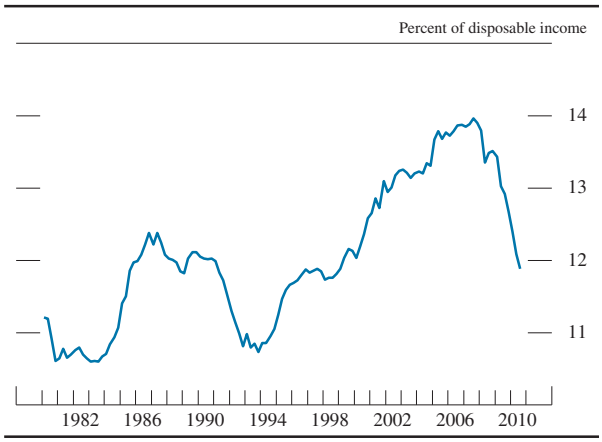


NOTE: The Conference Board data are monthly and extend through February 2011; the series is indexed to equal 100 in 1985. The Thomson Reuters/University of Michigan data are monthly and extend through February 2011; the series is indexed to equal 100 in 1966.

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

The slowdown in the rate at which household debt contracted in the latter part of 2010 stemmed in large part from a modest recovery in consumer credit. Although revolving consumer credit—mostly credit card borrowing—continued to contract, the decline was at a slightly slower rate than in the first half of the year. Nonrevolving consumer credit, which consists largely of auto and student loans and accounts for about two-thirds of total consumer credit, rose 2 percent in the second half of 2010 after being about unchanged in the first half of the year. The pickup in nonrevolving consumer credit is consistent with

8. Household debt service, 1980–2010



NOTE: The data are quarterly and extend through 2010: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.

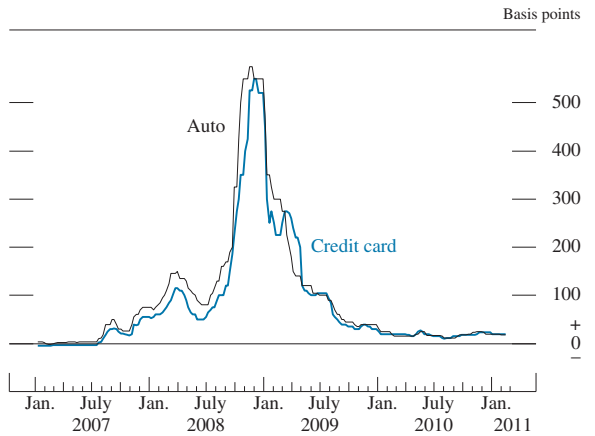
responses to the Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS) indicating that banks have become increasingly willing to make consumer installment loans; however, lending standards for these loans likely remained fairly tight.[2] In addition, in the most recent survey, a small net fraction of respondents noted increased demand for consumer loans, the first time stronger demand was reported since mid-2005.

Some of the increased willingness to make consumer loans may reflect improvements in consumer credit quality. The delinquency rate on auto loans at captive finance companies moved down in the second half of 2010 to 2.6 percent, close to its longer-run historical average. Delinquency rates on credit cards at commercial banks and in securitized pools also moved down to around longer-run averages. However, charge-off rates on such loans remained well above historical norms despite having moved lower in the second half of the year.

Changes in interest rates on consumer loans were mixed. Interest rates on new auto loans were little changed, on net, in the second half of 2010 and into 2011. By contrast, interest rates on credit cards generally rose over the same period. A portion of the increase in credit card interest rates may be due to lingering adjustments by banks to the imposition of new rules under the Credit Card Accountability Responsibility and Disclosure Act (Credit Card Act).[3]

Issuance of consumer asset-backed securities (ABS) in the second half of 2010 occurred at about the same pace as in the first half of the year. Auto loan ABS issuance continued to be healthy, and the ability to securitize these loans likely held down interest rates on the underlying loans. Issuance of ABS backed by credit card loans, however, remained very weak, as the sharp contraction in credit card lending limited the need for new funding and accounting rule changes implemented at the beginning of 2010 made securitization of these loans less attractive.[4] Yields on ABS securities and the spreads of such yields over comparable-maturity interest rate swap rates were not much changed, on net, over the second half of 2010 and early 2011 (figure 9).

9. Spreads of asset-backed securities yields over rates on comparable-maturity interest rate swaps, 2007–11



NOTE: The data are weekly and extend through February 16, 2011. The spreads shown are the yields on two-year fixed-rate asset-backed securities less rates on two-year interest rate swaps.
SOURCE: JPMorgan Chase & Co.

Residential Investment and Housing Finance

Housing activity remained depressed in the second half of 2010. Homebuilding continues to be restrained by sluggish demand, the large inventory of foreclosed or distressed properties on the market, and the tight credit conditions faced by homebuilders. In the single-family sector, new units were started at an average annual rate of about 430,000 units from July 2010 to January 2011, just 70,000 units above the quarterly low reached in the first quarter of 2009 (figure 10). In the multifamily market, demand for apartments appears to be increasing and occupancy rates have been edging up, as some potential homebuyers may be choosing to rent rather than to purchase a home. Nevertheless, the inventory of unoccupied multifamily units continues to be elevated, and construction financing remains tight. As a result, starts in the multifamily sector have averaged an annual rate of only 135,000 units since the middle of 2010, well below the 300,000-unit rate that had prevailed for much of the previous decade.

Home sales surged in the spring ahead of the expiration of the homebuyer tax credit, plunged for a few months during a payback period, and then recovered somewhat as the payback effect waned.[5] By late 2010

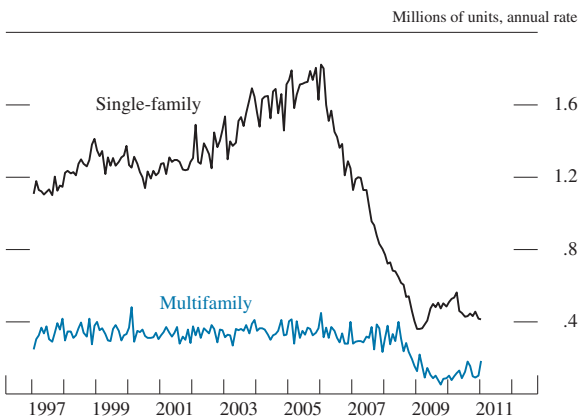
2. The SLOOS is available on the Federal Reserve Board's website at www.federalreserve.gov/boarddocs/SnLoanSurvey.

3. The Credit Card Act includes some provisions that place restrictions on issuers' ability to impose certain fees and to engage in risk-based pricing.

4. In June 2009, the Financial Accounting Standards Board (FASB) published Statements of Financial Accounting Standards Nos. 166 (*Accounting for Transfers of Financial Assets, an Amendment of FASB Statement No. 140*) and 167 (*Amendments to FASB Interpretation No. 46(R)*). The statements became effective at the start of a company's first fiscal year beginning after November 15, 2009, or, for companies reporting earnings on a calendar-year basis, after January 1, 2010.

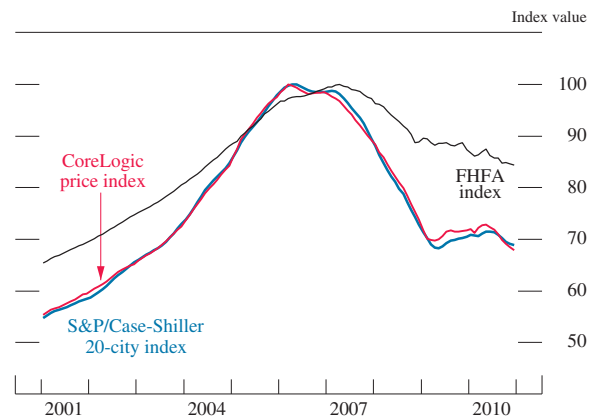
5. In order to receive the homebuyer tax credit, a purchaser had to sign a sales agreement by the end of April 2010 and close on the

10. Private housing starts, 1997–2011



NOTE: The data are monthly and extend through January 2011.
SOURCE: Department of Commerce, Bureau of the Census.

11. Prices of existing single-family houses, 2001–10



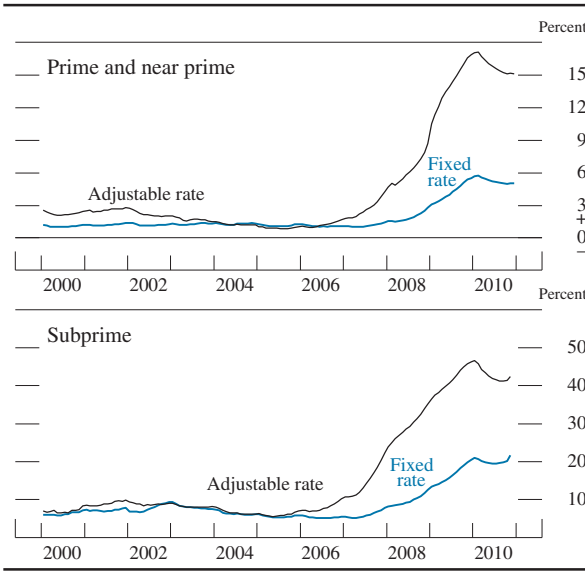
NOTE: The data are monthly and extend into 2010:Q4. Each index has been normalized so that its peak is 100. Both the CoreLogic price index and the FHFA index (formerly calculated by the Office of Federal Housing Enterprise Oversight) include purchase transactions only. The S&P/Case-Shiller index reflects 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.

and early 2011, sales of existing single-family homes were a bit above levels that prevailed in mid-2009, before the enactment of the first homebuyer tax credit, while sales of new single-family homes remained below their mid-2009 levels. Housing demand has been held back by tight mortgage credit availability, uncertainty about future real estate values, and continued household concerns about the outlook for employment and income. Nonetheless, other determinants of housing demand are favorable and hold the potential to provide support to home sales as the economic recovery proceeds. In particular, the low level of mortgage rates and the earlier declines in house prices have made housing more affordable for those able to obtain mortgages.

House prices, as measured by several national indexes, decreased in the latter half of 2010 after having shown tentative signs of leveling off earlier in the year (figure 11). According to one measure with wide geographic coverage—the CoreLogic repeat-sales index—house prices fell 6 percent between June and December and moved below their mid-2009 trough. House prices continued to be weighed down by the large inventory of unsold homes—especially distressed properties—and by the sluggish demand for housing.

Indicators of credit quality in this sector pointed to continued difficulties amid depressed home values and elevated unemployment. Serious delinquency rates on prime and near-prime mortgages edged down to around 15 percent for adjustable-rate loans and to about 5 percent for fixed-rate loans—levels that remain high by historical standards (figure 12). Delinquency rates for subprime mortgages moved up slightly toward the end of the year and remained extremely elevated. One sign of improvement, however, was that the rate at which mortgages transitioned from being current to

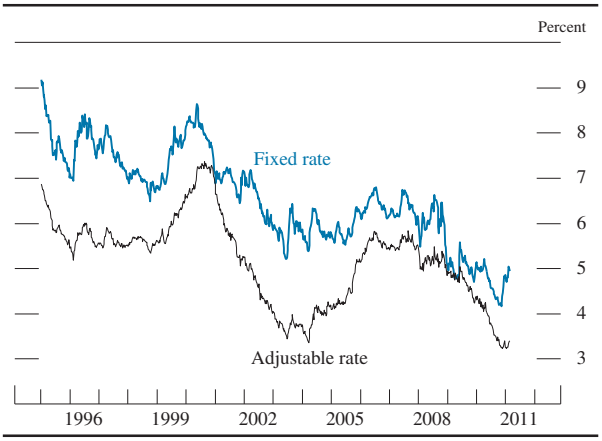
12. Mortgage delinquency rates, 2000–10



NOTE: The data are monthly and extend through December 2010. Delinquency rate is the percent of loans 90 days or more past due or in foreclosure.
SOURCE: For prime and near prime, LPS Applied Analytics; for subprime, CoreLogic.

property by the end of September. The first-time homebuyer tax credit, which was enacted in February 2009 as part of the American Recovery and Reinvestment Act, was originally scheduled to expire on November 30, 2009. Shortly before it expired, the Congress extended the credit to sales occurring through April 30, 2010, and expanded it to include repeat homebuyers who had owned and occupied a house for at least five of the past eight years. Sales of existing homes are measured at closing, while sales of new homes are measured at the time the contract is signed.

13. Mortgage interest rates, 1995–2011



NOTE: The data, which are weekly and extend through February 23, 2011, are contract rates on 30-year mortgages.
SOURCE: Federal Home Loan Mortgage Corporation.

being newly delinquent trended lower toward the end of 2010.

Reflecting the ongoing credit quality issues, the number of homes that entered foreclosure in the third quarter of 2010 jumped to more than 700,000, well above the pace seen earlier in the year. Late in the third quarter, concerns about the mishandling of documentation led some institutions to temporarily suspend some or all of their foreclosure proceedings.[6] Despite these announced moratoriums, the pace of new foreclosures dipped only slightly in the fourth quarter. Moreover, these moratoriums will likely only extend, and not put an end to, the foreclosure process in most cases.

Interest rates on fixed-rate mortgages remained quite low, on net, by historical standards during the second half of 2010 and reached record lows in the fourth quarter (figure 13). The very low levels of mortgage rates prompted a sizable pickup in refinancing activity for a time, although some households were unable to refinance because of depressed home values, weak credit scores, and tight lending standards for mortgages. Mortgage applications for home purchases were generally subdued in the second half of the year. Overall, mortgage debt outstanding likely declined in the second half of 2010 at a pace only slightly slower than that of the first half.

Net issuance of mortgage-backed securities (MBS) guaranteed by Fannie Mae, Freddie Mac, and Ginnie Mae was fairly low in the second half of 2010, consistent with the subdued originations of mortgages used to finance home purchases. The securitization market for mortgage loans not guaranteed by a housing-related government-sponsored enterprise (GSE) or the Federal Housing Administration remained essentially closed.

The Business Sector

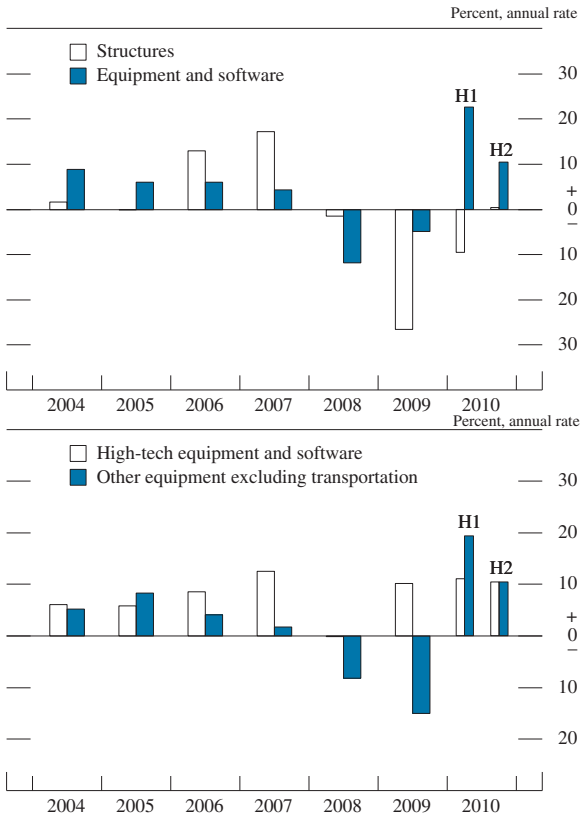
Fixed Investment

Real business spending on equipment and software, which surged in the first half of 2010, rose further in the second half (figure 14). Firms were likely motivated partly by a desire to replace aging equipment and to undertake capital spending that had been deferred during the recession. Improving business prospects also appear to have been a factor boosting capital expenditures. As a group, large firms continue to have ample internal funds, and those with access to capital markets generally have been able to obtain bond financing at favorable terms. Although credit availability for smaller firms and other bank-dependent businesses remains constricted, some tentative signs of easing lending standards have emerged.

Overall spending on equipment and software rose at an annual rate of about 10 percent in the second half of 2010. Although business outlays in the volatile transportation equipment category plunged in the fourth quarter, that decline came in the wake of several quarters of sharp increases when vehicle rental firms were rebuilding their fleets of cars and light trucks. Meanwhile, spending on information technology (IT) capital—computers, software, and communications equipment—increased appreciably throughout the second half. Gains were apparently spurred by outlays to replace older, less-efficient IT capital as well as continued investments by wireless service providers to upgrade their networks. In addition, spending increases for equipment other than transportation and IT—nearly one-half of total equipment outlays—were well maintained and broad based. More recently, new orders for nondefense capital goods other than transportation and IT items were little changed, on net, in

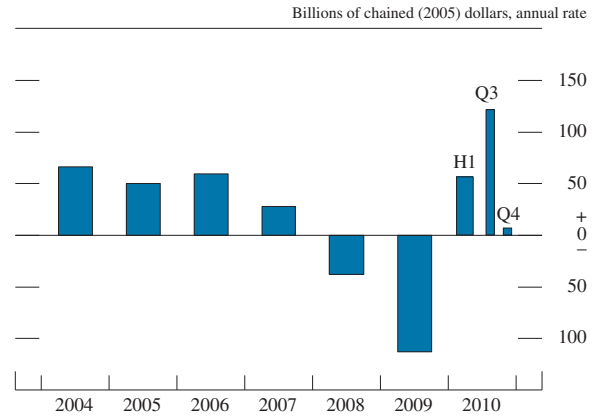
6. The Federal Reserve, the Office of the Comptroller of the Currency, the Office of Thrift Supervision, and the Federal Deposit Insurance Corporation are conducting an in-depth interagency review of practices at the largest mortgage servicing operations to examine foreclosure practices generally, but with an emphasis on the breakdowns that led to inaccurate affidavits and other questionable legal documents being used in the foreclosure process. See Elizabeth A. Duke (2010), "Foreclosure Documentation Issues," statement before the Financial Services Subcommittee on Housing and Community Opportunity, U.S. House of Representatives, November 18, www.federalreserve.gov/newsevents/testimony/duke20101118a.htm.

14. Change in real business fixed investment, 2004–10



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

15. Change in real business inventories, 2004–10



SOURCE: Department of Commerce, Bureau of Economic Analysis.

December and January; however, the level of orders remains above shipments, and business surveys suggest that respondents are upbeat about business conditions as well as their equipment spending plans.

Real spending on nonresidential structures other than those used for drilling and mining remained depressed, with the level of investment at the end of 2010 down almost 40 percent from its peak in early 2008. However, the rate of decline appears to be abating: Spending fell at an annual rate of nearly 10 percent in the second half of 2010 after plunging at a 25 percent rate in the first half. Although outlays for new power facilities jumped in the second half of the year, construction of office buildings, commercial structures, and manufacturing plants all moved down further. A large overhang of vacant space, depressed property prices, and an unwillingness of banks to add to their already high construction loan exposure still weighed heavily on the sector. In contrast, spending on drilling and mining structures continued to rise sharply in response to elevated energy prices.

Inventory Investment

Stockbuilding continued in the second half of 2010 at an average pace about in line with the growth of final sales (figure 15). Inventory investment surged in the third quarter, but the pace of accumulation slowed sharply in the fourth quarter, with the swing magnified by developments in the motor vehicle sector. Vehicle stocks rose appreciably in the third quarter as dealers attempted to rebuild inventories that had become depleted earlier in year, but inventories fell in the fourth quarter as auto sales moved up more rapidly than expected near the end of the year. As for other items aside from motor vehicles, inventory investment rose during the second half of the year, albeit more rapidly in the third quarter than in the fourth. The inventory-to-sales ratios for most industries covered by the Census Bureau's book-value data, which had risen significantly in 2009, have moved back to levels that prevailed before the recession, and surveys suggest that inventory positions for most businesses generally are in a comfortable range.

Corporate Profits and Business Finance

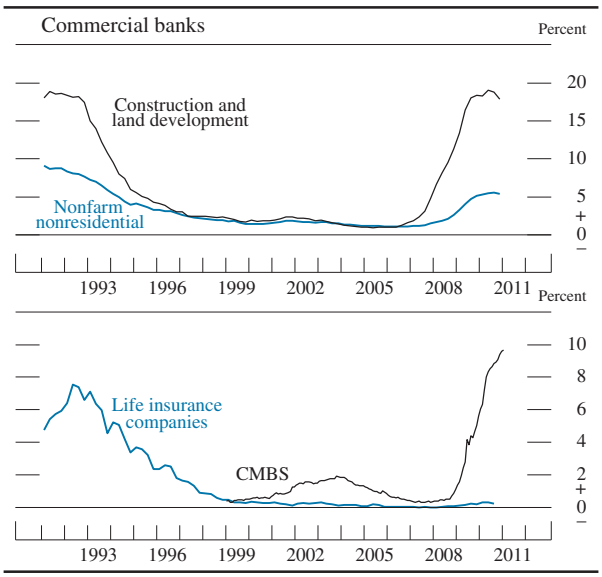
Operating earnings per share for S&P 500 firms continued to increase at a solid pace in the third and fourth quarters of 2010. Most industry groups reported gains. In aggregate, earnings per share climbed to near the levels posted in mid-2007, just prior to the financial crisis.

The already sturdy credit quality of nonfinancial corporations improved further in the second half of 2010. The aggregate debt-to-asset ratio, which provides

an indication of corporate leverage, moved down in the third quarter, as nonfinancial corporations increased their assets by more than they increased their debt. Credit rating upgrades again outpaced downgrades and corporate bond defaults remained sparse. The delinquency rate on commercial and industrial (C&I) loans at commercial banks moved down in the second half of 2010 to 3 percent. By contrast, with fundamentals remaining weak, delinquency and charge-off rates on commercial real estate (CRE) loans at commercial banks decreased only modestly from quite elevated levels (figure 16). Moreover, the delinquency rate on CRE loans in securitized pools continued to rise sharply.

Borrowing by nonfinancial corporations continued at a robust pace in the second half of 2010, driven by good corporate credit quality, attractive financing conditions, and an improving economic outlook (figure 17). Issuance of corporate bonds was heavy for both investment-grade and high-yield issues. Borrowing in the syndicated loan market was also sizable, particularly by speculative-grade borrowers, with the dollar volume of such loans rebounding sharply from the low levels seen in 2008 and 2009 (not shown in figure).

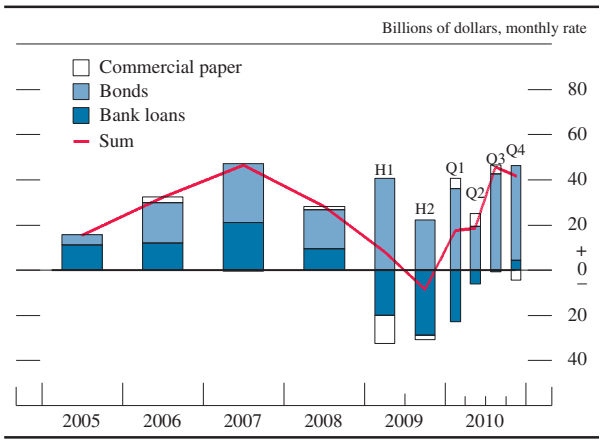
16. Delinquency rates on commercial real estate loans, 1991–2011



NOTE: The data for commercial banks and life insurance companies are quarterly and extend through 2010:Q4 and 2010:Q3, respectively. The data for commercial mortgage-backed securities (CMBS) are monthly and extend through January 2011. The delinquency rates for commercial banks and CMBS are the percent of loans 30 days or more past due or not accruing interest. The delinquency rate for life insurance companies is the percent of loans 60 days or more past due or not accruing interest.

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

17. Selected components of net financing for nonfinancial businesses, 2005–10

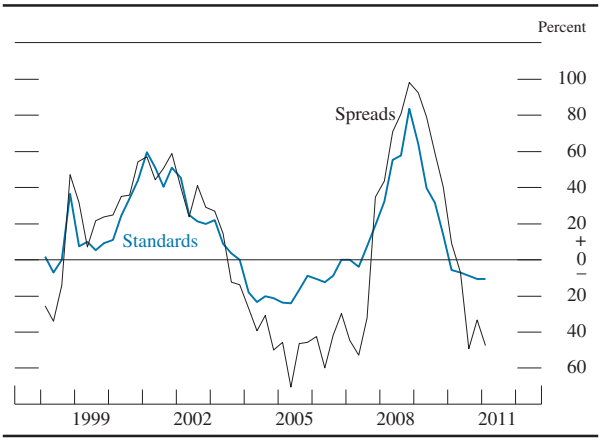


NOTE: The data for the components except bonds are seasonally adjusted.
SOURCE: Federal Reserve Board, flow of funds data.

Demand for such loans from institutional investors was strong. Some of the strength in debt origination was reportedly due to corporations taking advantage of low interest rates to reduce debt service costs and extend maturities by refinancing; issuance to finance mergers and acquisitions also reportedly picked up in the second half of the year. Meanwhile, commercial paper outstanding remained about flat. C&I loans on banks' books decreased during the third quarter but started expanding toward the end of the year, consistent with responses to the January 2011 SLOOS that reported some easing of standards and terms and some firming of demand for C&I loans from large firms over the previous three months. Relatively large fractions of respondents to the most recent survey indicated that they narrowed the spread of C&I loan rates over their cost of funds somewhat further during the second half of 2010 (figure 18). Nevertheless, lending standards reportedly remained tight; about one-half of the respondents to special questions included in the October 2010 survey indicated that their lending standards on C&I loans were tighter than longer-run averages and were likely to remain so until at least 2012.

Borrowing conditions for small businesses continued to be tighter than for larger firms, although some signs of easing began to emerge. In particular, surveys conducted by the National Federation of Independent Business (NFIB) showed a gradual decline in the share of respondents reporting that credit was more difficult to obtain than three months previously (figure 19). Similarly, in the past several surveys, moderate net fractions of SLOOS respondents have indicated that banks have eased some loan terms for smaller borrow-

18. Net percentage of domestic banks tightening standards and widening spreads over the banks' cost of funds for large and medium-sized business borrowers, 1998–2011



NOTE: The data are drawn from a survey generally conducted four times per year; the last observation is from the January 2011 survey, which covers 2010:Q4. Net percentage is the percentage of banks reporting a tightening of standards or a widening of spreads less the percentage reporting an easing or a narrowing. The definition for firm size suggested for, and generally used by, survey respondents is that large and medium-sized firms have annual sales of $50 million or more.

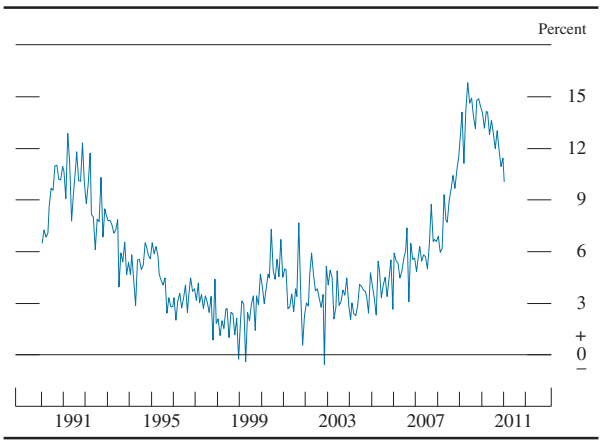
SOURCE: Federal Reserve Board, Senior Loan Officer Opinion Survey on Bank Lending Practices.

ers. Judging from responses to both the NFIB survey and the SLOOS, loan demand by small businesses remained subdued.

Banks' holdings of CRE loans continued to contract fairly sharply throughout the second half of 2010. Overall commercial mortgage debt declined at an annual rate of 6 percent in the third quarter, about the same pace as in the previous quarter. Responses to the January SLOOS suggest that banks have not yet started reversing their tight lending standards in this sector and that demand, while starting to pick up, likely remained weak. Despite the strains in CRE markets, the commercial mortgage-backed securities (CMBS) market showed tentative signs of improvement in the second half of 2010 and early 2011. Prices for some of the more highly rated tranches of existing CMBS rose. Although issuance of new securities remained tepid, the pace has been picking up. Responses to special questions on the September Senior Credit Officer Opinion Survey on Dealer Financing Terms (SCOOS) indicated that demand for warehousing of CRE loans for securitization had increased since the beginning of 2010, and that the willingness to fund CRE loans on an interim basis had increased somewhat.

A substantial number of initial and secondary equity offerings for nonfinancial firms were brought to market in the second half of 2010. Deals included an initial public offering by General Motors that was used to repay a portion of the government's capital infusion. Nevertheless, equity retirements in the third quarter through cash-financed mergers and acquisitions and share repurchases once again outpaced issuance; preliminary data for the fourth quarter (not shown) suggest a similar pattern (figure 20).

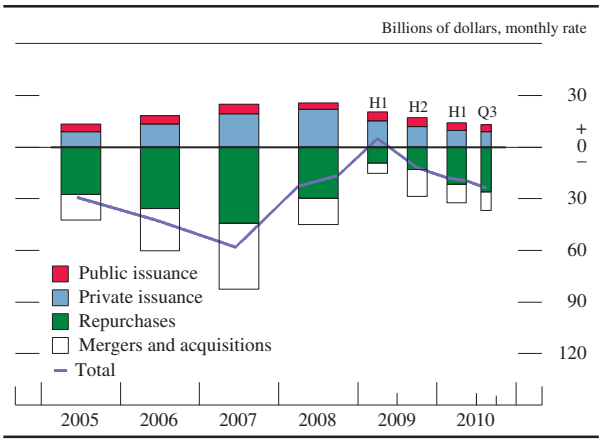
19. Net percentage of small businesses that reported more difficulty in obtaining credit, 1990–2011



NOTE: The data are drawn from a survey conducted monthly and are seasonally adjusted; the last observation is from the January 2011 survey, which covers December 2010. The data reflect the proportion of borrowers who sought credit in the past three months that reported more difficulty in obtaining credit less the proportion that reported more ease in obtaining credit.

SOURCE: National Federation of Independent Business.

20. Components of net equity issuance, 2005–10



NOTE: The data for 2010:Q3 are estimates. Net equity issuance is the difference between equity issued by domestic companies in public or private markets and equity retired through share repurchases, domestic cash-financed mergers, or foreign takeovers of U.S. firms. Equity issuance includes funds invested by private equity partnerships and stock option proceeds.

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

The Government Sector

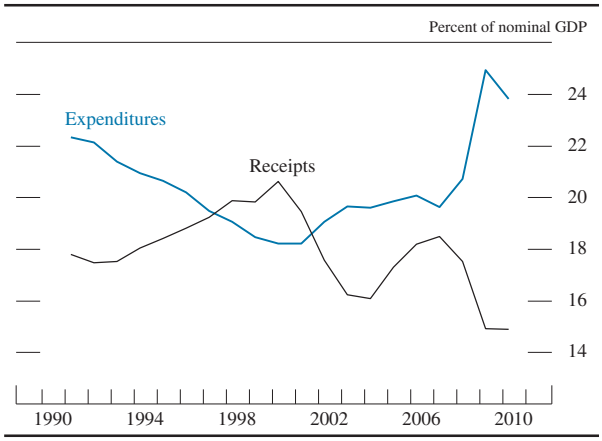
Federal Government

The deficit in the federal unified budget has remained very wide. The budget deficit for fiscal year 2010, although down somewhat from fiscal 2009, was $1.3 trillion. The fiscal 2010 figure was equal to 8¾ percent of nominal GDP, substantially above the average value of 2 percent recorded during the three-year period prior to the onset of the recession. The budget deficit continued to be boosted by spending commitments from the American Recovery and Reinvestment Act (ARRA) and other stimulus policy actions and by the weakness of the economy, which has reduced tax revenues and boosted payments for income support. By contrast, the budget effects of several financial transactions reduced the deficit in 2010: Outlays related to the Troubled Asset Relief Program (TARP), which added significantly to the deficit in 2009, helped to shrink the deficit in 2010 as estimated losses were revised down when many of the larger TARP recipients repaid their obligations to the Treasury; in addition, new assistance for the mortgage-related GSEs was extended at a slower pace, and depository institutions prepaid three years' worth of federal deposit insurance premiums. Moreover, the nascent recovery in the economy led to a small increase in revenues. The deficit is projected by the Congressional Budget Office to widen in fiscal 2011 to a level similar to the shortfall recorded in fiscal 2009.

Despite increasing 3 percent in fiscal 2010, tax receipts remained at very low levels; indeed, at less than 15 percent of GDP, the ratio of receipts to national income was at its lowest level in 60 years (figure 21). Corporate income taxes surged nearly 40 percent in fiscal 2010 as profits increased briskly, and Federal Reserve remittances to the Treasury rose markedly owing to the expansion of its balance sheet. By contrast, despite rising household incomes, individual income and payroll taxes moved down in fiscal 2010, reflecting the tax cuts put in place by the ARRA. Total tax receipts increased nearly 10 percent over the first four months of fiscal 2011 relative to the comparable year-earlier period; individual income and payroll taxes turned up, a consequence of the further recovery in household incomes, and corporate income taxes continued to rise.

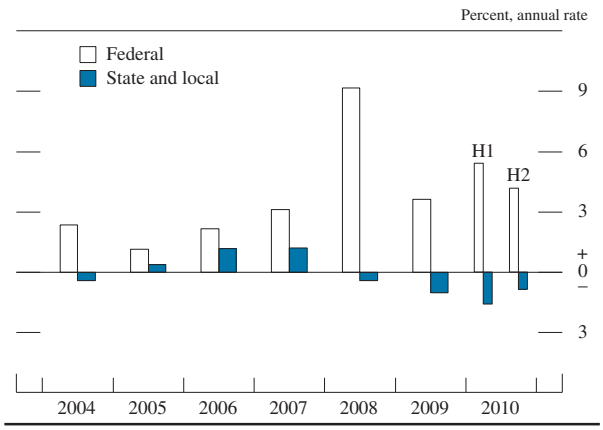
Outlays decreased 2 percent in fiscal 2010, a development attributable to financial transactions. Excluding financial transactions, spending rose 9 percent compared with fiscal 2009, mainly because of the effects of the weak labor market on outlays for income support programs (such as unemployment insurance and food stamps) as well as increases in Medicaid expenditures and spending associated with the ARRA and other stimulus-related policies. Net interest payments rose 5 percent in fiscal 2010, and Social Security spending increased 3½ percent—its smallest rise in 11 years—as the low rate of consumer price inflation in the previous year resulted in no cost of living adjustment. In the first four months of fiscal 2011, total federal outlays rose nearly 5 percent relative to the comparable year-earlier period. Excluding financial transactions, outlays were up about 1 percent. The relatively small increase so far this fiscal year for outlays excluding financial transactions reflects a flattening out of ARRA spending and income support pay-

21. Federal receipts and expenditures, 1990–2010



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

22. Change in real government expenditures on consumption and investment, 2004–10



SOURCE: Department of Commerce, Bureau of Economic Analysis.

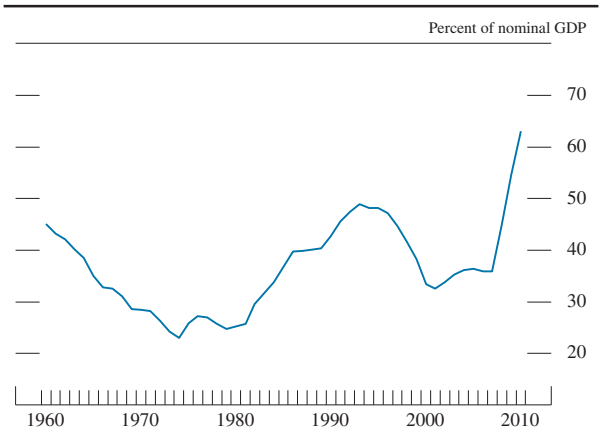
ments; by contrast, other spending has been increasing at rates comparable to those recorded during fiscal 2010.

As measured in the national income and product accounts (NIPA), real federal expenditures on consumption and gross investment—the part of federal spending that is a direct component of GDP—rose at an annual rate of about 4 percent in the second half of 2010, a bit less than in the first half of the year (figure 22). Nondefense outlays increased more slowly than in the first half of the year—when spending for the decennial census ramped up—while defense spending rose at roughly the same pace as in the first half.

Federal Borrowing

Federal debt expanded appreciably in the second half of last year, though at a slightly slower pace than in the first half. The ratio of Federal debt held by the public to nominal GDP rose to more than 60 percent at the end of 2010 and is projected to reach nearly 70 percent by the end of 2011 (figure 23). Demand for Treasury securities has been well maintained. Bid-to-cover ratios at auctions, although somewhat mixed, were generally within historical ranges during the second half of 2010 and early 2011. Indicators of foreign participation at auctions as well as a rise in foreign custody holdings of Treasury securities by the Federal Reserve Bank of New York pointed to steady demand from abroad. Demand for these securities may have been supported by a heightened desire for relatively safe and liquid assets in light of fiscal troubles in some European countries.

23. Federal government debt held by the public, 1960–2010



NOTE: The data for debt are as of year-end; the observation for 2010 is an estimate. 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: Federal Reserve Board, flow of funds data.

State and Local Government

Despite the substantial federal aid provided by the ARRA, state and local governments remained under significant fiscal pressure in the second half of 2010. The strains reflect several factors, including a sharp drop in tax revenues in late 2008 and 2009 and increased commitments for Medicaid outlays—a cyclically sensitive transfer program—all in the context of balanced budget requirements. To address their budget shortfalls, these governments have been paring back operating expenditures. Indeed, real consumption expenditures of state and local governments, as measured in the NIPA, fell about 1 percent in 2010 after decreasing a similar amount in 2009. The weakness in spending was reflected in the continued reductions in payrolls. Total employment of state and local governments fell 250,000 during 2010, with nearly all of the cutbacks at the local level. Construction spending undertaken by these governments was volatile during 2010 but, on net, was down a bit for the year and remained below the level that prevailed before the recession despite the infrastructure grants provided by the federal government as part of the ARRA. While most capital expenditures are not subject to balanced budget requirements, some of these expenditures are funded out of operating budgets subject to these requirements. In addition, a substantial share of debt service payments on the bonds used to finance capital projects is made out of operating budgets—a factor that may be limiting the willingness of governments to undertake some new infrastructure projects.

With overall economic activity recovering, state government revenues from income, business, and sales taxes rose in the second half of 2010. Nevertheless, state tax collections remain well below their prerecession levels, and available balances in reserve funds are low. Tax collections at the local level have fared relatively better. In particular, some localities appear to have adjusted statutory tax rates so that declining real estate assessments, which typically significantly lag market prices, are holding down property tax revenues by less than they otherwise would. However, many localities have seen sharp cutbacks in their grants-in-aid from state governments, and thus have experienced significant fiscal pressures. State and local governments will continue to face considerable budget strains, in part because federal stimulus grants will be winding down. Moreover, many state and local governments

will need to set aside additional resources in coming years both to meet their pension obligations and to pay for health benefits provided to their retired employees.

State and Local Government Borrowing

Issuance of securities by state and local governments was robust during the latter half of 2010; it surged near the end of the year as state governments sought to take advantage of the Build America Bond program before the program expired.[7] Issuance of short-term municipal securities was also strong.

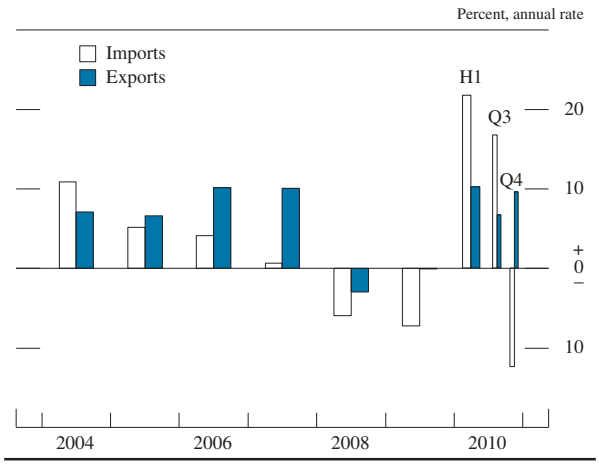
Yields on state and local government bonds rose noticeably more than those on comparable-maturity Treasury securities in the second half of 2010 and early 2011. The rise in yields on municipal securities may have reflected increased concerns about the fiscal position and financial health of state and local governments, although the heavy supply of these securities coming to market likely also played a role. Spreads on credit default swaps for some states remained volatile but narrowed, on net, from their peak levels last summer. Downgrades of the credit ratings of state and local governments continued to outpace upgrades during the second half of 2010. Nonetheless, the pace of actual defaults on municipal issues continued to come down from its peak in 2008. In recent months, there were substantial outflows from long-term mutual funds that invest in municipal bonds.

The External Sector

Supported by the expansion of foreign economic activity, real exports of goods and services continued to increase at a solid pace in the second half of 2010, rising at an annual rate of 8¼ percent (figure 24). Nearly all major categories of exports rose, with exports of machinery, agricultural goods, and services registering the largest gains. Moreover, the increase in export demand was broad based across trading partners.

Real imports of goods and services decelerated considerably in the second half of 2010, increasing at an annual rate of only 1¼ percent after surging more than 20 percent during the first half of last year. The sharp step-down partly reflected an unusually large decline in real oil imports, but more important, the growth in non-oil imports moderated to a pace more in line with

24. Change in real imports and exports of goods and services, 2004–10



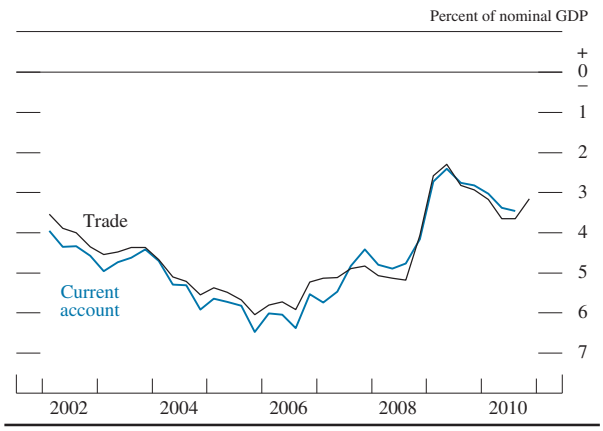
SOURCE: Department of Commerce, Bureau of Economic Analysis.

the expansion in U.S. economic activity. During the second half of 2010, imports of consumer goods, machinery, and services posted the largest increases. As with exports, the increase in imports occurred across a wide range of trading partners.

All told, net exports shaved ½ percentage point off real GDP growth last year as the rebound in imports outpaced the recovery in exports for the year as a whole. The current account deficit widened from $378 billion in 2009 to an average of $479 billion at an annual rate, or about 3¼ percent of nominal GDP, in the first three quarters of 2010 (figure 25).

The spot price of West Texas Intermediate (WTI) crude oil moved higher over the second half of the

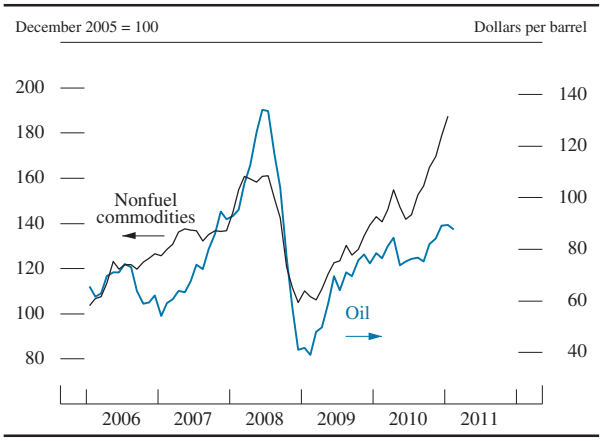
25. U.S. trade and current account balances, 2002–10



NOTE: The data are quarterly. For the trade account, the data extend through 2010:Q4; for the current account, they extend through 2010:Q3. GDP is gross domestic product.
SOURCE: Department of Commerce, Bureau of Economic Analysis.

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

26. Prices of oil and nonfuel commodities, 2006–11



NOTE: The data are monthly. The oil price is the spot price of West Texas Intermediate crude oil, and the last observation is the average for February 1–22, 2011. The price of nonfuel commodities is an index of 45 primary-commodity prices and extends through January 2011.
SOURCE: For oil, the Commodity Research Bureau; for nonfuel commodities, International Monetary Fund.

year, rising to an average of $89 per barrel in December, about $11 above the average price that prevailed over the first six months of the year (figure 26). The upward movement in oil prices during the second half of the year largely reflected a widespread strengthening in global oil demand, particularly in emerging market economies (EMEs), against a backdrop of constrained supply. The depreciation of the dollar over this period also contributed somewhat to the rise in the price of oil. Spot WTI continued to fluctuate around its December average for much of the first two months of this year but moved up sharply in late February.[8] Unrest in several Middle Eastern and North African countries, and uncertainty about its potential implications for global oil supply, has put considerable upward pressure on oil prices in recent weeks.

The price of the long-term futures contract for crude oil (expiring in December 2019) has generally fluctuated in the neighborhood of $95 per barrel over the past six months, not much different from the average over the first half of 2010, although it has moved up some recently. Accordingly, the sharply upward sloping futures curve that characterized the oil market since the onset of the financial crisis has flattened considerably. Concurrent with this flattening of the futures curve, measured global inventories of crude oil have declined in recent months, although they remain high by historical standards.

8. The prices of other grades of crude oil have risen by more over the first two months of this year as the high level of inventories accumulated at Cushing, Oklahoma, the delivery point for WTI, has depressed WTI prices.

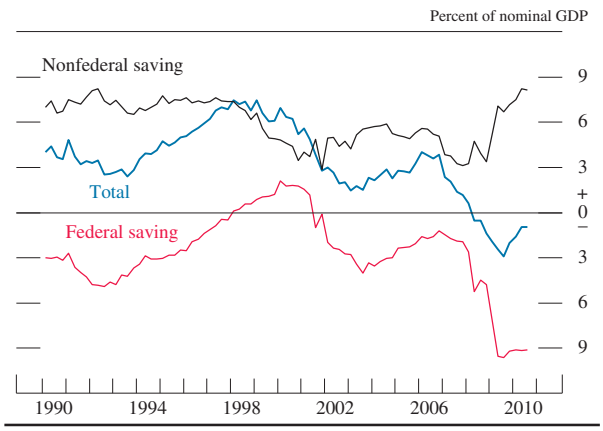
Nonfuel commodity prices also rose markedly over the second half of the year and into early 2011, with increases broad based across a variety of commodities. As with oil, these prices have been supported by strengthening global economic activity, primarily in China as well as in other EMEs, and, to a lesser extent, by the lower dollar. In addition, adverse weather conditions have reduced harvests and curtailed supplies of important agricultural products in a number of key exporting countries, including Russia, Ukraine, and the United States.

Prices of non-oil imported goods rose 1¼ percent at an annual rate over the second half of 2010 and have increased at an accelerated pace in January, boosted by higher commodity prices, the depreciation of the U.S. dollar, and foreign inflation. On net, non-oil import prices rose a bit more slowly over the second half of 2010 than in the first half and finished the year 2 percent higher than at the end of 2009.

National Saving

Total net national saving—that is, the saving of households, businesses, and governments excluding depreciation charges—remains low by historical standards (figure 27). After having reached 3¾ percent of nominal GDP in 2006, net national saving dropped steadily over the subsequent three years, reaching roughly negative 3 percent in the third quarter of 2009. The widening of the federal budget deficit during the course of the recession more than accounted for the downswing in net saving. Since late 2009, net national

27. Net saving, 1990–2010



NOTE: The data are quarterly and extend through 2010: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.

saving has moved up, reflecting a sharp rise in private saving. Nonetheless, the total averaged about negative 1 percent in the third quarter of 2010 (the latest available data), and the large federal deficit will likely keep it at low levels in the near term. Currently, real interest rates are still low despite the depressed rate of national saving. If national saving were to remain low as the economy recovers, interest rates would likely experience upward pressure, capital formation rates would likely be low, and borrowing from abroad would likely be heavy. In combination, such developments would limit the rise in the standard of living of U.S. residents and hamper the ability of the nation to meet the retirement needs of an aging population.

The Labor Market

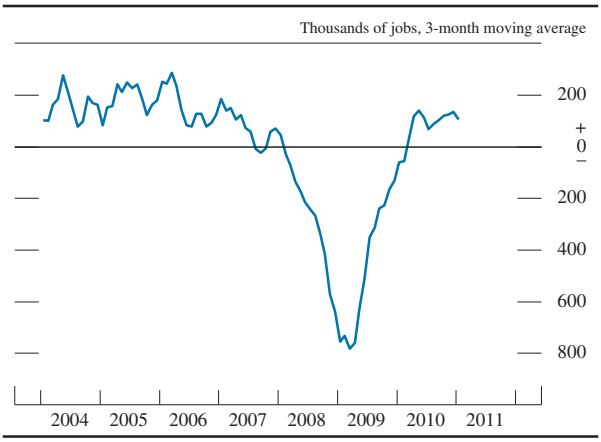
Employment and Unemployment

Conditions in the labor market have continued to improve only slowly since the middle of 2010. Private payroll employment rose just 120,000 per month, on average, over the second half of last year, and payroll employment gains remained lackluster in January of 2011 (figure 28).[9] All told, only about one-seventh of the 8¾ million jobs lost from the beginning of 2008 to the trough in private payrolls in February 2010 have been recovered. Rather than adding jobs briskly, businesses have been achieving much of their desired increases in labor input over the past year by lengthening the hours worked by their employees; indeed, by January, the average workweek had recouped more than one-half of its decrease during the recession.

For most of last year, the overall net increase in hiring was barely sufficient to accommodate the increase in the size of the labor force, and the unemployment rate remained at or above 9½ percent through November (figure 29). However, the unemployment rate is estimated to have moved down noticeably in December and January, reaching 9.0 percent—about 1 percentage point below the highest reading during this episode. The recent decline in the jobless rate is encouraging, but the extent of the improvement in underlying labor-market conditions is, as yet, difficult to judge. The level of unemployment remains very elevated, and long-duration joblessness continues to account for an espe-

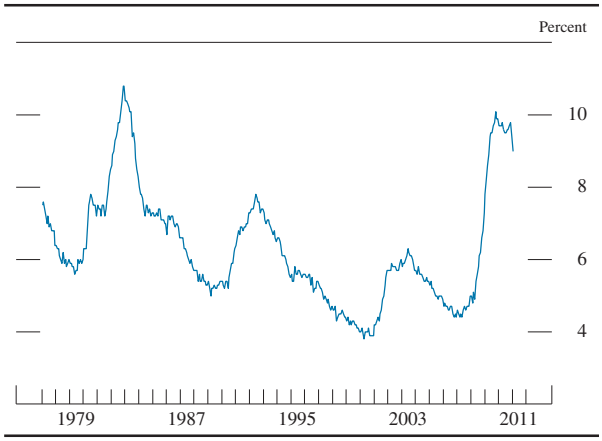
9. Total employment—private plus government—exhibited sharp swings from March 2010 to September 2010 as a result of the hiring of temporary workers for the decennial census.

28. Net change in private payroll employment, 2004–11



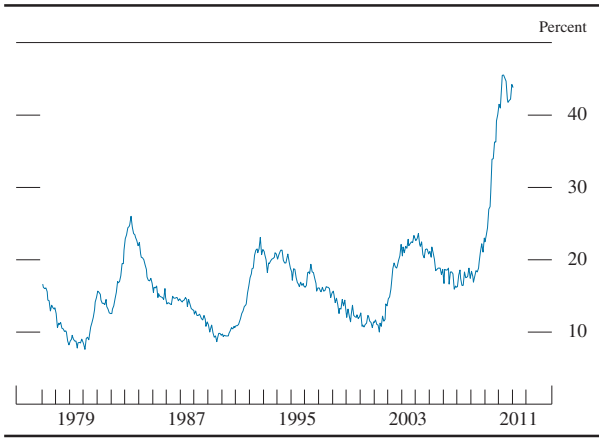
NOTE: The data are monthly and extend through January 2011.
SOURCE: Department of Labor, Bureau of Labor Statistics.

29. Civilian unemployment rate, 1977–2011



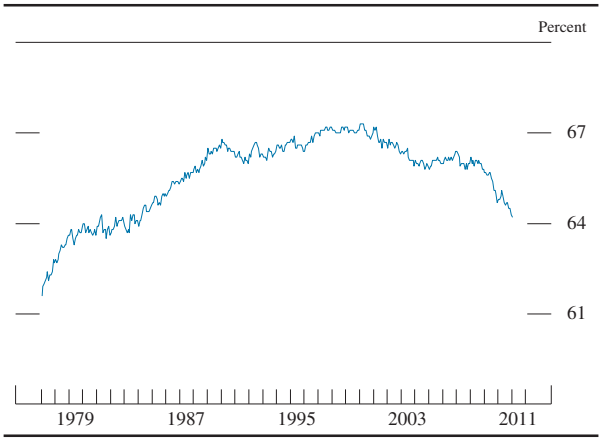
NOTE: The data are monthly and extend through January 2011.
SOURCE: Department of Labor, Bureau of Labor Statistics.

30. Long-term unemployed, 1977–2011



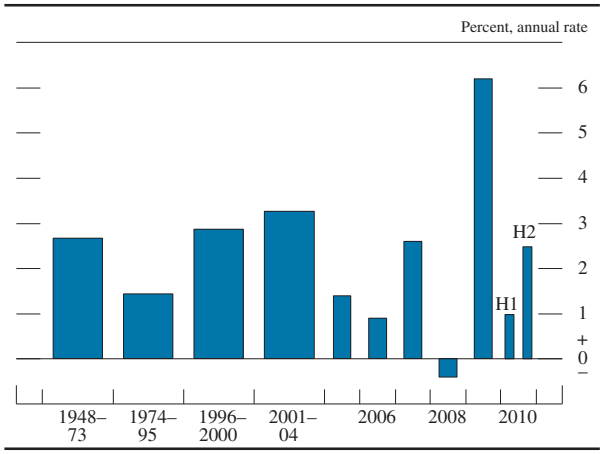
NOTE: The data are monthly and extend through January 2011. The series shown is the percentage of total unemployed persons who have been unemployed for more than 26 weeks.
SOURCE: Department of Labor, Bureau of Labor Statistics.

31. Labor force participation rate, 1977–2011



NOTE: The data are monthly and extend through January 2011.
SOURCE: Department of Labor, Bureau of Labor Statistics.

32. Change in output per hour, 1948–2010



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.

cially large share of the total. Indeed, in January, nearly 6¼ million persons among those counted as unemployed—about 44 percent of the total—had been out of work for more than six months, figures that were only a little below record levels observed in the middle of 2010 (figure 30).[10] Moreover, the number of individuals who are working part time for economic reasons—another indicator of the underutilization of labor—remained roughly twice its pre-recession value. Meanwhile, the labor force participation rate moved down further in the second half of the year (figure 31). The decline in participation was mainly concentrated among men aged 25 and over without a college degree.

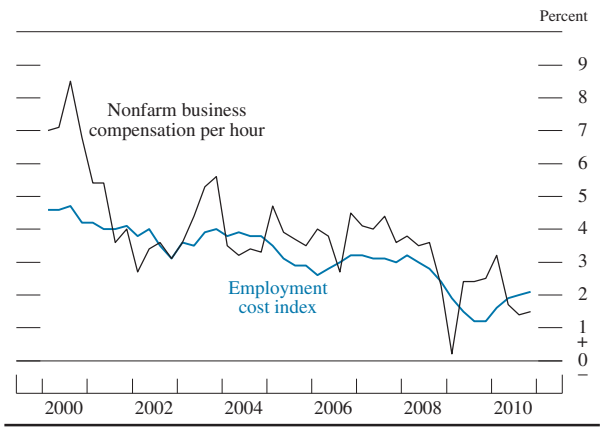
Several other indicators of labor market conditions, however, have brightened a bit recently. After showing little progress over the first half of the year, initial claims for unemployment insurance (an indicator of the pace of layoffs) generally have trended down in recent months. Moreover, survey measures of labor market expectations—such as business plans for future hiring and consumer attitudes about future labor market conditions—improved, on net, over the second half of 2010 and early this year after having softened around the middle of last year.

Productivity and Labor Compensation

Labor productivity rose further in the second half of 2010. According to the most recent published data, output per hour in the nonfarm business sector increased at an annual rate of about 2½ percent over that period (figure 32). Productivity had surged in 2009 as firms aggressively eliminated many operational inefficiencies and reduced their labor input in an environment of severe economic stress. Although the recent gains in productivity have been less rapid, firms nonetheless continue to make efforts to improve the efficiency of their operations, and they appear to remain reluctant to increase staffing levels in a climate of lingering economic uncertainty.

Increases in hourly compensation remained subdued in 2010, restrained by the wide margin of labor market slack (figure 33). The employment cost index (ECI) for

33. Measures of change in hourly compensation, 2000–10



NOTE: The data are quarterly and extend through 2010: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.

10. The data on the duration of unemployment begin in 1948.

private industry workers, which measures both wages and the cost to employers of providing benefits, rose just 2 percent in nominal terms in 2010—up from an especially small increase in 2009 but still lower than the roughly 3 percent pace averaged in the several years preceding the recession. The rise in the ECI last year reflected a pickup in the growth of benefits, after a subdued increase in 2009, and a modest acceleration in wages and salaries. Nominal compensation per hour in the nonfarm business sector—derived from the labor compensation data in the NIPA—increased only 1½ percent in 2010, well below the average gain of about 4 percent in the years before the recession. After adjusting for the rise in consumer prices, hourly compensation was little changed in 2010. Because nominal hourly compensation and labor productivity in the nonfarm business sector rose at roughly the same pace in 2010, unit labor costs were about flat last year. During the preceding year, unit labor costs had plunged 3½ percent as a result of the moderate rise in nominal hourly compensation and the sizable advance in output per hour.

Prices

Consumer price inflation has been trending downward, on net, and survey measures of longer-term inflation expectations have remained stable, despite the rapid increases in a variety of commodity prices during the second half of 2010. Overall prices for personal consumption expenditures increased 1¼ percent over the 12 months ending in January 2011, compared with a rise of 2½ percent in the preceding 12-month period (figure 2). The core PCE price index—which excludes the prices of energy items as well as those of food and beverages—increased just ¾ percent over the 12 months ending in January, down from a 1¾ percent rise over the preceding 12 months.

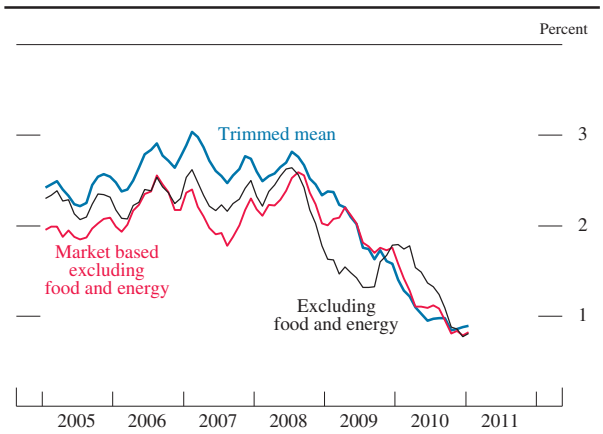
The index of consumer energy prices, which declined in the first half of 2010, rose rapidly during the second half of the year and early 2011. The index was boosted by a surge in the prices of gasoline and home heating oil, which reflected the run-up in the price of crude oil that began in late summer. In contrast, consumer natural gas prices fell as increases in supply from new domestic wells helped boost inventories above typical levels. All told, the overall index of consumer energy prices rose nearly 7 percent during the 12 months ending in January 2011.

The index of consumer food prices rose 1¾ percent over the 12 months ending in January 2011 as the prices of beef and pork posted sizable increases. The price of fruits and vegetables ran up briskly early in 2010 following a couple of damaging freezes, but these prices turned down in the second half of the year, leaving them up only slightly for the year as a whole. However, spot prices in commodity markets for crops and for livestock moved up sharply toward the end of last year, pointing to some upward pressure on consumer food prices in the first part of 2011.

The slowdown in core PCE price inflation over the past year was particularly evident in the prices of goods other than food and energy, which fell 0.6 percent over the 12 months ending in January 2011. The decline in these core goods prices occurred despite sizable increases in the prices of some industrial commodities and materials; the modest degree of pass-through from commodity input costs to retail prices reflects the relatively small weight of materials inputs in total production costs. Prices for services other than energy rose about 1¼ percent over the 12 months ending in January, down from an increase of almost 2 percent in the preceding 12 months, as the continued weakness in the housing market put downward pressure on the rise in housing costs and as the wide margin of economic slack continued to restrain price increases for other services.

The widespread slowing in inflation over the past year is also apparent in a variety of alternative indicators of the underlying trend in inflation (figure 34). These indicators include trimmed-mean price indexes, which exclude the most extreme price increases and price declines in each period, and market-based measures of core prices, which exclude prices that must be

34. Alternative measures of underlying price changes in personal consumption expenditures, 2005–11



NOTE: The data are monthly and extend through January 2011. The trimmed-mean personal consumption expenditures price index excludes the bottom 24 percent and the top 31 percent of the distribution of monthly price changes and is based on 178 components.

SOURCE: For trimmed mean, Federal Reserve Bank of Dallas; for all else, Department of Commerce, Bureau of Economic Analysis.

imputed. These imputed prices (often referred to as "nonmarket" prices) tend to be highly erratic.

Survey-based measures of near-term inflation expectations have increased in recent months, likely reflecting the recent run-up in energy and food prices; in contrast, survey-based measures of longer-term inflation expectations have remained relatively stable over the past year. In the Thomson Reuters/University of Michigan Surveys of Consumers, median year-ahead inflation remained between 2¾ percent and 3 percent for most of 2010 but then rose above 3 percent in early 2011. Longer-term expectations in the survey, at 2.9 percent in February, remained in the narrow range that has prevailed over the past few years. In the Survey of Professional Forecasters, conducted by the Federal Reserve Bank of Philadelphia, expectations for the increase in the consumer price index over the next 10 years edged down, on balance, during 2010 after having been essentially unchanged for many years.

Financial Developments

In light of the disappointing pace of the progress toward the Federal Reserve's dual objectives of maximum employment and price stability, the Federal Open Market Committee (FOMC) took steps in the second half of the year to reduce downside risk to the sustainability of the recovery and to provide further support to economic activity. At its August 2010 meeting, the FOMC decided to keep the Federal Reserve's holdings of longer-term securities constant at their then-current level by reinvesting principal payments from holdings of agency debt and agency MBS in longer-term Treasury securities. In November, the FOMC announced its intention to purchase a further $600 billion in longer-term Treasury securities by the end of the second quarter of 2011 (see box "The Effects of Federal Reserve Asset Purchases").

Financial market conditions, which had worsened early in the summer as a result of developments in Europe and concerns about the durability of the global recovery, subsequently improved as investors increasingly priced in further monetary policy accommodation. Accordingly, real Treasury yields declined, asset prices increased, and credit spreads narrowed. A brightening tone to the economic news starting in the fall bolstered investor sentiment and, together with a reassessment on the part of investors of the ultimate size of Federal Reserve Treasury purchases, contributed to a backup in interest rates and in measures of inflation compensation that continued through year-end. In contrast to the developments earlier in the year, the reemergence later in the year of concerns about the financial situation in Europe left little imprint on domestic financial markets.

Monetary Policy Expectations and Treasury Rates

In response to indications of a slowing pace of recovery in U.S. output and employment and a continued downward trend in measures of underlying inflation, expectations regarding the path for the federal funds rate during 2011 and 2012 were revised down sharply in the third quarter and investors came to anticipate further Federal Reserve asset purchases. The FOMC's decision to begin additional purchases of longer-term Treasury securities occurred against the backdrop of this downward shift in expectations about monetary policy. Subsequently, expectations regarding the ultimate size of such purchases were scaled back as the recovery appeared to strengthen, downside risks to the outlook seemed to recede somewhat, and a tax-cut deal that was seen as supportive of economic activity was passed into law.

The current target range for the federal funds rate of 0 to ¼ percent is consistent with the level that investors expected at the end of June 2010. However, the date at which monetary policy tightening is expected to commence has moved back somewhat since the time of the July 2010 *Monetary Policy Report to the Congress*. Quotes on money market futures contracts indicate that, as of late February, investors anticipate that the federal funds rate will rise above its current range in the first quarter of 2012, about a year later than the date implied in July 2010. By the end of 2012, investors expect that the effective federal funds rate will be around 1.3 percent, fairly similar to the level anticipated in mid-2010.[11]

Yields on nominal Treasury securities fluctuated considerably in the second half of 2010 and in early 2011 due to shifts in investors' expectations regarding

11. When interest rates are close to zero, determining the point at which financial market quotes indicate that the federal funds rate will move above its current range can be challenging. The path described in the text is the mean of a distribution calculated from derivatives contracts on federal funds and Eurodollars. The skewness induced in this distribution by the zero lower bound causes the mean to be influenced strongly by changes in uncertainty regarding the policy path, complicating its interpretation. Alternatively, one can use similar derivatives to calculate the most likely—or "modal"—path of the federal funds rate, which tends to be more stable. This path has also moved down, on net, since last summer, but it suggests a flatter overall trajectory for the target federal funds rate, according to which the effective rate does not rise above its current level until around the middle of 2012.

The Effects of Federal Reserve Asset Purchases

Between late 2008 and early 2010, with short-term interest rates already near zero, the Federal Reserve provided additional monetary accommodation by purchasing $1.25 trillion in agency mortgage-backed securities (MBS), about $175 billion in agency debt, and $300 billion in longer-term Treasury securities. When incoming economic data in mid-2010 suggested that the recovery might be softening, the Federal Open Market Committee (FOMC) decided to take further action to fulfill its mandated objectives of promoting maximum employment and price stability. First, the Committee decided at its August 2010 meeting to reinvest the principal payments from its holdings of agency debt and agency MBS in longer-term Treasury securities. Second, it announced in November its intention to purchase an additional $600 billion of longer-term Treasury securities by the end of the second quarter of 2011.

The theory underlying these asset purchases, which dates back to the early 1950s, posits that asset prices are affected by the outstanding quantity of assets. In some models, for example, short- and long-term assets are imperfect substitutes for one another in investors' portfolios, and the term structure of interest rates can be influenced by changes to the supply of securities at different maturities. As a result, purchases of longer-term securities by the central bank can push up the prices and drive down the yields on those securities. Asset purchases can also affect longer-term interest rates by influencing investors' expectations of the future path of short-term rates. Similarly, the effect of central bank asset purchases depends on expectations regarding the timing and pace of the eventual unwinding of the purchases. Thus, central bank communication may play a key role in influencing the response of financial markets to such a program.

Recent empirical work suggests that the Federal Reserve's asset purchase programs have indeed provided significant monetary accommodation. Studies of the responses of asset prices to announcements by the Federal Reserve regarding its first round of asset purchases have found that the purchases of Treasury securities, agency debt, and agency MBS significantly reduced the yields on those securities.[1] Similarly, analyses of the responses of asset prices to the purchases themselves also documented an effect on the prices of the acquired securities.[2] Spillover effects of the purchase programs to other financial markets, in turn, appear to have resulted in lower interest rates on corporate debt and residential mortgages and to have contributed to higher equity valuations and a somewhat lower foreign exchange value of the dollar. These effects are qualitatively similar to those that typically result from conventional monetary policy easing.

Recent research by Federal Reserve staff has provided some estimates of the magnitude of the resulting effects on the economy using the FRB/US macroeconomic model—one of the models developed by the Federal Reserve Board staff and used for policy analysis.[3] A simulation exercise suggests

1. See, for example, Joseph Gagnon, Matthew Raskin, Julie Remache, and Brian Sack (2010), "Large-Scale Asset Purchases by the Federal Reserve: Did They Work?" Federal Reserve Bank of New York Staff Reports 441 (New York: Federal Reserve Bank of New York, March); and James Hamilton and Jing (Cynthia) Wu (2010), "The Effectiveness of Alternative Monetary Policy Tools in a Zero Lower Bound Environment," working paper (San Diego: University of California, San Diego, November). Evidence of similar effects in the United Kingdom from asset purchases by the Bank of England was found by Michael Joyce, Ana Lasaosa, Ibrahim Stevens, and Matthew Tong (2010), "The Financial Market Impact of Quantitative Easing," Working Paper 393 (London: Bank of England, August).

2. See, for example, Stefania D'Amico and Thomas B. King (2010), "Flow and Stock Effects of Large-Scale Asset Treasury Purchases," Finance and Economics Discussion Series 2010–52 (Washington: Board of Governors of the Federal Reserve System, September).

3. Hess Chung, Jean-Phillipe Laforte, David Reifschneider, and John Williams (2011), "Have We Underestimated the Likelihood and Severity of Zero Lower Bound Events?" Federal Reserve Bank of San Francisco Working Paper Series 2011–01

the prospects for economic growth and the size of any asset purchase program that would be conducted by the Federal Reserve (figure 35). Recently, Treasury yields declined as investors increased their demand for the relative safety and liquidity of Treasury securities following political turmoil in the Middle East and North Africa. On net, yields on 2-year Treasury notes were up a bit from their levels in mid-2010, while those on 10-year Treasury securities rose approximately 40 basis points. Nonetheless, yields on Treasury securities remained quite low by historical standards. Uncertainty about longer-term interest rates, as measured by the implied volatility on 10-year Treasury securities, rose significantly from November to mid-December, likely in part because of increased uncertainty about the ultimate size of the Federal Reserve's asset purchase program. Interest rate uncertainty declined subsequently and by early 2011 was only a bit higher, on net, than in mid-2010, apparently reflecting coalescing market expectations regarding Federal Reserve purchases.

Measures of medium- and long-term inflation compensation derived from inflation-indexed Treasury

that the cumulative effect of the Federal Reserve's asset purchases since 2008—including the original purchases of Treasury securities, agency debt, and agency MBS; the reinvestment of principal payments; and the additional $600 billion in Treasury security purchases now intended—has been to provide significant and mounting support to economic activity over time. Although estimates of these effects are subject to considerable uncertainty, the model results suggest that the purchases have already boosted the level of real gross domestic product 1¾ percent relative to what it would have been if no such purchases had occurred, and that this effect will rise to 3 percent by 2012.[4] As a result of this stronger recovery in output, the model also suggests that by 2012 the asset purchase program will boost private employment about 3 million, and trim the unemployment rate 1½ percentage points relative to what they otherwise would be. Finally, the simulation results suggest that inflation is currently 1 percentage point higher than otherwise would have been the case if the FOMC had never initiated securities purchases, implying that, in the absence of such purchases, the economy would now be close to a state of deflation.

Although the asset purchase programs seem to have provided significant support to economic activity, some observers have noted that they are not without risk. One concern that has been voiced is that these purchase programs have increased the size of the Federal Reserve's balance sheet and could result in monetary accommodation being left in place for too long, leading to excessive inflation. However, in preparation for removing monetary accommodation, the Federal Reserve has continued to develop the tools it will need to raise short-term interest rates and drain large volumes of reserves when doing so becomes necessary to achieve the policy stance that best fosters the Federal Reserve's macroeconomic objectives.[5] Moreover, the current level of resource slack in the economy and the recent low readings on underlying inflation suggest that point is not yet near.

A second concern is that the asset purchase program could result in adverse financial imbalances if, for example, the lower level of longer-term interest rates encouraged potential borrowers to employ excessive leverage to take advantage of low financing costs or led investors to accept an imprudently small amount of compensation for bearing risk in an effort to enhance their rates of return. The Federal Reserve is carefully monitoring financial indicators, including credit flows and premiums for credit risk, for signs of potential threats to financial stability. For example, to monitor leverage provided by dealers to financial market participants, in June 2010 the Federal Reserve launched the Senior Credit Officer Opinion Survey on Dealer Financing Terms. This survey provides information on the terms on and availability of various forms of dealer-intermediated financing, including funding for securities positions. Moreover, to better monitor linkages among firms and markets that could undermine the stability of the financial system, the Federal Reserve has increased its emphasis on taking a multidisciplinary approach that integrates the contributions of economists, specialists in particular financial markets, bank supervisors, payments systems experts, and other professionals. An Office of Financial Stability Policy and Research was created within the Federal Reserve to coordinate staff efforts to identify and analyze potential risks to the financial system and broader economy.

(San Francisco: Federal Reserve Bank of San Francisco, January).

4. These effects are based on certain assumptions regarding the period assets are held and the unwinding of the purchases. These, and other, assumptions are described in more detail in Chung and others, "Zero Lower Bound Events," in box note 3.

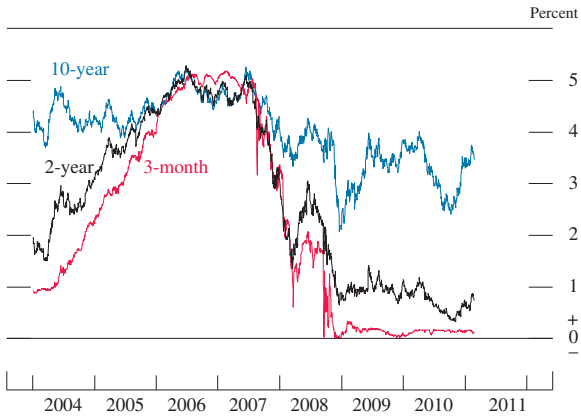
5. The ongoing development of these tools is discussed in Part 3.

bonds rose, on balance, during the second half of 2010 but remained within their historical ranges. Both medium- and long-term measures of inflation compensation fell early in the third quarter as investors grew more concerned about the durability of the economic recovery, but they then moved back up as the FOMC was seen as taking additional steps to help move inflation back toward levels more consistent with its mandate and as economic prospects improved. Rising energy prices may also have contributed to the increases in medium-term inflation compensation.

Corporate Debt and Equity Markets

During the second half of 2010 and early 2011, the spreads between the yields on investment-grade corporate bonds and those on comparable-maturity Treasury securities narrowed modestly (figure 36). Similar risk spreads on corporate bonds with below-investment-grade ratings narrowed more substantially—as much as 200 basis points. This spread compression was consistent with continued improvements in corporate credit quality as well as increased investor

35. Interest rates on selected Treasury securities, 2004–11

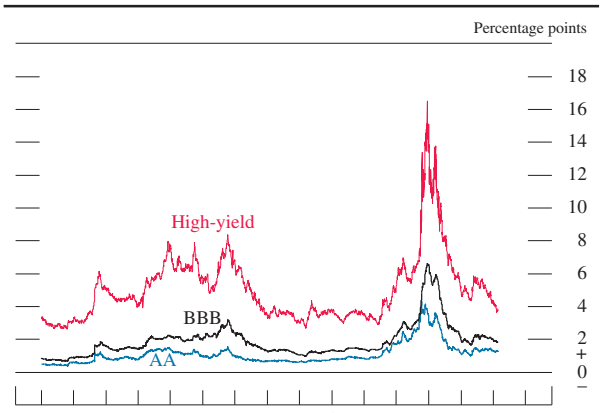


NOTE: The data are daily and extend through February 22, 2011.
SOURCE: Department of the Treasury.

confidence in the durability of the recovery. Nonetheless, bond spreads now stand near the lower end of their historical ranges. In the secondary market for syndicated leveraged loans, the average bid price moved up further, a development that reflected strong investor demand as well as improved fundamentals (figure 37). A notable share of loans traded at or above par in early 2011.

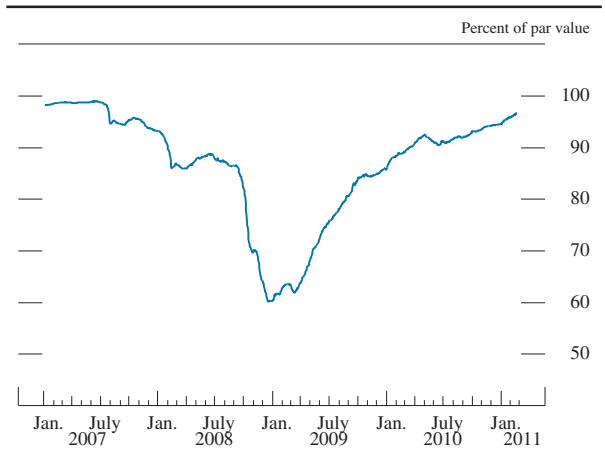
Equity prices have risen sharply since mid-2010 (figure 38). The rally began amid expectations of further monetary policy accommodation and was further supported by robust corporate earnings and an improved economic outlook. The gains in equity prices were

36. Spreads of corporate bond yields over comparable off-the-run Treasury yields, by securities rating, 1997–2011



NOTE: The data are daily and extend through February 22, 2011. 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. Secondary-market bid pricing for syndicated loans, 2007–11

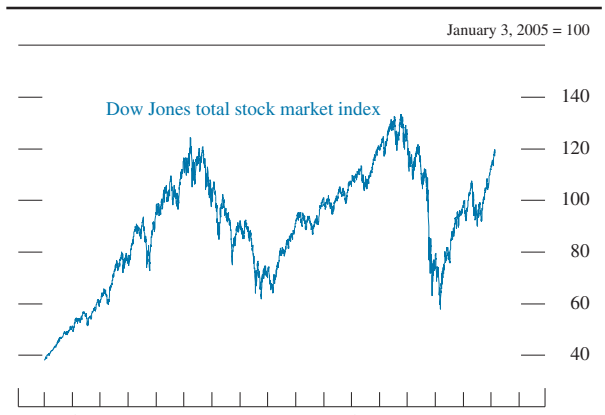


NOTE: The data are daily and extend through February 22, 2011.
SOURCE: LSTA/Thomson Reuters Mark-to-Market Pricing.

broad based. Implied volatility for the S&P 500, calculated from options prices, generally trended down in the second half of 2010 and early 2011 and reached fairly low levels, although it increased recently against a backdrop of rising political turmoil in the Middle East and North Africa (figure 39).

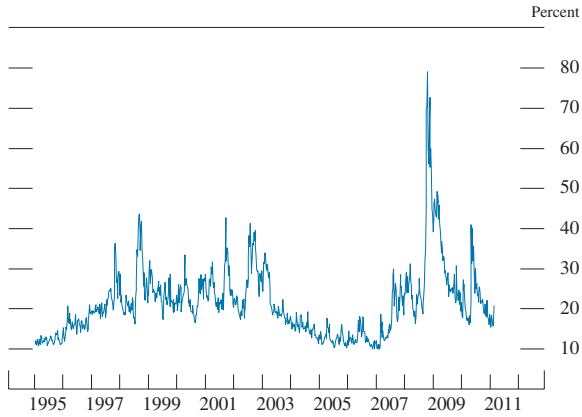
With some investors apparently seeking to boost returns in an environment of low interest rates, net inflows into mutual funds that invest in higher-yielding fixed-income instruments, including speculative-grade bonds and leveraged loans, were robust in the second half of 2010 and early 2011. These inflows likely supported strong issuance and contributed to the narrowing of bond spreads during this period. Mutual funds focusing on international debt securities also attracted

38. Stock price index, 1995–2011



NOTE: The data are daily and extend through February 22, 2011.
SOURCE: Dow Jones Indexes.

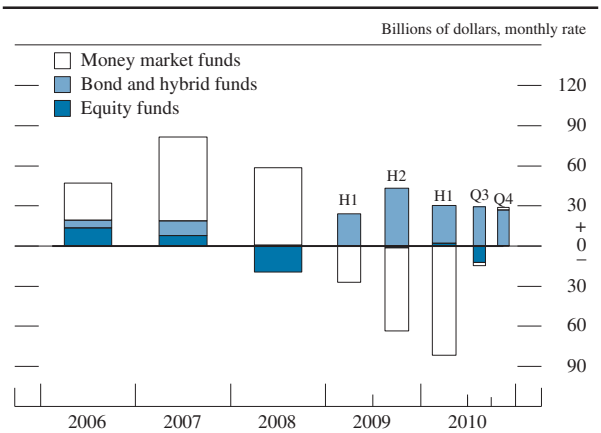
39. Implied S&P 500 volatility, 1995–2011



NOTE: The data are weekly and extend through the week ending February 25, 2011. The final observation is an estimate based on data through February 23, 2011. 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.

strong inflows. Inflows to other categories of bond funds were more modest so that overall inflows to bond funds in the second half of 2010 were similar to those in the first half of the year (figure 40). Despite the strong gains in U.S. equity markets, mutual funds investing in domestic equities experienced sizable outflows for much of the second half of last year, but these funds attracted net inflows in early 2011. Investments in money market mutual funds changed little in the second half of 2010—following notable outflows earlier in the year—as the assets held by these funds continued to generate very low yields.

40. Net flows into mutual funds, 2006–10



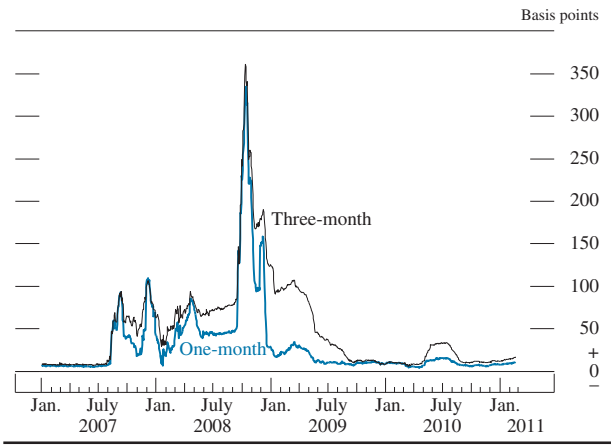
NOTE: The data exclude reinvested dividends and are not seasonally adjusted.
SOURCE: Investment Company Institute.

Market Functioning and Dealer-Intermediated Credit

Conditions in short-term funding markets, which had experienced notable strains in the spring when investors became concerned about European sovereign debt and banking issues, generally improved early in the second half of 2010. Spreads of London interbank offered rates, or Libor, over comparable-maturity overnight index swap rates—a measure of stress in short-term bank funding markets—reversed the widening observed in the spring and then remained fairly narrow despite the reemergence of concerns about the situation in Europe in the fall (figure 41). Nevertheless, amid the renewed concerns, tiering was reportedly evident in dollar funding markets abroad, as institutions located in peripheral European countries apparently faced reduced access to funding. Issuance of commercial paper in the United States by institutions headquartered in peripheral Europe declined as investors required notably higher rates to hold this paper.

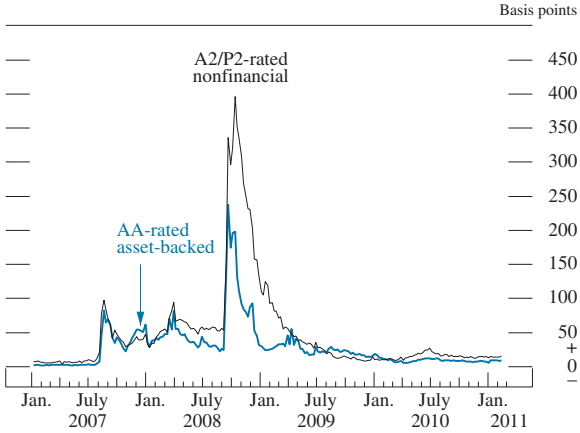
Besides these strains and some modest, short-lived year-end pressures, conditions in short-term funding markets continued to be stable. The spreads between yields on lower-quality A2/P2-rated paper and AA-rated asset-backed commercial paper over those on higher-quality AA-rated nonfinancial paper remained narrow through the fall and into 2011 (figure 42). Since last summer, haircuts on securities used as collateral in repurchase agreements (repos), while

41. Libor minus overnight index swap rate, 2007–11



NOTE: The data are daily and extend through February 22, 2011. An overnight index swap (OIS) is an interest rate swap with the floating rate tied to an index of daily overnight rates, such as the effective federal funds rate. At maturity, two parties exchange, on the basis of the agreed notional amount, the difference between interest accrued at the fixed rate and interest accrued by averaging the floating, or index, rate. Libor is the London interbank offered rate.
SOURCE: For Libor, British Bankers' Association; for the OIS rate, Prebon.

42. Commercial paper spreads, 2007–11



NOTE: The data are weekly and extend through February 23, 2011. Commercial paper yield spreads are for an overnight maturity and are expressed relative to the AA nonfinancial rate.
SOURCE: Depository Trust and Clearing Corporation.

exhibiting some volatility in the fourth quarter and early 2011, were generally little changed.

Information from the Federal Reserve's quarterly Senior Credit Officer Opinion Survey on Dealer Financing Terms suggested that the major dealers eased credit terms to most types of counterparties during the second half of 2010, primarily in response to more-aggressive competition from other institutions and to an improvement in the current or expected financial strength of the counterparties. The easing of terms occurred primarily for securities-financing transactions, while nonprice terms for over-the-counter derivatives transactions were reportedly little changed on net. Survey respondents also noted a general increase in the demand for funding for all types of securities covered in the survey.

While remaining well below pre-crisis levels, the use of dealer-intermediated leverage appears to have gradually increased since the end of the summer, interrupted by a brief retrenchment in early December when concerns about developments in Europe intensified. This trend is reflected in the increased funding of equities by hedge funds and other levered investors and in an uptick in demand for the funding of some other types of securities. In addition, recent leveraged finance deals—involving the new issuance of high-yield corporate bonds and syndicated leveraged loans—on average reflected greater levering of the underlying corporate assets, but they nonetheless generated strong interest on the part of investors in a very low interest rate environment. However, there was little evidence that dealer-intermediated funding of less-liquid assets increased materially, and new issuance of structured products that embed leverage and were originated in large volumes prior to the crisis—including, for example, complex mortgage derivatives—has not resumed on any significant scale. In general, the appetite for additional leverage on the part of most market participants—as reflected in responses to special questions on the September SCOOS, triparty repo market volumes, and other indicators—appears to have remained generally muted, with most investors not fully utilizing their existing funding capacity.

Measures of liquidity and functioning in most financial markets pointed to generally stable conditions since mid-2010. In the Treasury market, various indicators, such as differences in prices of securities with similar remaining maturities and spreads between yields on on- and off-the-run issues, suggest that the market continued to operate normally, including during the period when the Federal Reserve was implementing its new asset purchase program. Bid-asked spreads were generally about in line with historical averages, and dealer transaction volumes have continued to reverse the declines observed during the financial crisis. In the syndicated loan market, bid-asked spreads trended down further in the second half of 2010 and in early 2011 as the market continued to recover, although they remained above the levels observed prior to 2007. Estimates of bid-asked spreads in corporate bond markets were within historical ranges, as was the dispersion of dealer quotes in the credit default swap market.

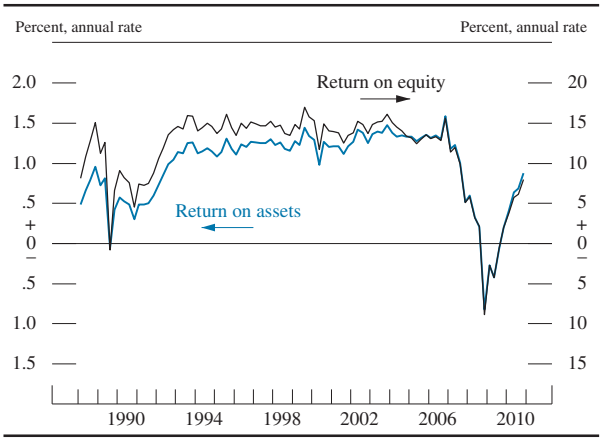
Banking Institutions

Returns on equity and returns on assets for commercial banks in the second half of 2010 improved moderately from earlier in the year but remained well below the levels that prevailed before the financial crisis (figure 43). Profits for the industry as a whole have benefitted considerably in recent quarters from reductions in loan loss provisioning. However, pre-provision net revenue decreased over the second half of the year as net interest margins slid and income from both deposit fees and trading activities declined.[12] About 70 of the more than 6,500 commercial banks in the United States failed between July and December 2010, down slightly from the 86 failures that occurred in the first half of the year.

Spreads on credit default swaps written on banking organizations generally held steady or moved down, on

12. Pre-provision net revenue is the sum of net interest income and noninterest income less noninterest expense.

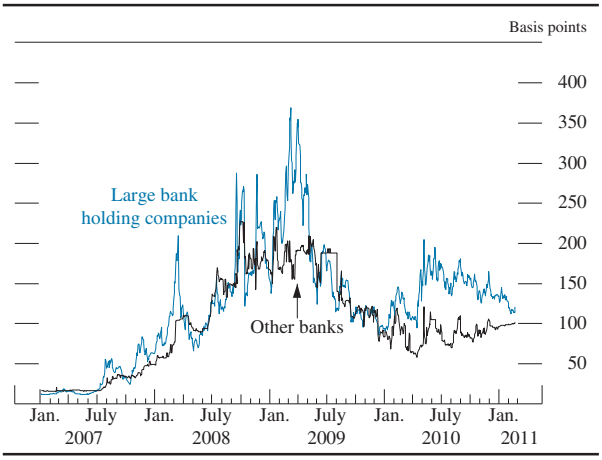
43. Commercial bank profitability, 1988–2010



NOTE: The data are quarterly and extend through 2010:Q4.
SOURCE: Federal Financial Institutions Examination Council, Consolidated Reports of Condition and Income (Call Report).

net, since mid-2010 (figure 44). Moreover, indicators of credit quality at commercial banks showed signs of improvement. Aggregate delinquency and charge-off rates moved down, although they remain high. Loss provisioning stayed elevated, but the recent reductions generally exceeded the declines in charge-offs, which suggests that banks expect credit quality to improve further in coming quarters. Indeed, for every major loan type, significant net fractions of banks reported on the January Senior Loan Officer Opinion Survey that they expect credit quality to improve during the current year if economic activity progresses in line with consensus forecasts.

44. Spreads on credit default swaps for selected U.S. banks, 2007–11



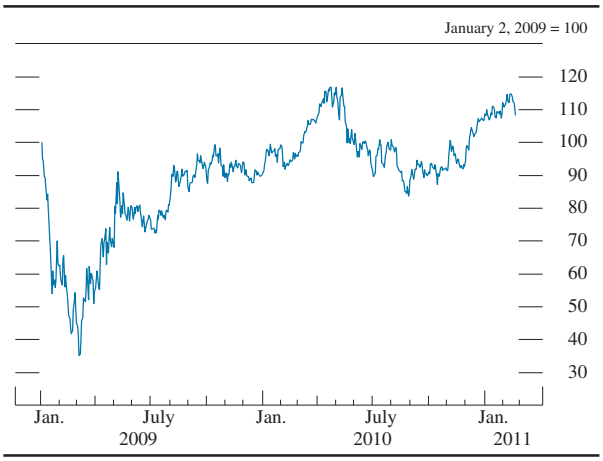
NOTE: The data are daily and extend through February 22, 2011. Median spreads for six bank holding companies and nine other banks.
SOURCE: Markit.

Equity prices of commercial banks moved higher, on net, since mid-2010 (figure 45). During this period, large commercial banks generally reported earnings that beat analysts' expectations, and improved economic prospects were seen as boosting loan demand and supporting loan quality going forward, developments that would buoy banks' profitability. Nevertheless, investors were anxious about the degree to which future profitability might be negatively affected by a number of factors, including the quality of assets on banks' books, changes in the regulatory landscape, mortgage documentation and foreclosure issues, and the potential for some nonperforming mortgages in securitized pools to be put back to some of the large banks.

Total assets of commercial banks changed little, on net, during the second half of 2010, although there were notable compositional shifts. With demand weak and lending standards tight, total loans contracted (figure 46). Nevertheless, the pace at which loans decreased was not as rapid as in the first half of the year, in part because banks' holdings of commercial and industrial loans picked up and their holdings of closed-end residential mortgages grew steadily. Partly offsetting the declines in total loans, banks expanded their holdings of Treasury securities and agency MBS, although the growth in their securities holdings slowed late in the year and into 2011.

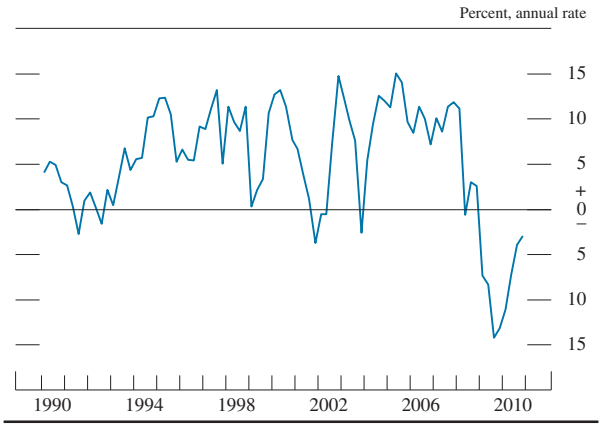
Regulatory capital ratios at commercial banks moved higher, on balance, over the second half of 2010. The upward trend in capital ratios over the past several years has been most pronounced at the largest banks as they accumulated capital while risk-weighted assets decreased and tangible assets were about

45. Equity price index for banks, 2009–11



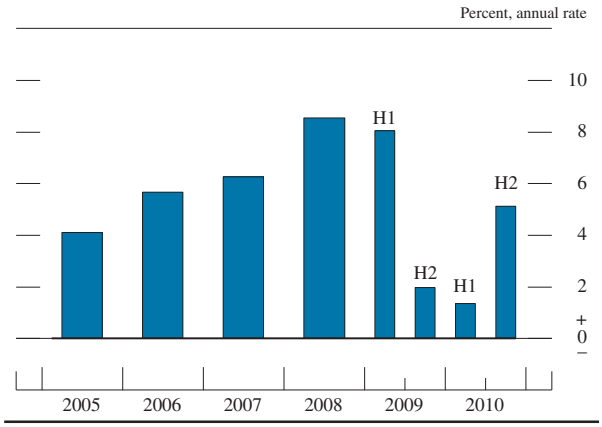
NOTE: The data are daily and extend through February 22, 2011.
SOURCE: Standard & Poor's.

46. Change in total bank loans, 1990–2010



NOTE: The data, which are seasonally adjusted, are quarterly and extend through 2010:Q4. 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."

47. M2 growth rate, 2005–10



NOTE: For definition of M2, see text note 13.
SOURCE: Federal Reserve Board, Statistical Release H.6, "Money Stock Measures."

unchanged. Capital requirements for many of these banks will increase significantly under the new international capital standards, which will restrict the definition of regulatory capital and increase the risk weights assigned to some assets and off-balance-sheet exposures. In addition, the Dodd–Frank Wall Street Reform and Consumer Protection Act requires that the Federal Reserve issue rules by January 31, 2012, that will subject bank holding companies with more than $50 billion in assets to additional capital and liquidity requirements.

Monetary Aggregates and the Federal Reserve's Balance Sheet

The M2 monetary aggregate has expanded at a moderate pace since mid-2010 after rising only slightly in the first half of last year (figure 47); for the year as a whole, M2 grew 3.2 percent, the slowest annual increase since 1994.[13] As has been the case for some time, the strongest increase was in liquid deposits, the largest component of M2, while small time deposits and retail money market mutual fund assets continued to contract. Liquid deposits tended to pay slightly more-favorable interest rates than did their close substitutes. The currency component of the money stock expanded at a faster rate in the second half of 2010 than it had earlier in the year. The monetary base—essentially equal to the sum of currency in circulation and the reserve balances of depository institutions held at the Federal Reserve—contracted slightly during the second half of 2010, although the downward trend started to reverse late in the period in response to the Federal Reserve's new Treasury security purchase program.

The size of the Federal Reserve's balance sheet remained at a historically high level throughout the second half of 2010. In early 2011, the balance sheet stood at about $2.5 trillion, an increase of around $200 billion from its level in early July (table 1). The expansion of the balance sheet was more than accounted for by an increase in holdings of Treasury securities, which were up nearly $450 billion since the summer. The additional holdings of Treasury securities resulted from the FOMC's August decision to reinvest the proceeds from paydowns of agency debt and MBS in longer-term Treasury securities and the asset purchase program announced at the November FOMC meeting. To provide operational flexibility and to ensure that it is able to purchase the most attractive

13. M2 consists of (1) currency outside the U.S. Treasury, Federal Reserve Banks, and the vaults of depository institutions; (2) traveler's checks of nonbank issuers; (3) demand deposits at commercial banks (excluding those amounts held by depository institutions, the U.S. government, and foreign banks and official institutions) less cash items in the process of collection and Federal Reserve float; (4) other checkable deposits (negotiable order of withdrawal, or NOW, accounts and automatic transfer service accounts at depository institutions; credit union share draft accounts; and demand deposits at thrift institutions); (5) savings deposits (including money market deposit accounts); (6) small-denomination time deposits (time deposits issued in amounts of less than $100,000) less individual retirement account (IRA) and Keogh balances at depository institutions; and (7) balances in retail money market mutual funds less IRA and Keogh balances at money market mutual funds.

1. Selected components of the Federal Reserve balance sheet, 2009–11

Millions of dollars

Balance sheet item	Dec. 30, 2009	July 7, 2010	Feb. 23, 2011
Total assets	**2,237,258**	**2,335,457**	**2,537,175**
Selected assets			
Credit extended to depository institutions and dealers			
Primary credit	19,111	17	24
Term auction credit	75,918	0	0
Primary Dealer Credit Facility and other broker-dealer credit	0	…	…
Central bank liquidity swaps	10,272	1,245	70
Credit extended to other market participants			
Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility	0	…	…
Net portfolio holdings of Commercial Paper Funding Facility LLC	14,072	1	…
Term Asset-Backed Securities Loan Facility	47,532	42,278	20,997
Support of critical institutions			
Net portfolio holdings of Maiden Lane LLC, Maiden Lane II LLC, and Maiden Lane III LLC[1]	65,024	66,996	64,902
Credit extended to American International Group, Inc.	22,033	24,560	…
Preferred interests in AIA Aurora LLC and ALICO Holdings LLC	25,000	25,733	…
Securities held outright			
U.S. Treasury securities	776,587	776,997	1,213,425
Agency debt securities	159,879	164,762	144,119
Agency mortgage-backed securities (MBS)[2]	908,257	1,118,290	958,201
Memo			
Term Securities Lending Facility[3]	0	…	…
Total liabilities	**2,185,139**	**2,278,523**	**2,484,141**
Selected liabilities			
Federal Reserve notes in circulation	889,678	907,698	956,012
Reverse repurchase agreements	70,450	62,904	59,484
Deposits held by depository institutions	1,025,271	1,061,239	1,297,905
Of which: Term deposits	…	2,122	5,070
U.S. Treasury, general account	149,819	16,475	23,123
U.S. Treasury, Supplementary Financing Account	5,001	199,963	124,976
Total capital	**52,119**	**56,934**	**53,035**

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 has written credit default swap contracts.

2. Includes only MBS purchases that have already settled.

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

... Not applicable.

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

securities on a relative-value basis, the Federal Reserve temporarily relaxed its 35 percent per-issue limit on System Open Market Account (SOMA) holdings of individual Treasury securities and will allow SOMA holdings to rise above the previous threshold in modest increments up to a 70 percent per-issue limit; holdings of particular issues exceed the previous limit for only a small number of securities. In contrast, holdings of agency debt and agency MBS declined about $180 billion between early July and early 2011. The wave of mortgage refinancing that occurred in the autumn in the wake of the drop in mortgage rates contributed notably to the sharp decline in Federal Reserve holdings of MBS. In addition, holdings of agency debt declined as these securities matured.

Use of regular discount window lending facilities, such as the primary credit facility, has been minimal for some time. The Term Asset-Backed Securities Loan Facility (TALF) was closed on June 30, 2010. Loans outstanding under the TALF declined from $42 billion in mid-2010 to $21 billion in early 2011 as improved conditions in some securitization markets resulted in prepayments of loans made under the facility. The other broad-based credit facilities that the Federal Reserve had introduced to provide liquidity to financial institutions and markets during the financial crisis were closed early in 2010. All loans extended through these programs had been repaid by the summer.

The portfolio holdings of Maiden Lane LLC, Maiden Lane II LLC, and Maiden Lane III LLC,

which were created to acquire certain assets from troubled systemically important institutions during the crisis, have generally changed little, on net, since mid-2010. Current estimates of the fair values of the portfolios of the three Maiden Lane LLCs exceed the corresponding loan balances outstanding to each limited liability company from the Federal Reserve Bank of New York. Consistent with the terms of the Maiden Lane LLC transaction, on July 15, 2010, this limited liability company began making distributions to repay the loan received from the Federal Reserve Bank of New York. On January 14, 2011, American International Group, Inc., or AIG, repaid the credit extended by the Federal Reserve under the revolving credit line, and the Federal Reserve was paid in full for its preferred interests in the special purpose vehicles AIA Aurora LLC and ALICO Holdings LLC, thereby reducing the balances in these accounts to zero.

Stresses in European dollar funding markets in May led to the reestablishment of liquidity swap lines between the Federal Reserve and foreign central banks. Only a small amount of credit has been issued under the reestablished facilities, which in December were extended through August 1, 2011.

On the liability side, Federal Reserve notes in circulation increased a bit, from $908 billion to $956 billion. Reverse repos edged down. Deposits held at the Federal Reserve by depository institutions rose to about $1.3 trillion. The Supplementary Financing Account declined early in 2011 following the announcement by the Treasury that it was suspending new issuance under the Supplementary Financing Program and that it would allow that account to fall to $5 billion as part of its efforts to maximize flexibility in debt management as federal debt approached the statutory debt limit.

International Developments

International Financial Markets

The foreign exchange value of the dollar declined over much of the third quarter of 2010 (figure 48). This decline was spurred in part by some reversal of flight-to-safety flows—as financial system strains in Europe temporarily diminished following the July release of the results of the European Union (EU) stress tests—and by fears that the recovery in the United States was slowing. Mounting expectations that the Federal Reserve might undertake further asset purchases in response to the weakening economic outlook also weighed on the dollar. Although the dollar initially

48. U.S. dollar nominal exchange rate, broad index, 2006–11

NOTE: The data, which are in foreign currency units per dollar, are daily. The last observation for the series is February 22, 2011. The broad index is a weighted average of the foreign exchange values of the U.S. dollar against the currencies of a large group of the most important U.S. trading partners. The index weights, which change over time, are derived from U.S. export shares and from U.S. and foreign import shares.

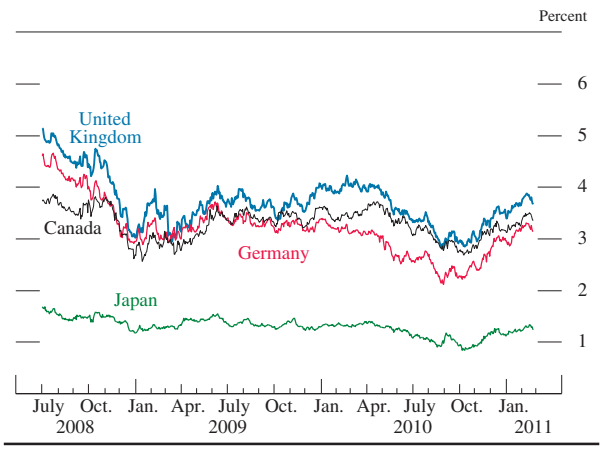
SOURCE: Federal Reserve Board, Statistical Release H.10, "Foreign Exchange Rates."

dropped a bit more following the Federal Reserve's announcement in early November that it would purchase additional long-term Treasury securities, it subsequently reversed course as data on economic activity in the United States began to strengthen and as investors began to scale back their expectations of the ultimate size of the Federal Reserve's purchase program. In the first two months of this year, the dollar edged down again as the outlook for economic activity abroad appeared to strengthen and the financial situation in Europe stabilized. On net, the dollar declined 7 percent on a trade-weighted basis against a broad set of currencies over the second half of last year and into the first two months of this year.

Foreign benchmark sovereign yields also declined over much of the third quarter as concerns about the U.S. recovery and worries that China's economy might decelerate more quickly than had been expected led investors to question the overall strength of global economic growth (figure 49). However, foreign yields subsequently rose as confidence in the global recovery strengthened, leaving foreign benchmark yields 15 to 60 basis points higher on net.

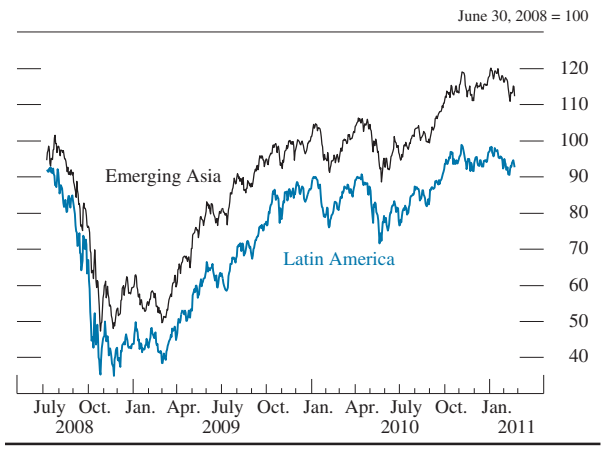
Foreign equity markets rallied following the release of the EU stress tests in July, and, although those markets gave back part of these gains in August over heightened worries about the pace of global economic growth, they nonetheless ended the third quarter higher. Over the fourth quarter and into this year, foreign equity prices rose further as the global economic

49. Yields on benchmark government bonds in selected advanced foreign economies, 2008–11



NOTE: The data, which are for 10-year bonds, are daily. The last observation for each series is February 22, 2011.
SOURCE: Bloomberg.

51. Aggregate equity indexes for emerging market economies, 2008–11

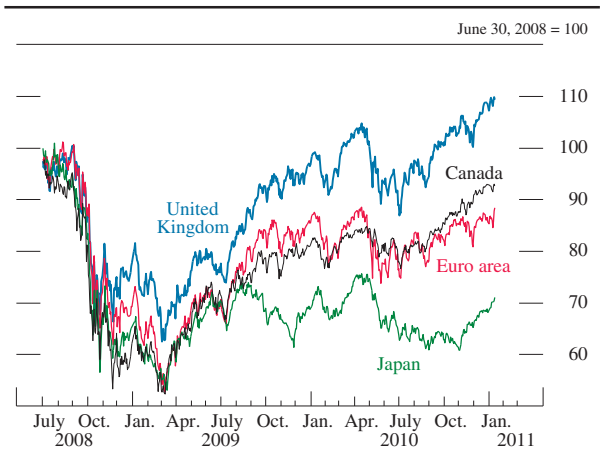


NOTE: The data are daily. The last observation for each series is February 22, 2011. The Latin American economies are Argentina, Brazil, Chile, Colombia, Mexico, and Peru; the emerging Asian economies are China, India, Indonesia, Malaysia, Pakistan, the Philippines, South Korea, Taiwan, and Thailand.
SOURCE: Bloomberg.

outlook improved, notwithstanding renewed stresses in peripheral Europe. On net, headline equity indexes in the euro area and Japan are up about 10 to 20 percent from their levels in mid-2010, while indexes in the major emerging market economies are about 20 percent higher; all those indexes increased, on balance, even after having declined a bit recently in the face of uncertainties about the Middle East and North Africa (figures 50 and 51).

Although some banks in the euro-area periphery countries, particularly in Spain, seemed to have better access to capital markets immediately following the stress test, their costs of funding rose again late in the year as market concerns about the Irish and Spanish banking sectors resurfaced. Banks in the euro-area periphery relied heavily on the weekly and longer-term funding operations of the European Central Bank (ECB) over much of this period. The strains nevertheless spilled over into increased funding costs in dollars for some European banks, although the reaction was less severe than it had been in May. Reportedly, many European banks had already met their dollar funding needs through year-end before these strains occurred. Market participants welcomed the announcement that the swap lines between the Federal Reserve and the ECB, the Bank of England, the Swiss National Bank, the Bank of Japan, and the Bank of Canada would be extended through August 1.

50. Equity indexes in selected advanced foreign economies, 2008–11

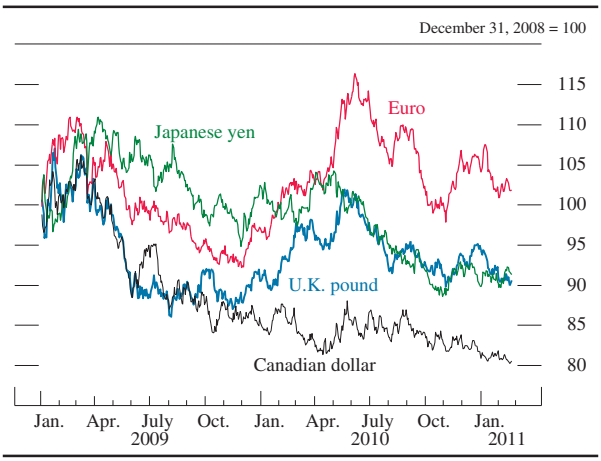


NOTE: The data are daily. The last observation for each series is February 22, 2011.
SOURCE: For Canada, Toronto Stock Exchange 300 Composite Index; for euro area, Dow Jones Euro STOXX Index; for Japan, Tokyo Stock Exchange (TOPIX); and, for the United Kingdom, London Stock Exchange (FTSE 350); all via Bloomberg.

With the yen at a 15-year high against the dollar in nominal terms, Japanese authorities intervened in currency markets on September 15 (figure 52). Japan's Ministry of Finance purchased dollars overnight to weaken the value of the yen, its first intervention operation since March 2004. The operation caused the yen to depreciate immediately about 3 percent against the dollar, but this movement was fairly short lived, as the yen rose past its pre-intervention level within a month.

During the third quarter, the EMEs saw an increase in capital inflows, which added to upward pressures on their currencies and reportedly triggered further intervention in foreign exchange markets by EME authorities. Authorities in several EMEs also announced new

52. U.S. dollar exchange rate against selected major currencies, 2009–11



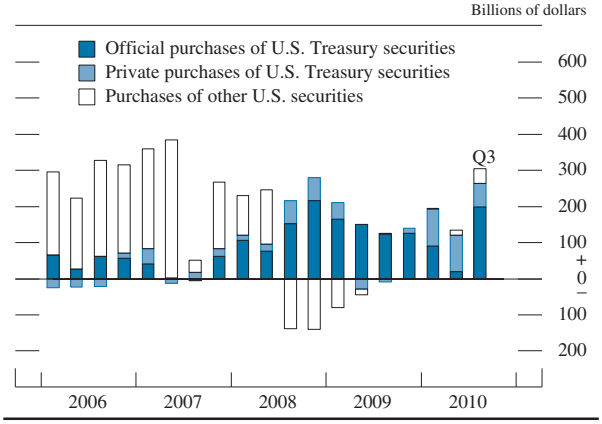
NOTE: The data, which are in foreign currency units per dollar, are daily. The last observation for each series is February 22, 2011.
SOURCE: Federal Reserve Board, Statistical Release H.10, "Foreign Exchange Rates."

measures to discourage portfolio capital inflows in an attempt to ease upward pressures on their currencies and in their asset markets. Although capital flows to EMEs appeared to moderate late in the year as long-term interest rates in the advanced economies rose, intervention and the imposition of capital control measures continued.

The Financial Account

Financial flows in 2010 reflected changes in investor sentiment over the course of the year, driven in part by concerns over fiscal difficulties in Europe. Foreign private investors made large purchases of U.S. Treasury securities in the first half of the year, but these "flight to quality" demands eased somewhat in the third quarter with the improvement in conditions in European markets (figure 53). Indicators for the fourth quarter are mixed but suggest that foreign private demand for U.S. Treasury securities picked up again late in the year as tensions in European markets reemerged. Foreign demand for other U.S. securities strengthened in the second half of the year. Net private purchases of both U.S. agency debt and U.S. equities were strong, and foreign investors made small net purchases of corporate debt securities, in contrast to net sales over the previous several quarters. U.S. residents continued to purchase sizable amounts of foreign bonds and equities, including both emerging market and European securities (figure 54).

53. Net foreign purchases of U.S. securities, 2006–10

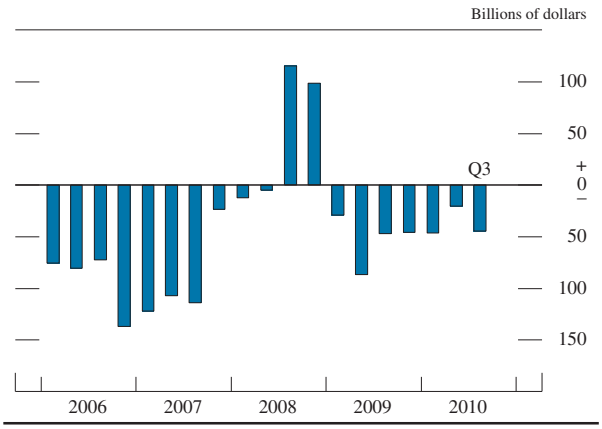


NOTE: Other U.S. securities include corporate equities and bonds, agency bonds, and municipal bonds.
SOURCE: Department of Commerce, Bureau of Economic Analysis.

Banks located in the United States continued to lend abroad, on net, in the third quarter, but at a slower pace than in the first half of the year, as dollar funding pressures in European interbank markets eased and banks abroad relied less on U.S. counterparties for funding. As a result, inflows from increased foreign private purchases of U.S. securities more than offset the banking outflows in the third quarter, generating net private financial inflows for the first time since late 2008 (figure 55).

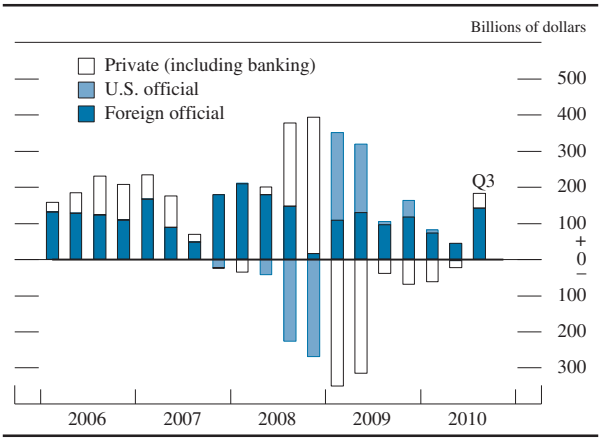
Inflows from foreign official institutions increased in the third quarter, with inflows primarily coming from countries seeking to counteract upward pressure on their currencies by purchasing U.S. dollars in foreign currency markets. These countries then used the proceeds to acquire U.S. assets, primarily Treasury securi-

54. Net U.S. purchases of foreign securities, 2006–10



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

55. U.S. net financial inflows, 2006–10



NOTE: 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.

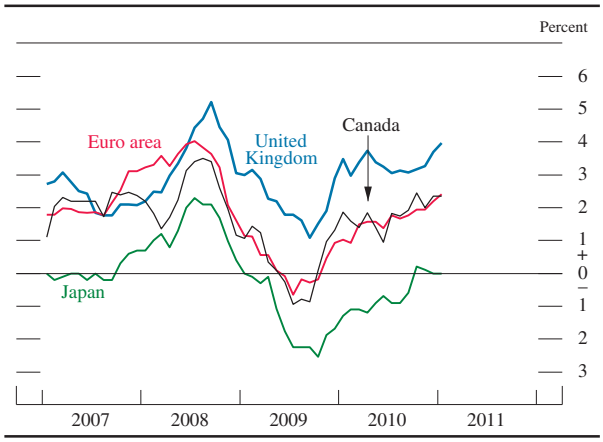
ties. Available data for the fourth quarter indicate that foreign official purchases of U.S. Treasury securities slowed as the dollar stabilized.

Advanced Foreign Economies

Economic growth in the advanced foreign economies stepped down in the second half of 2010. To a large extent, this slowdown reflected standard business cycle dynamics, as support from fiscal stimulus and the rebound in global trade and inventories diminished over the course of the year. In Canada, signs of the maturing recovery were most evident in the domestic sector, whereas in Japan, exports decelerated as growth in emerging Asian economies moderated. In Europe, the recovery was further restrained by a reemergence of concerns over fiscal sustainability and banking sector vulnerabilities in some countries. (See box "An Update on the European Fiscal Crisis and Policy Responses.") However, recent indicators of economic activity across the advanced foreign economies suggest that performance improved moderately toward the end of 2010. In the manufacturing sector, purchasing managers indexes have resumed rising and point to solid expansion. Moreover, the recovery appears to be gradually spilling over to the retail and service sectors, with household demand benefiting from improving labor market conditions and rising incomes.

Toward year-end, consumer prices in the advanced foreign economies were boosted by a run-up in food and energy prices (figure 56). Japanese 12-month headline consumer price inflation turned slightly positive for the first time since early 2009, in part because of a

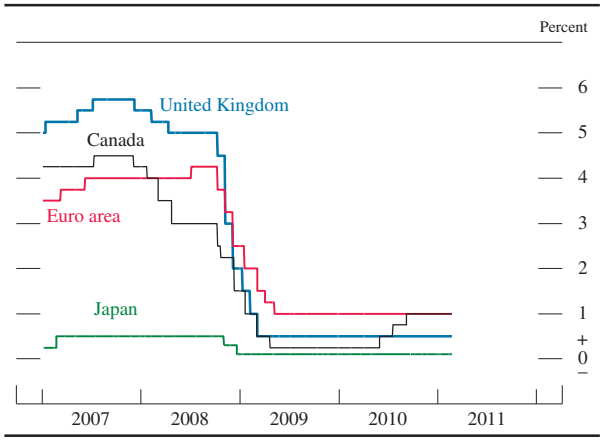
56. Change in consumer prices for major foreign economies, 2007–11



NOTE: The data are monthly and extend through January 2011; the percent change is from one year earlier.
SOURCE: For the euro area, the European Central Bank; for the United Kingdom, the U.K. Office for National Statistics; for Japan, the Japan Statistics Bureau; and, for Canada, Statistics Canada; all via Haver Analytics.

hike in the tobacco tax, and headline inflation in Canada and the euro area recently moved above 2 percent. However, inflation in core consumer prices, which excludes food and energy prices, remained subdued amid considerable slack in these economies. One exception was the United Kingdom, where consumer price inflation—both headline and core—persisted above 3 percent throughout 2010, driven by prior exchange rate depreciation and increases in the value-added tax.

57. Official or targeted interest rates in selected advanced foreign economies, 2007–11



NOTE: The data are daily and extend through February 22, 2011. The data shown are, for Canada, the target for the overnight rate; for the euro area, the minimum bid rate on main refinancing operations; for Japan, the target for the call rate; and, for the United Kingdom, the official bank rate.
SOURCE: The central bank of each area or country shown.

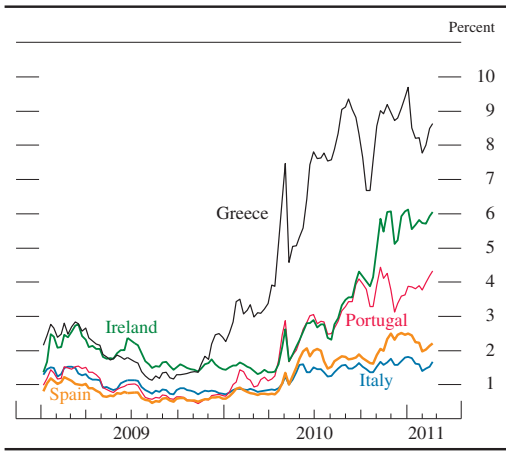
An Update on the European Fiscal Crisis and Policy Responses

The European fiscal crisis has remained a source of concern in global financial markets despite official responses over the past year. The crisis began early in 2010 after large upward revisions to the statistics on Greek government deficits led to an erosion of market confidence in the ability of Greece to meet its fiscal obligations. This situation created spillovers to other euro-area countries with high debt or deficit levels. In early May, the European Union (EU) and the International Monetary Fund (IMF) announced a joint €110 billion financial support package for Greece; in addition, the EU established lending facilities of up to €500 billion, and the European Central Bank (ECB) began purchasing sovereign securities to ensure the depth and liquidity of euro-area debt markets. In response to signs of renewed pressures in dollar funding markets, the Federal Open Market Committee reopened dollar swap facilities with a number of foreign central banks.

Financial tensions moderated somewhat over the summer, in part because of favorable market reaction to the results of Europe-wide bank stress tests released in July. Nevertheless, the spreads of yields on the sovereign bonds of the most vulnerable euro-area countries over those of German bonds remained elevated (figure A). In the autumn, peripheral European sovereign bond spreads, particularly those of Ireland, widened further. Two developments contributed to the heightened tensions: (1) the discussion of a proposal for a more permanent financial stability mechanism for the euro area starting in 2013, which could eventually require the restructuring of private holdings of sovereign debt; and (2) increased concerns over the growing real estate loan losses of Irish banks and the associated funding difficulties. Afflicted in part by deposit flight and difficulties raising funds in the interbank market, Irish banks became increasingly dependent on funding from the ECB.

With access to market funding increasingly limited, Ireland agreed on November 28 to a €67.5 billion financial support package from the EU and the IMF, with an additional €17.5 billion of Ireland's own funds going to stabilize and recapitalize the country's banking sector. Ireland agreed to implement a four-year fiscal consolidation effort equal to 9 percent of gross domestic product, two-thirds of which will be spending cuts, on top of the austerity measures already adopted in the previous two years.

A. Government debt spreads for peripheral European economies, 2009–11



NOTE: The data are weekly. The last observation for each series is February 25, 2011. The spreads shown are the yields on 10-year bonds less the 10-year German bond yield.
SOURCE: Bloomberg.

Following this announcement, markets appeared to shift their focus to the possibility that official assistance would also be required for other euro-area countries with high fiscal deficits or debts and vulnerable banking systems. This development led to a rise in the sovereign bond spreads of Portugal, Spain, and, to a lesser extent, Italy and Belgium. The fear that the Irish problems might spread was exacerbated by concerns that funds available under existing support mechanisms could be insufficient if Spain were to need external assistance. Partly in response to the increase in financial strains, the ECB temporarily stepped up its purchases of the debt of vulnerable euro-area countries and announced following its December policy meeting that it would delay exit from its nonstandard liquidity measures. In addition, European leaders have increasingly indicated their desire to expand or broaden the mandate of current support facilities, and European governments are organizing another round of bank stress tests.

Major central banks in the advanced foreign economies have maintained an accommodative monetary policy stance (figure 57), although some have taken steps to remove the degree of accommodation. The Bank of Canada raised its target for the overnight rate 50 basis points in the third quarter but since then has held its policy rate at 1 percent. The ECB discontinued refinancing operations at 6- and 12-month maturities but extended fixed-rate refinancing at shorter maturities and kept its main refinancing rate at 1 percent. The Bank of England maintained its policy rate at 0.5 percent and the size of its Asset Purchase Facility at £200 billion. The Bank of Japan took additional steps to ease policy by cutting its target interest rate

from 10 basis points to a range of 0 to 10 basis points. In addition, it extended from three to six months the term for its fixed-rate funds-supplying operation, and it established an asset purchase program of ¥5 trillion to buy a broad range of financial assets, including government securities, commercial paper, corporate bonds, exchange-traded funds, and real estate investment trusts.

Emerging Market Economies

After a robust expansion in the first half of 2010, economic activity in the EMEs stepped down in the third quarter before bouncing back to solid growth in the fourth. On average over the two quarters, real GDP growth in the EMEs was well above that observed in the advanced economies. Economic activity in the EMEs was boosted by domestic demand, supported by accommodative monetary and fiscal policies. However, with output appearing to approach capacity for most countries, authorities in many EMEs have begun to unwind the stimulus measures, both monetary and fiscal, put in place during the crisis. The withdrawal of monetary stimulus has also been driven by a recent pickup in consumer price inflation, which has reflected, in part, a rise in commodity prices.

Monetary policy tightening in the EMEs has likely been tempered by uncertainties about the pace and durability of the economic recovery in advanced economies, which remain an important source of demand for the EMEs. In addition, the exit from accommodative stances has been complicated by the return of private capital flows to these economies. Capital inflows appear to have exerted some upward pressure on currencies and have raised concerns about the possibility of an overheating in asset prices. EME authorities have so far adopted a variety of strategies to cope with increased capital flows, including intervention in foreign exchange markets to slow the upward movement of domestic currencies, prudential measures targeted to specific markets (such as the property market), and, in several cases, capital controls.

Real GDP growth in China slowed a bit in the first half of last year, but it moved back up in the second half along with a pickup in inflation, prompting Chinese authorities to continue to tighten monetary policy. Since last June, bank reserve requirements increased a total of 250 basis points for the largest banks, and the benchmark one-year bank lending rate has risen 75 basis points. Chinese authorities have also raised the minimum down payment required for residential property investment in order to slow rising property prices. Since the announcement last June by Chinese authorities that they would allow more exchange rate flexibility, the renminbi has appreciated about 4 percent against the dollar. However, on a real multilateral, trade-weighted basis, which gauges the renminbi's value against China's major trading partners and adjusts for differences in inflation rates, the renminbi has depreciated slightly.

In emerging Asia excluding China, the pace of economic growth softened in the third quarter of last year. There was a steep decline in Singapore's real GDP, which often exhibits wide quarterly swings. Considerable weakness in third-quarter economic activity was also observed in Malaysia, the Philippines, and Thailand. However, available indicators suggest that fourth-quarter GDP growth in the region has picked up again.

In Latin America, real GDP in Mexico and Brazil also decelerated in the third quarter. Mexican output has yet to recover fully from the financial crisis; total manufacturing output slowed over the final two quarters of the year, largely reflecting lower U.S. manufacturing growth, which has depressed demand for exports from Mexico. Economic activity in Brazil, though having slowed from a very brisk pace in the first half of the year, has remained solid, supported by continued fiscal stimulus and high commodity prices. Brazil's central bank tightened reserve requirements in December, prompted by concerns about both the pace of credit creation and the quality of the credit being extended. In addition, the Brazilian central bank raised its policy rate 50 basis points in January of this year. The new Brazilian government has announced some spending cuts to reduce aggregate demand and inflationary pressures.

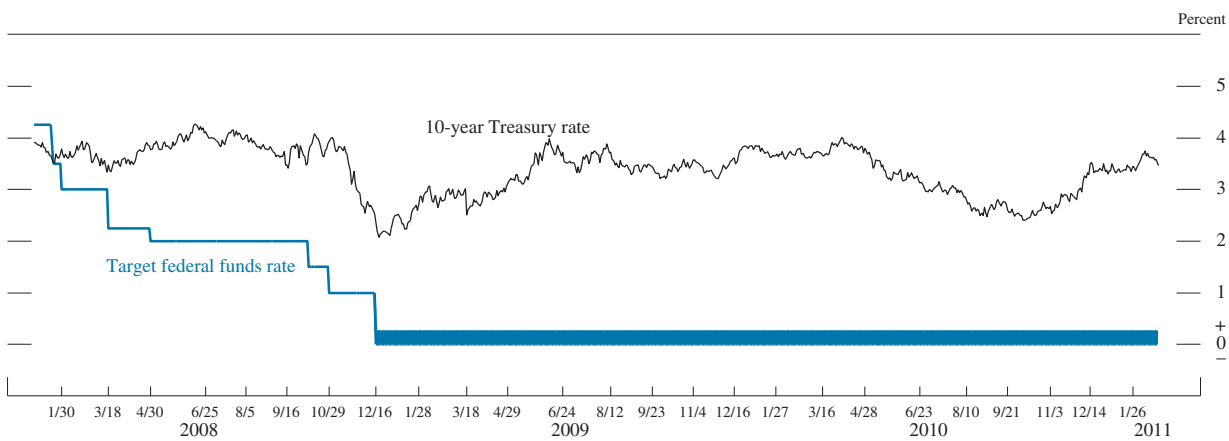
Part 3
Monetary Policy: Recent Developments and Outlook

Monetary Policy over the Second Half of 2010 and Early 2011

The Federal Open Market Committee (FOMC) maintained a target range for the federal funds rate of 0 to ¼ percent throughout the second half of 2010 and into 2011 (figure 58). In the statement accompanying each regularly scheduled FOMC meeting, the Committee noted that economic conditions, including low rates of resource utilization, subdued inflation trends, and stable inflation expectations, were likely to warrant exceptionally low levels of the federal funds rate for an extended period. With the unemployment rate elevated and measures of underlying inflation somewhat low relative to levels that the Committee judged to be consistent, over the long run, with its dual mandate of maximum employment and price stability, the FOMC took steps during the second half of 2010 to provide additional monetary accommodation in order to promote a stronger pace of economic recovery and to help ensure that inflation, over time, returns to levels consistent with its mandate. In August, the FOMC announced that it would keep constant the Federal Reserve's holdings of longer-term securities at their then-current level by reinvesting principal payments from agency debt and agency mortgage-backed securities (MBS) in longer-term Treasury securities. Then, in November, the FOMC announced that it intended to purchase an additional $600 billion of longer-term Treasury securities by the end of the second quarter of 2011. The Committee noted that it would regularly review the pace of its securities purchases and the overall size of the asset purchase program in light of incoming information.

The information reviewed at the August 10 FOMC meeting indicated that the pace of the economic recovery had slowed in recent months and that inflation remained subdued. Private employment had increased slowly in June and July, and industrial production was little changed in June after a large increase in May. Consumer spending continued to rise at a modest rate in June. However, housing activity dropped back, and nonresidential construction remained weak. In addition, the trade deficit widened sharply in May. Conditions in financial markets had become somewhat more supportive of economic growth since the June meeting, in part reflecting perceptions of diminished risk of financial dislocations in Europe. Moreover, partici-

58. Selected interest rates, 2008–11



NOTE: The data are daily and extend through February 22, 2011. The 10-year Treasury rate is the constant-maturity yield based on the most actively traded securities. The dates on the horizontal axis are those of regularly scheduled Federal Open Market Committee meetings.
SOURCE: Department of the Treasury and the Federal Reserve.

pants saw some indications that credit conditions for households and smaller businesses were beginning to improve, albeit gradually. A further decline in energy prices and unchanged prices for core goods and services led to a fall in headline consumer prices in June.

Against this backdrop, the Committee agreed to make no change in its target range for the federal funds rate at the August meeting. The economic expansion was seen as continuing, and most members believed that inflation was likely to stabilize in coming quarters at rates near recent low readings and then gradually rise toward levels they considered more consistent with the Committee's dual mandate. Nonetheless, members generally judged that the economic outlook had softened somewhat more than they had anticipated, and some saw increased downside risks to the outlook for both economic growth and inflation. The Committee noted that the decline in mortgage rates since the spring was generating increased mortgage refinancing activity, which would accelerate repayments of principal on MBS held in the System Open Market Account (SOMA), and that private investors would have to hold more longer-term securities as the Federal Reserve's holdings ran off, making longer-term interest rates somewhat higher than they would have been otherwise. The Committee concluded that it would be appropriate to begin reinvesting principal payments received from agency debt and MBS held in the SOMA by purchasing longer-term Treasury securities; such an action would keep constant the face value of securities held in the SOMA and thus avoid the upward pressure on longer-term interest rates that might result if those holdings were allowed to decline.

As of the September 21 FOMC meeting, the data continued to suggest that the economic expansion was decelerating and that inflation remained low. Private businesses increased employment modestly in August, but the length of the workweek was unchanged and the unemployment rate remained elevated. The rise in business outlays for equipment and software seemed to have moderated following outsized gains in the first half of the year. Housing activity weakened further, and nonresidential construction remained depressed. Industrial production advanced at a solid pace in July and rose further in August. Consumer spending continued to increase at a moderate rate in July and appeared to be moving up again in August. After falling in the previous three months, headline consumer prices had risen in July and August as energy prices retraced some of their earlier declines, and prices for core goods and services edged up slightly. Credit was viewed by participants as remaining readily available for larger corporations with access to capital markets, and some reports suggested that credit conditions had begun to improve for smaller firms. Asset prices had been relatively sensitive to incoming economic data over the intermeeting period but generally ended the period little changed on net. Stresses in European financial markets were seen by participants as broadly contained but were thought to bear watching going forward. Although participants did not expect that the economy would reenter a recession, many expressed concern that output growth, and the associated progress in reducing the level of unemployment, could be slow for some time. Participants noted a number of factors that were restraining economic growth, including low levels of household and business confidence, heightened risk aversion, and the still-weak financial conditions of some households and small businesses.

The Committee agreed at the September meeting to maintain the target range for the federal funds rate of 0 to ¼ percent and to leave unchanged the level of its combined holdings of Treasury securities, agency debt, and agency MBS in the SOMA. In addition, members agreed that the statement to be released following the meeting should be adjusted to clarify their assessment that underlying inflation had been running below levels that the Committee judged to be consistent with its dual mandate for maximum employment and price stability. The clarification was intended, in part, to help anchor inflation expectations and to reinforce the indication that economic conditions were likely to warrant exceptionally low levels of the federal funds rate for an extended period. In light of the considerable uncertainty about the trajectory of the economy, members saw merit in accumulating further information before reaching a decision about providing additional monetary stimulus. In addition, members wanted to consider further the most effective framework for calibrating and communicating any additional steps to provide such stimulus. They noted that unless the pace of economic recovery strengthened or underlying inflation moved up toward levels consistent with the FOMC's mandate, the Committee would consider taking appropriate action soon.

On October 15, the Committee met by videoconference to discuss issues associated with its monetary policy framework, including alternative ways to express and communicate the Committee's objectives, possibilities for supplementing the Committee's communication about its policy decisions, the merits of making smaller and more-frequent adjustments in the Federal Reserve's intended securities holdings rather than larger and less-frequent adjustments, and the potential

costs and benefits of targeting a term interest rate. The agenda did not encompass consideration of any policy actions, and none were taken.

The information reviewed at the November 2–3 FOMC meeting continued to indicate that the economic recovery was proceeding at a modest rate, with only a gradual improvement in labor market conditions. Moreover, measures of underlying inflation were somewhat low relative to levels that the Committee judged to be consistent, over the longer run, with its dual mandate. Consumer spending, business investment in equipment and software, and exports posted further gains in the third quarter, and nonfarm inventory investment stepped up. However, construction activity in both the residential and nonresidential sectors remained depressed, and a significant portion of the rise in domestic demand was again met by imports. U.S. industrial production slowed noticeably in August and September, hiring remained modest, and the unemployment rate stayed elevated. While participants considered it quite unlikely that the economy would slide back into recession, they noted that continued slow growth and high levels of resource slack could leave the economic expansion vulnerable to negative shocks. Participants saw financial conditions as having become more supportive of economic growth over the course of the intermeeting period; most, though not all, of the change appeared to reflect investors' increased anticipation of a further easing of monetary policy. Headline consumer price inflation had been subdued in recent months, despite a rise in energy prices, as core consumer price inflation trended lower.

Though the economic recovery was continuing, FOMC members considered progress toward meeting the Committee's dual mandate of maximum employment and price stability as having been disappointingly slow. Moreover, members generally thought that progress was likely to remain slow. Accordingly, most members judged it appropriate to provide additional policy accommodation. In their discussion of monetary policy for the period immediately ahead, Committee members agreed to maintain the target range for the federal funds rate at 0 to ¼ percent and to continue the Committee's existing policy of reinvesting principal payments from its securities holdings into longer-term Treasury securities. The Committee also announced its intention to purchase a further $600 billion of longer-term Treasury securities at a pace of about $75 billion per month through the second quarter of 2011. Purchases of additional Treasury securities were expected to put downward pressure on longer-term interest rates, boost asset prices, and lead to a modest reduction in the foreign exchange value of the dollar. These changes in financial conditions were expected to promote a somewhat stronger recovery in output and employment while also helping return inflation, over time, to levels consistent with the Committee's mandate.

The data presented at the December 14 FOMC meeting indicated that economic activity was increasing at a moderate rate but that the unemployment rate remained elevated. The pace of consumer spending picked up in October and November, exports rose rapidly in October, and the recovery in business spending on equipment and software appeared to be continuing. In contrast, residential and nonresidential construction activity was still depressed. Manufacturing production registered a solid gain in October. Nonfarm businesses continued to add workers in October and November, and the average workweek moved up. The fiscal package agreed to by the Administration and the Congress was generally expected by participants to support the pace of recovery in 2011. Participants noted that interest rates at intermediate and longer maturities had risen substantially over the intermeeting period, while credit spreads were roughly unchanged and equity prices had risen moderately. Financial pressures in peripheral Europe had increased, leading to a financial assistance package for Ireland. Longer-run inflation expectations were stable, but core inflation continued to trend lower. Overall, the information received during the intermeeting period pointed to some improvement in the near-term outlook, and participants expected economic growth to pick up somewhat going forward. A number of factors, however, were seen as likely to continue restraining the recovery, including the depressed housing market, employers' continued reluctance to add to payrolls, and ongoing efforts by some households and businesses to reduce leverage. Moreover, the recovery remained subject to some downside risks, such as the possibility of a more extended period of weak activity and lower prices in the housing sector as well as potential financial and economic spillovers if the banking and sovereign debt problems in Europe were to worsen further.

Members noted that, while incoming information over the intermeeting period had increased their confidence that the economic recovery would be sustained, progress toward the Committee's dual objectives of maximum employment and price stability continued to be modest, and unemployment and inflation appeared likely to deviate from the Committee's objectives for some time. Accordingly, in their discussion of monetary policy for the period immediately ahead, Committee members agreed to continue expanding the Federal Reserve's holdings of longer-term securities as

announced in November. The Committee also decided to maintain the target range for the federal funds rate at 0 to ¼ percent and to reiterate its expectation that economic conditions were likely to warrant exceptionally low levels of the federal funds rate for an extended period. While the economic outlook was seen as improving, members generally felt that the change in the outlook was not sufficient to warrant any adjustments to the asset purchase program, and some noted that more time was needed to accumulate information on the economy before considering any adjustment. Members emphasized that the pace and overall size of the purchase program would be contingent on economic and financial developments; however, some indicated that they had a fairly high threshold for making changes to the program.

On December 21, the Federal Reserve announced an extension through August 1, 2011, of its temporary U.S. dollar liquidity swap arrangements with the Bank of Canada, the Bank of England, the European Central Bank, the Bank of Japan, and the Swiss National Bank. The authorization of the swap arrangements had previously been set to expire on January 31, 2011.

The data reviewed at the January 25–26 FOMC meeting indicated that the economic recovery was gaining a firmer footing, though the expansion had not yet been sufficient to bring about a significant improvement in labor market conditions. Consumer spending had risen strongly late in 2010, and the ongoing expansion in business outlays for equipment and software appeared to have been sustained in recent months. Industrial production had increased solidly in November and December. However, construction activity in both the residential and nonresidential sectors remained weak. Modest gains in employment had continued, but the unemployment rate remained elevated. Conditions in financial markets were viewed by participants as having improved somewhat further over the intermeeting period, as equity prices had risen and credit spreads on the debt of nonfinancial corporations had continued to narrow while yields on longer-term nominal Treasury securities were little changed. Credit conditions were still tight for smaller, bank-dependent firms, although bank loan growth had picked up in some sectors. Despite further increases in commodity prices, measures of underlying inflation remained subdued and longer-run inflation expectations were stable.

The information received over the intermeeting period had increased members' confidence that the economic recovery would be sustained, and the downside risks to both economic growth and inflation were viewed as having diminished. Nevertheless, members noted that the pace of the recovery was insufficient to bring about a significant improvement in labor market conditions, and that measures of underlying inflation were trending downward. Moreover, the economic projections submitted for this meeting indicated that unemployment was expected to remain above, and inflation to remain somewhat below, levels consistent with the Committee's objectives for some time. Accordingly, the Committee decided to maintain its existing policy of reinvesting principal payments from its securities holdings and reaffirmed its intention to purchase $600 billion of longer-term Treasury securities by the end of the second quarter of 2011. Members emphasized that the Committee would continue to regularly review the pace of its securities purchases and the overall size of the asset purchase program. In addition, the Committee maintained the target range of 0 to ¼ percent for the federal funds rate and reiterated its expectation that economic conditions were likely to warrant exceptionally low levels of the federal funds rate for an extended period.

Tools for the Withdrawal of Monetary Policy Accommodation

Although the FOMC continues to anticipate that economic conditions are likely to warrant exceptionally low levels of the federal funds rate for an extended period, ultimately the Federal Reserve will need to begin to tighten monetary conditions to prevent the development of inflationary pressures as the economy recovers. The Federal Reserve has the tools it needs to remove policy accommodation at the appropriate time. One tool is the interest rate paid on reserve balances. By increasing the rate paid on reserves, the Federal Reserve will be able to put significant upward pressure on short-term market interest rates because banks will not supply short-term funds to the money markets at rates significantly below what they can earn by simply leaving funds on deposit at the Federal Reserve Banks. Two other tools, executing term reverse repurchase agreements (RRPs) with the primary dealers and other counterparties and issuing term deposits to depository institutions through the Term Deposit Facility (TDF), can be used to reduce the large quantity of reserves held by the banking system; such a reduction would improve the Federal Reserve's control of financial conditions by tightening the relationship between the interest rate paid on reserves and other short-term interest rates. The Federal Reserve could also reduce the quantity of reserves in the banking system by

redeeming maturing and prepaid securities held by the Federal Reserve without reinvesting the proceeds or by selling some of its securities holdings.

During the second half of 2010, the Federal Reserve Bank of New York (FRBNY) conducted a series of small-scale triparty RRP transactions with primary dealers using all eligible collateral types, including, for the first time, agency debt and agency MBS from the SOMA portfolio.[14] The Federal Reserve also conducted a series of small-scale triparty RRP transactions with a set of counterparties that had been expanded to include approved money market mutual funds, using Treasury securities, agency debt, and agency MBS as collateral.

On September 8, the Federal Reserve Board authorized a program of regularly scheduled small-value offerings of term deposits under the TDF.[15] The auctions, which are to occur about every other month, are intended to ensure the operational readiness of the TDF and to increase the familiarity of eligible participants with the auction procedures. Since September, the Federal Reserve has conducted three auctions, each of which offered $5 billion in 28-day deposits. All of these auctions were well subscribed.

Recent Steps to Increase Transparency

Transparency is an essential principle of modern central banking because it appropriately contributes to the accountability of central banks to the government and the public and because it can enhance the effectiveness of central banks in achieving macroeconomic objectives. The Federal Reserve provides detailed information concerning the conduct of monetary policy.[16] During the financial crisis, the Federal Reserve developed a public website that contains extensive information on its credit and liquidity programs, and, in 2009, the Federal Reserve began issuing detailed monthly reports on these programs.[17]

Recently, the Federal Reserve has taken further steps to enhance its transparency and expand the amount of information it provides to the public. First, on December 1, the Federal Reserve posted detailed information on its public website about the individual credit and other transactions conducted to stabilize markets during the financial crisis, restore the flow of credit to American families and businesses, and support economic recovery and job creation in the aftermath of the crisis.[18] As mandated by the Dodd–Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd–Frank Act), transaction-level details from December 1, 2007, to July 21, 2010, were provided about entities that participated in the agency MBS purchase program, used Federal Reserve liquidity swap lines, borrowed through the Term Auction Facility, or received loans or other financial assistance through a program authorized under section 13(3) of the Federal Reserve Act. Many of these transactions were conducted through a variety of broad-based lending facilities and provided liquidity to financial institutions and markets through fully secured, mostly short-term loans. Other transactions involved purchases of agency MBS and supported mortgage and housing markets; these transactions lowered longer-term interest rates and fostered economic growth. Dollar liquidity swap lines with foreign central banks posed no financial risk to the Federal Reserve because the Federal Reserve's counterparties were the foreign central banks themselves, not the institutions to which the foreign central banks then lent the funds; these swap facilities helped stabilize dollar funding markets abroad, thus contributing to the restoration of stability in U.S. markets. Other transactions provided liquidity to particular institutions whose disorderly failure could have severely stressed an already fragile financial system.

A second step toward enhanced transparency involves disclosures going forward. The Dodd–Frank Act established a framework for the disclosure of information on credit extended after July 21, 2010, through the discount window under section 10B of the Federal Reserve Act or from a section 13(3) facility, as

14. In a triparty repurchase agreement, both parties to the agreement must have cash and collateral accounts at the same triparty agent, which is by definition also a clearing bank. The triparty agent will ensure that collateral pledged is sufficient and meets eligibility requirements, and all parties agree to use collateral prices supplied by the triparty agent.

15. A few TDF auctions had occurred previously, but they were not part of a regular program.

16. Immediately following each meeting, the FOMC releases a statement that lays out the rationale for the policy decision. Detailed minutes of each FOMC meeting are made public three weeks following the meeting. Lightly edited transcripts of FOMC meetings are released to the public with a five-year lag. FOMC statements, minutes, and transcripts, as well as other related information, are available on the Federal Reserve Board's website. See Board of Governors of the Federal Reserve System, "Federal Open Market Committee," webpage, www.federalreserve.gov/monetarypolicy/fomc.htm.

17. See Board of Governors of the Federal Reserve System, "Credit and Liquidity Programs and the Balance Sheet," webpage, www.federalreserve.gov/monetarypolicy/bst.htm; and Board of Governors of the Federal Reserve System, "Monthly Report on Credit and Liquidity Programs and the Balance Sheet," webpage, www.federalreserve.gov/monetarypolicy/clbsreports.htm.

18. These data are available at Board of Governors of the Federal Reserve System, "Regulatory Reform: Usage of Federal Reserve Credit and Liquidity Facilities," webpage, www.federalreserve.gov/newsevents/reform_transaction.htm.

well as information on all open market operation (OMO) transactions. Generally, this framework requires the Federal Reserve to publicly disclose certain information about discount window borrowers and OMO counterparties approximately two years after the relevant loan or transaction; information about borrowers under future section 13(3) facilities will be disclosed one year after the authorization for the facility is terminated. The information to be disclosed includes the name and identifying details of each borrower or counterparty, the amount borrowed, the interest rate paid, and information identifying the types and amounts of collateral pledged or assets transferred in connection with the borrowing or transaction.

Finally, the Federal Reserve has also increased transparency with respect to the implementation of monetary policy. In particular, the Federal Reserve took steps to provide additional information about its security purchase operations with the objective of encouraging wider participation in such operations. The FRBNY publishes, on an ongoing basis, schedules of purchase operations expected to take place over the next four weeks; details provided include lists of operation dates, settlement dates, security types to be purchased, the maturity date range of eligible issues, and an expected range for the size of each operation. Results of each purchase operation are published shortly after it has concluded. In addition, the FRBNY has commenced publication of information on the prices paid for individual securities in its purchase operations.[19]

19. General information on OMOs, including links to the prices paid in recent purchases of Treasury securities, is available on the FRBNY's website at www.newyorkfed.org/markets/pomo/display/index.cfm.

Part 4
Summary of Economic Projections

The following material appeared as an addendum to the minutes of the January 25–26, 2011, meeting of the Federal Open Market Committee.

In conjunction with the January 25–26, 2011, Federal Open Market Committee (FOMC) meeting, the members of the Board of Governors and the presidents of the Federal Reserve Banks, all of whom participate in the deliberations of the FOMC, submitted projections for growth of real output, the unemployment rate, and inflation for the years 2011 to 2013 and over the longer run. The projections were based on information available through the end of the meeting and on each participant's assumptions about factors likely to affect economic outcomes, including his or her assessment of appropriate monetary policy. "Appropriate monetary policy" is defined as the future path of policy that each participant deems most likely to foster outcomes for economic activity and inflation that best satisfy his or her interpretation of the Federal Reserve's dual objectives of maximum employment and stable prices. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge over time under appropriate monetary policy and in the absence of further shocks.

As depicted in figure 1, FOMC participants' projections for the next three years indicated that they expect a sustained recovery in real economic activity, marked by a step-up in the rate of increase in real gross domestic product (GDP) in 2011 followed by further modest acceleration in 2012 and 2013. They anticipated that, over this period, the pace of the recovery would exceed their estimates of the longer-run sustainable rate of increase in real GDP by enough to gradually lower the unemployment rate. However, by the end of 2013, participants projected that the unemployment rate would still exceed their estimates of the longer-run unemployment rate. Most participants expected that inflation would likely move up somewhat over the forecast period but would remain at rates below those they see as consistent, over the longer run, with the Committee's dual mandate of maximum employment and price stability.

As indicated in table 1, relative to their previous projections in November 2010, participants anticipated somewhat more rapid growth in real GDP this year, but they did not significantly alter their expectations for the pace of the expansion in 2012 and 2013 or for the longer run. Participants made only minor changes to their forecasts for the path of the unemployment

Table 1. Economic projections of Federal Reserve Governors and Reserve Bank presidents, January 2011

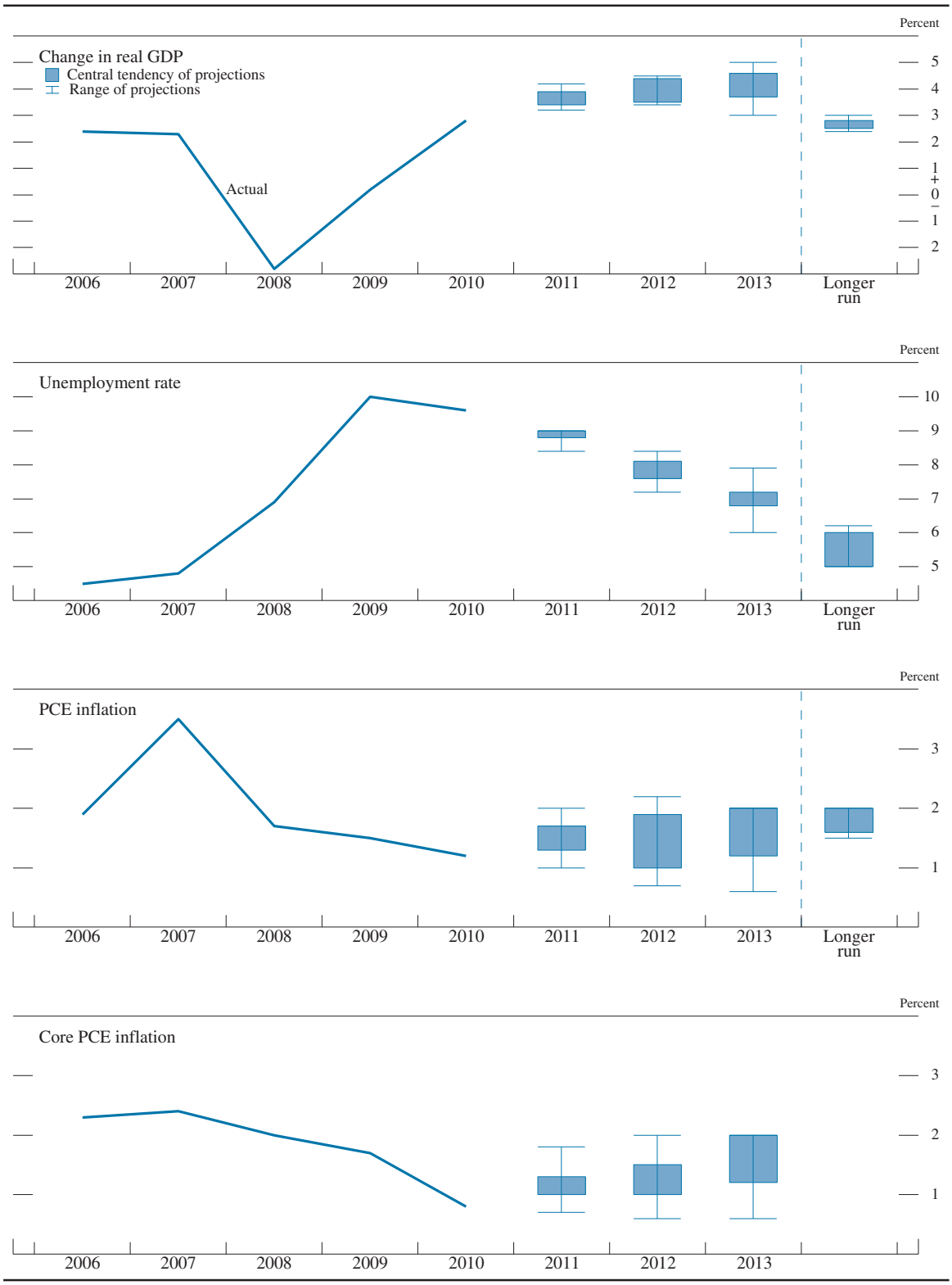
Percent

Variable	Central tendency[1]				Range[2]			
	2011	2012	2013	Longer run	2011	2012	2013	Longer run
Change in real GDP	3.4 to 3.9	3.5 to 4.4	3.7 to 4.6	2.5 to 2.8	3.2 to 4.2	3.4 to 4.5	3.0 to 5.0	2.4 to 3.0
November projection	3.0 to 3.6	3.6 to 4.5	3.5 to 4.6	2.5 to 2.8	2.5 to 4.0	2.6 to 4.7	3.0 to 5.0	2.4 to 3.0
Unemployment rate	8.8 to 9.0	7.6 to 8.1	6.8 to 7.2	5.0 to 6.0	8.4 to 9.0	7.2 to 8.4	6.0 to 7.9	5.0 to 6.2
November projection	8.9 to 9.1	7.7 to 8.2	6.9 to 7.4	5.0 to 6.0	8.2 to 9.3	7.0 to 8.7	5.9 to 7.9	5.0 to 6.3
PCE inflation	1.3 to 1.7	1.0 to 1.9	1.2 to 2.0	1.6 to 2.0	1.0 to 2.0	0.7 to 2.2	0.6 to 2.0	1.5 to 2.0
November projection	1.1 to 1.7	1.1 to 1.8	1.2 to 2.0	1.6 to 2.0	0.9 to 2.2	0.6 to 2.2	0.4 to 2.0	1.5 to 2.0
Core PCE inflation[3]	1.0 to 1.3	1.0 to 1.5	1.2 to 2.0		0.7 to 1.8	0.6 to 2.0	0.6 to 2.0	
November projection	0.9 to 1.6	1.0 to 1.6	1.1 to 2.0		0.7 to 2.0	0.6 to 2.0	0.5 to 2.0	

NOTE: Projections of change in real gross domestic product (GDP) and in inflation are from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption expenditures (PCE) and the price index for PCE excluding food and energy. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. Each participant's projections are based on his or her assessment of appropriate monetary policy. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy. The November projections were made in conjunction with the meeting of the Federal Open Market Committee on November 2–3, 2010.

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

Figure 1. Central tendencies and ranges of economic projections, 2011–13 and over the longer run



NOTE: Definitions of variables are in the notes to table 1. The data for the actual values of the variables are annual. The data for the change in real GDP, PCE inflation, and core PCE inflation shown for 2010 incorporate the advance estimate of GDP for the fourth quarter of 2010, which the Bureau of Economic Analysis released on January 28, 2011. This information was not available to FOMC meeting participants at the time of their meeting.

rate and for the rate of inflation over the next three years. Although most participants anticipated that the economy would likely converge to sustainable rates of increase in real GDP and prices over five or six years, a number of participants indicated that they expected that the convergence of the unemployment rate to its longer-run level would require additional time.

As they did in November, participants judged the level of uncertainty associated with their projections for real economic activity and inflation as unusually high relative to historical norms. Most continued to see the risks surrounding their forecasts of GDP growth, the unemployment rate, and inflation over the next three years to be generally balanced. However, fewer noted downside risks to the likely pace of the expansion and, accordingly, upside risks to the unemployment rate than in November; fewer also saw downside risks to inflation.

The Outlook

The central tendency of participants' forecasts for the change in real GDP in 2011 was 3.4 to 3.9 percent, somewhat higher than in the November projections. Participants stated that the economic information received since November indicated that consumer spending, business investment, and net exports increased more strongly at the end of 2010 than expected earlier; industrial production also expanded more rapidly than they previously anticipated. In addition, after the November projections were prepared, the Congress approved fiscal stimulus measures that were expected to provide further impetus to household and business spending in 2011. Moreover, participants noted that financial conditions had improved since November, including a rise in equity prices, a pickup in activity in capital markets, reports of easing of credit conditions in some markets, and an upturn in bank lending in some sectors. Many participants viewed the stronger tenor of the recent information, along with the additional fiscal stimulus, as suggesting that the recovery had gained some strength—a development seen as likely to carry into 2011—and that the expansion was on firmer footing. Participants expected that the expansion in real economic activity this year would continue to be supported by accommodative monetary policy and by ongoing improvement in credit and financial market conditions. The strengthening in private demand was anticipated to be led by increases in consumer and business spending; over time, improvements in household and business confidence and in labor market conditions would likely reinforce the rise in domestic demand. Nonetheless, participants recognized that the information available since November also indicated that the expansion remained uneven across sectors of the economy, and they expected that the pace of economic activity would continue to be moderated by the weakness in residential and nonresidential construction, the still relatively tight credit conditions in some sectors, an ongoing desire by households to repair their balance sheets, business caution about hiring, and the budget difficulties faced by state and local governments.

Participants expected that the economic expansion would strengthen further in 2012 and 2013, with the central tendencies of their projections for the growth in real GDP moving up to 3.5 to 4.4 percent in 2012 and then to 3.7 to 4.6 percent in 2013. Participants cited, as among the likely contributors to a sustained pickup in the pace of the expansion, a continued improvement in financial market conditions, further expansion of credit availability to households and businesses, increasing household and business confidence, and a favorable outlook for U.S. exports. Several participants noted that, in such an environment, and with labor market conditions anticipated to improve gradually, the restraints on household spending from past declines in wealth and the desire to rebuild savings should abate. A number of participants saw such conditions fostering a broader and stronger recovery in business investment, with a few noting that the market for commercial real estate had recently shown signs of stabilizing. Nonetheless, participants saw a number of factors that would likely continue to moderate the pace of the expansion. Most participants expected that the recovery in the housing market would remain slow, restrained by the overhang of vacant properties, prospects for weak house prices, and the difficulties in resolving foreclosures. In addition, some participants expected that the fiscal strains on the budgets of state and local governments would damp their spending for a time and that the federal government sector would likely be a drag on economic activity after 2011.

Participants anticipated that a gradual but steady reduction in the unemployment rate would accompany the pickup in the pace of the economic expansion over the next three years. The central tendency of their forecasts for the unemployment rate at the end of 2011 was 8.8 to 9.0 percent—a decline of less than 1 percentage point from the actual rate in the fourth quarter of 2010. Although participants generally expected further declines in the unemployment rate over the subsequent two years—to a central tendency of 6.8 to 7.2 percent at the end of 2013—they anticipated that, at the end of that period, unemployment would remain noticeably

higher than their estimates of the longer-run rate. Many participants thought that, with appropriate monetary policy and in the absence of further shocks, the unemployment rate would continue to converge gradually toward its longer-run rate within five to six years, but a number of participants indicated that the convergence process would likely be more extended.

While participants viewed the projected pace of the expansion in economic activity as the principal factor underlying their forecasts for the path of the unemployment rate, they also indicated that their projections were influenced by a number of other factors that were likely to contribute to a relatively gradual recovery in the labor market. In that regard, several participants noted that dislocations associated with the uneven recovery across sectors of the economy might retard the matching of workers and jobs. In addition, a number of participants viewed the modest pace of hiring in 2010 as, in part, the result of business caution about the durability of the recovery and of employers' efforts to achieve additional increases in productivity; several participants also cited the particularly slow recovery in demand experienced by small businesses as a factor restraining new job creation. With demand expected to strengthen across a range of businesses and with business confidence expected to improve, participants anticipated that hiring would pick up over the forecast period.

Participants continued to expect that inflation would be relatively subdued over the next three years and kept their longer-run projections of inflation unchanged. Many participants indicated that the persistence of large margins of slack in resource utilization should contribute to relatively low rates of inflation over the forecast horizon. In addition, participants noted that appropriate monetary policy, combined with stable longer-run inflation expectations, should help keep inflation in check. The central tendency of their projections for overall personal consumption expenditures (PCE) inflation in 2011 was 1.3 to 1.7 percent, while the central tendency of their forecasts for core PCE inflation was lower—1.0 to 1.3 percent. Increases in the prices of energy and other commodities, which were very rapid in 2010, were anticipated to continue to push headline PCE inflation above the core rate this year. The central tendency of participants' forecasts for inflation in 2012 and 2013 widened somewhat relative to 2011 and showed that inflation was expected to drift up modestly. In 2013, the central tendency of forecasts for both the total and core inflation rates was 1.2 to 2.0 percent. For most participants, inflation in 2013 was not expected to have converged to the longer-run rate of inflation that they individually considered most consistent with the Federal Reserve's dual mandate for maximum employment and stable prices. However, a number of participants anticipated that inflation would reach its longer-run rate within the next three years.

Table 2. Average historical projection error ranges

Percentage points

Variable	2011	2012	2013
Change in real GDP[1]	±1.3	±1.7	±1.8
Unemployment rate[1]	±0.7	±1.3	±1.5
Total consumer prices[2]	±1.0	±1.0	±1.1

NOTE: Error ranges shown are measured as plus or minus the root mean squared error of projections for 1990 through 2009 that were released in the winter by various private and government forecasters. As described in the box "Forecast Uncertainty," under certain assumptions, there is about a 70 percent probability that actual outcomes for real GDP, unemployment, and consumer prices will be in ranges implied by the average size of projection errors made in the past. Further information is in David Reifschneider and Peter Tulip (2007), "Gauging the Uncertainty of the Economic Outlook from Historical Forecasting Errors," Finance and Economics Discussion Series 2007-60 (Washington: Board of Governors of the Federal Reserve System, November).

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

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

Uncertainty and Risks

Most participants continued to share the view that their projections for economic activity and inflation were subject to a higher level of uncertainty than was the norm during the previous 20 years.[20] They identified a number of uncertainties that compounded the inherent difficulties in forecasting output growth, unemployment, and inflation. Among them were uncertainties about the nature of economic recoveries from recessions associated with financial crises, the effects of unconventional monetary policies, the persistence of structural dislocations in the labor market, the future course of federal fiscal policy, and the global economic outlook.

Almost all participants viewed the risks to their forecasts for the strength of the recovery in real GDP as broadly balanced. By contrast, in November, the distribution of views had been somewhat skewed to the downside. In weighing the risks to the projected growth rate of real economic activity, some participants noted the upside risk that the recent strengthening of aggre-

20. Table 2 provides estimates of forecast uncertainty for the change in real GDP, the unemployment rate, and total consumer price inflation over the period from 1990 to 2009. 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.

gate spending might mark the beginning of a more normal cyclical rebound in economic activity in which consumer spending might be spurred by pent-up demand for household durables and in which business investment might be accelerated by the desire to rebuild stocks of fixed capital. A more-rapid-than-expected easing of credit availability was also seen as a factor that might boost the pickup in private demand. As to the downside risks, many participants pointed to the recent declines in house prices and the potential for a slower resolution of existing problems in mortgage and real estate markets as factors that could have more-adverse-than-expected consequences for household spending and bank balance sheets. In addition, several participants expressed concerns that, in an environment of only gradual improvement in labor market and credit conditions, households might be unusually focused on reducing debt and boosting saving. A number of participants also saw a downside risk in the possibility that the fiscal problems of some state and local governments might lead to a greater retrenchment in their spending than currently anticipated. Finally, several participants expressed concerns that the financial and fiscal strains in the euro area might spill over to U.S. financial markets.

The risks surrounding participants' forecasts of the unemployment rate were also broadly balanced and generally reflected the risks attending participants' views of the likely strength of the expansion in real activity. However, a number of participants noted that the unemployment rate might decline less than they projected if businesses were to remain hesitant to expand their workforces because of uncertainty about the durability of the expansion or about employment costs or if mismatches of workers and jobs were more persistent than anticipated.

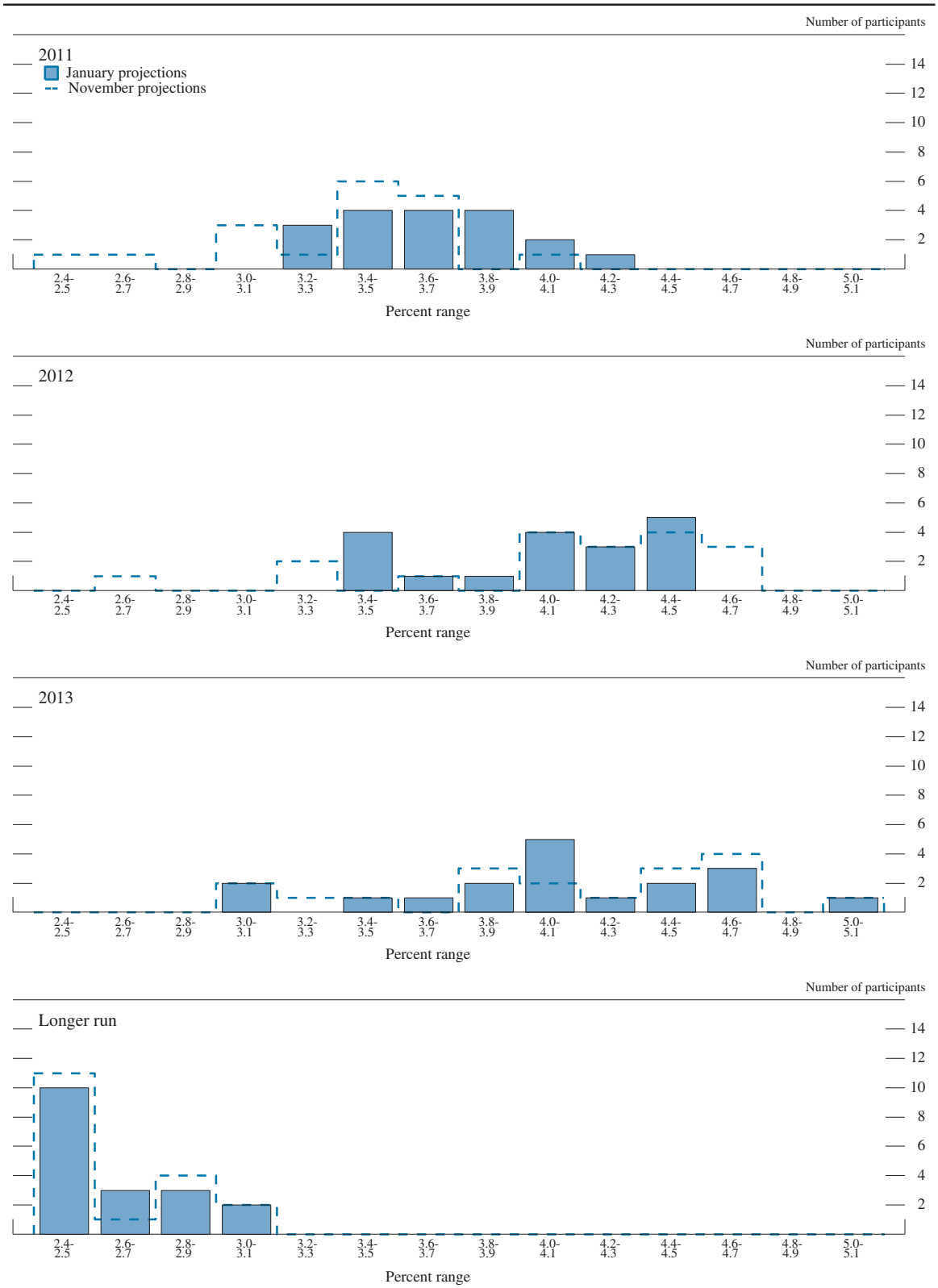
Most participants judged the risks to their inflation outlook over the period from 2011 to 2013 to be broadly balanced as well. Compared with their views in November, several participants no longer saw the risks as tilted to the downside, and an additional participant viewed the risks as weighted to the upside. In assessing the risks, a number of participants indicated that they saw the risks of deflation or further unwanted disinflation to have diminished. Many participants identified the persistent gap between their projected unemployment rate and its longer-run rate as a risk that inflation could be lower than they projected. A few of those who indicated that inflation risks were skewed to the upside expressed concerns that the expansion of the Federal Reserve's balance sheet, if left in place for too long, might erode the stability of longer-run inflation expectations. Alternatively, several participants noted that upside risks to inflation could arise from persistently rapid increases in the costs of energy and other commodities.

Diversity of Views

Figures 2.A and 2.B detail the diversity of participants' views regarding the likely outcomes for real GDP growth and the unemployment rate in 2011, 2012, 2013, and over the longer run. The dispersion in these projections reflected differences in participants' assessments of many factors, including the likely evolution of conditions in credit and financial markets, the timing and the degree to which various sectors of the economy and the labor market will recover from the dislocations associated with the deep recession, the outlook for economic and financial developments abroad, and appropriate future monetary policy and its effects on economic activity. For 2011 and 2012, the dispersions of participants' forecasts for the strength in the expansion of real GDP and for the unemployment rate were somewhat narrower than they were last November, while the ranges of views for 2013 and for the longer run were little changed.

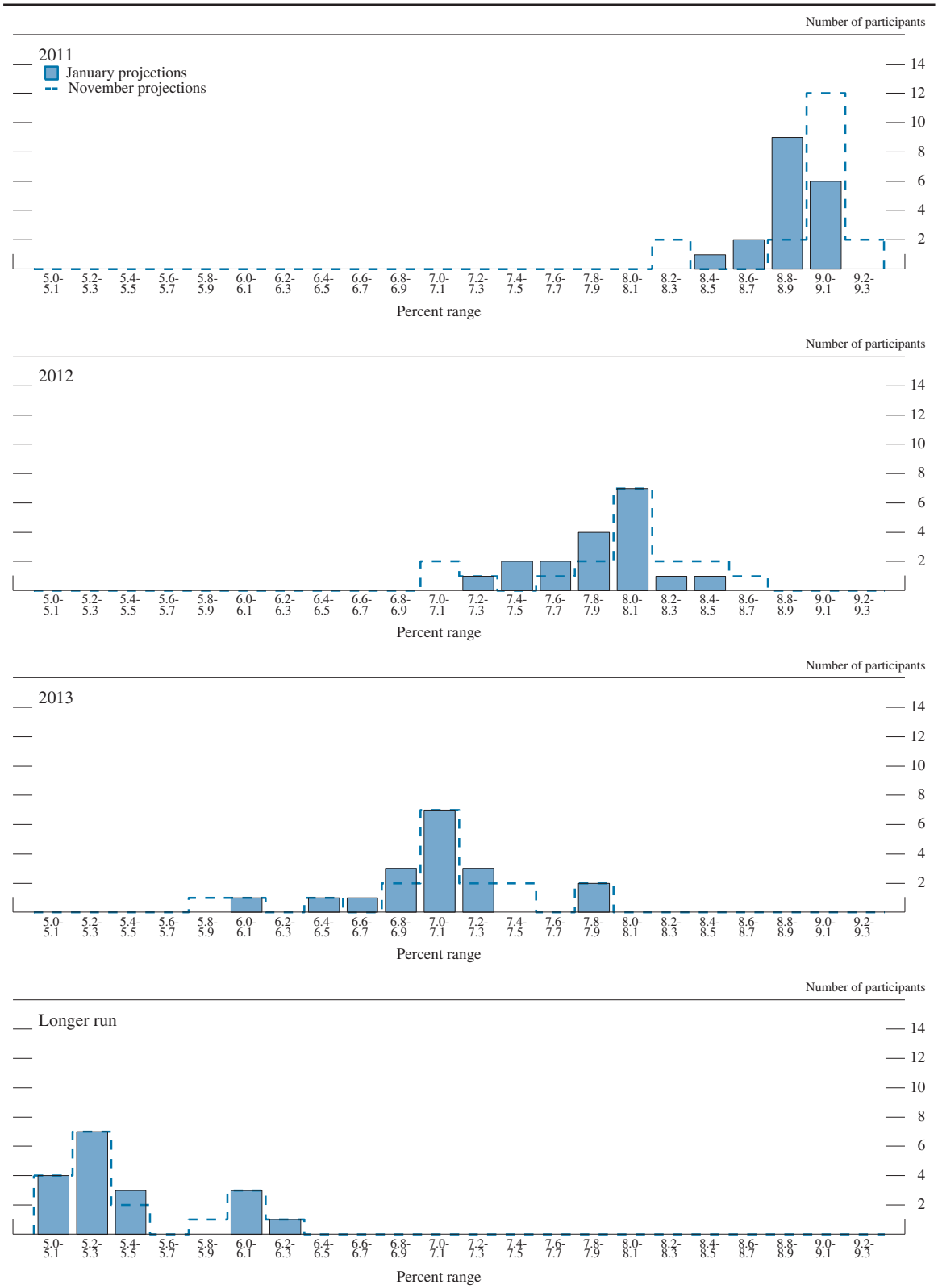
Figures 2.C and 2.D provide the corresponding information about the diversity of participants' views regarding the outlook for total and core PCE inflation. These distributions were somewhat more tightly concentrated for 2011, but for 2012 and 2013, they were much the same as they were in November. In general, the dispersion in the participants' inflation forecasts for the next three years represented differences in judgments regarding the fundamental determinants of inflation, including estimates of the degree of resource slack and the extent to which such slack influences inflation outcomes and expectations as well as estimates of how the stance of monetary policy may influence inflation expectations. Although the distributions of participants' inflation forecasts for 2011 through 2013 continued to be relatively wide, the distribution of projections of the longer-run rate of overall inflation remained tightly concentrated. The narrow range illustrates the broad similarity in participants' assessments of the approximate level of inflation that is consistent with the Federal Reserve's dual objectives of maximum employment and price stability.

Figure 2.A. Distribution of participants' projections for the change in real GDP, 2011–13 and over the longer run



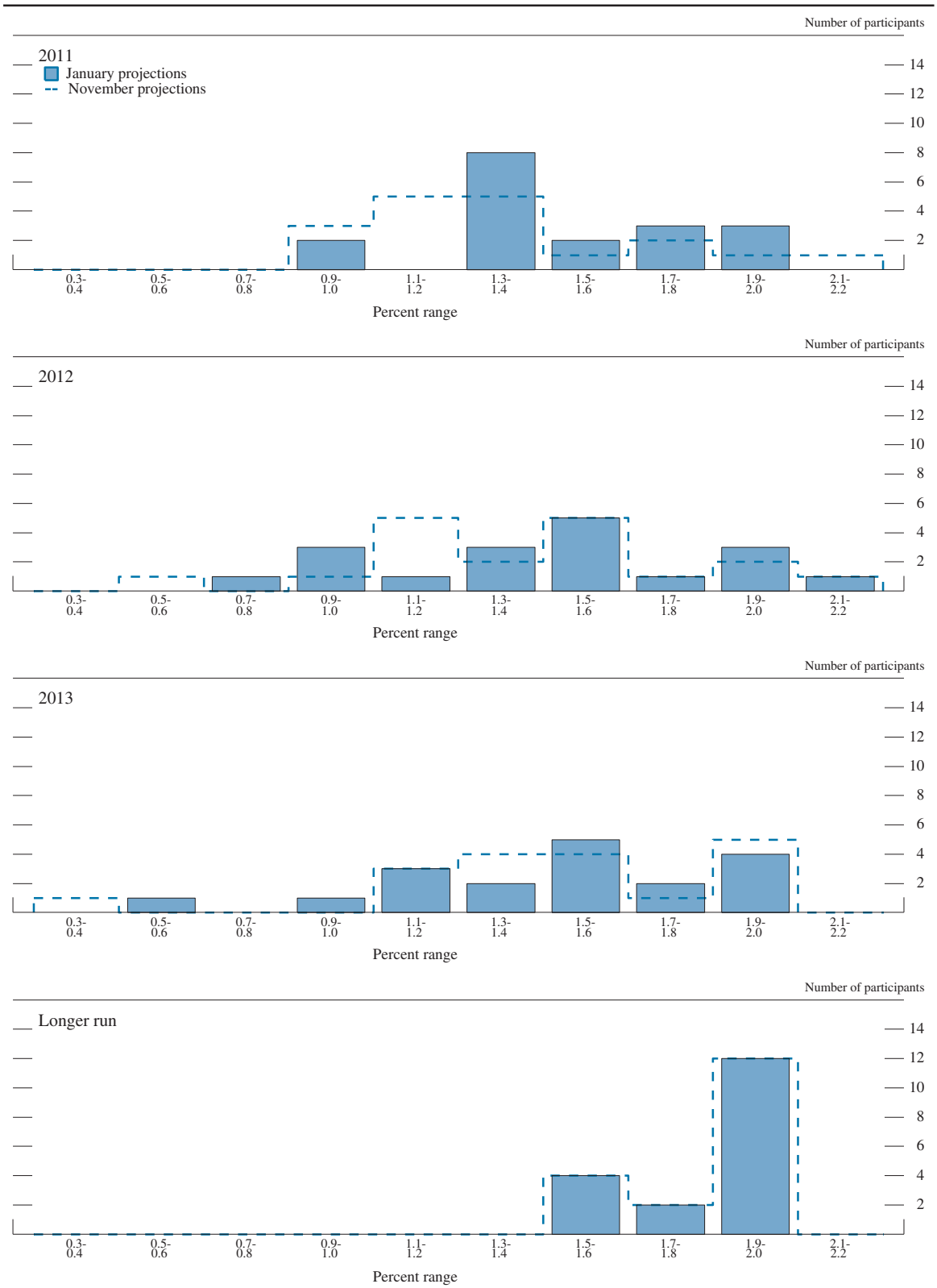
NOTE: Definitions of variables are in the general note to table 1.

Figure 2.B. Distribution of participants' projections for the unemployment rate, 2011–13 and over the longer run



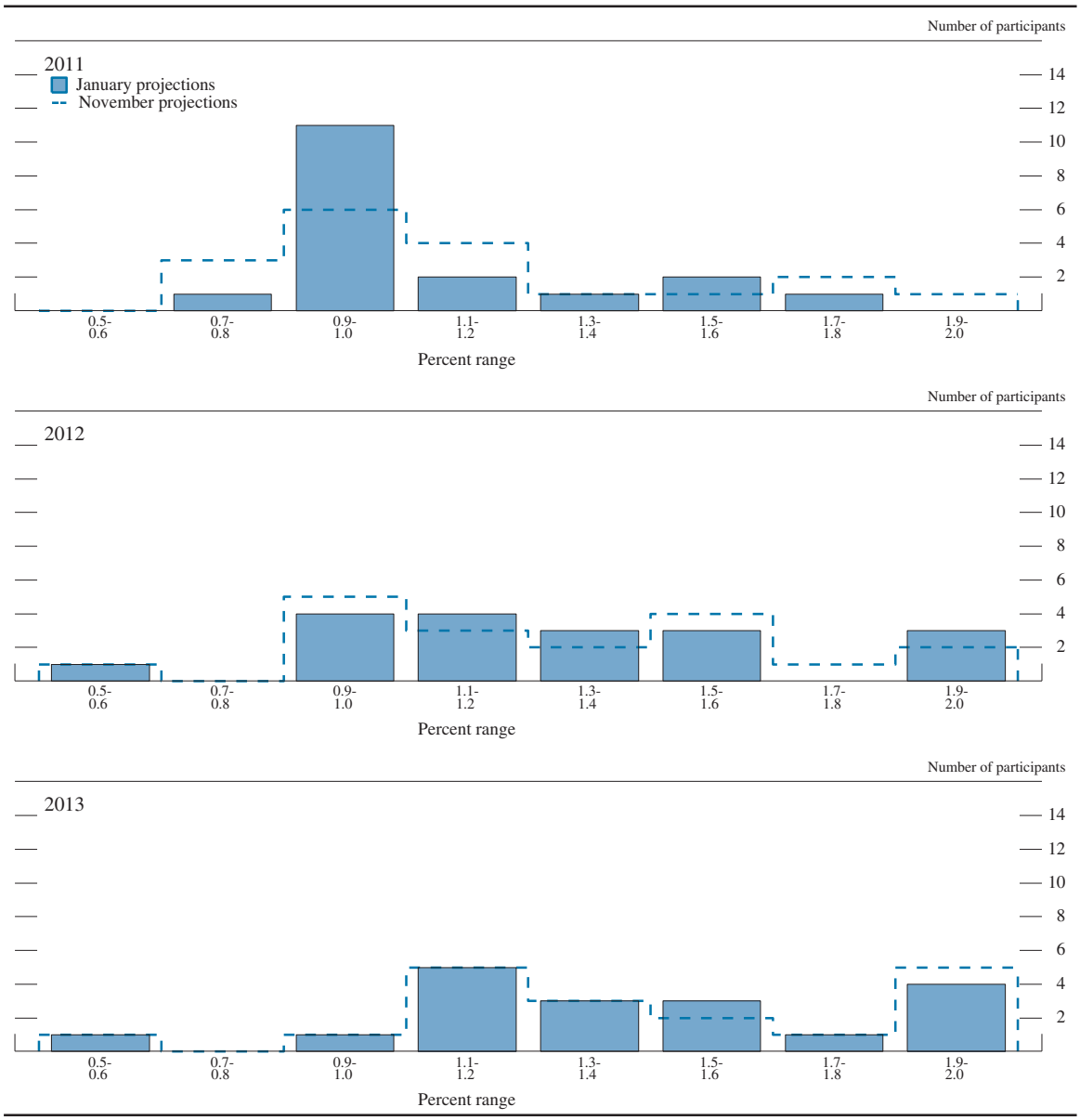
NOTE: Definitions of variables are in the general note to table 1.

Figure 2.C. Distribution of participants' projections for PCE inflation, 2011–13 and over the longer run



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

Figure 2.D. Distribution of participants' projections for core PCE inflation, 2011–13



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

Forecast Uncertainty

The economic projections provided by the members of the Board of Governors and the presidents of the Federal Reserve Banks inform discussions of monetary policy among 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 Federal Reserve Board staff in advance of meetings of the Federal Open Market Committee. The projection error ranges shown in the table illustrate the considerable uncertainty associated with economic forecasts. For example, suppose a participant projects that real gross domestic product (GDP) and total consumer prices will rise steadily at annual rates of, respectively, 3 percent and 2 percent. If the uncertainty attending those projections is similar to that experienced in the past and the risks around the projections are broadly balanced, the numbers reported in table 2 would imply a probability of about 70 percent that actual GDP would expand within a range of 1.7 to 4.3 percent in the current year, 1.3 to 4.7 percent in the second year, and 1.2 to 4.8 percent in the third year. The corresponding 70 percent confidence intervals for overall inflation would be 1.0 to 3.0 percent in the current and second years, and 0.9 to 3.1 percent in the third year.

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

Abbreviations

ABS	asset-backed securities
AIG	American International Group, Inc.
ARRA	American Recovery and Reinvestment Act
C&I	commercial and industrial
CMBS	commercial mortgage-backed securities
CRE	commercial real estate
Credit Card Act	Credit Card Accountability Responsibility and Disclosure Act
DPI	disposable personal income
ECB	European Central Bank
ECI	employment cost index
EME	emerging market economy
EU	European Union
FASB	Financial Accounting Standards Board
FOMC	Federal Open Market Committee; also, the Committee
FRBNY	Federal Reserve Bank of New York
GDP	gross domestic product
GSE	government-sponsored enterprise
IMF	International Monetary Fund
IRA	individual retirement account
IT	information technology
Libor	London interbank offered rate
LLC	limited liability company
MBS	mortgage-backed securities
NFIB	National Federation of Independent Business
NIPA	national income and product accounts
NOW	negotiable order of withdrawal
OMO	open market operation
PCE	personal consumption expenditures
repo	repurchase agreement
RRP	reverse repurchase agreement
SCOOS	Senior Credit Officer Opinion Survey on Dealer Financing Terms
SLOOS	Senior Loan Officer Opinion Survey on Bank Lending Practices
SOMA	System Open Market Account
TALF	Term Asset-Backed Securities Loan Facility
TARP	Troubled Asset Relief Program
TDF	Term Deposit Facility
WTI	West Texas Intermediate