



## C H A P T E R 2

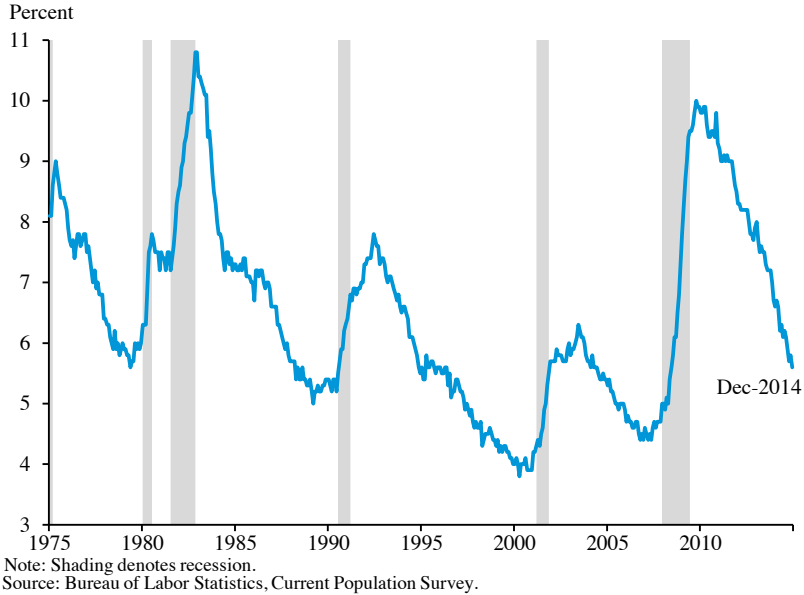
# THE YEAR IN REVIEW AND THE YEARS AHEAD

The U.S. economy took another major step forward in 2014 as it continued to recover from the worst economic crisis since the Great Depression. Real gross domestic product (GDP) has grown at a solid 2.8-percent annual pace over the past two years, a pickup from the 2.0-percent pace seen during the 12 quarters of 2010 through 2012. The labor market firmed markedly during 2014, as reflected in the fastest pace of job gains since 1999 and nearly the fastest decline in the unemployment rate since 1983. Cumulatively, the private sector added 11.5 million jobs during 59 consecutive months (through December 2014) of positive job growth, the nation's longest streak of uninterrupted private-sector job growth on record. The unemployment rate declined 1.1 percentage points during the 12 months of 2014, or almost an average of 0.1 percentage point a month, falling to 5.6 percent by year end (see Figure 2-1). Real average hourly earnings of production and nonsupervisory workers rose 1.5 percent over the 12 months of the year, as nominal wage growth continued to run somewhat ahead of the subdued pace of consumer price inflation. While substantial progress has been made, the economic recovery remains incomplete, and more work remains to support growth, boost job creation, and lift wages.

The strengthening of the labor market occurred while real GDP grew 2.5 percent during the four quarters of 2014. The quarterly pace of economic growth was uneven as unusually cold and snowy weather contributed to a first-quarter drop in real GDP (at a 2.1-percent annual rate). The economy rebounded in the second and third quarters at a nearly 5.0-percent annual rate, followed by a slowing to 2.6 percent in the fourth quarter (advance estimate).

Growth in consumer spending, business fixed investment, and exports sustained average aggregate demand growth during the four quarters of 2014, albeit with substantial quarter-to-quarter fluctuations. Inventory investment proved uneven. The State and local sector bottomed out in 2012

Figure 2-1  
**Unemployment Rate, 1975–2014**



and 2013, and provided a bit of support for the economy in 2014. Although slow growth among our international trading partners limited the growth of foreign demand, U.S. exports still grew 2 percent during the four quarters of the year. Manufacturing production also grew 4.5 percent during the four quarters as annual motor vehicle assemblies reached 11.7 million units in 2014, their highest level since 2005.

The price of imported petroleum, as measured by the spot price of European light crude oil from the North Sea (known as Brent), averaged \$108 per barrel during the first eight months of the year but fell to \$63 per barrel for the month of December. The price decline reflected both increased global supply, including U.S. production, and weak world consumption, and it lowered the Nation’s net petroleum bill by roughly \$70 billion at an annual rate and dampened headline inflation in the final months of the year.

Although fiscal restraint continued in fiscal year (FY) 2014 with the Federal Budget deficit falling 1.3 percentage points to 2.8 percent of GDP, the restraint was less severe than during the two preceding years and mostly reflected the effects of automatic stabilizers rather than changes in the structural deficit. The cumulative five-year (2009 to 2014) decline in the deficit-to-GDP ratio was the steepest five-year drop since the demobilization following WWII. Following the October 2013 government shutdown, the two-year Ryan-Murray budget agreement (in December 2013) helped provide fiscal-policy stability during FY 2014 and FY 2015. The Consolidated

and Further Continuing Appropriations Act, signed into law in December 2014, will help to extend this more stable fiscal environment into 2015. By the fourth quarter of 2014, consumer sentiment, as measured by both the Reuters/University of Michigan index and the Conference Board index, reached its highest levels since 2007, which likely reflects the additional fiscal certainty, improving income and employment expectations, and declining gasoline prices.

## KEY EVENTS OF 2014

### *Aggregate Output Growth during the Year*

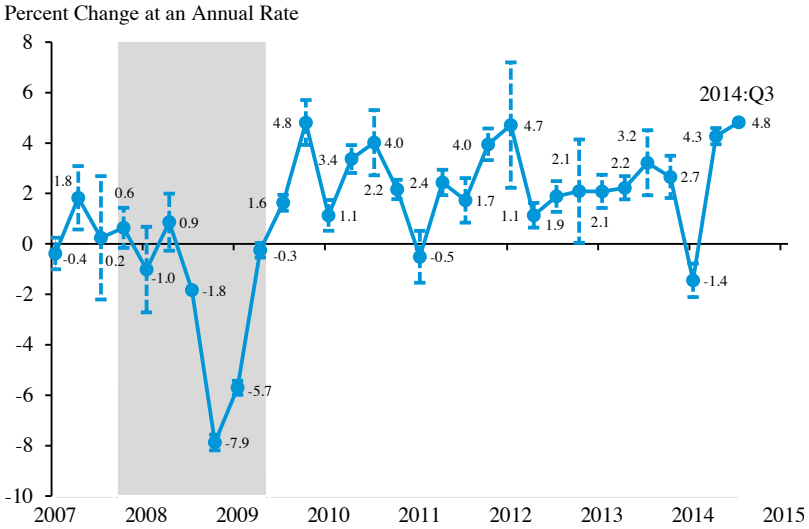
Growth during the year was volatile partly due to exceptionally severe weather in the first quarter and a puzzling first-quarter decline in reported health-care spending, followed by a surge in growth as the level of real output rebounded in subsequent quarters. Cold weather played a major role in depressing GDP in the first quarter; in fact, it was the third most unusually cold quarter in the past 60 years. Four snowstorms in the first quarter were severe enough to be rated on the Northeast Snowfall Impact Scale, an index produced by the National Oceanic and Atmospheric Administration that aims to capture the economic impact of snowstorms on populations. Prior to 2014, no quarter going back to 1956 had more than three such storms. The bad weather appears to have reduced many of the weather-sensitive components of GDP. Outright real spending declines occurred in inventory investment, equipment investment, residential investment (mostly reflecting a drop in real estate commissions), exports (especially to Canada), and State and local government spending (mostly through construction spending). Also, real consumer spending on goods registered below-trend growth. Weakness in these categories was only partially offset by higher consumer spending on services, which rose owing to a weather-related increase in electric and natural gas utility outlays.

Growth rebounded to 4.6- and 5.0-percent annual rates in the second and third quarters followed by a 2.6-percent rate in the fourth quarter. Over the four quarters of the year, real GDP grew 2.5 percent. Figure 2-2 shows the growth rate of real output, as represented by the average of the income-side and product-side measures.<sup>1</sup> Measured in this way, real output grew 2.5 percent during the first three quarters of 2014, up slightly from 2.3 percent

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<sup>1</sup> Real output can be measured as the sum of the product-side components (known as gross domestic product, GDP) or by the sum of the income-side components (known as gross domestic income, GDI). In principle, these two quantities are the same, but these two measures will differ due to measurement error. Figure 2-2 plots both measures and their average.

Figure 2-2  
**Mean GDP Growth, 2007–2014**



Note: Mean real GDP growth is the average of the growth rates of real GDP and real gross domestic income (GDI). The bullets show mean GDP and the bars show the GDP and GDI growth in each quarter. Shading denotes recession.

Source: Bureau of Economic Analysis, National Income and Product Accounts; CEA calculations.

during the four quarters of 2013. Relative to this 2.5-percent pace, growth was fast in durable goods consumption and business fixed investment while growth was slow (but still positive) in consumer spending on nondurables and services, exports, Federal nondefense purchases, and State and local spending. Residential investment grew at about the same pace as overall GDP. Inventory investment (both farm and nonfarm) contributed a bit to GDP growth during 2014, and it played an important role in the quarter-to-quarter fluctuations. An aggregate of consumption and fixed investment, known as private domestic final purchases (PDFP), is an especially predictive indicator of future real GDP growth. Real PDFP grew 3.2 percent during the four quarters of 2014 (see Box 2-1).

### ***Fiscal Policy***

Federal fiscal policy was less restrictive during FY 2014—which ended on September 30, 2014—than a year earlier. It was also more predictable, since Congress had agreed in December 2013 on discretionary spending caps for the remainder of FY 2014 and all of FY 2015; and on appropriations bills for FY 2014 and FY 2015, enacted in January and December 2014, respectively.

The agreement to end the 16-day October 2013 shutdown (the Continuing Appropriations Act of 2014), together with subsequent

### Box 2-1: Private Domestic Final Purchases as a Predictive Indicator of GDP

Real GDP, like many indicators, can be volatile from quarter-to-quarter for purely transitory reasons related to fluctuations or measurement issues that provide little information about the underlying state of the economy. As discussed in the text, 2014 provides an example with a sharp contraction in GDP in the first quarter of 2014 and a sharp expansion in the second quarter, suggesting a fluctuation around an underlying economic trend. One reason why GDP is so volatile is that subcomponents can have large transitory fluctuations, for example, the volatile inventory investment component of GDP, which subtracted from the first quarter of 2014 and added to it in the second quarter.

Table 2-i  
Component Ability to Forecast One-Quarter-Ahead  
Real GDP Growth

Component (Real)	Predictive Power (Adjusted R <sup>2</sup> ) of GDP
Government	-0.02
Exports	0.02
Inventories	0.02
GDP	0.22
Final Sales of Domestic Product	0.23
Imports	0.28
Fixed Investment	0.29
Mean Output (GDP, GDI)	0.29
PCE	0.30
GDI	0.31
Final Sales to Domestic Purchasers	0.33
<b>Final Sales to Private Domestic Purchasers (PDFP)</b>	<b>0.36</b>

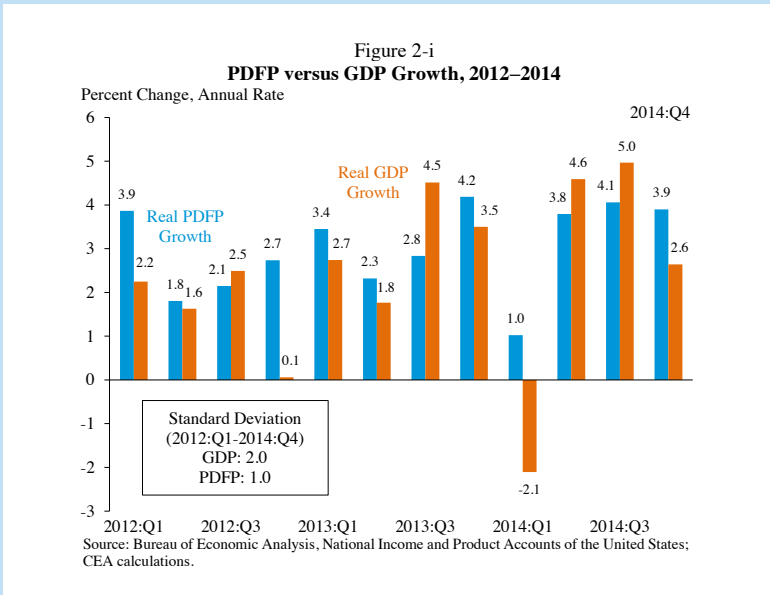
Note: Mean output refers to the average of GDP and GDI. The quarterly growth rate of real GDP is regressed on four lags of growth rates for the listed variables over 1984:Q1 to 2014:Q4, using revised data.

Source: Bureau of Economic Analysis, National Income and Product Accounts; CEA Calculations.

Do other national income concepts provide a better gauge of the underlying trend in economic activity? One way to assess this is to determine which factors provide the best prediction of one-quarter ahead real GDP growth, thereby capturing the more inertial component or components of GDP. Of the candidates, one might consider lags of overall real GDP itself, or the lagged values of individual spending-side components of real GDP (consumer spending, fixed investment, and government spending). One might also consider the income-side measure of real GDP, known as gross domestic income (GDI), which would be identical to GDP but for measurement error. The best predictor could be some combination of these components.

Table 2-i above shows how well lagged growth rates of these variables predict one-quarter ahead overall GDP growth, as measured by percent of the variance of GDP (known as  $R^2$ ) explained by each of these candidates. On this scale, a perfect predictor would have an  $R^2$  of 1, and a variable with no correlation would have an  $R^2$  of 0. Among the possibilities shown in Table 2-i, consumer spending and fixed investment are good predictors of future GDP. The best-fitting predictor, however, is an aggregate of these two variables called private domestic final purchases (PDFP). This is likely attributable to the fact that PDFP excludes the volatile and possibly inaccurate measures of exports, imports, inventory investment, and government spending. It therefore equals the sum of consumption and fixed investment. As can be seen, PDFP predicts future GDP growth better than the lags of GDP itself, GDI, or a simple average of GDP and GDI. PDFP also predicts GDP better than final sales (GDP less inventory investment) and all the other components of GDP.

Figure 2-i below illustrates that real PDFP growth is much more stable than real GDP growth. Although PDFP growth was low in the first quarter of 2014 (because weather affected consumption and fixed investment), it was not negative because PDFP excludes volatile components like inventory investment. PDFP then rebounded in the second and third quarters but not by as much as GDP. In the second, third, and fourth quarters, growth of PDFP was stable at 3.8, 4.1, and 3.9 percent, respectively. In contrast, real GDP growth was more volatile, surging to



5.0 percent in the third quarter boosted by defense and net exports, and then slowing to 2.6 percent in the fourth quarter when these components reversed direction. Overall, the growth rate of PDFP is more stable than GDP, allowing a reasonable quarter-by-quarter measure of the underlying growth rate of the economy.

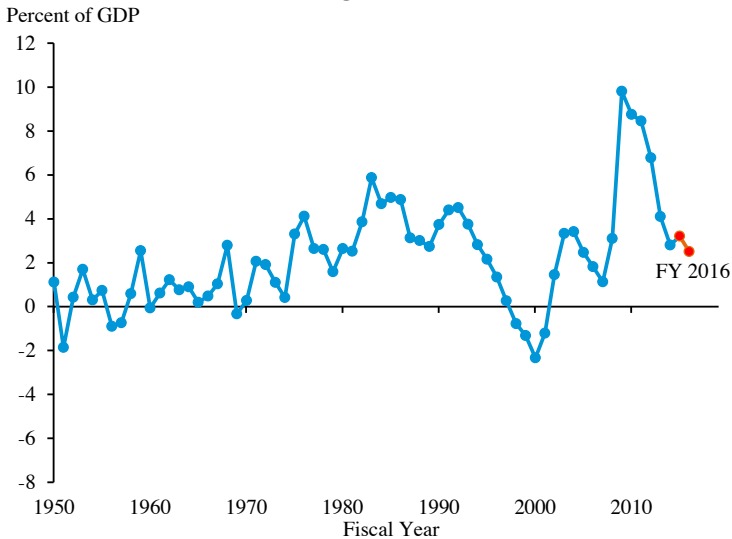
agreements reached in December 2013 and the following January, suspended the debt ceiling through March 2015, provided partial relief from the automatic sequestration of discretionary spending in fiscal years 2014 and 2015, and resulted in appropriations bills that funded the Federal Government through the end of FY 2014. In September, Congress passed a continuing resolution to fund the government through December 11, 2014. Finally, in mid-December, the 113th Congress passed and the President signed an appropriations bill that funded most of the Federal Government through the end of FY 2015. This legislation provided positive support to a number of key initiatives, including the extension of the FY 2014 funding gains for early childhood education, investment in manufacturing innovation hubs around the country, and provision of additional funding for key financial watchdogs like the Commodity Futures Trading Commission and Securities and Exchange Commission.<sup>2</sup> In addition, Congress retroactively approved a variety of tax “extenders” that affected 2014 liabilities, including incentives for research and development and clean energy, and tax deductions for teacher expenses.

The five-year decline of 7.0 percentage points in the deficit-to-GDP ratio since FY 2009 has been the largest since the demobilization at the end of World War II. The Federal deficit-to-GDP ratio fell 1.3 percentage points to 2.8 percent in FY 2014. The year-to-year reduction in this ratio followed steeper declines of 1.7 and 2.7 percentage points in fiscal years 2012 and 2013, respectively (see Figure 2-3). The deficit-to-GDP ratio in FY 2009 was elevated by the steep recession as well as by fiscal measures deployed to combat that recession. Overall, fiscal support substantially raised the level of output and employment during and after 2009, as discussed in the 2014 *Economic Report of the President* (Chapter 3). But the reduction in the deficit has acted as a drag on growth rates, especially in 2013. One source of fiscal drag during 2012 and 2013 was the end of various countercyclical fiscal policies following the recession, the largest change being the expiration of the payroll tax cut at the end of 2012. The declining deficit in 2014 largely

<sup>2</sup> <http://www.whitehouse.gov/blog/2014/12/17/>

omb-director-shaun-donovan-passage-hr-83-consolidated-and-further-continuing-appropriations-act-2014

Figure 2-3  
**Federal Budget Deficit, 1950–2016**



Note: Orange markers denote administration forecasts.

Source: Office of Management and Budget; Bureau of Economic Analysis, National Income and Product Accounts.

reflected an increase in tax collections resulting from growing incomes. With the deficit-to-GDP ratio projected to edge up in FY 2015, before it edges down in FY 2016, fiscal drag is likely to be negligible in the near term.

### *Monetary Policy*

In 2014, the Federal Open Market Committee (FOMC) maintained a historically accommodative monetary policy stance. With its usual tool—the Federal funds rate—at its effective lower bound, the Committee continued to employ the unconventional policy tools it has introduced in the years since the global financial crisis. These tools included forward guidance for the future path of the Federal funds rate and additional purchases of longer-term U.S. Treasury securities and agency-guaranteed mortgage-backed securities.

As the U.S. economy increasingly showed evidence of strength, however, the Federal Reserve moved gradually to tighten monetary policy. At its December 2013 meeting, the FOMC announced a decision to reduce the monthly increase in its holdings of long-term securities by \$10 billion a month to \$75 billion a month. This tapering of asset purchases continued with further modest reductions in the monthly pace of purchases at each FOMC meeting through October 2014, when new purchases were discontinued entirely. As of February 2015, the Federal Reserve continues



to purchase long-term debt securities, but only in amounts sufficient to replace maturing debt in its portfolio, such that the overall size of the Federal Reserve's holdings remains approximately constant. Plans for the taper were communicated to markets beforehand and markets experienced little volatility in response to the actual reductions in purchases when they started in December 2013. The yield on the 10-year Treasury note fell 69 basis points over the 12 months of the year.

The end of new Federal Reserve asset purchases does not mean the end of the effect of the Federal Reserve's asset holdings on the level of longer-term interest rates. On the contrary, the better measure of the effect of the Fed's portfolio policy on longer-term interest rates is thought to involve the size and expected duration of the Fed's holdings, not the pace at which those holdings are increased. Therefore, the stock of Federal Reserve asset holdings continues to influence the long-term interest rate even after the end of new purchases.<sup>3</sup>

At the start of 2014, interest-rate futures markets expected the initial increase (liftoff) in the Federal funds rate to occur during the second quarter of 2015, as shown in Figure 2-4. By the end of 2014, markets expected the liftoff to occur in the third quarter of 2015. The shift likely reflected the slowdown in global growth and the Committee's indication that it can be patient in beginning to normalize policy even after the end of the asset purchase program. The Committee has emphasized that future policy will remain dependent on incoming economic data.

### *Financial Markets*

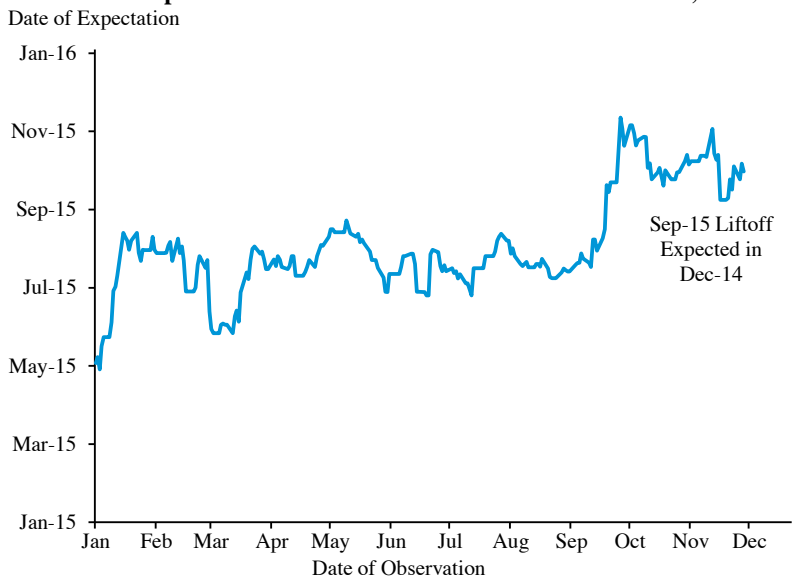
Developments in U.S. financial markets over the course of the year largely reflected the evolving global economic outlook and shifting monetary policy expectations. Longer-term interest rates, as measured by the yields on 10-year U.S. Treasury notes, declined from 2.9 percent in December 2013 to 2.2 percent in December 2014, as shown in Figure 2-5. The decline in interest rates came despite rapid improvement in the U.S. labor market and an end to the expansion of the Federal Reserve's balance sheet. The decline was likely driven in large part by the evolving expectation during 2014 for a later increase in the Federal funds rate that occurred, as depicted in Figure 2-4, along with continued low readings on inflation.

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<sup>3</sup> Then-Chairman Bernanke has stated that "we do believe the primary effect of our purchases is through the stock that we hold, because that stock has been withdrawn from markets, and the prices of those assets have to adjust to balance supply and demand." Chairman Ben S. Bernanke, Press Conference, June 19, 2013, available at <http://www.federalreserve.gov/mediacenter/files/FOMCpresconf20130619.pdf>.

Figure 2-4

### Market-Implied Date of Initial Federal Funds Rate Increase, 2014



Note: The market-implied expectation is the date for which futures contracts imply a 0.25 percent increase in the Federal funds effective rate.

Source: Bloomberg Professional Service; CEA calculations.

Figure 2-5

### Nominal Long- and Short-Term Interest Rates, 2014



Note: Displayed yields are constant-maturity interest rates calculated from the U.S. Treasury yield curve.

Source: Federal Reserve Board, H.15 Release.

Downward revisions to global growth projections have also been important contributors to the decline in interest rates. The move in U.S. interest rates coincided with decreasing long-term interest rates across the developed world, including in the United Kingdom, Japan, and the euro area. The general decline in interest rates among advanced economies likely reflects in part the environment of slowing global growth and weakening inflation: the one- and five-year ahead growth rates projected by the International Monetary Fund (IMF) for these countries were revised down during 2014, and again in January 2015.

Other interest rates also declined in 2014, as shown in Table 2-1. The average rate on a 30-year fixed rate mortgage has fallen 60 basis points over the 12 months of the year to 3.86 percent. Before the last several weeks of 2014, the average mortgage rate had not fallen below 4 percent since mid-2013. Similarly, corporate borrowing costs declined over the course of the year. Credit spreads—differences between corporate interest rates and U.S. Treasury yields that reflect the risk of default by corporate borrowers—were unchanged on balance during 2014. Short-term interest rates (such as the Federal funds rate, and the 91-day Treasury bill rate) were largely stable over the course of the year, as markets consistently expected the first Federal funds rate increase to occur more than three months into the future.

Reflecting the ongoing economic recovery, the stock market saw continued positive performance in 2014. The Standard and Poor's 500 index rose 11.4 percent for the year. That performance follows increases of 13 percent in 2012 and 30 percent in 2013 (the best year since 1997). In December, the Standard and Poor's index was 32 percent above its pre-financial-crisis monthly peak in 2007.

### *International Developments*

Faced with weak global economic performance over 2014, the IMF reduced its forecast for year-over-year 2015 global real GDP growth from 4.0 percent in October 2013 to 3.5 percent in January 2015. Most economies experienced low rates of inflation in 2014 and low interest rates. The pace of recovery was uneven across countries, with country-specific factors playing an important role. In its World Economic Outlook assessments, the IMF pointed to the legacies of the crisis, including high levels of public and private debt and subdued investment, as impediments to growth.

***Euro zone.*** There is considerable divergence in the pace of the recovery across Europe. The euro zone suffered a debilitating crisis from late 2009 to 2012, fast on the heels of the 2007 to 2009 global financial crisis. Germany, Sweden, and most countries in central and eastern Europe have recovered to their pre-crisis levels of real GDP relative to working-age population, while

Table 2-1

**Selected Interest Rates, 2014**

(Percent)	Dec-13	Dec-14	Difference
Federal Funds Effective	0.09	0.12	0.03
3-Month U.S. Treasury Yield	0.07	0.03	-0.04
2-Year U.S. Treasury Yield	0.34	0.64	0.30
5-Year U.S. Treasury Yield	1.58	1.64	0.06
10-Year U.S. Treasury	2.90	2.21	-0.69
10-Year BBB Corporate Bonds	4.83	4.18	-0.65
30-Year U.S. Treasury	3.89	2.83	-1.06
30-Year Fixed Mortgage Rate	4.46	3.86	-0.60

Note: All interest rates are averages of daily or weekly data throughout the given month.

Treasury yields are constant-maturity yields estimated by the Federal Reserve Board.

Corporate bond yields are option-adjusted yields estimated by Standard & Poor's Global Fixed Income Research. The mortgage rate is that reported in the Freddie Mac Primary Mortgage Survey.

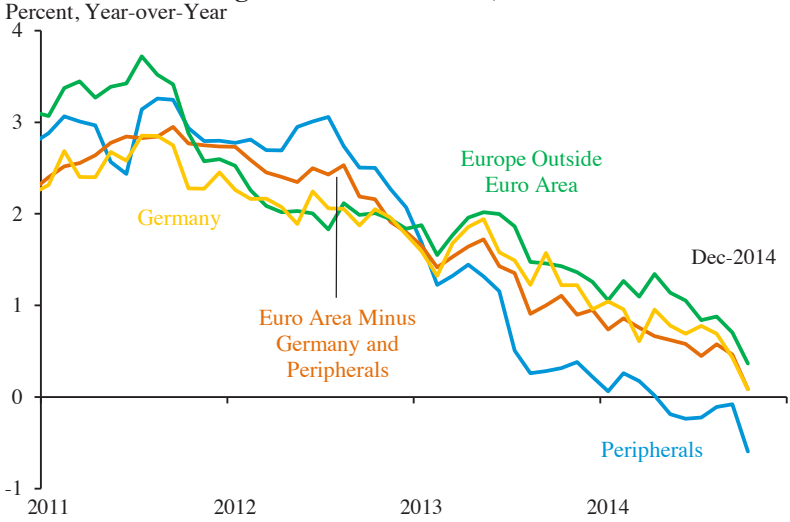
Source: Board of Governors of the Federal Reserve System; Standard & Poor's; Freddie Mac; CEA calculations.

in the rest of the continent, notably the aggregate of the peripheral euro area economies (Greece, Ireland, Italy, Portugal, and Spain), real GDP remains 9 percent below the pre-recession peak. (For a detailed discussion of the dispersion in real GDP trajectories across countries, see Box 2-2 below.) For the euro area as a whole, real GDP growth in the third quarter of 2014 (the latest available as this *Report* goes to press) was weak. The growth rate of real GDP per working age population from the third quarter of 2013 to the third quarter of 2014 was a meager 0.8 percent for the euro area, 1.2 percent in Germany, 0.4 percent in France, while Italy dipped back into recession with a decline of 0.5 percent. The unemployment rate edged down during 2014 across the euro area, but inflation fell sharply as well, with Greece and Spain experiencing outright deflation (Figure 2-6).

At the height of the euro crisis in July 2012, European Central Bank (ECB) President Mario Draghi pledged “to do whatever it takes to preserve the euro.”<sup>4</sup> A month later, in August 2012, the ECB announced it was prepared to use large-scale “outright monetary transactions” (OMT), if necessary, to offset the effects on sovereign yields of speculation that some member states might exit the euro. OMT would involve possibly massive ECB purchases of the sovereign debts of countries whose yields spiked upward because of fears they might abandon the euro in favor of a new national

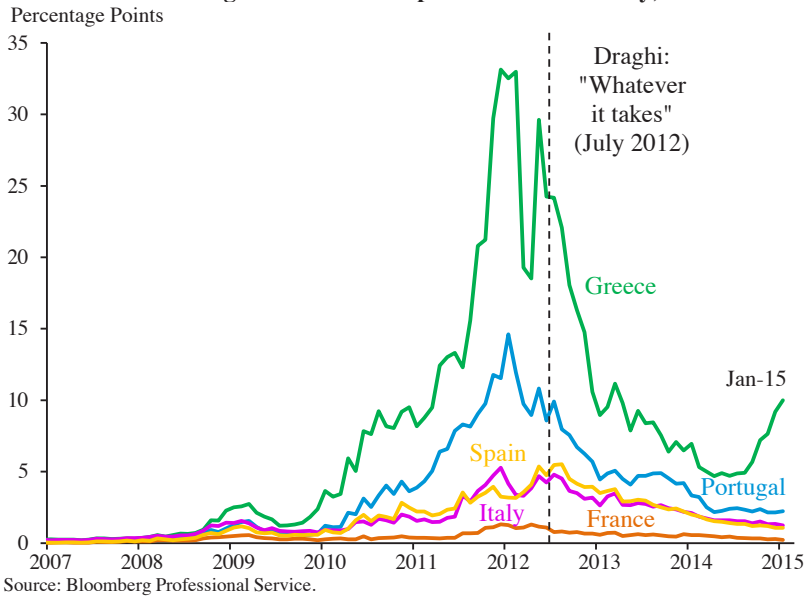
<sup>4</sup> Mario Draghi, President of the European Central Bank, Global Investment Conference, July 26, 2012, available at <http://www.ecb.europa.eu/press/key/date/2012/html/sp120726.en.html>.

Figure 2-6  
**Falling Euro Area Inflation, 2011–2014**



Note: Peripherals include Greece, Ireland, Italy, Portugal and Spain.  
 Source: Eurostat, Harmonized Index of Consumer Prices, Gross Domestic Product; CEA calculations.

Figure 2-7  
**Euro Area Sovereign Interest Rate Spreads over Germany, 2007–2015**

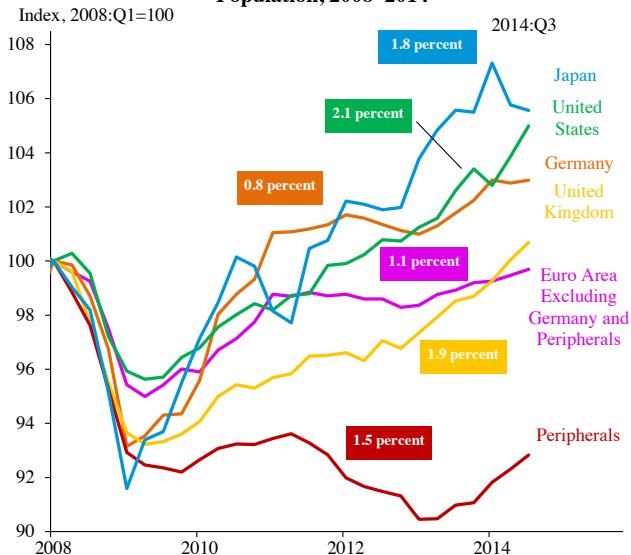


Source: Bloomberg Professional Service.

## Box 2-2: International Comparison of Growth Performance

Nearly every advanced economy endured a recession amid the global financial crisis, but the experience since then has varied widely across economies. Figure 2-ii shows real GDP divided by working-age population since 2008 for most advanced economies. All of the economies represented in the Figure experienced a deep and almost synchronous decline ranging from 4 to 10 percent measured from peak to trough. Since then, the United States, the United Kingdom, Germany, and Japan have surpassed the levels of real GDP per working-age population they achieved before the crisis, while most of the euro area has not. The figures in parentheses show the recent annualized rate of growth in real GDP per working-age population as measured over the eight-quarter interval through the third quarter of 2014. The United States and the United Kingdom have experienced recent growth of 2.1 and 1.9 percent a year respectively, and have both exceeded their pre-crisis peaks. Germany has also surpassed its pre-crisis peak, but, in contrast to the United States and the United Kingdom, real GDP per working-age

Figure 2-ii  
Real Gross Domestic Product per Working-Age  
Population, 2008–2014

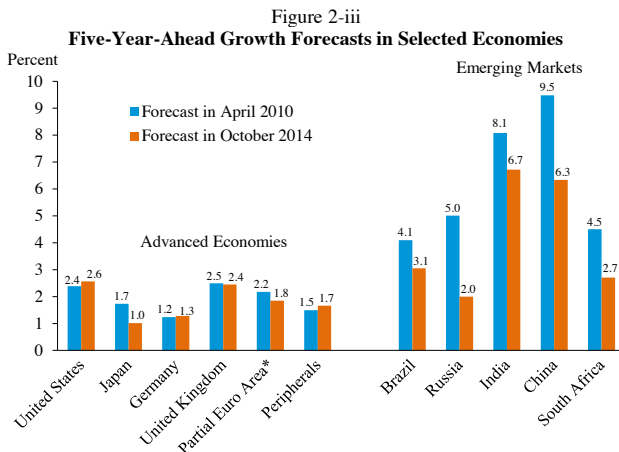


Note: Peripherals include Greece, Ireland, Italy, Portugal and Spain. Numbers in parentheses are the annualized eight-quarter percent changes in real GDP per working-age population ended in 2014:Q3. Working age population is 16-64 for the U.S. and 15-64 for all others.

Source: Eurostat; CEA calculations.

population has been almost flat since 2011, with annualized growth of 0.8 percent over the last eight quarters. Japan’s annual growth rate was 1.8 percent, but this was driven largely by the decline in its working-age population. (Real GDP over the same interval has grown at only a 0.6 percent annualized rate.) The high-debt peripheral euro economies (Greece, Ireland, Italy, Portugal, and Spain), which were battered by the euro financial crisis between late 2009 and 2012, experienced a double-dip recession and as a group remain 9 percent below their 2008 GDP-per-worker level, though growth has picked up in the last year. The weak recovery is not confined to the high-debt peripheral economies. The rest of the euro area, excluding Germany and the high-debt peripheral countries, is close to attaining its pre-crisis peak with recent annualized growth of 0.9 percent in real GDP per worker.

The diverging paths within advanced economies can partly be attributed to different conditions prior to the crisis: differences in outstanding household debt, differences in public debt, the health of the financial sector, and whether the country is part of a crisis-afflicted monetary union. But much of the post-crisis difference must also be placed at the feet of government policy, which has failed to stimulate aggregate demand. A country’s ability to tackle demand shortfalls through higher public spending or tax cuts may be limited if fiscal space is insufficient—either because government debt is already high or because markets doubt the government’s ability to manage its budget sustainably over the longer term. Thus, governments must accumulate fiscal space through prudent



Note: \*Partial Euro Area excludes Germany and Peripheral countries. Peripheral countries are Greece, Ireland, Italy, Portugal, and Spain.  
Source: International Monetary Fund, World Economic Outlook April 2010 and October 2014; CEA Calculations.

budgets during periods of stronger growth, as many emerging economies did during the 2000s.

At the same time, supply shortfalls have also played an important role in the slower pace of global growth. The IMF has marked down its medium-term growth projections for many of the world's major economies, as shown in the Figure 2-iii. The figure compares the five-year-ahead growth forecasts made in the April 2010 World Economic Outlook to the five-year-ahead growth forecasts made in the October 2014 World Economic Outlook, a rough proxy for revisions to the expectation of the growth of aggregate supply. While Japan and the euro area excluding Germany and peripherals have seen downward revisions to medium-term growth expectations, the striking aspect of this figure is the sharp downward revisions to prospects for the BRIC economies, which saw growth outlooks marked down by 1 to 3 percentage points. In fact, in the October 2014 World Economic Outlook, the IMF noted the BRIC economies have been responsible for one-half of the IMF's total growth forecast errors from 2011 to 2014 despite representing just over one-quarter of global GDP. The emerging market slowdown may be just a temporary response to the economic crisis and weak global demand. Another possibility is that it could represent the end of an unusual period in global economic history when the integration of China and India into the global economy led to a rapid period of catching up with the technological frontier. As these nations edge closer to the frontier, opportunities for growth are diminishing.

currency. President Draghi's announcement marked the start of a period of declining peripheral sovereign interest-rate spreads over the German bund. As a result, some commentators view the euro crisis as being in remission if not over (Ireland and Portugal have formally exited from their "troika" assistance programs administered by the IMF, EU, and ECB). The exception is Greece, which has so far been unable to meet its commitment to deficit reduction under the troika program despite government efforts to bring its budget under control. Spreads rose sharply in January 2015 as the anti-austerity party Syriza came to power, vowing to renegotiate the terms of Greece's sovereign debts (see Figure 2-7). Syriza and its coalition partner, the Independent Greeks, campaigned on platforms aggressively opposed to the deficit-reduction policies to which Greece must adhere under the terms of the troika assistance program.

Despite the generally low and falling spreads on sovereign debt, deflation in the peripheral countries has meant that real interest rates (nominal rates less inflation) are highest where unemployment is highest. Figure 2-8



shows the relationship between real interest rates and unemployment. The figure suggests that high real interest rates are suppressing recovery in precisely those countries with the greatest economic slack.

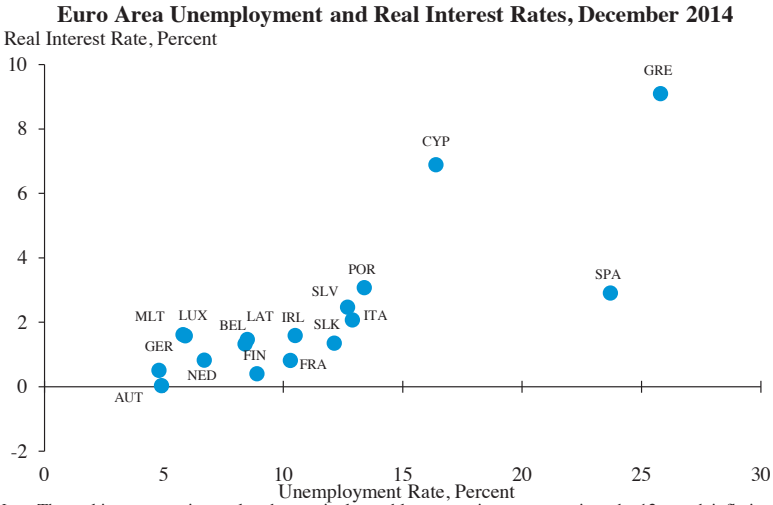
One reason that the United States has recovered more quickly than other advanced economies is its combination of accommodative monetary policy, quick action to recapitalize the financial sector, and aggressive demand management through countercyclical fiscal policy. The American Recovery and Reinvestment Act of 2009 was the largest countercyclical fiscal effort in U.S. history, and together with a dozen other fiscal-jobs measures and automatic stabilizers, fiscal support to the U.S. economy totaled 5.5 percent of GDP in 2010. But some euro area countries are constrained by fiscal rules from pursuing stronger countercyclical measures, while those that are unconstrained are largely unwilling to do so, or to allow much flexibility to the others. Because structural reform tends to work slowly, monetary policy must bear the immediate burden of resisting deflation and supporting demand. In contrast to the Federal Reserve's balance sheet, which increased through October 2014 but is being maintained at roughly a constant level for now, the ECB's balance sheet (as measured by the asset side) was allowed to contract between mid-2012 and mid-2014 from roughly €3 to €2 trillion, as euro area banks repaid ECB long-term loans taken out during the crisis. With the ECB's main refinancing interest rate effectively at the zero lower bound and its deposit rate negative since June 2014, President Draghi stated near the end of 2014 that the ECB "will do what we must to raise inflation and inflation expectations as fast as possible...."<sup>5</sup> In January 2015, Draghi announced an open-ended program of large-scale debt purchases, including sovereign debt, designed to increase the ECB's balance sheet more than €1 trillion by September 2016.

***Other advanced economies.*** Japan continues to face longstanding economic challenges. The "three arrows" of Abenomics (fiscal stimulus, monetary easing, and structural reforms) that Prime Minister Shinzo Abe launched in December 2012 were greeted with optimism that they would end deflationary expectations and generate sustained growth. After two decades of anemic growth in Japan, the apparent initial success of the Abe agenda—initially driven mainly by aggressive monetary policy and yen depreciation—was a welcome development. Real GDP grew at a rate of about 1.6 percent (year over year) in both 2012 and 2013, and expected inflation rose. In April 2014, however, the government permanently increased the national consumption tax from 5 percent to 8 percent as a step toward

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<sup>5</sup> Mario Draghi, President of the European Central Bank, Frankfurt European Banking Conference, November 21, 2014, available at <http://www.ecb.europa.eu/press/key/date/2014/html/sp141121.en.html>.

Figure 2-8



Note: The real interest rate is equal to the nominal monthly average interest rate minus the 12-month inflation rate. Greek data are from October, and Slovakian data are from November.  
 Source: Eurostat, Harmonized Unemployment Rate; European Central Bank, Harmonized Long Term Interest Rates; National Sources.

reducing the large public debt (roughly 250 percent of GDP). This policy, a fiscal contraction equal to about 1.5 percent of GDP, was partly offset by temporary expansionary fiscal measures. Nonetheless, recent economic data from Japan raise troubling questions about the net effects of the consumption tax increase on growth. Real GDP surged 5.8 percent at an annual rate in the first quarter of 2014 as consumers raced to complete purchases before the tax hike, but then plunged 6.7 percent at an annual rate in the second quarter after it took effect, and another 1.9 percent in the third quarter, leaving real GDP below its level at the end of 2013. At the same time, inflation (excluding the effects of the consumption tax) remains far below the Bank of Japan’s target of 2 percent a year. In response, the Bank of Japan expanded its program of quantitative and qualitative easing at the end of October. Slowing growth reflects weakness in consumer spending and business investment, which has led forecasters to revise down growth expectations for future quarters. Faced with these developments, Abe postponed by 18 months a second stage of the consumption tax increase (from 8 to 10 percent) planned for October 2015 and called a snap election that reaffirmed his parliamentary majority and extended by two years the horizon available for carrying out his policies.

As of the fourth quarter of 2014, real GDP in the United Kingdom was 3.4 percent above its pre-crisis peak, and unemployment stands at 5.8 percent for the September-to-November 2014 period. (See Box 3-2 for more details on the UK labor market and a comparison with the United States.)

Consumer price inflation was 0.5 percent over the 12 months of 2014, and the rate on the 10-year bond was 1.9 in December. Given the rapidly improving labor market, the Bank of England is anticipated to raise interest rates sometime in 2015 or 2016. On the downside, however, the strong economic linkages between the United Kingdom and continental Europe mean that troubles in the euro zone may dampen growth.

**Emerging markets.** China's economy grew 7.3 percent during the four quarters ended in the fourth quarter of 2014, down from an annualized rate of 9.2 percent in the eight quarters ended in the fourth quarter of 2011 (Figure 2-9). Both the IMF and the World Bank have downgraded their projections for Chinese growth in 2015 to a rate below 7.5 percent, which until recently was thought to be the Chinese authorities' target rate.

China may face stresses in adapting to a slower rate of expansion. In May, President Xi Jinping reportedly suggested that the Chinese "... must boost our confidence, adapt to the new normal condition based on the characteristics of China's economic growth in the current phase and stay cool-minded." One concern is the growth in credit to nonfinancial corporations and households, much of which has been channeled through the so-called shadow banking sector (which undertakes risky bank-like functions, but outside the government-regulated part of the financial sector). As shown in Figure 2-10, credit growth in China since 2008 has increased faster than in many developed countries. An initial surge in 2009 was seen as an aggressive response to the global financial crisis, in line with expansionary policies around the world. The renewed boom in credit since 2012, however, has raised worries about the rapid expansion of the unregulated shadow banking sector and a bubble in real estate prices. The government has responded with a number of policy measures to limit lending activities outside of the traditional banking sector. Property price gains have moderated, however, and prices began to fall in 2014, even in larger, wealthier cities where in the past demand has typically outstripped supply. There is growing concern about overbuilding because contraction in the construction sector would further depress aggregate growth and could cause financial instability.

A further economic slowdown in China would have ramifications for the global economy and, in particular, for low- and middle-income countries. Trade between China and other emerging BRICS economies (Brazil, Russia, India, and South Africa) has expanded since 2000. China is now the top export destination for 15 African countries, 13 Asian economies, and 3 Latin American countries. If demand in China slows, exports to China would decline, broadly dampening emerging-economy growth. Since mid-2011, the other BRICS countries have suffered declining terms of trade (the relative price of a country's exports compared with its imports). This decline

Figure 2-9  
**China: Real GDP Growth, 1993–2014**

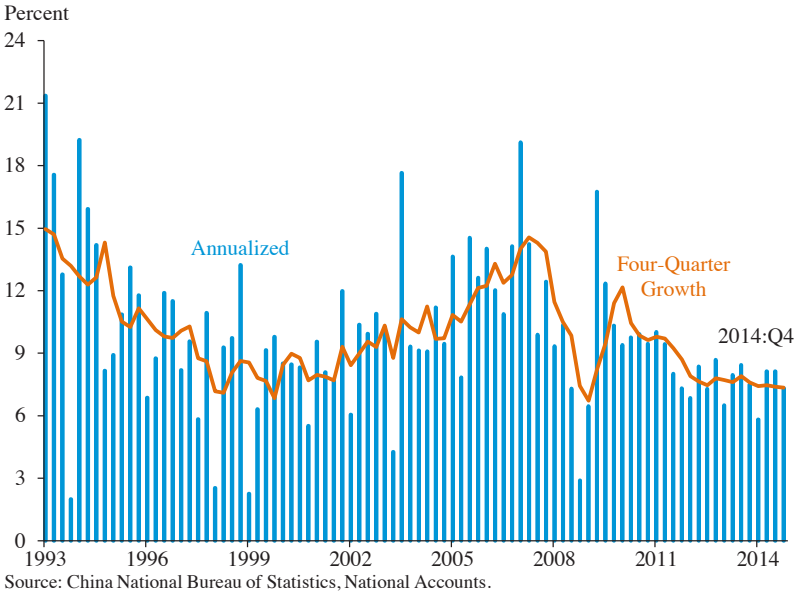
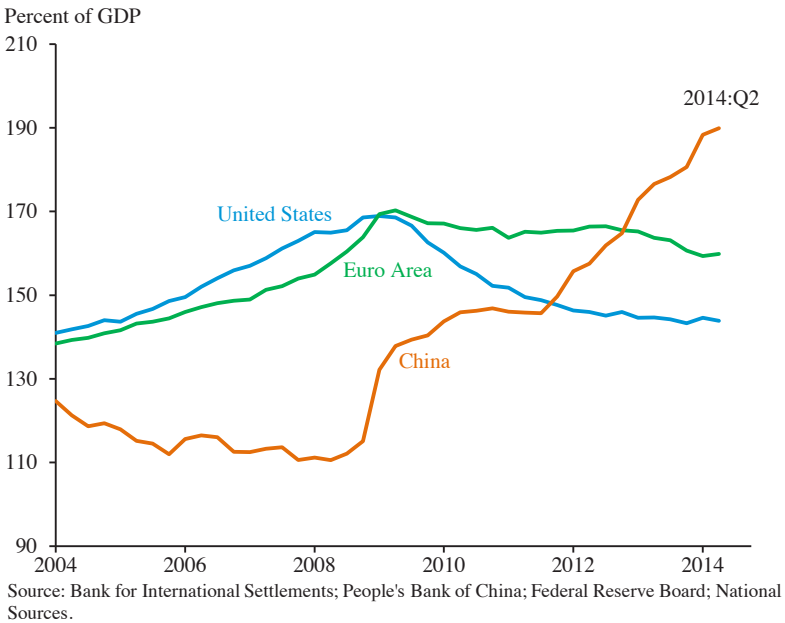


Figure 2-10  
**Credit to Nonfinancial Corporations and Households, 2004–2014**



is accounted for in large part by falling prices of commodities and raw materials, to which China's slowdown is a major contributor. The price of oil has recently fallen much more sharply than prices of other commodities because the effects of low world demand for oil have been reinforced by exceptionally ample global supply. Emerging energy exporters, including Russia, Nigeria, and Venezuela and countries in the Middle East, have suffered most, while this development has been positive for energy importers including China and the big industrial economies (see Box 2-3).

An additional challenge facing emerging economies is the potential for capital flow reversals as the Federal Reserve moves toward positive interest rates and the demand for higher-yield assets in emerging economies subsides. That said, the stronger U.S. economy that motivates monetary policy normalization will benefit emerging market exporters. Vulnerabilities may have declined over the course of 2014 as foreign borrowing by several important emerging economies has fallen. Many analysts remain concerned, however, by the reportedly large stock of offshore dollar liabilities incurred by emerging-economy corporations.

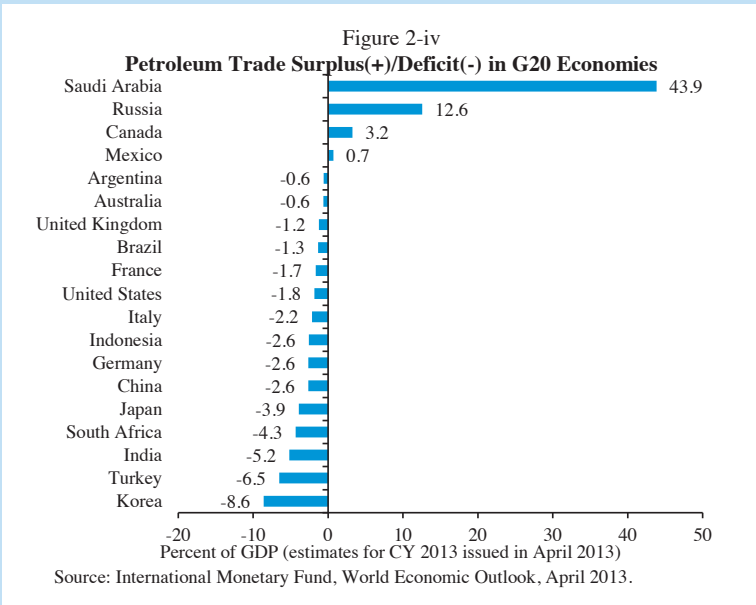
***Exchange rates, exports, and imports.*** Since the global financial crisis, the U.S. dollar has generally fluctuated in a lower range against foreign currencies relative to the early 2000s, but it took a particularly sharp upturn from September 2014 – a 7.2 percent appreciation against a broad index of trade partners through January 2015 (see Figure 2-11). Among the drivers of the recent appreciation is the strong performance of the U.S. economy against a backdrop of relatively weak growth in the rest of the world, along with the implications of this growth pattern for countries' monetary policies. Federal Reserve policy is at a very different juncture than monetary policy in most foreign countries, though the United Kingdom is similarly situated. While indicators in the United States and the United Kingdom suggest that markets expect monetary tightening steps sometime in the 2015 to 2016 timeframe, the ECB and Bank of Japan remain fully engaged in battling below-target inflation and slow growth, with no near-term prospect of policy reversal.

Both the recent strength of the dollar and slowing demand in much of the world outside the United States will work to weaken U.S. export growth in the near term. The U.S. nominal trade deficit in goods and services edged up from 3.0 to 3.1 percent of GDP in 2014, as measured in the national income and product accounts. Against this downward pressure on exports, it will become especially important to open new markets to which the United States can sell goods and services. This is an important driver of the President's trade agenda, which is described more fully in Chapter 7.

### Box 2-3: Imported Petroleum Prices and the Economy

Oil prices fell 43 percent during the 12 months of 2014 (as measured by the European, Brent, price of crude oil), the combined effect of a surge in U.S. crude oil production, a decrease in global oil demand, and OPEC's recent decision to maintain production levels despite the drop in prices (see Chapter 6 of this *Report*). Low oil prices benefit major segments of the U.S. economy. Lower fuel costs increase real household income and stimulate consumption both directly—mostly through lower prices of gasoline, which fell more than \$1.00 per gallon in the last six months of 2014—and indirectly by reducing the production costs for oil-consuming businesses, which ultimately translates to lower prices for consumer goods and services. The drop in oil prices also hurts American oil producers, but because the United States is a net importer of crude oil, the overall benefit of falling oil prices to the United States exceeds the costs to domestic oil producers.

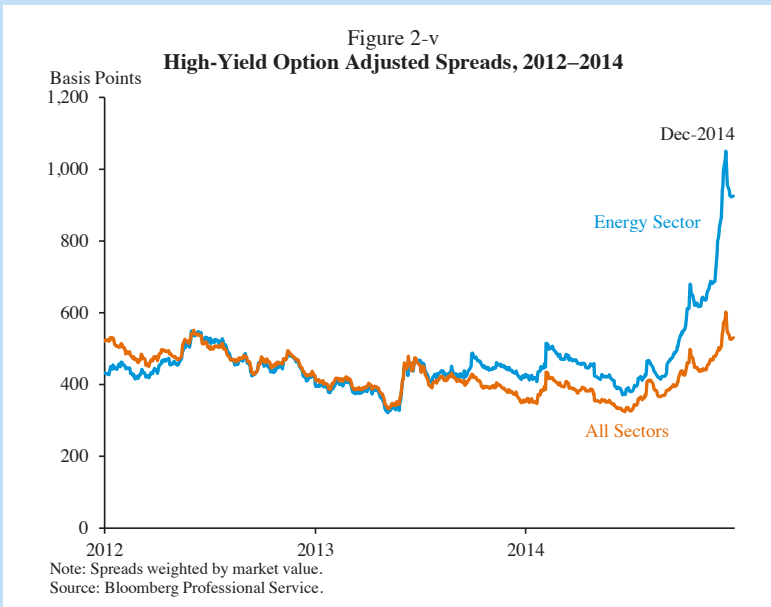
The net benefit to the economy is roughly proportional to the share of net oil imports in nominal GDP. In 2014, the United States, on net, imported about 1.9 billion barrels of petroleum and products, down more than 50 percent since 2008. Each \$10 per barrel drop in the price of oil saves U.S. consumers and producers about \$19 billion a year, or about 0.11 percent of GDP. As a result, the roughly \$40 per barrel decline (roughly 40%) in the price of oil during the last four months of 2014 will save the U.S. economy about \$70 billion a year, or 0.4 percent of GDP.



Measured in dollars, the net import share of petroleum and petroleum products was 1.8 percent of nominal GDP in 2012, but fell to 1.1 percent during 2014. The situation is reversed for countries that are net crude oil exporters. Calculations by the IMF based on 2012 data suggest that Canada, for example, had a petroleum surplus equal to 3.2 percent of GDP, in contrast to the 2012 U.S. petroleum deficit of 1.8 percent of GDP. And so the same 40-percent oil-price decline reduces Canada's real income by 1.3 percent. Figure 2-iv shows the estimates by the IMF based on 2012 data of the petroleum trade balance as a percent of GDP for G-20 countries.

The back-of-the-envelope estimates described above, however, are far too simplistic to capture potential impacts for a large number of national economies, where policy and structural idiosyncrasies deliver different economic implications. In particular, countries like Iran, Russia, Venezuela, Nigeria, and Iraq will face challenges as low oil prices place their governments under extreme financial pressure. Analysts have made similarly rough estimates of the net effect of the oil price declines on global GDP. Largely because the world petroleum supply has increased, the IMF estimates that global real GDP could be around 0.5 percent higher in 2015 if the price decline persists for the entire year.

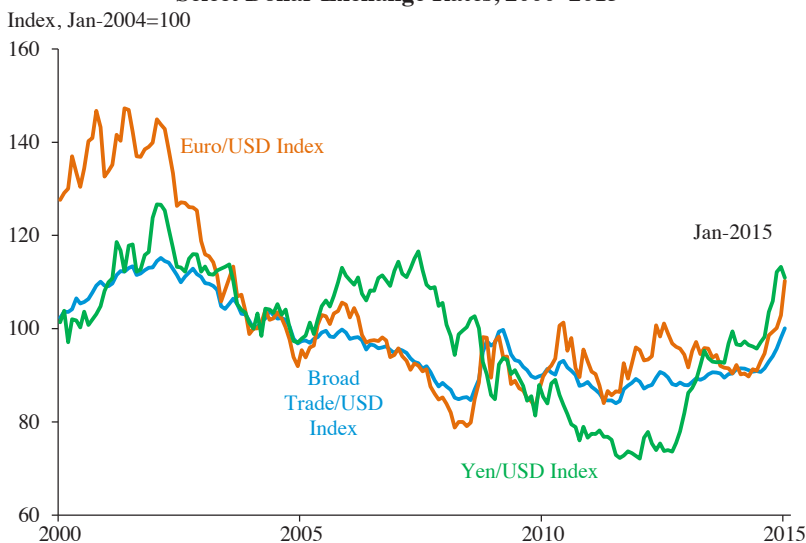
Aside from its positive implications for U.S. and global incomes, the decline in oil prices has also created fear of financial instability among energy companies. As oil prices have plunged, yields on oil



company debt have skyrocketed in response to investor fears that companies will have a harder time paying creditors. In particular, Figure 2-v shows that, in just six months, the option-adjusted spread for high-yield energy debt (a measure of how risky a financial instrument is, relative to Treasury debt) has more than doubled from an average of under 400 basis points in June 2014, to over 920 basis points in December 2014. (The option adjustment corrects the spread for the value of rights to repay bonds before maturity.) By contrast, the option-adjusted spread for all sectors combined (including energy) has increased by less than one-half that amount over the same time period. As of December 2014, energy companies constitute almost 15 percent of the high-yield bond market, and there is growing concern that sustained, low prices will put investments in future oil projects at risk.

The net goods deficit was unchanged at 4.4 percent of GDP in 2014, while the services surplus edged down by 0.1 percentage point of GDP to 1.3 percent (see Figures 2-12 and 2-13, which show these concepts on the closely related balance of payments basis). Our services exports have consistently grown relative to merchandise exports since at least the beginning of the 1990s and the start of the digital revolution. If current trends continue,

Figure 2-11  
**Select Dollar Exchange Rates, 2000–2015**



Note: The broad Trade Index is a weighted average of foreign exchange values of the U.S. dollar against major U.S. trading partners.

Source: Federal Reserve Board, Foreign Exchange Rates.



Figure 2-12  
**Trade in Goods, 2000–2014**

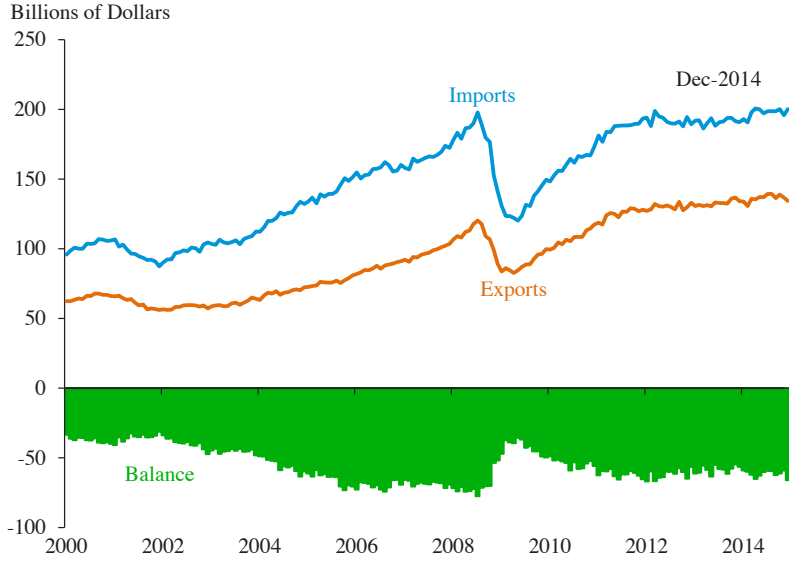


Figure 2-13  
**Trade in Services, 2000–2014**

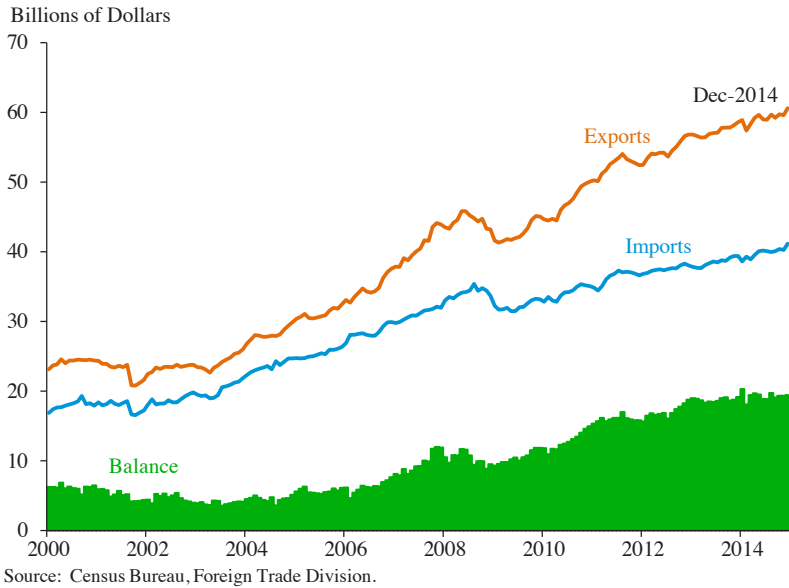
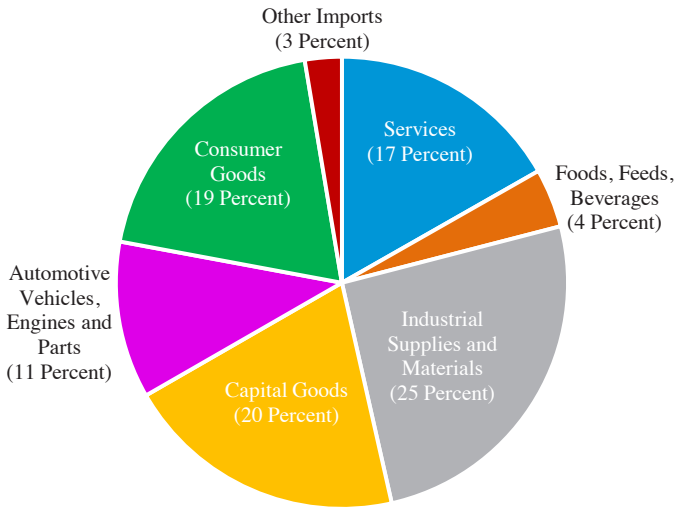
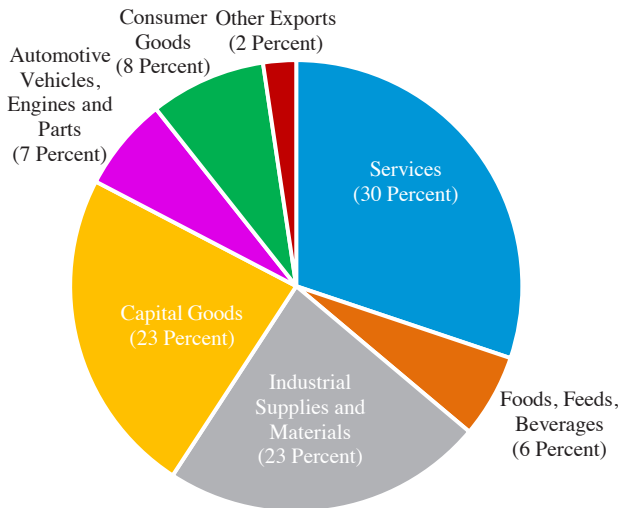


Figure 2-14a  
**Services and Goods Composition: Imports, 2013**



Source: Census Bureau, Foreign Trade Division; Bureau of Economic Analysis, Balance of Payments Division.

Figure 2-14b  
**Services and Goods Composition: Exports, 2013**



Source: Census Bureau, Foreign Trade Division; Bureau of Economic Analysis, Balance of Payments Division.

services exports should remain an increasingly important component of overall U.S. export success.

In 2013, services accounted for over 30 percent of all U.S. exports, while services amounted to just 17 percent of all U.S. imports. On the import side, 19 percent of U.S. imports are consumer goods (see Figure 2-14). Overall trade in industrial supplies, which includes petroleum, accounts for between 23 and 26 percent of imports and exports, though the composition of exports and imports differs. Buying from our trading partners the goods and services at which they are relatively more efficient lowers prices and increases choice for U.S. consumers and businesses (see Chapter 7).

One ongoing trade trend that accelerated in late 2014 is the continuing decline in U.S. energy imports (see Chapter 6 for a detailed discussion). A major part of the decline is due to an expansion in U.S. production of unconventional oil and natural gas, while another element is growing U.S. energy efficiency and reliance on renewable energy sources. In addition, the world price of oil fell precipitously in the fourth quarter of 2014. Between 2011 and 2014, petroleum's share of the U.S. trade deficit in goods fell from 45 percent to 26 percent, according to data from the Census Bureau.

## **DEVELOPMENTS IN 2014 AND THE NEAR-TERM OUTLOOK**

### *Consumer Spending*

Real consumer spending grew 2.8 percent during the four quarters of 2014, the same as the year-earlier rate. This growth was accompanied by upward trends in consumer sentiment, encouraging reductions in household debt, and gains in household wealth over the course of 2013 and 2014.

Growth was strong for real household purchases of durable goods (8.4 percent), especially motor vehicles. Growth was moderate for nondurables (2.3 percent) and services (2.1 percent). Within nondurables, consumer spending on gasoline and other energy goods rose 2.9 percent during 2014, after falling at a 1.5-percent annual rate during the preceding seven years, a generally negative trend driven by increasingly fuel-efficient motor vehicles. Sharply lower nominal oil prices during the fourth quarter of 2014, which drove the price of gasoline to levels last seen in 2010, probably encouraged growth in real consumer energy spending.

Light motor vehicle sales rose to 16.4 million units in 2014, the fifth consecutive yearly increase, and the highest-selling pace since 2006. Sales of light motor vehicles averaged 16.4 million units during the decade through 2007. Sales trended up during the four quarters of the year, consistent with the emerging strength in labor markets and real incomes. Motor vehicle

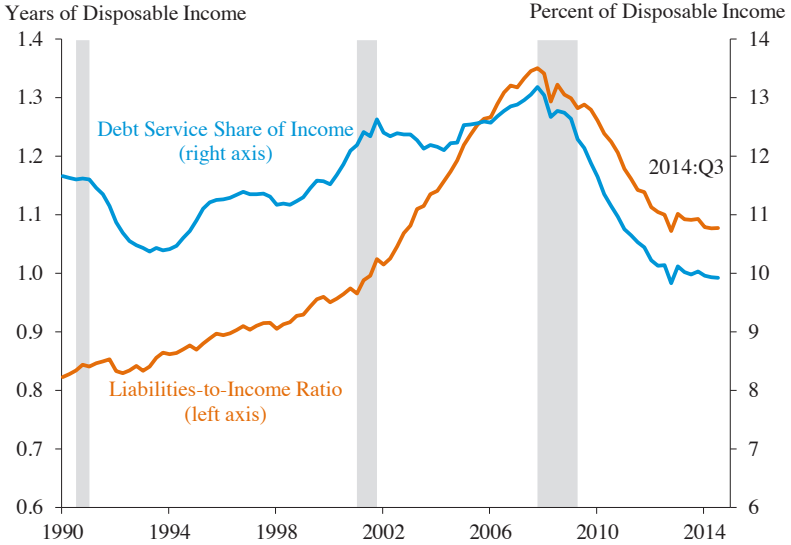
assemblies also increased from the first to the second half of the year and, at year end, inventory-to-sales ratios were near their long-term averages. Between 2007 and 2013, the average age of the fleet of private light motor vehicles has risen from 10.0 to 11.4 years, which may partly reflect an increase in quality but also suggests that households may have postponed new vehicle purchases during the period of elevated unemployment. If so, replacement demand is likely to support new vehicle sales during the next couple of years.

Consumer sentiment resumed its upward trend in 2014 after interruptions by the debt-limit crisis in the summer of 2011, the fiscal cliff in the winter of 2012, and the government shutdown in October 2013. By year end, the Reuters/University of Michigan Index of Consumer Sentiment had reached its highest level since 2007, and was in the top 30 percent of its historical range. Survey administrators cited rising wage and employment expectations as the principal contributors to improving sentiment, along with declining gasoline prices. The Conference Board index in the second half of 2014 was also at its highest level since 2007.

Meanwhile, U.S. households continued to pay down their debts. Figure 2-15 shows the dramatic rise in the household sector's liabilities-to-income and debt-service ratios in the run-up to the financial crisis, along with the reduction in these ratios (known as deleveraging) that followed. By 2013, the liabilities-to-income ratio was at its lowest level since 2002. Household debt service (the share of income allocated to making required payments on that debt) has fallen even more dramatically: not only has outstanding debt principal fallen relative to income, but interest rates are at historically low levels. By the second quarter of 2014, required payments on mortgage and consumer debt had fallen to 9.9 percent of disposable income, nearly the lowest level on record. During the deleveraging process, heightened foreclosure activity and lower borrowing for home purchases led to a large reduction in debt. In the eight quarters through the third quarter of 2014, this adjustment process appears to have tapered off, and debt has been stable relative to disposable income at levels that are near historic lows. At these lows, real consumer spending has a firmer foundation for growth than it did earlier in this expansion. However, these estimates are based on aggregate data, largely from the Financial Accounts of the United States (FAUS), that could mask higher debt-service burdens for some families; that is, the health of personal finances varies substantially across households.

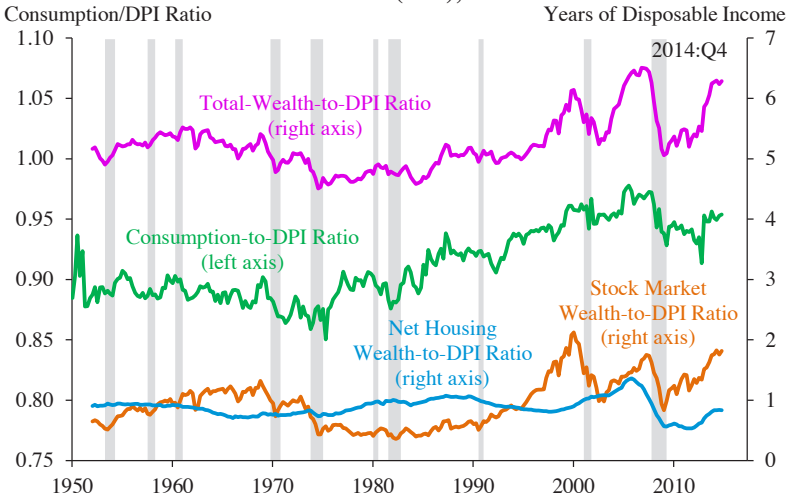
In addition to the uptrend in sentiment and the progress in deleveraging, gains in real consumer spending have also been supported by gains in net worth (that is, household assets less liabilities, see Figure 2-16). Although the wealth-to-income ratio was little changed during 2014, it had increased

Figure 2-15  
**Household Deleveraging, 1990–2014**



Note: Shading denotes recession.  
 Source: Federal Reserve Board, Financial Accounts of the United States.

Figure 2-16  
**Consumption and Wealth Relative to Disposable Personal Income (DPI), 1950–2014**

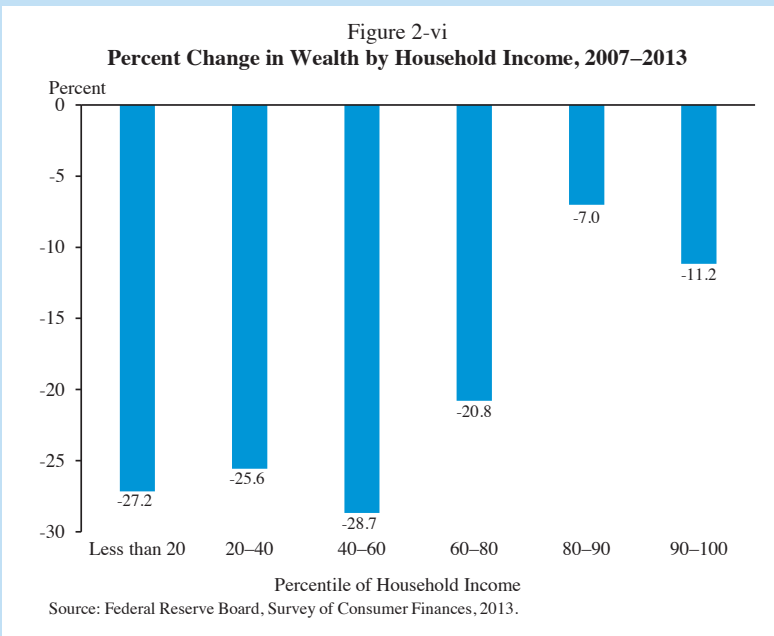


Note: Values imputed for 2014:Q4 by CEA. Shading denotes recession.  
 Source: Bureau of Economic Analysis, National Income and Product Accounts; Federal Reserve Board, Financial Accounts of the United States; CEA calculations.

### Box 2-4: U.S. Household Wealth in the Wake of the Crisis and Implications for Wealth Inequality

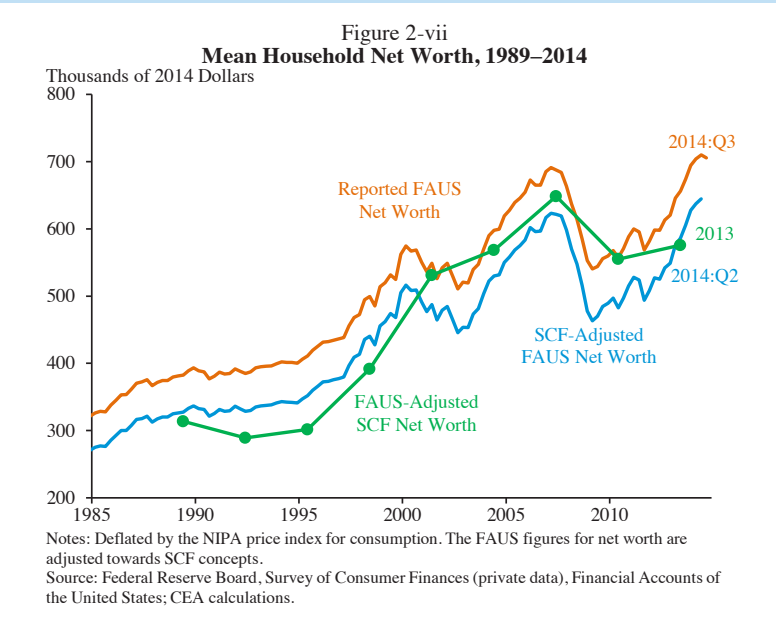
Supported by rising home values and stock-market gains, real household net worth—the difference between the value of a household’s assets and debts, adjusted for inflation—increased further in 2014 to about \$700,000 per household according to the FAUS, just under its pre-recession peak. Because wealth is unevenly distributed and concentrated among a relatively small number of households, and because the FAUS includes holdings of nonprofit institutions in its definition of wealth, the recovery in mean household net worth does not necessarily reflect the experiences of most families.

The Federal Reserve Board’s latest triennial Survey of Consumer Finances (SCF), conducted during 2013, does measure the evolution of wealth for households at different income levels. Broadly speaking, the SCF shows that the recovery in net worth has been uneven for households across the income distribution, as the top 10 percent of income earners have regained much more of their wealth through 2013, on average, than the bottom 90 percent of earners. Figure 2-vi shows how the wealth of different income groups changed between the 2007 and 2013 surveys. This differential recovery owes partially to disparities in the holdings of assets across the income distribution. The value of stock market wealth generally increases more than housing wealth as one



moves up the income distribution. For example, according to the SCF, the top 10 percent of income earners held nearly four times as much housing wealth as did the middle 20 percent in 2013 but almost 12 times as much stock-market wealth. The appreciation of equities during 2014, discussed earlier in this chapter, is likely to have benefited higher-income households disproportionately.

Such an uneven recovery implies that wealth inequality has continued to increase in recent years. Moreover, even among the highest 10 percent of earners, mean and median wealth diverged between 2007 and 2013, suggesting that wealth has become even more concentrated within a smaller share of households. Because the SCF excludes the wealthiest 400 households in the United States—and because the distribution of wealth becomes increasingly concentrated near the very top—the increasing concentration seen in the SCF likely understates the actual increase. However, the rise in inequality has been mitigated by the President’s policies, including the Affordable Care Act and the restoration of a more progressive individual income tax code. The President’s FY 2016 Budget proposes further policies to ensure the benefits of growth are more widely shared, including investments in early childhood and college education, new tax credits for low-income workers, and curbs to tax expenditures for high-income earners.



But the rise in wealth inequality is not a recent phenomenon; research shows that it is decades in the making. In a study spanning 100 years of U.S. tax records, Saez and Zucman (2014) find that wealth inequality has been increasing in recent decades, especially at the very top of the distribution. According to the Saez-Zucman data, the wealthiest 0.1 percent of households saw their share of U.S. wealth grow from 7 percent in 1979 to 22 percent in 2012. More broadly, the study finds that wealth concentration has been increasing since 1978, and is now approaching levels not seen since the period immediately before the Great Depression.

Because the most recent SCF survey was conducted over the course of 2013, it would not have picked up some of the wealth gains during the second half of 2013 and during 2014, as shown in Figure 2-vii. In addition, some of the divergences between the two measures of household wealth (the SCF and the one in the FAUS) can be accounted for by conceptual differences between the two surveys, such as: institutional endowments, assets of defined-benefit pension plans, and pension fund reserves. As can be seen, average household wealth was similar across the two surveys in 2007 and 2013, but the FAUS measure of wealth appears to have fallen further during the recession and risen faster during the recovery.

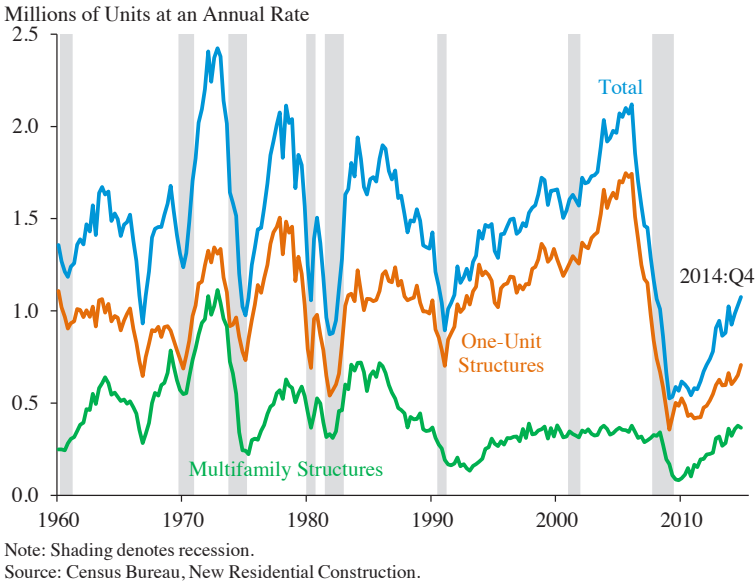
sharply during 2013, boosted by sizeable gains in stock-market and housing wealth. The year-end 2013 and year-end 2014 levels of wealth relative to income were up by more than one year of disposable income from the trough of the recession, reaching 6.25 years, a level surpassed only during the years 2005 to 2007. Adjusted for inflation and population growth, real household net worth finally overtook the 2007 level at the end of 2013 and made further gains during 2014. Changes in net worth have been spread unevenly across households, however, and these disparities may have implications for families and macroeconomic activity (see Box 2-4).

### *Housing Markets*

With abnormally cold weather during the first quarter of 2014, housing market activity got off to a slow start but eventually increased above 2013 levels (see Figure 2-17). As the 30-year fixed mortgage interest rate fell 60 basis points during the 12 months of the year to 3.9 percent, housing starts and permits edged up to 1.0 million units, helping to support a 2.6-percent increase in residential investment during the four quarters of 2014. New and existing home sales also got off to a slow start in 2014 but recovered somewhat as the year unfolded.



Figure 2-17  
**Housing Starts, 1960–2014**

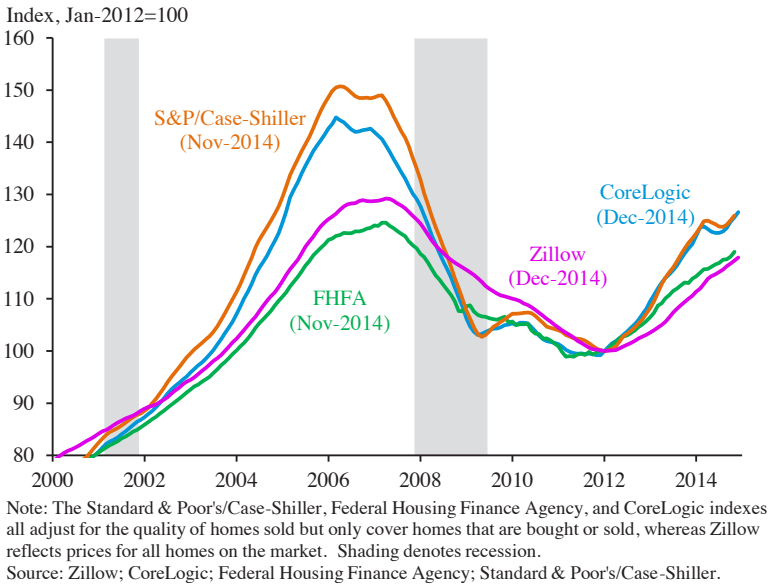


Other housing market indicators suggested continued recovery in this sector in 2014. The stock of delinquencies and foreclosures as a share of all mortgages decreased to levels not seen since 2007, particularly in states where court appearances are unnecessary to begin a foreclosure process, while the rate of new mortgage delinquencies fell, on balance, to a level last seen in 2006. Accordingly, fewer households sold homes under distressed conditions and so the share of sales comprised by non-foreclosure properties rose. With fewer distressed sales, speculative investor activity receded as did the share of home purchases financed with cash.

Supported by improving labor markets, rising sales, and lower mortgage interest rates, house prices increased in 2014. Major house price indexes, shown in Figure 2-18, increased 5 to 7 percent during the 12 months through November 2014, helping to lift an additional 1.9 million borrowers out of negative equity (where they owed more than their homes were worth) in the first three quarters of the year.<sup>6</sup> Notably, owing in part to these house price gains, many more homeowners were able to sell their properties without realizing a loss and this contributed to a modest increase in the inventory of existing homes available for sale from the low levels seen in 2013. Although national house price indexes in November 2014 remained

<sup>6</sup>As of this writing, data for some of the major house price indexes were not yet available for December 2014, and data on underwater mortgages were not yet available for the fourth quarter of 2014.

Figure 2-18  
National House Price Indexes, 2000–2014

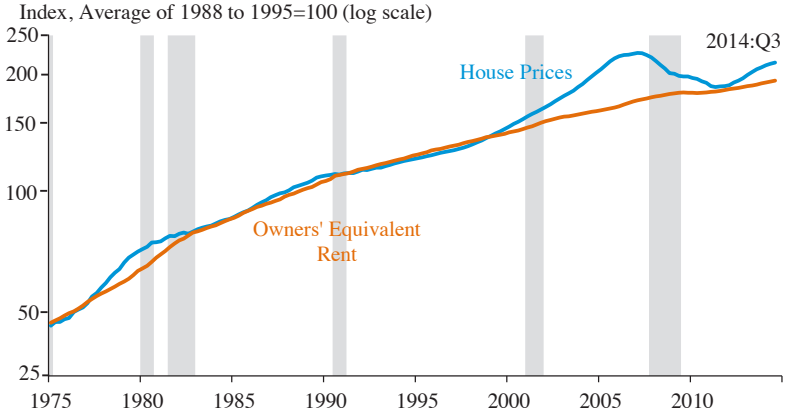


4 to 13 percent below their pre-recession highs, they are now slightly above levels implied by their traditional relationship with the cost of renting (Figure 2-19). As a result, house price increases may moderate in the coming years, particularly in light of the expected increases in long-term interest rates discussed later in this chapter.

Residential investment, which increased 6.9 percent during the four quarters of 2013, stepped down to an annual growth rate of 2.6 percent during 2014. As defined in the national income and product accounts, residential investment includes permanent-site new home construction, real estate commissions, home improvements, and spending on manufactured homes. Permanent-site new home construction rose during each of the four quarters of the year, cumulating in an 8.5-percent increase over the four quarters of the year. In contrast to the gains in permanent-site construction, “other construction” (the aggregate of real estate commissions, manufactured homes, and home improvements) fell. Sales of new homes hovered only just above the lows seen during the Great Recession. Meanwhile, existing home sales dipped early in the year but recovered to a level that is 46 percent higher than its monthly trough in 2010.

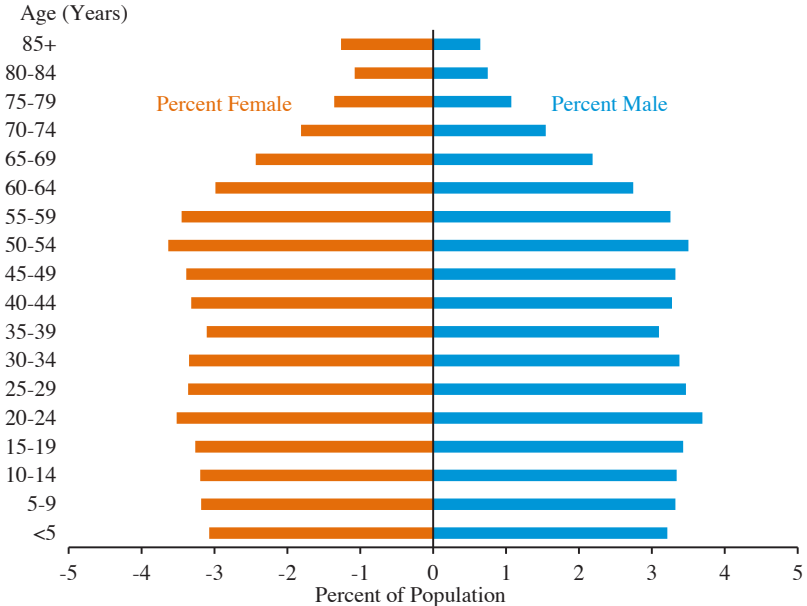
Looking ahead, residential investment has the potential for strong gains as a large cohort of “millennials” (that is, 18-to-34-year olds) will soon participate in the housing market in greater numbers as renters and eventually as homeowners (Figure 2-20). Typically, homebuilding depends

Figure 2-19  
**Home Prices and Owners' Equivalent Rent, 1975–2014**



Note: Shading denotes recession. House prices are measured by the FHFA's price index (total index before 1991, purchase-only index after 1991). Owners' equivalent rent is measured by the Personal Consumption Expenditures price index for imputed rent of owner-occupied nonfarm housing (before 1983) and the Consumer Price Index for owners' equivalent rent of residence (1983-present).  
 Source: Federal Housing Finance Agency, House Price Index; Bureau of Economic Analysis, National Income and Product Accounts; Bureau of Labor Statistics, Consumer Price Index; CEA calculations.

Figure 2-20  
**U.S. Population Distribution by Age and Gender, 2013 Census**



Source: Census Bureau, Population Division, 2013.

positively on household formation, reductions in vacancies, and demolitions. With much of the cyclical overhang in vacant housing having abated during the past several years, the outlook for homebuilding will depend, in large part, on the recovery in household formation, particularly among millennials. Since 2006, rates of household formation among millennials have been depressed, in part due to high unemployment and the rapid increase in cost of rental housing. However, improved labor market conditions in 2014 and a slight easing in rental prices provide favorable conditions to push up household formation and in turn boost residential investment activity.<sup>7</sup>

Expected further strengthening of the labor market could provide additional support to release the pent-up demand for housing due to demographic factors. According to a November 2014 Gallup survey, 30 percent of respondents believe that the current labor market provides a good environment for finding a quality job, up 4 percentage points from November 2013 and well above the low of 8 percent seen in 2011.<sup>8</sup> The Federal Reserve Board's 2014 Survey of Young Workers similarly finds that young adults are optimistic about future job stability, which also bodes well for household formation and thus housing demand.<sup>9</sup> Consistent with optimism about their prospects in the labor market, the share of households expecting an improvement in their finances edged up to 45 percent by December from 38 percent last year.<sup>10</sup> A National Association of Home Builders survey showed that the positive outlook also extended to homebuilders, as their sentiment on whether it is a good time to build increased in 2014 to its highest level since 2005 (Figure 2-21).

In the mortgage market, rates on a 30-year fixed rate mortgage decreased by 60 basis points during the 12 months of 2014, in line with the decrease in 10-year Treasury yields, and are 63 basis points lower than their recent high in 2013 (See Figure 2-22). In spite of this decline, mortgage applications for home purchases were flat, on balance, in 2014, consistent with slowing home sales and tight mortgage credit availability (see Figure 2-23). Refinancing activity was well below the highs seen in early 2013 and did not show much response to the drop in rates, in part because previous refinancing waves already lowered rates for many borrowers. The Government-Sponsored Enterprises (GSEs)—Fannie Mae and Freddie Mac—and the Federal Housing Administration (FHA), continued to support an outsized share (over 70 percent) of mortgage originations in 2014,

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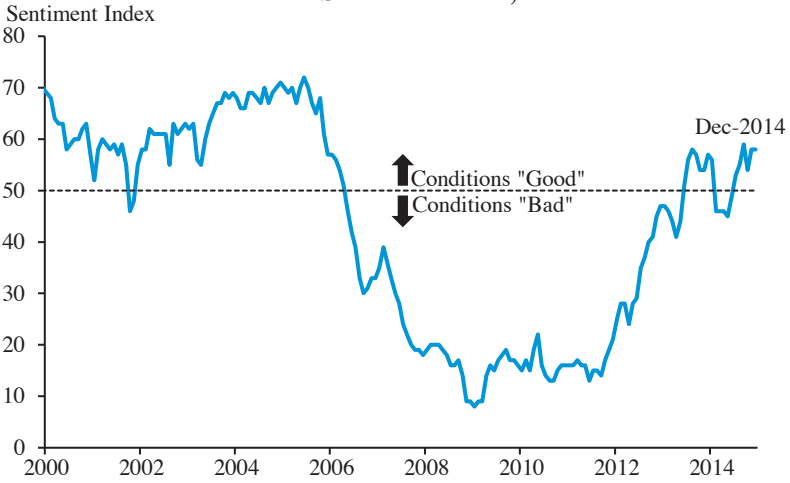
<sup>7</sup> See Council of Economic Advisers, "15 Economic Facts about Millennials," [http://www.whitehouse.gov/sites/default/files/docs/millennials\\_report.pdf](http://www.whitehouse.gov/sites/default/files/docs/millennials_report.pdf)

<sup>8</sup> <http://www.gallup.com/poll/179483/americans-perceptions-job-market-hold-steady.aspx>

<sup>9</sup> <http://www.federalreserve.gov/econresdata/2014-survey-young-workers-young-workers-outlook.htm>

<sup>10</sup> <http://www.fanniemae.com/portal/about-us/media/corporate-news/2014/6192.html>

Figure 2-21  
**Home Builder Sentiment Index, 2000–2014**



Note: The NAHB surveys builder perceptions of current single-family home sales, sales expectations for the next six months, and level of traffic of prospective home buyers. NAHB then uses builders' responses to calculate a seasonally adjusted index of sentiment.

Source: National Association of Home Builders, Builders Economic Council Survey.

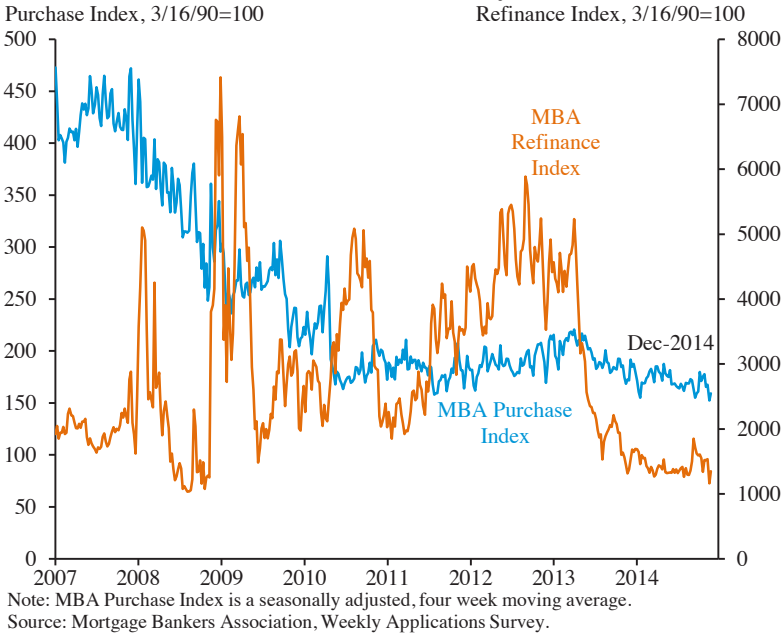
Figure 2-22  
**30-Year Fixed Mortgage Rates, 2000–2014**



Note: Fixed mortgage rates are contract offer rates.

Source: Freddie Mac, Primary Mortgage Market Survey.

Figure 2-23  
**Purchase and Refinance Activity, 2007–2014**



with banks’ portfolios supporting much of the rest. Since 2007, private-label securitization activity has been negligible, providing funds only to a tiny segment of extremely high credit quality borrowers with high-balance, “jumbo” mortgages.

One important headwind to continued normalization in the housing sector is low credit availability. Across a broad range of measures, mortgage underwriting standards remain tight, and the Federal Reserve’s Senior Loan Officer Opinion Survey showed only modest signs of continued easing during 2014. Accordingly, mortgage purchase originations are low relative to the volume of home sales activity. The Federal Housing Finance Agency and the FHA took important steps in 2014 to clarify and mitigate the legal risks lenders face and the conditions under which housing agencies may force them to repurchase loans (“putback risk”). The Administration has also enacted other policies to improve credit access, including a reduction in FHA mortgage insurance premiums from 1.35 percent to 0.85 percent, which will help homebuyers borrow for less. Nonetheless, it may take some time before lenders can fully implement the necessary steps to improve access to credit prudently and before more borrowers, particularly borrowers with less-than-pristine credit histories, feel that credit conditions have eased enough to apply for mortgage loans.

## *Investment*

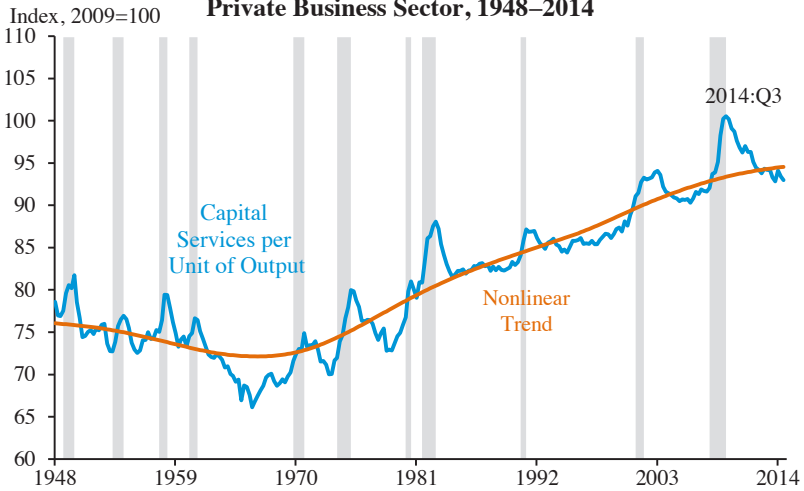
***Business Fixed Investment.*** Real business fixed investment grew 5.5 percent during the four quarters of 2014, up from a 4.7-percent increase during 2013. The rate of investment growth picked up in each of its three components: structures, equipment, and intellectual property.

Investment spending has grown more slowly than usual for a business-cycle expansion. One reason might be the general surplus of capital services relative to output that has persisted since the last recession (Figure 2-24). After output fell sharply during that recession and during the slow recovery, firms found themselves with more capital than they needed. But as the recovery has progressed, output has grown faster than capital services, so that firms have only recently had a general reason to increase their use of capital services. (In Figure 2-24, the blue line has only recently fallen below the orange line.) This shift argues for faster growth in investment spending during the next year than in the recent past.

Nonfinancial corporations spent a lower-than-average share of their internal funds (also known as cash flow) on investment during 2011 to 2013 (see Figure 2-25). Instead, these corporations used a good part of those funds to buy back shares from their stockholders. Share buybacks are similar to dividends insofar as they are a way for corporations to return value to shareholders. They differ, however, with regard to permanence: whereas dividend changes tend to persist, share buybacks are one-time events. (When firms raise investment funds by issuing new equity, the nonfinancial sector aggregate of share buybacks in the figures can be negative, as was common in the 1950s and 1960s.) The decline in the invested share of internal funds from 2011 to 2013, together with the rise in share buybacks, suggests that firms had more internal funds than they thought they could profitably invest. As can be seen in Figure 2-25, the investment outlook appears to have improved in 2014, and the investment share of internal funds has rebounded to near its historical average. Share buybacks, however, remain high.

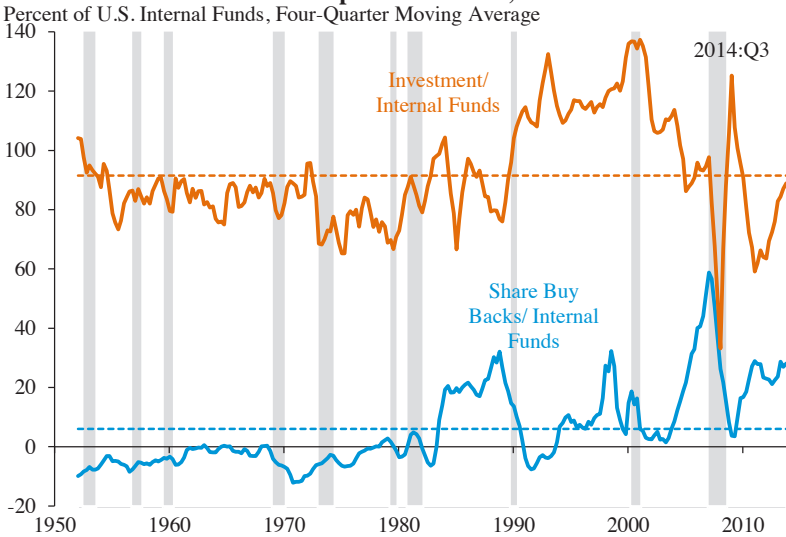
***Inventory Investment.*** Inventory investment contributed 0.3 percentage point to the 2.5-percent growth rate of real GDP during the four quarters of 2014, down from the preceding year when it accounted for 0.5 percentage point of growth. A substantial portion of the 2013 inventory contribution to growth was accounted for by agricultural inventory investment when a bumper year for farm production followed the 2012 drought. In 2014, in contrast, agricultural inventory investment was relatively steady. Inventory investment was an important part of the year's quarterly fluctuations, accounting for more than one-half of the reported 2.1-percent annual rate of decline in first-quarter real GDP. In the manufacturing and trade sector, the buildup of inventories through 2014 was no faster than sales; by November,

Figure 2-24  
**Capital Services per Unit of Real Output,  
 Private Business Sector, 1948–2014**



Note: Annual capital services from BLS multifactor productivity database, post-1964 data interpolated quarterly using Macroeconomic Advisers' quarterly data; pre-1965 data interpolated by moving average. Nonlinear trend is a bi-weight filter using a 60-quarter window.  
 Source: Bureau of Labor Statistics, Labor Productivity and Costs; Macroeconomic Advisers; CEA calculations.

Figure 2-25  
**Share Buy Backs vs. Investment,  
 Nonfinancial Corporate Business, 1952–2014**



Note: Dashed lines represent averages from 1952–2014. Shading denotes recession.  
 Source: Federal Reserve Board, Financial Accounts of the United States.

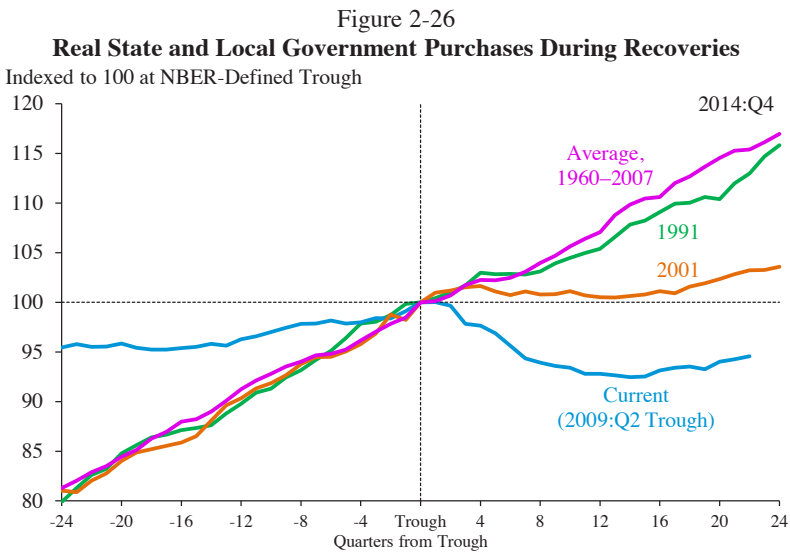


manufacturing and trade businesses held sufficient inventories to supply 1.3 months of sales, roughly the same level as at year-end 2013.

### State and Local Governments

When viewed over the current expansion, growth in State and local purchases has been the weakest of any business cycle recovery in the post-World War II period (Figure 2-26). The contribution of State and local purchases to real GDP growth was negative during the three years from 2010 to 2012 but finally turned positive in 2013 and 2014. Even during these past two years State and local governments contributed only 0.13 percentage point to the annual rate of real GDP growth. The recent weakly positive trend in this sector is also reflected in job gains as State and local governments have added 100,000 jobs since January 2013. Even so, employment in this sector remains 631,000 below its previous high. Almost 40 percent of this net job loss was in the educational services subsector.

Despite the positive signals during 2014, major obstacles to State and local expansion remain. State and local governments continue to spend more than they collect in revenues and their aggregate deficit during the first three quarters of 2014 amounted to 1.3 percent of nominal U.S. GDP (\$233 billion), a deficit-to-GDP ratio that has been roughly stable for several



Note: The 1960–2007 average excludes the 1980 recession due to overlap with the 1981–1982 recession.

Source: Bureau of Economic Analysis, National Income and Product Accounts; National Bureau of Economic Research; CEA calculations.

years. In the first three quarters of 2014, expenditures remained roughly flat at about 14.0 percent of GDP, and revenues remained flat at about 12.7 percent of GDP. In addition, unfunded pension obligations place a heavy burden on State and local government finances. As can be seen in Figure 2-27, the size of these pension liabilities relative to State and local receipts ballooned immediately after the recession and remains elevated at a level that was about 57 percent of a year's revenue in 2014. Adding in State and local bond liabilities does not change the overall shape of the plot shown in Figure 2-27, though they elevate the liabilities-to-receipts ratio to about 200 percent of a year's revenue.

### *Labor Markets*

Major labor market indicators showed a pronounced recovery in 2014. The unemployment rate dropped 1.2 percentage points in calendar year 2014, the fastest pace since 1984. Private employment increased by 3.0 million during the 12 months of 2014, substantially faster than the average pace of 2.4 million jobs during the three preceding years (Figure 2-28). The job gains were wide-spread across industries. Some notable growth included the construction industry, which continued to rebound, adding 338,000 jobs in 2014 (11 percent of the total increase in payroll employment), professional and business services (23 percent), and health care services (10 percent). The strengthening of the labor market is discussed in detail in Chapter 3, along with challenges that remain—including with respect to involuntary part-time work, long-term unemployment, labor force participation, the fluidity of labor markets, and job quality.

Long-term unemployment peaked in 2010 and has been falling steadily since then; declines in long-term unemployment accounted for 64 percent of the overall unemployment decline in 2014. While this progress is encouraging, long-term unemployment remains elevated above pre-recession levels (Figure 2-29). Data on job vacancies provided more encouraging news about the labor market in 2014. The number of job vacancies jumped 27 percent in the first 11 months of 2014. The number of job seekers per job vacancy stood at 1.8 in November, and is now below the 2.1 average during the previous expansion.

The labor force participation rate fell 3.2 percentage points between the fourth quarter of 2007 and the fourth quarter of 2014. CEA analysis finds that about one-half of this decline was due to the aging of the baby-boom generation into retirement, while the other half of this decline was due to a composition of cyclical factors, longer-standing secular trends, and factors specific to the recession. These demographic-related declines will become steeper in the near term, echoing the rise in the number of births from 1946

Figure 2-27  
**State and Local Pension Fund Liabilities, 1952–2014**

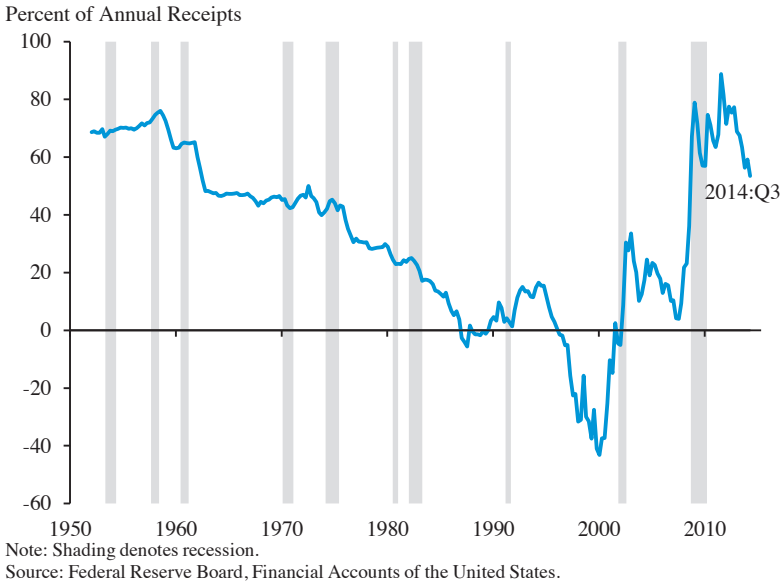


Figure 2-28  
**Nonfarm Payroll Employment, 2007–2014**

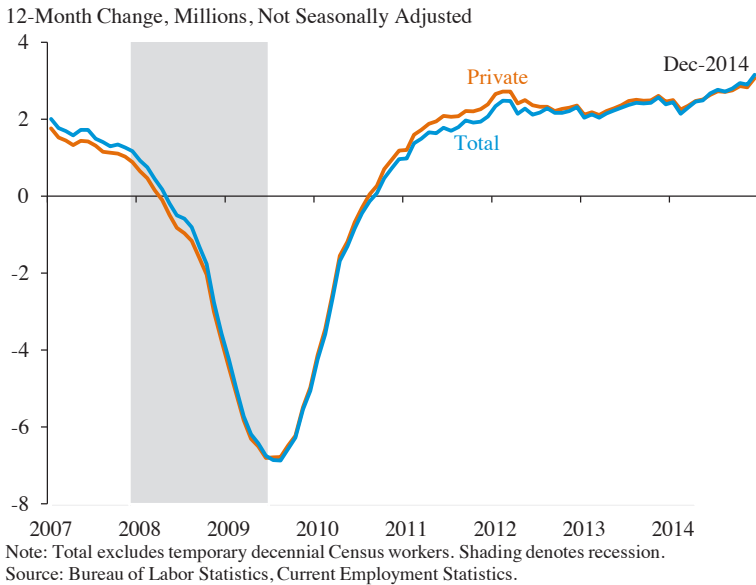
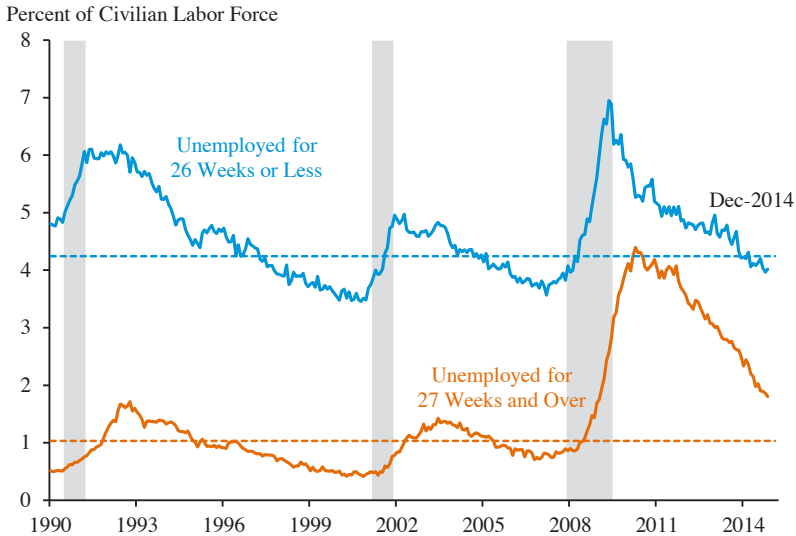


Figure 2-29  
**Unemployment Rate by Duration, 1990–2014**



Note: Shading denotes recession. Dashed lines represent averages from 2001-2007.  
 Source: Bureau of Labor Statistics, Current Population Survey.

through 1957. About a sixth of the participation-rate decline, however, was also due to the high unemployment rates from 2009 to 2014, which caused potential job-seekers to delay entry into the labor force or become discouraged. By the fourth quarter of 2014, the participation rate remained below what would occur if the labor market was fully recovered. Looking ahead, as the unemployment rate is projected to continue declining during 2015, the labor force participation rate is projected to be roughly flat, as the cyclical rebound roughly offsets the continued downward pull of the aging population. See Chapter 3 for further discussion.

The unemployment rate may not tell the whole story of the potential for increased employment. Measures of discouraged workers and those working part time for economic reasons indicate more slack than what is embodied in the official unemployment rate (see Chapter 3).

**Labor Productivity in the Nonfarm Business Sector.** Although employment growth is strong, the growth in output has not risen much; as such, the growth of labor productivity (that is, output per hour) has been below its long-term average pace. Because productivity moves with the business cycle, it should be measured over a long interval. When measured with product-side data from the national income and product accounts (the measure published by the Bureau of Labor Statistics), labor productivity—real nonfarm output per hour—rose at a 1.4-percent annual rate during the almost seven years since the business cycle peak in 2007. But when measured

by the income-side measure, nonfarm productivity has risen at a 1.8-percent rate. The best measure of productivity growth is probably the average of these figures, similar to the average used for output in Figure 2-2, yielding an estimate of a 1.6-percent annual rate of growth in productivity thus far in this business cycle. This is a slower pace of growth than the 2.2 percent during the 54½-year period between the business-cycle peaks in 1953 and 2007, potentially at least in part due to the transitory after-effects of the severe recession, including reduced investment associated with the capital overhand discussed earlier.

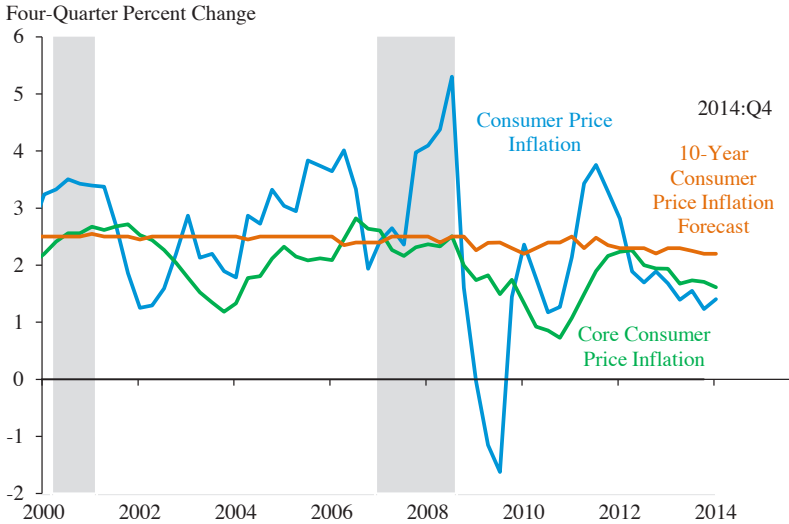
How should recent productivity growth color forecasts of future productivity? In the absence of a structural change in the process generating productivity outcomes, the best way to forecast labor productivity is to draw on long-term data. Averaging productivity growth over the current business cycle with data from all the years since the business-cycle peak in 1953 yields an estimate of 2.1 percent a year, the figure that the Administration uses to project the long-term labor productivity growth rate, as discussed in the long-term outlook section below.

**Price and wage inflation.** Core consumer price inflation (that is, excluding food and energy prices) has been stable at around a 1.7-percent annual rate for the past two years. The overall (headline) consumer price index (CPI) was held down by declines in energy prices in 2013 and 2014, increasing just 1.5 percent and 0.8 percent during the 12 months of those two years (Figure 2-30). Food prices increased faster than overall inflation during 2014, partly reflecting the drought in California, with meat and milk prices up roughly 13 and 4 percent, respectively.

The price index for personal consumption expenditures in the national income accounts (the PCE price index) is largely a re-weighted version of the consumer price index. Because of a different method of aggregating the individual components, its annual increases have averaged about 0.3 percentage point a year less than the consumer price index (since 2002 when the Bureau of Labor Statistics started re-linking it with the pattern of expenditures every two years). During the 12 months of 2014, for example, the core PCE price index increased 1.3 percent, less than the 1.6 percent increase in the core CPI. As tabulated by the Survey of Professional Forecasters, measures of long-term expectations for CPI inflation have been well-anchored at around 2.3 percent (and 2.1 percent for the PCE price index), both during the last recession and more recently. This steadiness suggests market confidence in the Federal Reserve's ability to keep inflation under control.

Nominal hourly compensation increased 2.3 percent during 2014, as measured by the employment cost index (ECI) in the private sector (Figure 2-31). That pace was up slightly from the 1.8- and 2.0-percent rates observed

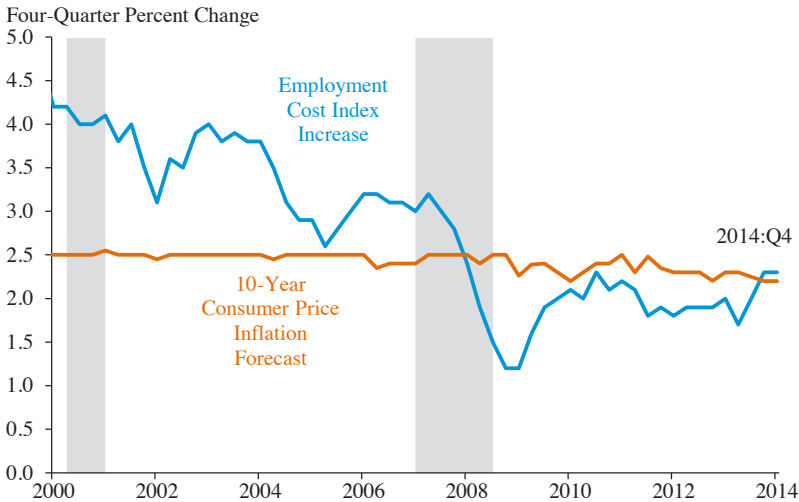
Figure 2-30  
**Inflation and Inflation Expectations, 2000–2014**



Note: Shading denotes recession. The 10-Year Consumer Price Inflation Forecast data come from the Survey of Professional Forecasters.

Source: Bureau of Labor Statistics; Federal Reserve Bank of Philadelphia, Survey of Professional Forecasters.

Figure 2-31  
**Hourly Compensation Increases vs. Inflation Expectations, 2000–2014**



Note: Shading denotes recession. The 10-Year Consumer Price Inflation Forecast data come from the Survey of Professional Forecasters.

Source: Bureau of Labor Statistics; Federal Reserve Bank of Philadelphia, Survey of Professional Forecasters.

during the preceding two years. The faster pace of growth in 2014 was accounted for by take-home wages and salaries as well as hourly benefits. It was not, however, in employer-paid health insurance, which slowed to a 2.4-percent increase during 2014, down from 3.0 percent during 2013. As can be seen from Figure 2-31, increases in nominal hourly compensation have been running lower than long-term price inflation expectations for the entire post-2008 period. The low increases in hourly compensation relative to prices are notable because—if the labor share of nonfarm business output were to be stable—hourly compensation growth would exceed output price inflation (in the nonfarm business sector) by the rate of productivity growth. That real hourly compensation growth has been below productivity growth suggests that the elevated unemployment rate and the overall slack in the labor market have suppressed hourly compensation growth since 2008.

## THE LONG-TERM OUTLOOK

### *The 10-Year Forecast*

Although real GDP growth averaged 2.2 percent during the four-year period, 2011 through 2014, major components of private domestic demand point to faster growth in 2015. Meanwhile, insofar as inflation remains low and stable, the supply side does not appear to impose near-term constraints. Although Federal fiscal policy has generally increased the level of output (as discussed in Chapter 3), the year-to-year decline in the deficit-to-GDP ratio implies that Federal fiscal policy subtracted from real GDP growth from FY 2010 through FY 2014. The Administration projects that the deficit-to-GDP ratio will edge up in FY 2015 under the terms of the bipartisan budget agreement for FY 2015 that Congress approved in mid-December 2014. With a strengthening State and local sector, fiscal actions will likely turn from being a drag to slightly expansionary in 2015. For consumers, faster job growth and a pickup in nominal and real wage gains in 2014 will probably boost spending in 2015. These income gains—following a multiyear period of successful deleveraging—leave consumers in an improved financial position. Beyond the income gains, the increases in housing and stock-market wealth during the past three years will probably also support strong growth in consumer spending in 2015. Business investment also shows brighter prospects for growth in 2015 than in earlier years. Businesses will need new facilities, equipment, and intellectual property to service growing demand. The decline in price of imported petroleum during the last quarter of 2014 will—if this lower price persists—save American businesses and consumers about \$70 billion in 2015, or enough to boost real GDP by 0.4 percent.

Table 2-2  
**Administration Economic Forecast**

	Nominal GDP	Real GDP (chain-type)	GDP price index (chain-type)	Consumer price index (CPI-U)		Unemployment rate (percent)	Interest rate, 91-day Treasury bills (percent)	Interest rate, 10-year Treasury notes (percent)
	Percent change, Q4-to-Q4					Level, calendar year		
2013 (actual)	4.6	3.1	1.4	1.2		7.4	0.1	2.4
2014	3.5	2.1	1.4	1.5		6.2	0.0	2.6
2015	4.6	3.0	1.5	1.8		5.4	0.4	2.8
2016	4.8	3.0	1.7	2.0		5.1	1.5	3.3
2017	4.6	2.7	1.9	2.2		4.9	2.4	3.7
2018	4.5	2.5	2.0	2.3		4.9	2.9	4.0
2019	4.3	2.3	2.0	2.3		5.0	3.2	4.3
2020	4.3	2.3	2.0	2.3		5.1	3.3	4.5
2021	4.3	2.3	2.0	2.3		5.2	3.4	4.5
2022	4.3	2.3	2.0	2.3		5.2	3.4	4.5
2023	4.3	2.3	2.0	2.3		5.2	3.5	4.5
2024	4.3	2.3	2.0	2.3		5.2	3.5	4.5
2025	4.3	2.3	2.0	2.3		5.2	3.5	4.5

Note: These forecasts were based on data available as of November 20, 2014, and were used for the FY 2016 Budget. The interest rate on 91-day T-bills is measured on a secondary-market discount basis.

Source: The forecast was done jointly with the Council of Economic Advisers, the Department of the Treasury, and the Office of Management and Budget.

But not all signals are green, and the United States faces headwinds from abroad. The available 2014 indicators suggest that the economies of Japan and our euro area trading partners are sagging. A slowdown abroad not only reduces our exports, but also raises risks of financial and other spillovers to the U.S. economy.



With the unemployment rate in December 2014 at 5.6 percent, the labor force participation rate still below its expected level given demographic trends, the share of those working part-time for economic reasons still elevated, and the capacity utilization rate in manufacturing at about 78 percent, the economy still has room to utilize more of its potential.

The Administration's economic forecast, as finalized on November 20, 2014 and presented in Table 2-2, underpins the President's FY 2016 Budget. By long-standing convention, this forecast reflects the economic impact of the President's budgetary and other economic proposals which, in the FY 2016 Budget, primarily act to increase the growth rate of potential GDP as discussed in more detail in Box 2-5. The Administration expects real GDP growth to increase from a projected 2.1-percent annual rate during the four quarters of 2014 to 3.0 percent during 2015. (Data released after the final forecast show a faster-than-expected growth rate during 2014 of 2.5 percent rather than 2.1 percent.) The long-term projections for 2016 and beyond, as is standard for the Administration's Budget forecast, assume enactment of the President's policies, including substantial investments in infrastructure, reforms to the tax and immigration systems, liberalization of trade, and deficit reduction—all of which will work to support growth (Box 2-5).

Real GDP is projected to grow 3.0 percent at an annual rate during the eight quarters of 2015 and 2016 and then to grow 2.7 percent during 2017. All of these growth rates exceed the estimated rate of potential real GDP growth, which is 2.3 percent annually over the long run. As a consequence, the unemployment rate is likely to fall—eventually averaging 4.9 percent in 2016 and 2017. This level, below the Administration's estimate of 5.2 percent for the rate of unemployment consistent with stable inflation, can be expected to incrementally raise inflation. The core PCE price index increased by only 1.4 percent during the four quarters of 2014. By 2017, however, consumer price inflation is expected to stabilize at 2.0 percent for the PCE price index and 2.25 percent for the consumer price index.

Nominal interest rates are currently low because the economy has not fully healed from the last recession, while monetary policy has kept rates low across a wide range of debt securities with long maturities. Consistent with the Federal Reserve's forward policy guidance at the time of the forecast, interest rates are projected to rise as the expected period of very low short-term rates diminishes. Eventually, real interest rates (that is, nominal rates less the projected rate of inflation) are predicted to be near, but a bit below, their historical average. These interest-rate paths are close to those projected by professional economists. During the past several years, consensus forecasts for long-term interest rates and long-term economic growth have

### Box 2-5: Policy Proposals to Raise Long-Run Potential Output

A key element of the Administration's economic forecast is the growth rate of real GDP in later years of the budget window once the economy's cyclical recovery is complete. Although there is considerable uncertainty around the longer-term outlook, this part of the forecast is critically important because it attempts to summarize the economy's long-run growth potential based solely on structural factors like the size of the labor force and worker productivity. The Administration projects that this long-run potential growth rate is 2.3 percent a year. For reference, the FOMC estimates a range of long-run output growth of 2.0 to 2.3 percent a year, the Congressional Budget Office (CBO 2015) puts this rate at 2.2 percent a year during 2018 to 2024, and the October 2014 Blue Chip consensus panel forecasts an average growth rate of 2.3 percent a year during the five years 2021 to 2025.

The Administration's forecast for long-run potential output growth is at the high end of this range because, consistent with long-standing Administration practice, it incorporates the economic impact of the assumed enactment of the President's policy proposals that would expand the labor force and increase productivity. These proposals include: the productivity increases associated with immigration reform; investments in surface transportation infrastructure and other areas; business tax reform; universal preschool and investments in child care that would boost female labor force participation; the Trans-Pacific Partnership and other policies to expand cross-border trade and investment; and approximately \$1.6 trillion in primary (non-interest) deficit reduction.

The President's agenda is expected to deliver a substantial lift to the economy's future prospects and would raise the level of long-run potential output by several percentage points. The Organisation for Economic Co-operation and Development (OECD) and International Monetary Fund (IMF) estimated that the President's agenda would add 2.5 percent to GDP after five years, larger than their estimate for any other G-7 economy. CBO (2014b) also estimated positive effects from the President's proposals, although that assessment likely understates the benefits because it included neither trade agreements nor business tax reform.

**Immigration reform.** The policy proposal with the single largest effect on long-run potential output is immigration reform. The President continues to support comprehensive immigration reform along the lines of the bipartisan Border Security, Economic Opportunity, and Immigration Modernization Act that passed the U.S. Senate in June 2013. CBO (2013) has estimated that this legislation, if enacted, would

raise the level of real GDP by 3.3 percent after 10 years. This effect is large because immigration reform would benefit the economy through a multitude of channels, including counteracting the effects of an aging native-born population, attracting highly skilled immigrants that engage in innovative or entrepreneurial activities, and enabling better job-matching for currently undocumented workers who are offered a path to earned citizenship. Much of the overall effect is due to an expanded workforce—a factor already reflected in the budget savings from immigration reform and thus not added to the forecast to avoid double counting. However, 0.7 percentage point of the total 10-year effect is due to increased total factor productivity, which may be included in the economic forecast without double counting. A portion of these benefits will be realized as a result of the administrative actions announced by President Obama in November 2014 (CEA 2014).

***Investments in surface transportation infrastructure and other areas.*** The Administration’s FY 2016 Budget includes \$116 billion over 10 years in additional surface transportation infrastructure investment relative to a plausible baseline. The budget also provides for about \$75 billion in additional funding in both the non-defense and defense discretionary categories over the next two years, with additional funding in future years. A substantial fraction of this spending will be devoted to investments in physical infrastructure, research and development, or education and training, all of which can help to boost productivity in the years ahead. Notably, the IMF (2014) recently found that given the current underutilization of resources in many advanced economies, a 1 percent of GDP permanent increase in public infrastructure investment could raise output by as much as 2.8 percent after 10 years.

***Business tax reform.*** President Obama’s framework for business tax reform, issued in 2012, sets out a series of changes that would strengthen the economy in three main ways. First, the President’s plan would encourage investment in the United States. Second, by moving to a more neutral tax system, the proposal would result in a more efficient allocation of capital. And third, to the degree the new system better addresses externalities, for example with a more generous research and development credit, it would also increase total factor productivity and therefore growth. The precise effects of these changes are difficult to quantify but have the potential to be sizeable (See Chapter 5 of this *Report* for more discussion).

***Policies to boost female labor force participation.*** President Obama has pursued policies that enable all workers to participate in the labor force to their fullest desire by making it easier for workers to balance career and family responsibilities. The Administration’s FY 2016

Budget calls for tripling the maximum tax credit for child care to \$3,000 for young children, while enabling more middle-class families to receive the maximum credit. In addition, the President has proposed, every year since 2013, a Federal-State partnership that would provide all four-year olds from low- and moderate-income families with access to high-quality preschool. Finally, the Budget calls for technical assistance to help States implement and develop paid parental leave programs. A growing empirical literature on the responsiveness of labor supply to family-friendly policies suggests that implementation of these measures could materially increase female labor force participation and GDP. (See Chapter 4 in this *Report* for more discussion.)

***Policies to expand cross-border trade and investment.*** The Administration is pursuing a number of international agreements that would boost cross-border trade and investment, including the Trans-Pacific Partnership (TPP), the Transatlantic Trade and Investment Partnership (T-TIP), an expansion of the Information Technology Agreement, a Trade in Services Agreement, an Environmental Goods Agreement, and a Trade Facilitation Agreement. While the details of TPP are still evolving, one study supported by the Peterson Institute for International Economics (Petri and Plummer 2012) found that TPP could raise U.S. real income by 0.4 percent over approximately 12 years. The European Commission (2013) has estimated a roughly similar effect of T-TIP on the U.S. economy, amounting to an increase of 0.4 percent of GDP in 2027. (See Chapter 7 in this *Report* for more discussion.)

***Deficit reduction.*** CBO's February 2013 analysis of the macroeconomic effects of alternative budgetary paths finds that a hypothetical \$2 trillion in primary deficit reduction over 10 years raises the long-term level of real GDP by 0.5 percent. This effect arises because lower Federal deficits translate into higher national saving, lower interest rates, and in turn, greater private investment. The Administration's FY 2016 Budget proposal includes \$1.6 trillion in primary deficit reduction relative to the Administration's plausible baseline, enough to stabilize and begin to reduce the National debt-to-GDP ratio.

fallen. The link between long-term growth prospects and long-term interest rates is examined in Box 2-6.

### ***GDP Growth over the Long Term***

As discussed earlier, the growth rate of the economy over the long run is determined by the growth of its supply-side components, including those

governed by demographics and technological change. The growth rate that characterizes the long-run trend in real U.S. GDP—or potential GDP—plays an important role in guiding the Administration’s long-run forecast. For the first three years of the forecast interval—2015, 2016, and 2017—real GDP growth is projected to average 2.9 percent at an annual rate as the economy moves back to its full potential, before shifting thereafter to an average of 2.3 percent, the Administration’s estimate of the long-term rate of real GDP growth. These growth rates are slower than historical averages because of the aging of the baby-boom generation into the retirement years. The potential real GDP projections are based on the assumption that the President’s full set of policy proposals, which would boost long-run output, are enacted (See Box 2-5)<sup>11</sup>.

Table 2-3 shows the Administration’s forecast for the contribution of each supply-side factor to the growth in potential real GDP: the working-age population, the rate of labor force participation, the employed share of the labor force, the ratio of nonfarm business employment to household employment, the length of the workweek, labor productivity, and the ratio of real GDP to nonfarm output. The two columns of Table 2-3 show the average annual growth rate for each factor during a long period of history and over the forecast horizon. The first column shows the long-run average growth rates between the business-cycle peak of 1953 and the latest quarter available when the forecast was finalized in mid-November 2014. Many of these variables show substantial fluctuations within business cycles, so that long-period growth rates must be examined to uncover underlying trends. The second column shows average projected growth rates between the third quarter of 2014 and the fourth quarter of 2025; that is, the entire 11¼-year interval covered by the Administration forecast.

The population is projected to grow 0.9 percent a year, on average, over the projection period (line 1, column 2), following the latest projection from the Social Security Administration. Over this same period, the labor force participation rate is projected to decline 0.4 percent a year (line 2, column 2). This projected decline in the labor force participation rate primarily reflects a negative demographic trend originating in the aging of the baby-boom generation into retirement. During the next couple of years, however, rising labor demand due to the continuing business-cycle

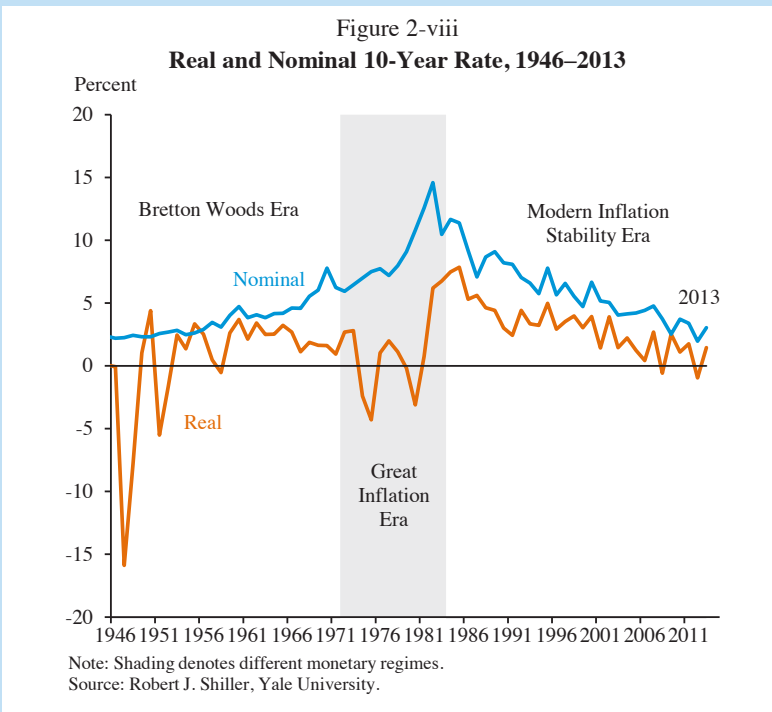
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<sup>11</sup> The one exception is that the forecast does not reflect the increase in the size of labor force attributable to the President’s immigration reform. The reason is that the budgetary impact of the added GDP associated with this change is already incorporated in the budget as a policy line, so including this effect in the economic forecast would, in effect, double count it. CBO estimates that the President’s immigration reforms would also expand total factor productivity, but did not incorporate this effect into their budgetary estimates; as a result, the productivity effects are included in the Administration’s forecast.

### Box 2-6: Forecasting the Long-Run Interest Rate

A key input to the U.S. economic forecast is a projection for the long-run nominal interest rate. Recent patterns in bond markets raise a number of questions about the future path of interest rates. Nominal and real (inflation-adjusted) interest rates have been declining since the mid-1980s. In the aftermath of the financial crisis, the Federal Reserve conducted large-scale purchases of longer-term securities, pushing long-term real interest rates down, even below zero. Despite this low rate of return, there has been a strong global demand for U.S. government bonds as a safe haven for savings, including demand by foreign central banks for dollar reserves.

Figure 2-viii shows the nominal interest rate and the *ex post* real interest rate for 10-year Treasury securities. The *ex post* real interest rate is defined as the nominal rate less realized inflation (whereas the *ex ante* real interest rate is the nominal rate less expected inflation). The figure illustrates the 30-year decline in *ex post* real and nominal interest rates and the behavior of real and nominal rates across different monetary policy regimes.



*Economic growth and the long-run real interest rate.* The basic general equilibrium analysis of real and nominal interest rates originated with Irving Fisher (1930), who characterized the equilibrium relationship between the real return on investment and the compensation to savers for postponing consumption. The Ramsey optimal-growth model is a convenient framework for conveying these fundamental relationships. The model and its extensions characterize the behavior of the economy on its steady-state growth path (Ramsey 1928; Cass 1965; Koopmans 1965).

The Ramsey model is based on the dynamic saving and investment decisions of a representative household. In a balanced-growth equilibrium without uncertainty, optimal household decision-making implies a formula for the real interest rate:

$$r = MPK = \rho + \sigma g, \quad (1)$$

Here, MPK denotes the marginal product of capital. When households have perfect foresight of the future, the marginal product of capital in steady state depends on the rate of discount on future income ( $\rho$ ), the per capita growth rate of the economy ( $g$ ), and the rate at which people are willing to substitute between current and future income ( $1/\sigma$  is the intertemporal elasticity of substitution). If growth is expected to be high, people will wish to borrow against their future higher income to consume more now, and this will drive up the interest rate. At some point, the higher interest rate will discourage borrowing and restore equilibrium between the return on capital investment (which reflects the economy's ability to produce income in the future) and the household's willingness to postpone consumption.

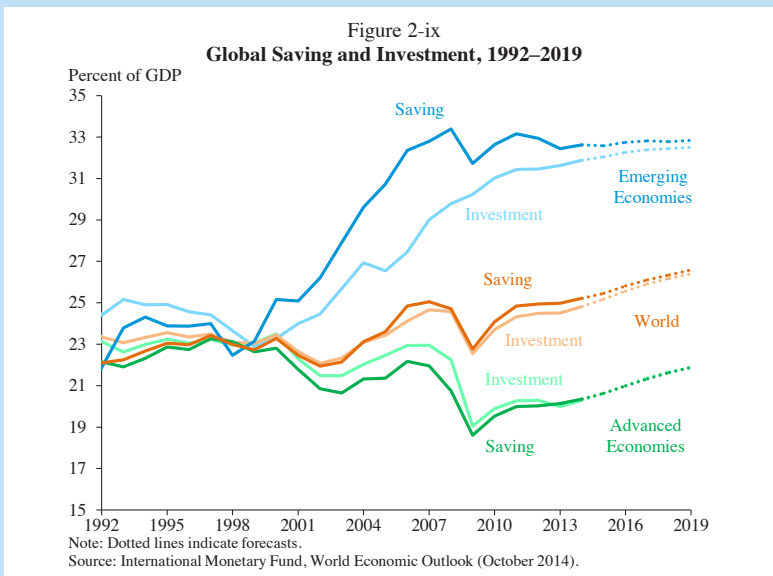
In the balanced growth equilibrium (where all variables grow at the same rate), the marginal product of capital is constant. The rate of population growth does not affect the steady-state interest rate because, on the balanced growth path, the household saves enough for future generations to keep the ratio of capital per unit of effective labor constant. In a frictionless world where capital adjusts instantaneously to changes in the population or to productivity, (1) would hold at all times. More generally, capital adjusts with a lag and (1) is more appropriate as a characterization of the relationship between productivity and interest rates in the long run.

Under the illustrative assumptions that  $\sigma = 1$  and  $\rho = 0.4$ , the most recent Administration forecast of labor productivity growth of 2.1 percent per year generates an approximation of the long-run real interest rate of 2.5 percent. (With these values for  $\sigma$  and  $\rho$  the Ramsey model's prediction is roughly consistent with actual real interest rates over the 1953-2007 period; however, the model's interest-rate implications are

reasonably robust to a range of other  $\sigma$ ,  $\rho$  combinations.) Note that this forecast abstracts from uncertainty so that there is no risk premium. This forecast also does not factor in inflation. Given the number of assumptions needed and the uncertainty about parameter values and future productivity growth, the forecast of the real rate of interest is approximate at best. What can be said with some confidence is that a reduction in future labor productivity growth should be reflected in a reduction in the long-run real interest rate.

Moving away from the strict assumptions of the model, other economic forces will potentially affect the interest rate. Such forces include declining rates of population growth, the aging of the population, and a decline in the government debt-to-GDP ratio. The magnitudes of these effects are hard to quantify but theory suggests that such shifts will exert downward pressure on interest rates.

Global factors are also likely to play a role. In a world with integrated markets, the global real interest rate is determined by the equality of the global supply of saving and world investment demand, as illustrated in Figure 2-ix. The gap between saving and investment in emerging markets was especially large in the mid-2000s, contributing to the “global saving glut” that helped to fuel asset bubbles in financial markets. The emerging market gap has declined and the IMF projects it will be near zero by the end of 2019. Figure 2-ix also shows that global saving and investment have trended up in the post-crisis period, and that trend is projected to continue for some years. If data measurement





were perfect, global saving would equal global investment exactly. Accordingly, it is not the gap but the *levels* of both series that are of interest. The large-scale deleveraging by households and by governments has resulted in an expansion of global saving that has exerted downward pressure on interest rates. Past experience with deleveraging suggests that this process could take a long while, indicating that low real interest rates may be part of the global landscape for some time to come.

*Financial markets and the long-run nominal rate.* An alternative forecast of the long-run rate is based on information from financial markets that incorporates real-world uncertainties into asset prices. The nominal interest rate on a long-term bond can be decomposed into three components: the real return on rolling over short-term assets during the holding period of the bond, the expected rate of inflation, and a term premium that compensates for the risk borne by the investor over the life of the bond. Precisely defined, the interest rate on long-term nominal bonds also includes a liquidity premium (because markets for some securities may be thin) and a credit risk premium reflecting the solvency of the lender. However, most financial economists assume these last two components are minuscule for the U.S. Treasury market. On those assumptions, forecasts of the short-term real interest rate, expected inflation, and the term premium suffice to forecast the long-run nominal interest rate.

*Inflation expectations* are a major determinant of the yield on Treasuries, which guarantee a nominal rate of return. The difference between nominal Treasury yields and the guaranteed real rate of return on Treasury Inflation-Protected Securities (TIPS) is usually referred to as the “breakeven” rate of inflation compensation. The current 10-year breakeven inflation compensation rate is 1.9 percent, and the 10-year breakeven inflation compensation rate starting in 2024 is 2.0 percent. Though often cited as a gauge of inflation expectations, the breakeven inflation compensation rate reflects more than market inflation expectations: also embedded in it are a risk premium that reflects the covariance of inflation with wealth, a liquidity premium that reflects the relative ease of converting the assets to cash, and other factors that reflect the relative demands for nominal and inflation-indexed securities. A point to note in interpreting the data is that TIPS are indexed to the CPI, whereas the Federal Reserve’s inflation target of 2 percent a year applies to the PCE, which (as noted earlier in this chapter) tends to rise more slowly than the CPI. Inflation expectations can be inferred from surveys, however, and these indicate long-run rates of expected inflation close to the Federal Reserve’s target.

The *expected short-term* rate is based on a forecast of monetary policy. The median projection released by the FOMC suggests a future Federal funds rate of 3.75 percent. Historically, the Federal funds rate is slightly higher than the rate on a three-month Treasury security, implying an expected three-month Treasury rate of roughly 3.5 percent. This rate would correspond to a projected short-term real interest rate of 1.5 percent a year with inflation expectations at 2 percent a year.

There is an extensive empirical literature that estimates the *term premium*, which reflects the extent to which the long-term nominal bond is a good hedge for other risks faced by the investor (for example, the covariance of the return on the bond with investor wealth and with inflation). Recent financial data indicate that the term premium has been falling and is in the neighborhood of 1 percent for a ten-year bond. It is possible that future changes in monetary policy or shifts in investor beliefs about the Federal Reserve's reaction function could reverse the downward trend in the term premium, but most forecasters predict that the term premium will remain low in the near future. Adding a term premium of 1.0 percent to the short-term nominal rate of 3.5 percent suggests a long-term (10-year) nominal rate of 4.5 percent.

Although reached through different reasoning, the rate on 10-year Treasury notes implied by financial markets is in the same neighborhood as that based on the steady-state prediction of a Ramsey model. This is not surprising – if the Ramsey model is a valid description of the economy, Federal Reserve policy and market expectations about the future will ultimately conform to the equilibrium conditions in the Ramsey model. There is a gap, however, between the rate implied by the Ramsey model presented here – which abstracts from inflation and uncertainty and therefore does not include a term premium – and the rate implied by financial markets, which in principle incorporate all risks but could be strongly affected by current economic conditions. Fully reconciling the two requires a lower expected productivity growth rate, a higher elasticity of intertemporal substitution, or a much smaller term premium than seems realistic to most economists.

recovery is expected to offset some of this downward trend. Young adults, in particular, have been preparing themselves for labor-force entry through additional education. The share of young adults aged 16 to 24 enrolled in school between January 2008 and December 2012 rose well above its trend, enough to account for the entire decline in the labor force participation rate for this age group over this period. As these young adults complete their education, most are expected to enter or reenter the labor force.

Table 2-3  
**Supply-Side Components of Actual  
and Potential Real GDP Growth, 1953–2024**

Component	Growth rate <sup>a</sup>	
	History	Forecast
	1953:Q2 to 2014:Q3 <sup>b</sup>	2014:Q3 to 2025:Q4
1 Civilian noninstitutional population aged 16+	1.4	0.9
2 Labor force participation rate	0.1	-0.4
3 Employed share of the labor force	-0.1	0.1
4 Ratio of nonfarm business employment to household employment	0.0	0.0
5 Average weekly hours (nonfarm business)	-0.2	0.0
6 Output per hour (productivity, nonfarm business) <sup>c</sup>	2.1	2.1
7 Ratio of real GDP to nonfarm business output <sup>c</sup>	-0.2	-0.3
8 Sum: Actual real GDP <sup>c</sup>	3.0	2.5
Memo:		
9 Potential real GDP <sup>d</sup>	3.2	2.3
10 Output per worker differential: GDP vs nonfarm <sup>e</sup>	-0.3	-0.2

<sup>a</sup> All contributions are in percentage points at an annual rate, forecast finalized November 2014. Total may not add up due to rounding.

<sup>b</sup> 1953:Q2 was a business-cycle peak. 2014:Q3 is the latest quarter with available data.

<sup>c</sup> Real GDP and real nonfarm business output are measured as the average of income- and product-side measures.

<sup>d</sup> Computed as (real GDP, line 8) less 2\*(the employed share of the labor force, line 3)

<sup>e</sup> Real GDP per household worker less nonfarm business output per nonfarm business worker. This can be shown to equal (line 7) - (line 4).

Note: Population, labor force, and household employment have been adjusted for discontinuities in the population series. Nonfarm business employment, and the workweek, come from the Labor Productivity and Costs database maintained by the Bureau of Labor Statistics.

Source: Bureau of Labor Statistics, Current Population Survey, Labor Productivity and Costs; Bureau of Economic Analysis, National Income and Product Accounts; Department of the Treasury; Office of Management and Budget; CEA calculations.

The employed share of the labor force—which is equal to one minus the unemployment rate—is expected to increase at an average 0.1 percent a year over the next 11 years. It is expected to be unchanged after 2018 when the unemployment rate converges to the rate consistent with stable inflation. The workweek is projected to be roughly flat during the forecast period, somewhat less of a decline than its long-term historical trend yearly growth of -0.2 percent. The workweek is expected to stabilize because some of the demographic forces pushing it down are largely exhausted, and because a longer workweek is projected to compensate for the anticipated decline in the labor force participation rate in what will eventually become an economy with a tight labor supply.

Labor productivity is projected to increase 2.1 percent a year over the entire forecast interval (line 6, column 2), the same as the average growth rate from 1953 to 2014 (line 6, column 1). Productivity tends to grow faster in the nonfarm business sector than for the economy as a whole, because productivity in the government and household sectors of the economy is presumed (by a national-income accounting convention) not to grow (that is, output in those two sectors grows only through the use of more production inputs). The difference in these growth rates is expected to subtract 0.2 percent a year during the 10-year projection period, similar to the 0.3 percent a year decline during the long-term historical interval (line 10, columns 1 and 2). This productivity differential can be shown to be equal to the sum of two other growth rates in the table: the ratio of nonfarm business employment to household employment (line 4) and the ratio of real GDP to nonfarm business output (line 7).

Summing the growth rates of all of its components, real GDP is projected to rise at an average 2.5 percent a year over the projection period (line 8, column 2), somewhat faster than the 2.3 percent annual growth rate for potential real GDP (line 9, column 2). Actual GDP is expected to grow faster than potential GDP primarily because of the projected rise in the employment rate (line 3, column 2) as millions of currently unemployed workers find jobs over the next two years.

Real potential GDP (line 9, column 2) is projected to grow more slowly than the long-term historical growth rate of 3.2 percent a year (line 9, column 1). As discussed earlier, the projected slowdown in real potential GDP growth primarily reflects the lower projected growth rate of the working-age population and the retirement of the baby-boom cohort. If the effects of immigration reform on labor-force size were incorporated into this forecast, however, then it would show a higher potential real GDP growth rate.

*Upside and Downside of Forecast Risks.* Like any forecast, the Administration's economic forecast comes with risk, but several are worth enumerating here. Among the upside risks is a sustained low price for imported petroleum. Much of the decline in petroleum prices occurred after the Administration forecast was finalized in mid-November 2014; at that time, oil-price futures markets anticipated general recovery in prices. Since then, the long-term futures prices have fallen. The housing sector also has some upside potential given the current low level of household formation and its potential for increase. On the downside, persistent European risks of deflation and slow growth continue to constrain the global economy. There are also concerns about a slowdown in China, and the speed with which Japan will rebound from the effects of the 2014 consumption tax hike. Over the longer-run, there are some downside risks to the estimate of potential growth insofar as more recent lower productivity growth rates continue.

## CONCLUSION

The economy continued to strengthen during 2014, especially in the labor market with robust employment gains and deep declines in unemployment. The labor market saw the fastest pace of job gains since 1999, extending the longest streak of uninterrupted private-sector job growth on record and contributing to an American recovery that has outpaced most of its competitors and left a nation well-prepared for continued resilience. Conditions are ripe for another year of robust growth in 2015 as progress in consumer deleveraging and gains in household wealth have progressed in a way that should support further growth in consumer spending. Residential investment is also likely to expand as the financial constraints that have held back mortgage financing are gradually relaxed and demographic pressures for a larger housing stock become evident. Uncertainty over fiscal policy is lower than in earlier years because of Congress' December 2014 budget agreement. Recent declines in imported prices for petroleum will boost the real income of domestic consumers and reduce near-term inflation. Core inflation is low and below the Federal Reserve's target, and so some upward drift in inflation is projected.

The U.S. economy strengthened last year against a backdrop of relatively weak growth in the rest of the world. This differential is likely to persist into 2015 as growth projections for our major trading partners in Europe, Japan, and some emerging markets are currently less favorable than for the United States. This will dampen demand growth for U.S. exports. The last several years have seen an improvement in the U.S. current account

balance (a falling deficit). Whether this trend continues will also depend, in part, on relative demand conditions at home and abroad.

Looking ahead, some of the most important decisions that we make as a Nation are the structural policies that influence long-term growth. The President's Budget sets forth a number of policies that can be expected to increase the long-term growth rate of potential GDP.

Such policies also aim to boost aggregate demand in the near term and to improve our long-term competitiveness, while promising fiscal restraint over the long run. They are an essential complement to policies that make sure this growth is shared by the middle class and those working to get into the middle class.