19 October 2012 | 20 pages

Global

Empirical & Thematic Perspectives

Dissecting the Disappointing U.S. Recovery—A Comparison to Previous Cycles

- This essay documents some key features of the current U.S. business cycle, comparing the ongoing experience to other U.S. cycles since 1970. By any metric, the current cycle has been unusually severe—this is manifest in both the sharp drop in economic activity through the trough and the remarkably anemic recovery.
- The features of this cycle very much seem to have been shaped by key financial aspects of the downturn, including the weakness of the housing market, disruptions in credit availability, and resulting balance sheet strains. Even so, more recent developments, such as the unnecessary drama associated with U.S. fiscal policy and the uncertain outlook for the global economy, also appear to be restraining the pace of U.S. recovery.
- The good news is that we find evidence that some of the headwinds that have plagued the consumer—and constrained spending through the recovery—are starting to abate. That said, consumer sentiment over the past few years has been fragile and, in our view, remains quite vulnerable in the event of a prolonged impasse regarding the fiscal cliff.
- An even deeper concern is that labor market conditions remain grim. The pace of job creation has been slow at best, and circumstances are far more severe than in recent recessions. Moreover, high levels of long-term joblessness pose a risk of rising structural unemployment. We thus see the Fed's QE3 initiative as intended to support job creation and a reduction in long-term unemployment, consistent with the full-employment leg of its mandate. While we expect the Fed's efforts to be helpful, the more fundamental challenge is instilling sufficient confidence for businesses to begin hiring more aggressively.
- A sharp pull-back in aggregate hours worked, coupled with the solid trajectory of productivity, has allowed the corporate sector to maintain high levels of profits, which have supported rising equity prices. In addition, corporate balance sheets are generally strong and liquid. Nevertheless, ongoing concerns about the economic environment have left business confidence in a very fragile position. And firms are accordingly hesitant to expand the footprint of their operations. As such, we see improved business confidence as the key element necessary to put the recovery on firmer footing.
- An underlying question is whether some other gearing of macro-policies through the crisis and the recovery might have yielded better outcomes. U.S. policymakers have pursued a Keynesian-style strategy. Did these efforts generally cushion the effects of the crisis, or did they delay inevitable adjustment and thus prolong the pain (as Hayek would have argued)? How activist should policymakers be? These are important questions, and we have no doubt that the debate between the disciples of Keynes and Hayek will remain animated for decades yet to come.

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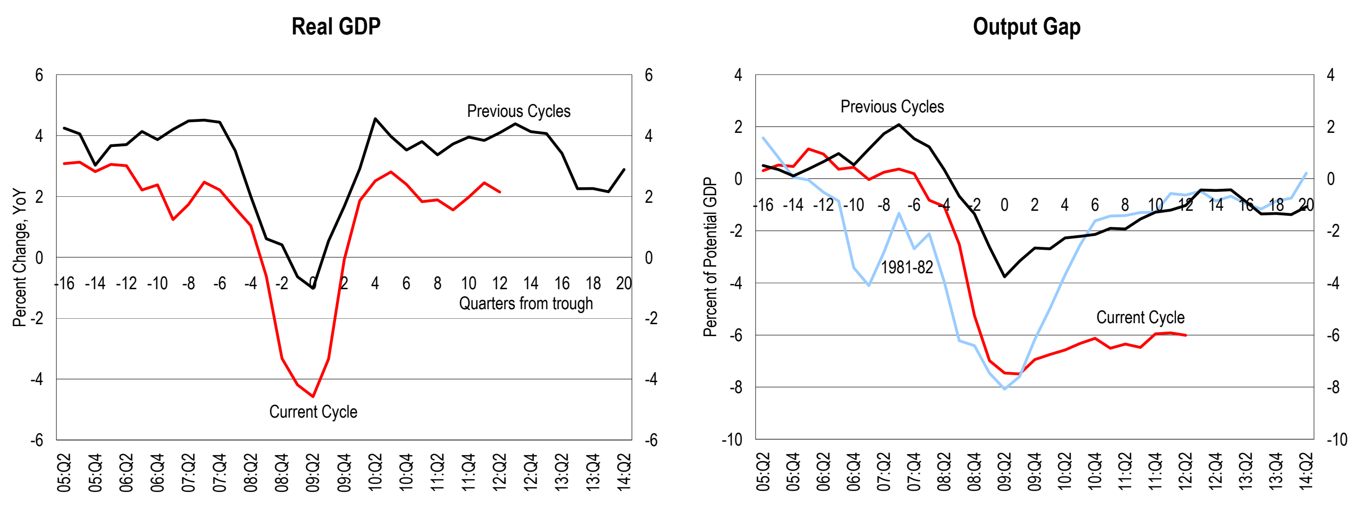
Dissecting the Disappointing U.S. Recovery—A Comparison to Previous Cycles

This essay continues our work assessing the features of the ongoing U.S. recovery. As highlighted in the left panel of **Figure 1**, through the depths of the financial crisis, the U.S. economy contracted much more sharply than in the typical U.S. recession over the past 40 years. Even so, the rebound that has followed this sharp contraction has been notably soft, with real GDP growth mired at 2 percent. In contrast, other recoveries since 1970 have typically achieved growth rates of around 4 percent for a sustained period.

The right panel frames this discussion in terms of output gaps, as defined by the Congressional Budget Office. In the current cycle, the output gap widened significantly through 2009:Q2, the trough of the recession, and the gap has shown little propensity to close subsequently. The U.S. recession in the early 1980s provides an interesting point of comparison in this respect: That recession was similarly deep (coming as a "double dip" following the downturn in mid-1980), but the U.S. economy moved into a powerful recovery once the trough was reached, with the output gap largely closing over just six quarters.

More generally, the tepid nature of the current recovery, while not entirely unique historically, does contrast with the experience in many other business cycles. For example, in a series of papers, Milton Friedman put forward the "pull the string" theory of the business cycle.[1] Drawing on more than a century's worth of data for the United States, he argued that deep recessions were typically followed by rapid recoveries. And the U.S. business cycle in the early-1980s nicely conformed to this standard—the deep contraction was followed by a rapid snapback.

Figure 1.



Note: Recession troughs are from the National Bureau of Economic Research (NBER). The x-axis starting in 2005:Q2 provides dating for the current business cycle (the red line). The other x-axis details quarters before and after a recession's trough (represented by 0) and is a reference for both the current episode and the average experience of the six other recessions since 1970 (the black line).
Sources: Bureau of Economic Analysis, Congressional Budget Office, National Bureau of Economic Research, and Citi Research.

[1] See "Monetary Studies of the National Bureau," *NBER Annual Report*, 1964, pp. 7-25; and "The 'Plucking Model' of Business Fluctuations Revisited," *Economic Inquiry*, April 1993, pp. 171-77.

Accordingly, a number of explanations have been put forward to explain the remarkable weakness of the ongoing U.S. recovery:

- Most prominently, Reinhart and Rogoff in a series of papers have argued that financial crises tend to be associated with deep and prolonged drops in asset markets and consequent deterioration of balance sheets in major sectors of the economy.[2] With the impairment of balance sheets comes significant restraint on credit supply (as banks attempt to restore capital ratios) and credit demand (as households and firms are wary of taking on additional debt). Accordingly, recoveries from financial crises are long and grueling.

- Bordo and Haubrich have focused on the depressed housing sector to explain the weakness of the current cycle.[3] Importantly, residential investment is a key channel of transmission for monetary policy, so when housing is unresponsive the scope for the Fed's policies to stimulate recovery is reduced substantially. And consumer spending is sensitive to wealth effects associated with shifts in house prices.

- A third explanation is that the growth capacity of the U.S. economy has declined. Under this view, the output gap is smaller and the pace of potential growth is lower than many believe. Thus, the U.S. economy has recorded only a modest pace of recovery because that is all that the underlying engine of growth is now capable of generating. We examined this hypothesis in some detail in our recent analysis of whether the U.S. is following in Japan's footsteps and found only limited evidence in its favor.[4] But, even so, this explanation highlights some notable downside risks that should remain on our radar screens.

- Still another perspective, which we put forward for consideration, is that the relative weakness of the U.S. recovery to date not only reflects the legacy of the global financial crisis. But we believe that it also bears the imprint of more recent shocks, which have weighed heavily on confidence, including spillovers from the ongoing stresses in Europe and drama associated with the political stalemate regarding the trajectory of U.S. fiscal policy.

In this essay, we systematically dissect the features of the current U.S. recovery, comparing it across a number dimensions to other U.S. recoveries since 1970. We focus in particular on three questions. First, how does this cycle differ from other recessions and recoveries over the past four decades? Second, what broad types of factors may explain these differences? And third, and most important, what are the prospects for a stronger recovery going forward?

Our work yields several conclusions. First, we find strong evidence that household consumption has been constrained by headwinds associated with the financial crisis, including debt deleveraging, stresses in the housing market, and limited credit availability. However, we also find encouraging signs that these headwinds are gradually diminishing. Second, despite this progress, the still-missing element for a more pronounced strengthening in the household sector is a more robust rebound in the labor market. The Federal Reserve's recent policy actions are likely to provide some support for job creation, but even so we see little hint that a stronger rebound is forthcoming. Third, the corporate sector shows signs of remarkable health—with solid levels of profitability and clean balance sheets—but

[2] For example, see "The Aftermath of Financial Crises," *American Economic Review*, 2009, pages 466-472.

[3] "Deep Recessions, Fast Recoveries, and Financial Crises: Evidence from the American Record," Federal Reserve Bank of Cleveland, Working Paper 12-14, June 2012.

[4] "Is the United States following in Japan's Footsteps?" June 26, 2012.

business sentiment remains depressed. Strengthening the confidence of corporates, so they feel comfortable boosting their hiring and investment, now seems to be the critical ingredient lacking for a more vigorous economic recovery.

In the course of this discussion, we find compelling evidence that Reinhart-Rogoff style headwinds have constrained the U.S. recovery, with the depressed housing sector playing a particularly important role in ways highlighted by Bordo and Haubrich. That said, we also find that events since the trough of the financial crisis—particularly spillovers from Europe and U.S. fiscal uncertainties—have weighed heavily on the confidence of businesses and consumers; these more recent challenges strike us as equally pronounced impediments to a more vigorous recovery going forward.

Macroeconomic Policy and the International Backdrop

We begin with a methodological note: In our work below, we will compare the performance of key economic variables in the current cycle to their average performance in the six other recessions since 1970. Following the conventions set by the National Bureau of Economic Research, we date the respective troughs of these cycles as coming in 1970:Q4, 1975:Q1, 1980:Q3, 1982:Q4, 1991:Q1, and 2001:Q4.[5]

We now compare the settings of monetary and fiscal policy in the current cycle to those that have attended previous U.S. business cycles. The top-left panel of **Figure 2** shows a measure of the real federal funds rate.[6] Notably, the Federal Reserve slashed its real policy rate into negative territory a full four quarters before the trough of the recession, and the real rate has subsequently fallen to around -2 percent. As such, the Fed's response in the current episode has been much more aggressive than in the typical recession over the past forty years—by moving much earlier in the downturn and by maintaining the rate in negative territory. Moreover, focusing on the short-term policy rate substantially understates the extent of monetary stimulus in the current cycle, as the Fed has also provided substantial support through the unprecedented expansion of its balance sheet.

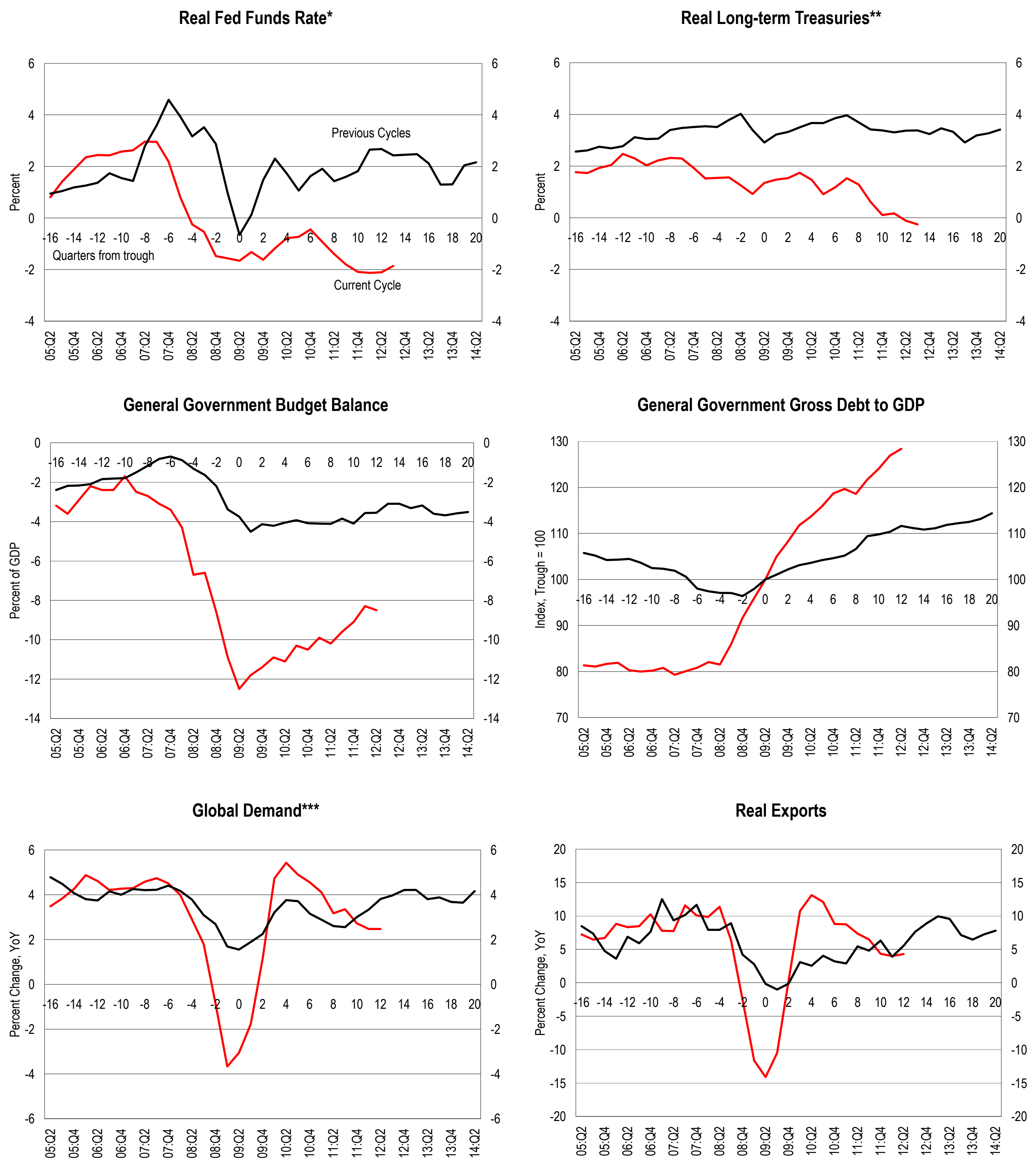
One important effect of this sizable monetary stimulus has been a steady downward drift in the real yields on long-term Treasuries. These yields have gradually trended down over the past five years and now appear to be in slightly negative territory. In addition, as we will discuss below, the Fed's stimulative policy stance appears to be providing meaningful support to both equity prices and housing markets. In previous cycles, real long-term Treasury yields were remarkably stable on average.

The behavior of fiscal policy is also noteworthy. As displayed in the middle-left panel, the general government budget balance (i.e., including state and local governments) sank deeply into deficit as the financial crisis took hold. This deterioration reflected both declining tax revenues, as the economy contracted, and extraordinary expenditure measures to support the economy. Over the past few years, however, the deficit has narrowed some, as revenues have edged back up and stimulus spending has been rolling off. In contrast, the decline in the budget balance in previous cycles was comparatively limited.

[5] In the academic literature, a vigorous debate has emerged as to whether business cycles should be indexed based on their peaks or their troughs. In this essay, we index from troughs because we find this approach to be more useful for comparing growth rates across cycles, which is a major focus of our analysis. More generally, we subscribe to an eclectic view on this issue, with the appropriate approach necessarily varying with the particular question being considered.

[6] We were unable to find a good series on short-term inflation expectations that spans back to 1970. As such, this chart shows the nominal fed funds rate less core CPI inflation (on a four-quarter basis), a measure which we find informative.

Figure 2. Macro Policy and the International Environment



*Effective fed funds rate less core CPI inflation (4-quarter basis). **Composite of long-term Treasuries (10-years and over) less long-term CPI inflation expectations (average of major surveys). ***Real GDP index of 36 major advanced and developing economies (not including the U.S.).
Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve Board, Macroeconomic Advisers, OECD, and Citi Research.

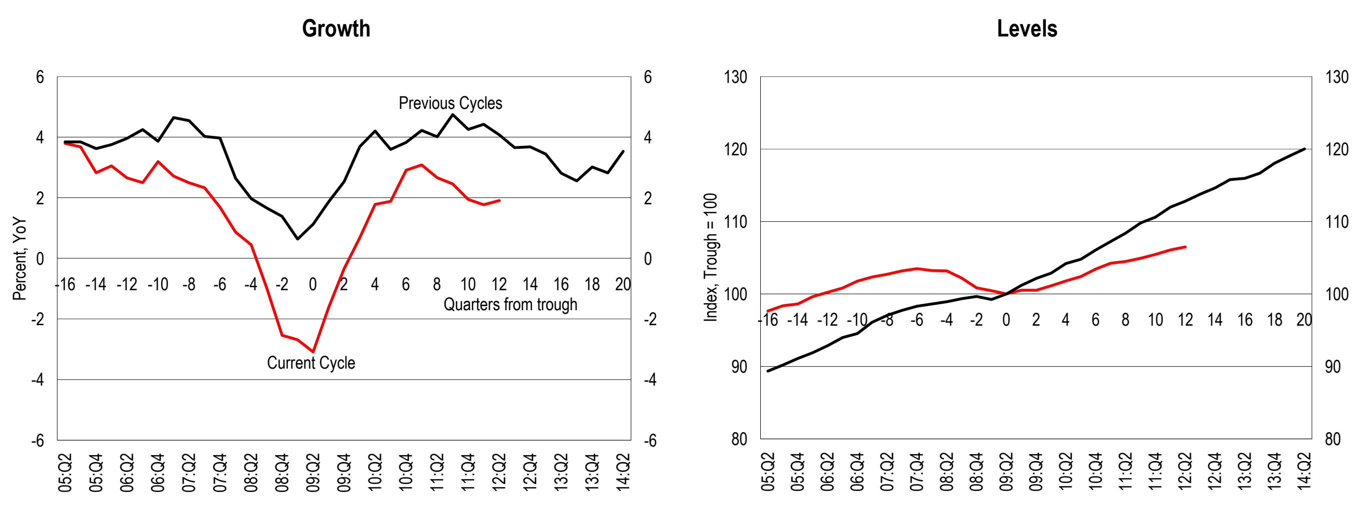
Similarly, the increase in general government debt in the current cycle (shown on the right panel) has substantially exceeded that in previous cycles. Dealing with this rising debt will no doubt pose a major challenge for policymakers going forward. But, as recent IMF work highlights, sustained discipline over many years—rather than sharp one-off measures (such as those embedded in the fiscal cliff)—are the best strategy for achieving a successful deleveraging.

Finally, we make a few observations about the international backdrop. The trajectory of global growth in the current cycle has been more V-shaped than that of U.S. growth. As seen in the bottom-left panel, growth for countries excluding the United States fell sharply through the financial crisis but rebounded robustly thereafter. Of concern, however, the pace of expansion has slowed over the past several quarters, whereas in previous cycles growth tended to accelerate at this point in the recovery. The right panel shows a broadly similar trajectory for U.S. exports—plunging during the crisis, then bouncing back robustly, but now decelerating to slightly below the average of previous cycles. We see these data as highlighting the ongoing risks to the global economy, as the United States, the euro area, and China each struggle with uncertainties about their near-term growth outlooks.

Consumption and Household Behavior

We now turn to an examination of the behavior of household consumption **(Figure 3)**, which accounts for more than two-thirds of total U.S. GDP. The path of consumption growth has been broadly similar to that of economic growth overall, contracting at a 3 percent rate at the trough of the recession and then picking up to around 2 to 3 percent growth thereafter—well below average rates posted in previous recoveries. In levels terms (the right panel), the rebound in consumption is now running a sizable 6 to 7 percent below that in the typical recovery since 1970. Alternatively, consumption is now just slightly above its pre-crisis peak, while at a similar juncture in previous recoveries consumption was up a solid 12 to 13 percent.

Figure 3. Real Personal Consumption



Sources: Bureau of Economic Analysis and Citi Research.

This tepid performance of consumption has been a distinguishing feature of the current recovery. Stated bluntly, our view is that powerful headwinds—which emerged during the financial crisis—have weighed heavily on consumer spending in recent years. We see this performance as broadly in line with the Reinhart-Rogoff hypothesis. That said, we also see accumulating evidence that these headwinds are beginning to abate and that the "green shoots" of a more sustained recovery are taking hold.

As shown in the top panels of **Figure 4**, U.S. households have been aggressively deleveraging and repairing their balance sheets in recent years. In contrast, in previous cycles, debt levels tended to rise noticeably once the recovery had taken hold. To explore these issues more thoroughly, the right panel reproduces a model that we put forward in a previous essay. The solid black line shows the ratio of U.S. household debt to disposable income. This ratio peaked at around 135 percent but has since been pared back to below 115 percent. The dashed red line reports the results from an empirical model, which seeks to capture the longer-term relationship between the debt to disposable income ratio and key underlying variables like the level of household wealth, labor market conditions, and real interest rates. Notably, debt levels in the years before the financial crisis appear to have been well aligned with these underlying factors. But when the global crisis erupted, and housing and financial asset prices collapsed, the model's solution for the appropriate debt level declined sharply. As such, households found themselves overly indebted, given the new lower levels of asset prices and their weaker balance sheets.

An important point is that households are currently in the process of reducing their debt levels relative to disposable income and, indeed, are making substantial progress. This deleveraging has occurred in a gradual and non-disruptive manner, and we very much expect it to continue for several more years, until debt levels are better aligned with the model's solution. To date, a key characteristic of this deleveraging process has been a relatively stable saving rate, roughly in the range of 4 to 5 percent. Going forward, we expect this to persist: The saving rate is unlikely to lurch up further or to fall back any time soon. In short, we expect that consumption is likely to grow more or less in line with income, so invigorating consumer spending will largely be a matter of jumpstarting the labor market. (For more details on these issues, see our earlier essay, "U.S. Household Saving and Deleveraging—What's Next?" December 21, 2011.)

The middle panels examine the performance of the housing market, another key determinant of consumption. As has been well documented, the contraction in residential investment in this cycle was much deeper and more sustained than in the typical cycle over the past forty years. The cumulative peak-to-trough decline in the current cycle totaled nearly 60 percent, compared with a 20 percent drop in other cycles on average. But in addition, previous cycles saw residential investment rebound powerfully around the trough, surging from 15 percent contraction to 20 percent growth over just a few quarters (likely responding to monetary stimulus). In the current cycle, we are only now—several years after the trough of the recession—starting to see something approximating a recovery in residential investment, with growth rates running at 10 percent on a four-quarter basis.

Marked differences are also seen in the behavior of house prices. In previous cycles, house prices had sailed along with solid nominal gains of 5 percent or more through the cycle. This no doubt fueled confidence that house prices on a national basis were broadly immune to any kind of marked cyclical correction. At any rate, the experience during the global financial crisis was remarkably different. House prices have fallen through most of the last five or six years, recording a cumulative decline of roughly one-third.

Figure 4. Factors Influencing Consumer Spending

*All commercial banks; break-adjusted. **Consumer (and business) sentiment numbers are end of period; 2012:Q4 data point (if applicable) is for October.
Sources: Bureau of Economic Analysis, Federal Reserve Board, Irrational Exuberance by Robert Shiller, University of Michigan, and Citi Research.

Notably, however, house prices are again posting slightly positive growth—an encouraging development. However, we saw something similar in the spring of 2010, but the stronger performance quickly gave way to renewed declines. As such, it remains to be seen how sustainable this latest improvement will be.[7] Why the recovery in house prices in 2010 lost steam is an interesting question. We put forward two hypotheses—both of which are admittedly speculative. First, through March of 2010, the Fed had been aggressively purchasing MBS. It is striking that housing market conditions softened soon after the Fed's purchase program expired. This hints that flows, as well as stocks, of Fed purchases may play a role in supporting the economy. Second, in the spring of 2010, stresses in Europe notched up significantly, leaving a meaningful imprint on U.S. equity prices and the dollar, with corresponding effects on confidence. Our guess is that both of these hypotheses were at work to some extent.

The bottom-left panel highlights the contraction in credit to consumers that occurred during the current business cycle. However, here too, we see signs that a recovery is beginning to take hold.

The final panel tackles the important issue of consumer sentiment. Notwithstanding all of the adverse shocks hitting the economy through the financial crisis, the drop in consumer confidence in the quarters before the trough was only somewhat deeper and more rapid than in the typical recession. What's more notable, however, is that consumer confidence has been weak and volatile since the trough, remaining well below levels recorded in previous recoveries. We note in particular that consumer confidence dropped sharply in the third quarter of 2011, in the face of political wrangling about the debt ceiling and resurgent stresses in Europe. More recently, however, consumer sentiment has finally broken out of its previous range—likely in response to the early signs of healing in the housing market, somewhat better credit conditions, and progress on balance sheet repair that we have documented. That said, whether consumer confidence will be resilient in the face of a long and contentious debate about the fiscal cliff, which is likely to span through November and December (and possibly into the first months of the year), very much remains to be seen.

Conclusions. Clearly, the underlying determinants of consumption have been much weaker in this cycle than in other recoveries. The causes of this weakness do very much seem to have the flavor of lingering headwinds from the financial crisis, including substantial weakness in the housing sector but also closely related challenges associated with balance sheet repair, limited credit availability, and depressed consumer confidence. Our interpretation of the evidence is that these headwinds are starting to dissipate, which should allow a more vigorous rebound in consumer spending. That said, consumer sentiment over the past few years has been fragile and, in our view, remains vulnerable to disruptions associated with the fiscal cliff or to intensified stresses in Europe.

Labor Market Conditions

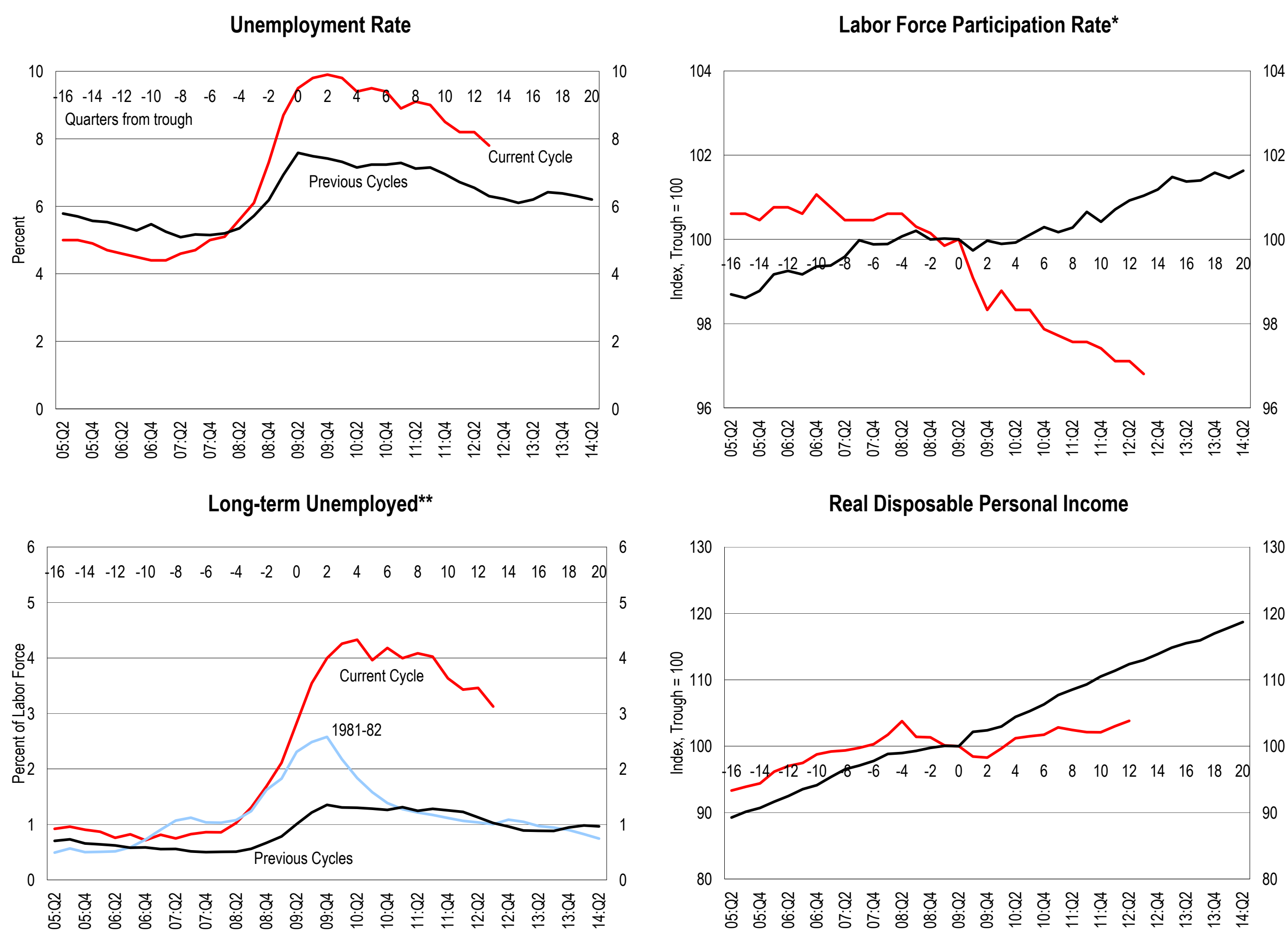
With this analysis in hand, we now turn to an examination of the labor market, which has been another key factor restraining the recovery in household spending—due to both continued uncertainties about employment prospects and the lackluster expansion in disposable income.

[7] A related point is that a key feature of the Federal Reserve's recently announced program to purchase MBS is that the Fed is intervening "with the wind" to support the incipient recovery in the housing market. The fact that the Fed is actively providing support leaves us hopeful that the current housing recovery will ultimately be sustained.

As shown in **Figure 5**, in both the current cycle and in previous cycles, the unemployment rate began its upward climb a few quarters before the trough of the recession. But the surge in the unemployment rate in the current cycle was much more pronounced, spiking more than 5 percentage points, compared with a rise of just 2 percentage points or so on average in previous recessions.

Notwithstanding its higher peak in the current cycle, the unemployment rate has fallen at a pace only slightly faster than that seen in previous cycles. The upshot is that the unemployment rate remains substantially above pre-crisis levels. This slow decline in the unemployment rate has led some observers to suggest that the unemployment rate is converging to a new higher NAIRU.[8] This could either reflect that the NAIRU in the period before the crisis was higher than was generally believed or that structural stresses since the financial crisis erupted have raised the NAIRU substantially, from around 5 percent in the years before the crisis to perhaps something well above 6 percent at present. To date, senior Federal Reserve officials have viewed this hypothesis with skepticism, arguing that a substantial share of the observed run-up in unemployment is cyclical (i.e., reflects inadequate

Figure 5. Labor Market Conditions



*16 years and older. **Workers unemployed more than 26 weeks as a share of the total labor force.
Note: Labor market data are end of period.
Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, and Citi Research.

[8] The NAIRU is the "non-accelerating inflation rate of unemployment," which corresponds to the rate of unemployment at which the labor market is in equilibrium.

demand in the economy), rather than structural.[9] For example, the FOMC participants' published forecasts see the unemployment rate centered at roughly 5½ to 5¾ percent over the medium term.

A salient feature of the current cycle has been a sharp decline in labor force participation, especially since the trough of the recession. In contrast, during the typical recovery over the past forty years, labor force participation rates have tended to gradually rise. The decline in the labor force participation rate in the current episode reflects two principal factors.[10] First, the aging of the baby boom generation has led to increased retirements and to a corresponding reduction in labor force participation. This effect was predicted well before the financial crisis erupted and is structural in nature. But second, important cyclical factors have also been at work. Broad measures of labor market slack suggest that a sizable body of workers have become discouraged and have stopped looking for work. Many others are working part time because they cannot find appropriate full-time employment. Accordingly, the anemic decline in the unemployment rate that we have seen tends to *overstate* the healing in labor market conditions. As the economy starts to recover, these discouraged workers are likely to return to the labor market, thus dampening the improvement in unemployment going forward.

The lower panel highlights another important feature of the labor market's performance through the current cycle—the persistently elevated share of the long-term unemployed (i.e., those unemployed for more than 26 weeks). This ratio spiked to over 4 percent of the labor force in early 2010 and has since retreated to a little over 3 percent. Relative to other U.S. business cycles (even the 1981-82 cycle when labor-market pressures were comparably intense), the challenges with long-term unemployment in the current cycle have been extremely severe and persistent. In our view, the data in this panel more than any other factor provided rationale for the Fed's recent QE3 announcement. The longer this substantial fraction of the labor force remains unemployed, the more the skills of these workers deteriorate and the greater is the risk of rising structural unemployment or, equivalently, a permanently less productive economy. At root, we see the Fed's recent announcement as an aggressive effort to reduce long-term unemployment.

The final panel displays real disposable income, which is the key nexus between labor market conditions and household consumption. Notably, the rebound in disposable income since the trough has been sluggish, running well below the solid pace of increase recorded in previous cycles. Real disposable income has now just barely edged back to its peak reached four years ago.

Conclusions. Our examination of the drivers of consumption provided us some reasons for optimism. This review of labor market conditions, however, has been much grimmer. The pace of improvement has been slow at best, and circumstances are far more severe than in the average recession over the past four decades. If there is any good news, it is that to date these problems seem to be mainly cyclical, rather than structural. But, even so, high levels of long-term unemployment pose serious risks of rising structural unemployment going forward. Accordingly, we see the Fed's QE3 initiative as largely designed to provide support to job creation and to foster reductions in long-term unemployment, consistent with the full-employment leg of its mandate. While we expect the Fed's efforts to be helpful, the more fundamental challenge is instilling sufficient confidence for businesses to begin hiring more aggressively. U.S. firms are profitable and

[9] See Ben Bernanke, "Recent Developments in the Labor Market," March 26, 2012; and Janet Yellen, "The Economic Outlook and Monetary Policy," April 11, 2012.
[10] See Peter D'Antonio, "Division of Labor," U.S. Macro Focus, April 4, 2012; and Steven Wieting, "Long-Term U.S. Budget: Absurd Dependence on the Young," U.S. Macro Focus, September 24, 2012.

competitive internationally but, even so, remain hunkered down and hesitant to expand their footprint.

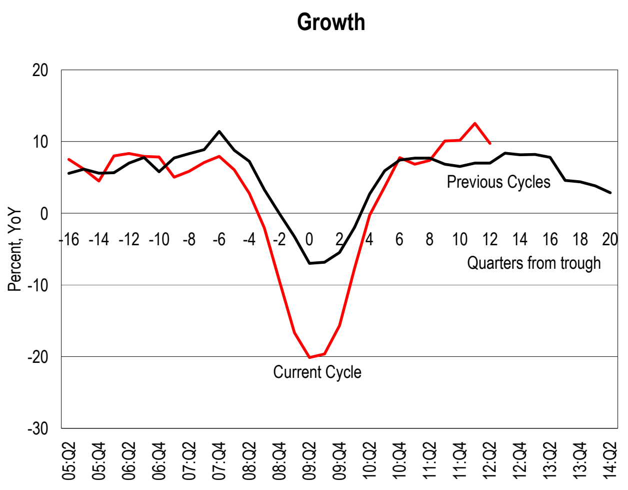
Investment and Corporate Behavior

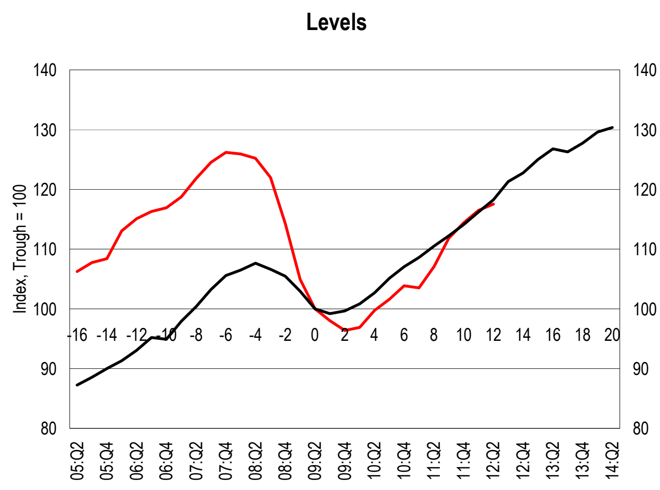
We now turn to developments in the U.S. corporate sector. The broad story, which we will document, is that the corporate sector is in strong financial and competitive position. Even so, as highlighted in **Figure 6**, business fixed investment has remained remarkably soft, falling sharply through the trough of the recession but then rebounding to growth rates no stronger than those recorded in previous recoveries. As shown in the right panel, in levels terms, business fixed investment remains nearly 10 percent below its pre-crisis peak. In contrast, in previous cycles investment was running 10 percent *above* its previous peak by a similar twelve quarters after the trough. With this in mind, the key question that will motivate our analysis is—when will firms have sufficient confidence to start investing and hiring more vigorously?

Figure 7 focuses on some underlying determinants of business investment. Notably, corporate profits in the current cycle fell somewhat more sharply going into the trough than has been the case in other recessions on average, but profits have subsequently posted a solid rebound relative to past experience and are now well above pre-crisis levels. In sync with the recovery in profits, equity prices have also rebounded sharply, albeit to levels still below pre-crisis peaks. Notably, profits and equity prices are two economic variables that have actually shown a V-shaped recovery following the financial crisis.

The story for corporate debt and credit availability also seems reasonably encouraging. The business sector recorded a somewhat larger rise in its debt levels in the run-up to the global financial crisis than was the case in previous recessions. Consistent with this observation, corporate debt levels retreated some following the trough of the recession, but have since stabilized. And low interest rates have allowed firms to extend maturities and pare debt-service costs. As such, our judgment based on this chart, as well as on international comparisons, is that debt levels for U.S. corporates are now at manageable levels and, more generally, balance sheets are strong. Similarly, as shown on the right panel, bank credit to

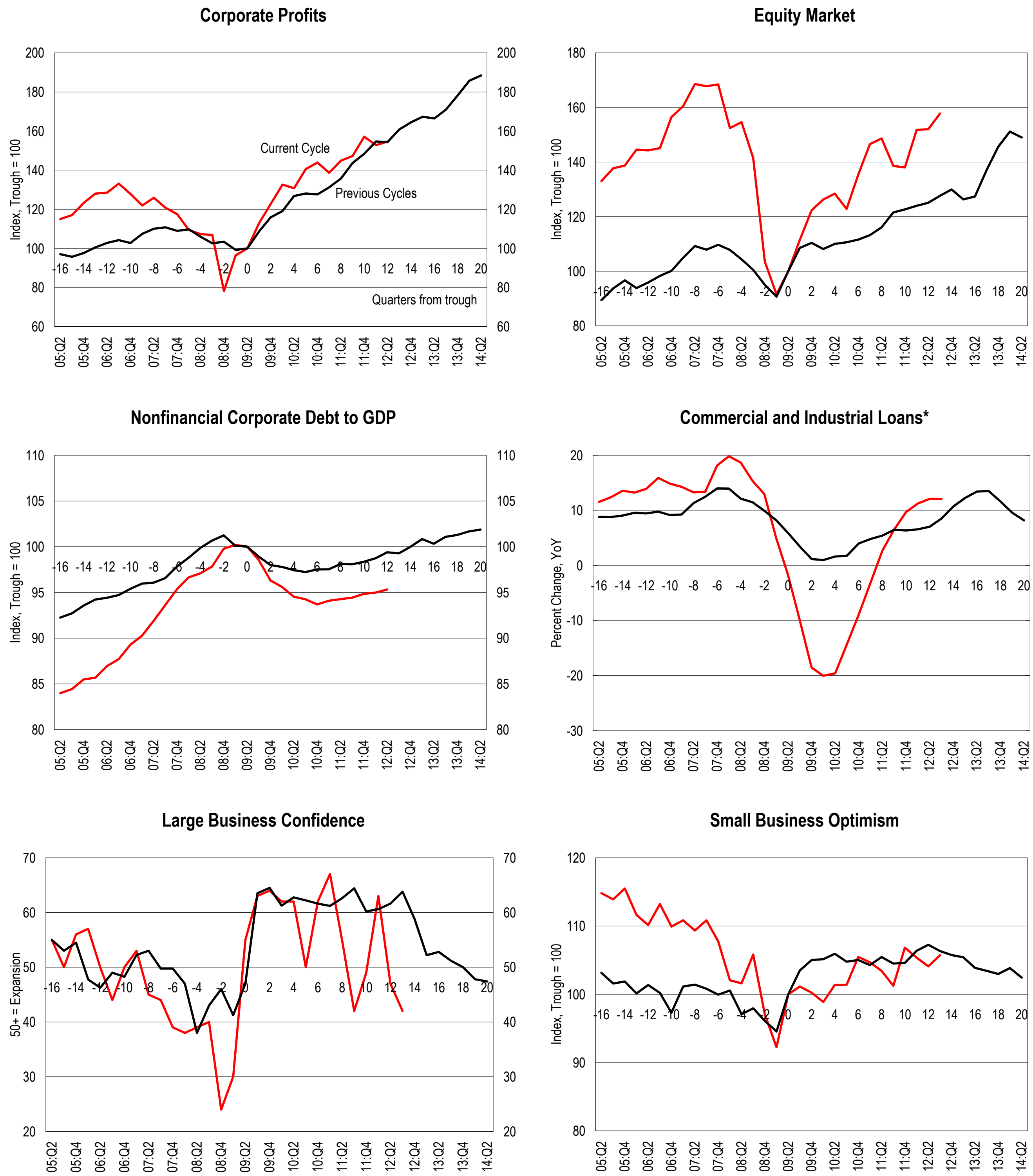
Figure 6. Real Business Fixed Investment





Sources: Bureau of Economic Analysis and Citi Research.

Figure 7. Factors Influencing Business Investment



*All commercial banks; break-adjusted. Note: Business confidence data start mid-1970s.
Sources: Bureau of Economic Analysis, Federal Reserve Board, National Federation of Independent Business, Standard and Poor's, The Conference Board, and Citi Research.

firms contracted sharply through the financial crisis but now seems to be growing solidly. This provides a favorable signal about the improving health of credit intermediation in the United States.

The bottom panels focus on the volatility of business confidence in the current cycle. Firms have been plagued by anxieties about the strength of the recovery. In addition, political uncertainties regarding the debt ceiling and the fiscal cliff and concerns about spillovers from Europe have also weighed on corporate confidence. Notably, sentiment at large firms (shown on the left) spiked down in mid-2010, as the situation in Europe became acute, and fell even more sharply in the summer of 2011, as uncertainties about the debt ceiling and stresses in Europe intensified simultaneously. More recently, business confidence has fallen again (in contrast to the recent rise in consumer confidence), likely reflecting concerns about the looming fiscal cliff and U.S. fiscal problems more generally. This volatility in business confidence over the past several years contrasts markedly with the relatively stable trajectory of business confidence in the average recovery since 1970.

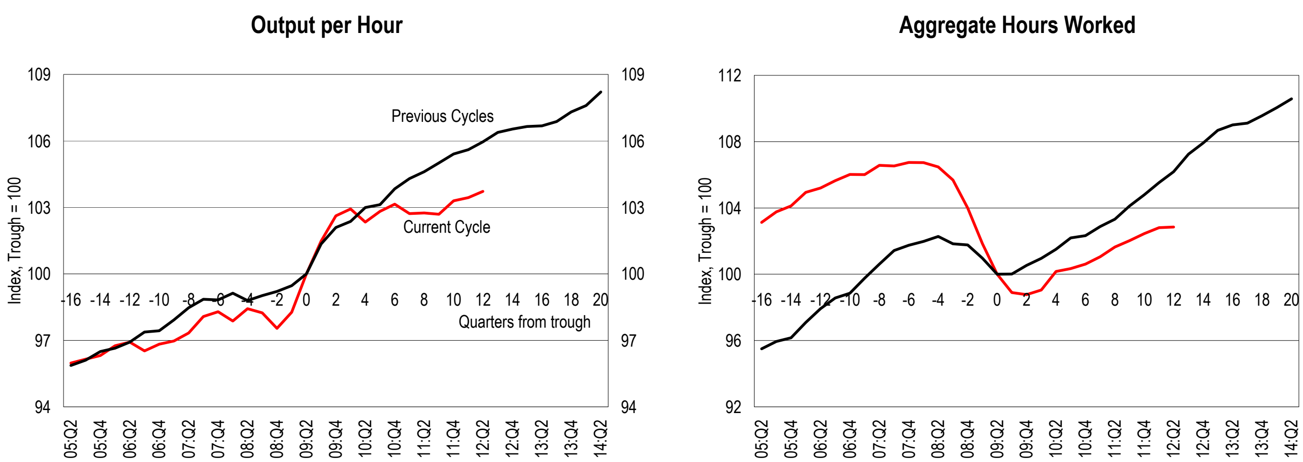
The right panel sheds light on the attitudes of small business. The confidence of small businesses fell very sharply through the financial crisis and has since rebounded only anemically, showing much of the same volatility as in the Conference Board's measure of business confidence for large firms. Given that small businesses typically account for a sizable share of overall hiring in the early stages of recoveries, the depressed state of small business confidence is a particular concern.[11]

As we documented in **Figure 5**, firms have pulled back hard on employment since the onset of the global financial crisis, and this has been sufficient for them to maintain solid profits, notwithstanding the broad weakness of the recovery. With this in mind, **Figure 8** reports productivity and aggregate hours worked, which provide an important supply-side perspective on the recession and the ongoing recovery. Specifically, we consider the following relationship:

$$Y = H * Y/H$$

Where: Y is output (GDP), H is aggregate hours, and Y/H is hourly labor productivity.

Figure 8. Supply-side Indicators



Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, and Citi Research.

[11] For example, see Giuseppe Moscarini and Fabien Postel-Vinay, "The Contribution of Large and Small Employers to Job Creation in Times of High and Low Unemployment," *American Economic Review*, October 2012, pp. 2509-39.

In other words, the economy's total production (real GDP) can be decomposed into aggregate hours worked and labor productivity. This relationship sheds light on the strength of the recovery and, importantly, on the interaction between labor market conditions (hours worked) on the one hand and labor productivity on the other.

The key insights are as follows. As shown on the left panel, although the pace of productivity growth has slowed notably over the past six or eight quarters, the overall trajectory of labor productivity is lagging the average recovery by only a couple of percentage points in total. This solid performance through the current cycle leaves us cautiously optimistic about the medium-term outlook for potential growth and, more generally, about the underlying vibrancy of the economy. The much bigger difference between the current cycle and previous cycles is in the behavior of aggregate hours worked. From peak to trough, hours declined a remarkable 7 percent in the current cycle, much sharper than the average in previous recessions, and the subsequent rebound has been relatively subdued. All told, hours remain substantially below their previous peak, no doubt reflecting weak aggregate demand in the economy but also reluctance by corporates to expand the scale of their operations.

Conclusions. A sharp pull-back in aggregate hours worked, coupled with the solid trajectory of productivity, has allowed the corporate sector to maintain high levels of profits through the current cycle, and this has supported rising equity prices. In addition, corporate debt appears to have stabilized at manageable levels, and corporate balance sheets more generally are strong and liquid. Nevertheless, ongoing concerns about the economic environment, including the strength of consumer demand and deep policy uncertainties (particularly regarding the situation in Europe and the stalemate on U.S. fiscal policy) have left business confidence very fragile. And firms are accordingly hesitant to expand the footprint of their operations. As such, we see improved confidence in the corporate sector as necessary to put the recovery on more solid footing. Stronger business sentiment is the key ingredient that still seems to be missing before a stronger recovery will take hold.

Some Concluding Thoughts

In this essay, we have documented some of the key features of the ongoing U.S. business cycle, comparing the experience to other cycles since 1970. By any metric, the current cycle has been unusually severe—manifest in both the sharp drop in economic activity through the trough and the remarkably anemic recovery. We find that the characteristics of this cycle have very much been shaped by financial features of the downturn, including the weakness of the housing market, disruptions in credit availability, and resulting balance sheet strains.

Even so, more recent developments—such as the ongoing stresses in Europe, the uncertain global growth outlook, and the drama associated with U.S. fiscal policy—appear to be weighing heavily on business confidence. The upshot is an extraordinarily weak labor market. Firms are waiting for households to ramp up consumption before they start hiring, and households are waiting for firms to start hiring before they increase consumption. The result continues to be an economy with sustained sluggish growth. The solution must involve stronger policies (to engender confidence) and the passage of time (to allow the headwinds from the crisis to further abate). Nonetheless, we remain optimistic about the underlying growth capacity of the U.S. economy. At some point in the future (perhaps by 2014?), we are hopeful that necessary actions will be taken and that the clouds will lift, allowing growth to rise to much higher rates and the output gap to begin to close.

A deeper issue, which is implicit in our discussion, is whether some other gearing of the macro policy response through the crisis and the subsequent recovery might have yielded more favorable outcomes. U.S. policymakers have very much pursued a Keynesian-style strategy. Did these efforts generally cushion the effects of the crisis, or did they mainly lead to increased debt and other imbalances, delay inevitable adjustment, and thus prolong the pain (as Hayek would have argued)?

Our sense is that the Fed's initial reactions to the crisis—its liquidity programs and QE1 operations—were indispensable and clearly necessary to prevent even more severe outcomes. But what about QE2, QE3, and the size and composition of the various fiscal stimulus programs? Are these efforts likely to meet some longer-run cost-benefit accounting? We see such questions as being of great importance and meriting further consideration. In any event, we have no doubt that the debate between the disciples of Keynes and Hayek will remain animated for decades yet to come.

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Appendix A-1

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