

# Economic Trends

December 2010 (November 12, 2010-December 9, 2010)

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*of* CLEVELAND

# Economic Projections from the November FOMC Meeting

11.26.10

by Brent Meyer

Four times a year, we get a glimpse of the Federal Open Market Committee’s forecasts for economic growth, unemployment, and inflation. The projections take into account all the available data at the time, assumptions about key economic factors, and each participant’s view of the appropriate monetary policy that will satisfy the Fed’s dual mandate (maximum sustainable employment and price stability).

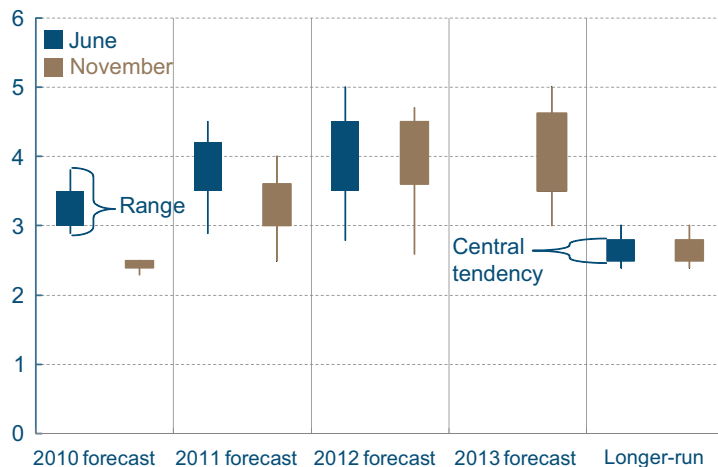
The Committee’s forecasts for near-term output growth were revised down sharply from its June meeting to its November meeting. However, much of this deterioration in the outlook was likely due to the Bureau of Economic Analysis’s annual benchmark revision in July, which revealed that the recovery was on a weaker footing than previously thought.

The range across Committee participants’ forecasts for 2010 also tightened up considerably, in part because there is just one quarter of “unknown” data left for the year (assuming no further revisions to the third quarter). The November forecast for 2011 was also marked down relative to the June forecast, as participants noted that the several factors including ongoing housing market strain, credit conditions at banks, and financial hardships on the part of states and municipalities were restraining overall growth. That said, real GDP growth is expected to rise above its longer-run trend of roughly 3.0 percent in 2011 and stay there through 2013. Nevertheless, the overall pattern of recovery in these projections is somewhat more muted than typical, given the depth of the contraction.

Likely reflecting the relatively weaker near-term growth profile, the Committee marked up its already dour unemployment rate projections through 2012. Participants noted that part of the upward revision in their expected path for the unemployment rate reflected some stubborn lack of improvement in the near-term data. The unemployment rate projections for 2012 now range from 7.0

## FOMC Projections: Real GDP

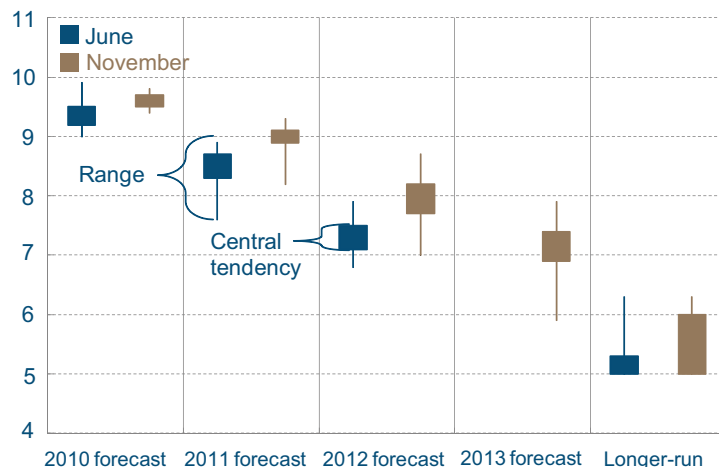
Annualized percent change



Source: Federal Reserve Board.

## FOMC Projections: Unemployment Rate

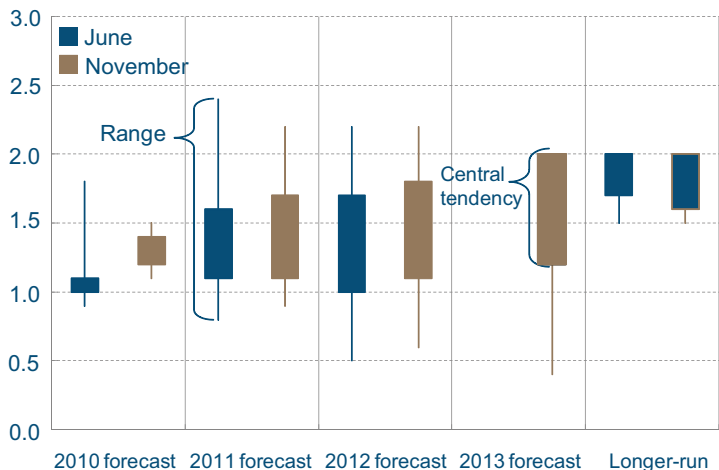
Annualized percent change



Source: Federal Reserve Board.

## FOMC Projections: PCE Inflation

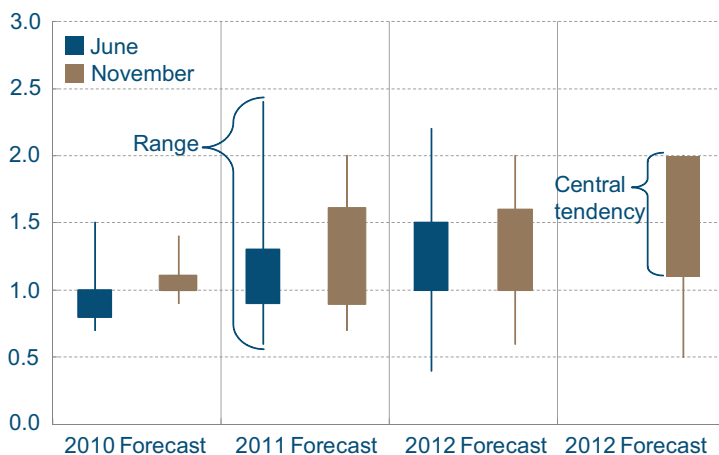
Annualized percent change



Source: Federal Reserve Board.

## FOMC Projections: Core PCE Inflation

Annualized percent change



Source: Federal Reserve Board.

percent to 8.7 percent, well above the Committee's longer-run "sustainable rate" projections. Those range of these longer-run estimates across participants widened at the November meeting, as some viewed underlying structural adjustments as more persistent over the longer-run than others.

Committee members shaded up their projections for PCE and core PCE inflation through 2012, even amid continued low readings on underlying inflation. The Federal Reserve Bank of Cleveland's Median CPI is up just 0.5 percent on a year-over-year basis and has been trending below 1.0 percent for most of the year. The statement accompanying the data's release noted that despite high levels of resource slack, "appropriate monetary policy combined with well-anchored inflation expectations" will likely result in modest inflation rates. Still, the range of forecasts for both headline and core PCE in 2013 is relatively wide. In fact, projections for core PCE inflation in 2013 range between 0.5 percent and 2.0 percent. Also, the lower end of the central tendency for the longer-run projections of total PCE inflation widened slightly—from 1.7 percent to 1.6 percent.

The statement released after the November meeting noted that most participants judged that uncertainty remained elevated for all forecasted variables, compared to historical norms. A "majority" of the participants saw the risks to their growth projections as "balanced," though there are still "many" who have weighted the risks to the downside. Most of the Committee participants regarded the risks to their respective inflation forecasts as "balanced" as well. Still, there was some disagreement about the risks, with "some" judging that downside risks remain and "a couple" of participants who were more concerned about the upside risks to their respective inflation projections.

# The Yield Curve and Predicted GDP Growth: November 2010

Covering October 15, 2010–November 19, 2010  
by Joseph G. Haubrich and Timothy Bianco

## Overview of the Latest Yield Curve Figures

The yield curve became sharply steeper over the past month, as long rates increased nearly 0.4 percent, and short rates held steady. The three-month Treasury bill rate stayed at October's 0.14 percent, barely down from September's 0.15 percent. The 10-year rate rose to 2.89 percent, more than offsetting the nearly one-quarter point drop between September and October. The slope rose a hearty 39 basis points, ending at 275, well above October's 236, as well as September's 255.

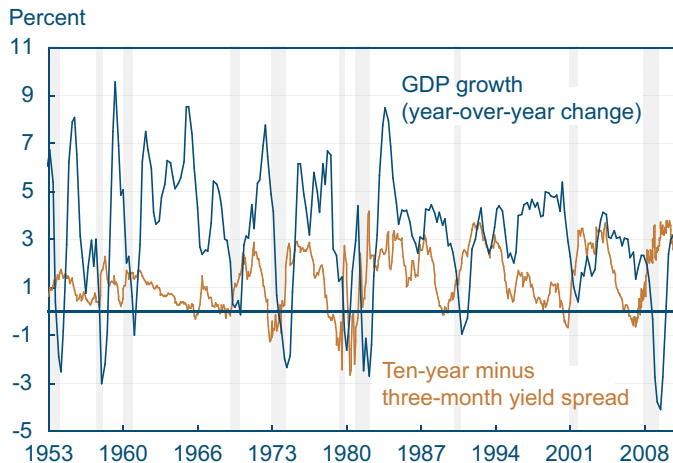
Projecting forward using past values of the spread and GDP growth suggests that real GDP will grow at about a 1.0 percent rate over the next year, the same projections as October and September. Although the time horizons do not match exactly, this comes in on the more pessimistic side of other forecasts, although, like them, it does show moderate growth for the year.

The NBER put the trough of the past recession at June 2009, and having this data affects the recession probabilities coming from the model. Using the yield curve to predict whether or not the economy will be in recession in the future, we estimate that the chance of the economy being in a recession next November is 2.3 percent, down from October's 3.9 percent and even from the September's 2.9 percent.

## The Yield Curve as a Predictor of Economic Growth

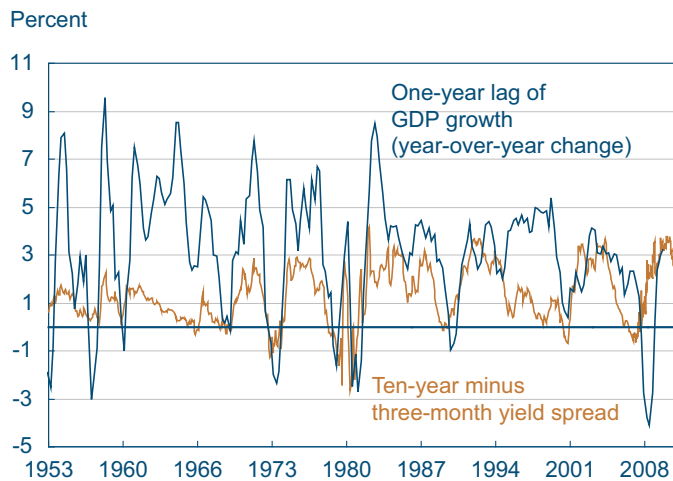
The slope of the yield curve—the difference between the yields on short- and long-term maturity bonds—has achieved some notoriety as a simple forecaster of economic growth. The rule of thumb is that an inverted yield curve (short rates above long rates) indicates a recession in about a year, and yield curve inversions have preceded each of the last seven recessions (as defined by the NBER). One of the recessions predicted by the yield curve was the most recent one. The yield curve inverted in August 2006, a bit more than a year before the current recession

### Yield Curve Spread vs. Real GDP Growth



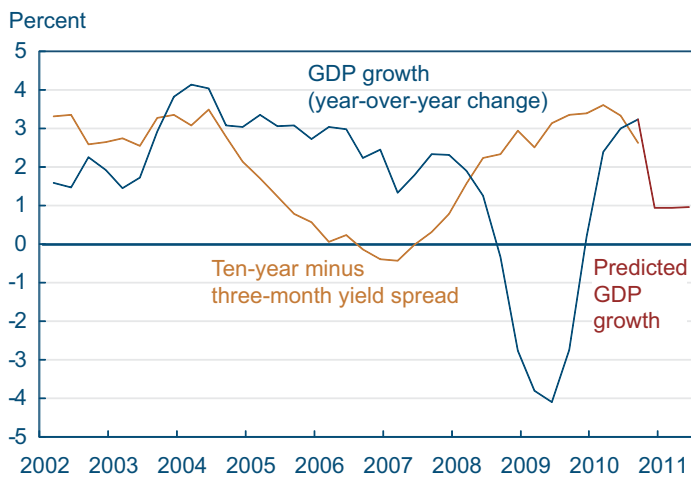
Note: Shaded bars indicate recessions.  
Sources: Bureau of Economic Analysis; Federal Reserve Board.

### Yield Spread vs. Lagged Real GDP Growth



Sources: Bureau of Economic Analysis; Federal Reserve Board.

## Yield-Curve-Predicted GDP Growth



Sources: Bureau of Economic Analysis; Federal Reserve Board; authors' calculations.

started in December 2007. There have been two notable false positives: an inversion in late 1966 and a very flat curve in late 1998.

More generally, a flat curve indicates weak growth, and conversely, a steep curve indicates strong growth. One measure of slope, the spread between ten-year Treasury bonds and three-month Treasury bills, bears out this relation, particularly when real GDP growth is lagged a year to line up growth with the spread that predicts it.

## Predicting GDP Growth

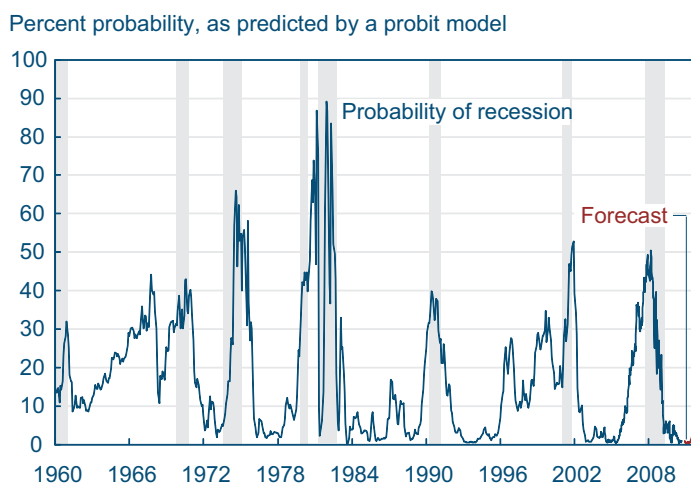
We use past values of the yield spread and GDP growth to project what real GDP will be in the future. We typically calculate and post the prediction for real GDP growth one year forward.

## Predicting the Probability of Recession

While we can use the yield curve to predict whether future GDP growth will be above or below average, it does not do so well in predicting an actual number, especially in the case of recessions. Alternatively, we can employ features of the yield curve to predict whether or not the economy will be in a recession at a given point in the future. Typically, we calculate and post the probability of recession one year forward.

Of course, it might not be advisable to take these number quite so literally, for two reasons. First, this probability is itself subject to error, as is the case with all statistical estimates. Second, other researchers have postulated that the underlying determinants of the yield spread today are materially different from the determinants that generated yield spreads during prior decades. Differences could arise from changes in international capital flows and inflation expectations, for example. The bottom line is that yield curves contain important information for business cycle analysis, but, like other indicators, should be interpreted with caution. For more detail on these and other issues related to using the yield curve to predict recessions, see the Commentary "Does the Yield Curve Signal Recession?" The Federal Reserve Bank of New York also maintains a website with much useful information on the topic, including its own estimate of

## Recession Probability from the Yield Curve



Note: Shaded bars indicate recessions.  
Source: NBER; Federal Reserve Board; authors' calculations.

# Mortgage Borrowers Deleverage

recession probabilities.

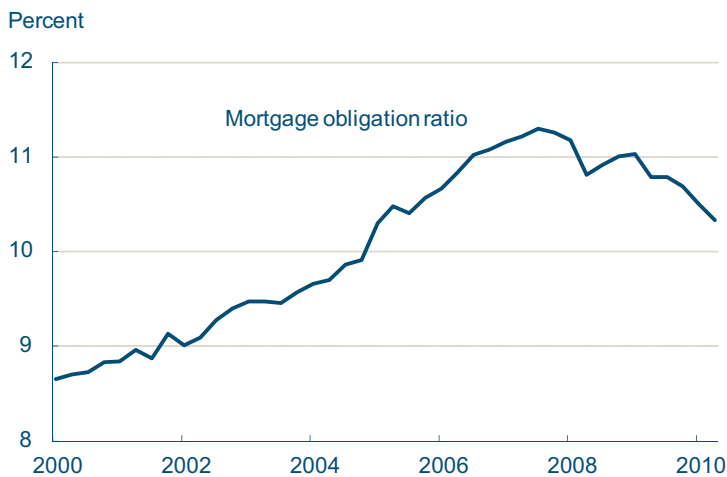
11.22.10

by Yuliya Demyanyk and Matthew Koepke

The housing bubble that preceded the last recession left many borrowers overleveraged once the recession struck. According to the Board of Governors, from March of 2000 to September of 2007, the homeowner mortgage obligation ratio, which measures the outstanding value of mortgage payments as a percentage of disposable income, grew from 8.6 percent to 11.3 percent. However, since the peak of the last business cycle in 2007, consumers have begun to deleverage their balance sheets. This trend is evident in the housing market where consumers have been reducing their exposure to mortgage debt by financing more home purchases with cash and reducing both the loan-to-value ratios and the term to maturity of their mortgage debt.

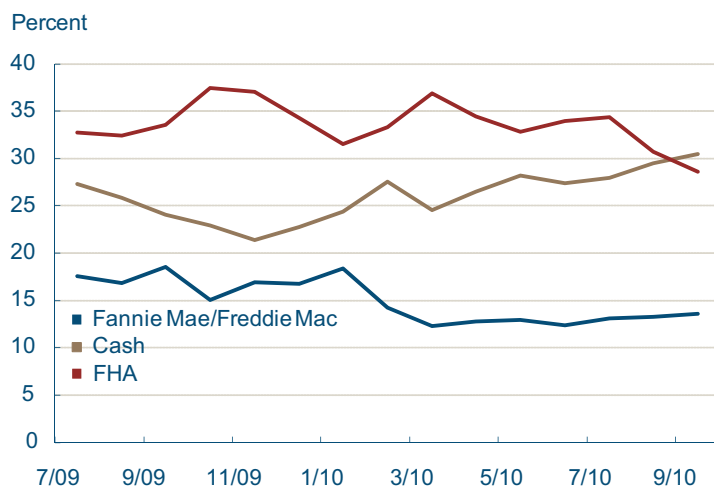
For the month of September, cash was the number one source of financing for home purchases. According to the November 9 edition of Inside Mortgage Finance, which includes the most recent Campbell/Inside Mortgage Finance Monthly Survey of Real Estate Market Conditions, 30.5 percent of home purchases were financed with cash, up from 24.4 percent in January. The Campbell/Inside Mortgage Finance survey attributed the increase in cash purchases relative to other means of financing as result of the large number of distressed properties available in the market and a decline in purchases from first-time homebuyers. Distressed properties are more likely to be bought with cash because they are at a lower valuation and do not require as much financing, and first-time homebuyers do not typically have enough cash on hand to buy homes with no financing. For the month of September, real-estate-owned and short-sale transactions accounted for 47.5 percent of purchases. Additionally, purchases by first-time home buyers have declined since the expiration of the homebuyer tax credit. For the month of September, first-time home buyers accounted for 34.4 percent of all purchase transactions, down from 42.4 percent in June.

## Mortgage Financial Obligation Ratio



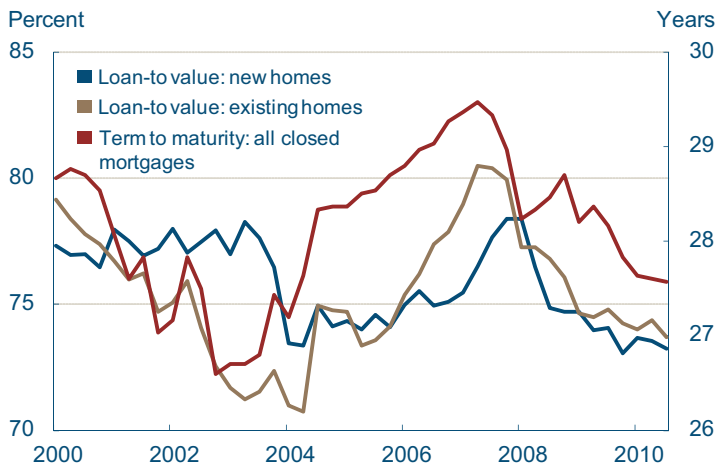
Source: Federal Reserve Board/HaverAnalytics.

## Home Purchases by Type of Financing



Note: Private and VA financing not shown.  
Source: Campbell/Inside Mortgage Finance

## Mortgage Market



Source: Mortgage Bankers Association, Federal Housing Financing Agency and Haver Analytics.

Consumers have been able to deleverage by reducing both the amount of debt and the term to maturity of their mortgage debt. Loan-to-value ratios have steadily declined since they peaked, falling 680 basis points for existing homes and 520 basis points for new homes. Moreover, consumers have reduced their exposure to mortgage debt by reducing the debt's term to maturity. In June, 2007, the term to maturity of all loans closed was 29.5 years; however, as of September of the term to maturity of all loans closed was 27.6 years.

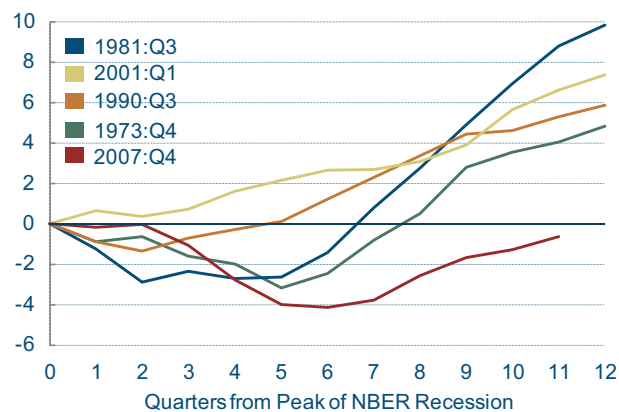
Borrowers have responded to the recent recession by reducing their exposure to mortgage debt. Since the recession began in 2007, the mortgage financial obligation ratio has declined 97 basis points, from 11.3 percent to 10.3 percent. While mortgages remain a much larger proportion of homeowners' debt today than in 2000, if borrowers continue to deleverage, they will be able to obtain more manageable levels of debt in the future.



# The Balance Sheet Recovery

## Real GDP

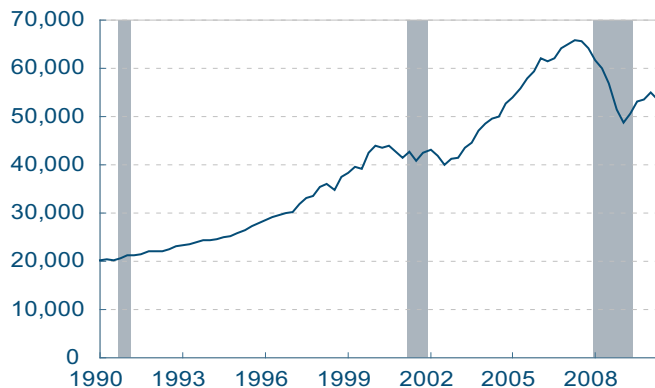
Percentage change from peak of NBER recession



Source: Bureau of Economic Analysis.

## Household Net Worth

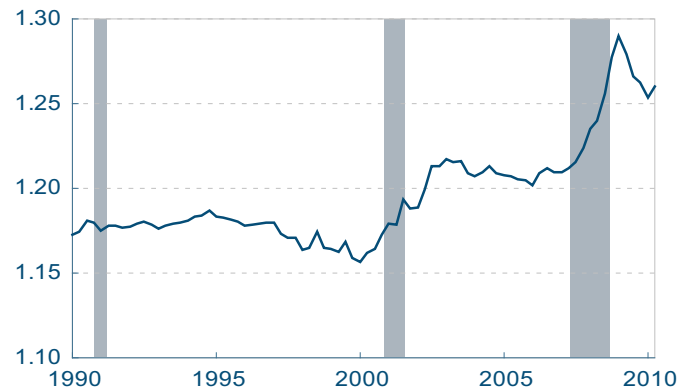
Billions of dollars



Note: Data include net worth for households and nonprofit organizations. Shaded bars indicate recessions. Sources: Flow of Funds; NBER.

## Household Leverage Ratio (Assets/Net Worth)

Billions of dollars



Notes: Data include assets and net worth for households and nonprofit organizations. Shaded bars indicate recessions. Sources: Flow of Funds; NBER.

12.06.10

by Tim Bianco and Filippo Occhino

In the past, deep recessions have been followed by rapid recoveries. Not this time. Real GDP has been growing at a 2.9 percent rate since the end of the recession, a much lower rate than during past recoveries. The current level of GDP is still below its 2007 peak, after almost three years.

Both consumption and investment, the two private domestic components of GDP, have been contributing to the slow recovery.

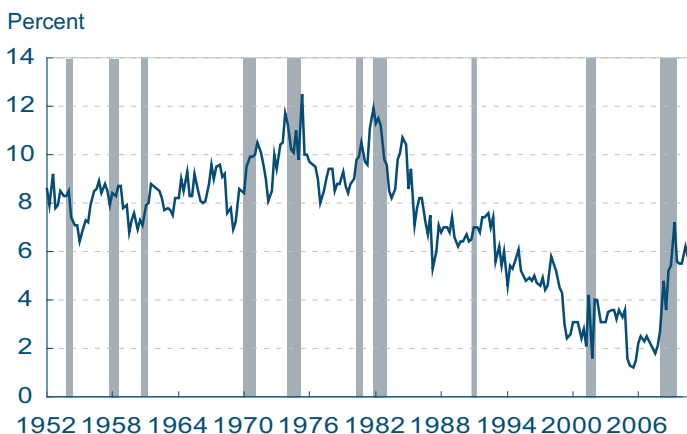
Consumption has been growing at a feeble rate, less than 2 percent. An important reason for such slow growth is that the crisis hit household balance sheets hard. The values of both real estate assets and financial assets decreased sharply, which lowered household net worth and raised leverage. To restore their net worth and to repair their balance sheets, households have been saving at a higher rate, delaying their consumption. The saving rate has increased from its pre-recession level of around 2 percent to its current level of 5.8 percent.

Investment has been growing at 4.4 percent, lower than one would expect after a deep recession. More than one factor has contributed. Weak balance sheets and debt overhang have discouraged businesses from investing. The level of uncertainty—about the strength of economic growth as well as future fiscal and regulatory policies—is high. This may have translated into a high level of uncertainty about the future profitability of investment projects and may have led firms to delay investment, waiting for the uncertainty to be resolved.

Some evidence from corporate balance sheets, however, suggests that companies could rapidly expand their investment plans. Corporate profits and cash flows have bounced back to historically high levels, so companies now have ready access to cheap internal funds. In addition, companies are actively raising external funds through bond issues. But rather than use these funds for investment, they are keeping them liquid. Companies are holding a

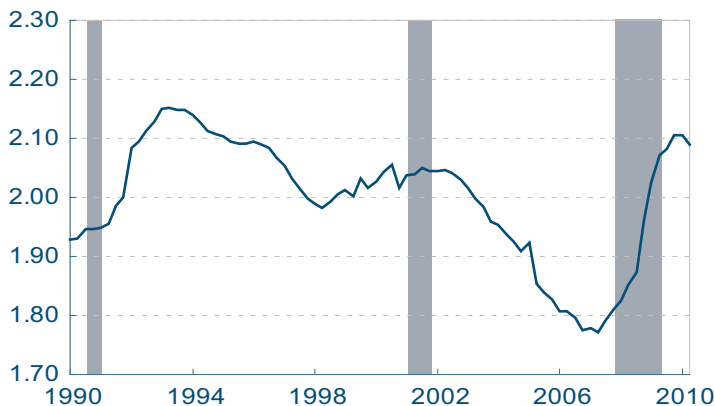


## Personal Saving Rate



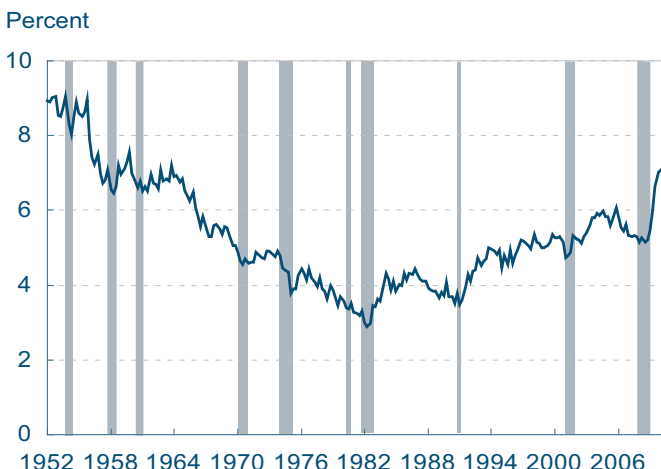
Note: Shaded bars indicate recessions.  
Sources: Bureau of Economic Analysis; NBER.

## Corporate Leverage Ratio (Assets/Net Worth)



Notes: Data are for nonfarm nonfinancial corporate businesses. Shaded bars indicate recessions.  
Sources: Flow of Funds; NBER.

## Ratio of Liquid Assets to Total Assets



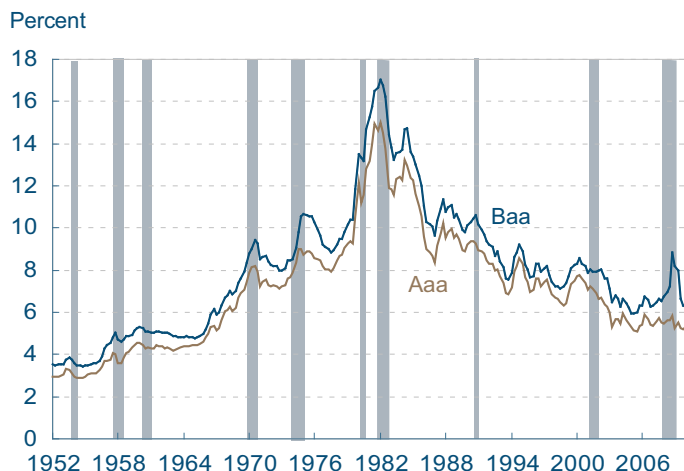
Notes: Data are for nonfarm nonfinancial corporate businesses. Shaded bars indicate recessions.  
Sources: Flow of Funds; NBER.

record-high level of about \$1,850 billion in liquid assets. The ratio of liquid to total assets is currently 7 percent, the highest level since the 1960s.

There may be several motivations behind this behavior. Companies may prefer a more liquid balance sheet as a form of precautionary behavior, because they perceive the environment in which they operate as riskier. Or they may hold a more liquid balance sheet because they want to have the option to use the funds as soon as the occasion arises—historically, a higher growth rate of liquid assets tends to be followed by a higher growth rate of investment. Also, companies may anticipate that they will need the funds in the near future, for capital and current expenditures as well as for debt repayment, and they are raising the funds now because it is relatively cheaper. The cost of both internal and external funds is currently very low. Borrowing, in particular, will hardly be any cheaper in the future. Long-term bond yields are very low, due to very low risk-free rates and moderate credit spreads. The Aaa and Baa corporate bond yields are currently below 5 percent and 6 percent, respectively, close to their historical lows.

Weak balance sheets and uncertainty have been repressing consumption and investment for a while. Once balance sheets are repaired and uncertainty gets resolved, we may see consumption and investment picking up momentum and sustaining a stronger recovery.

## Corporate Bond Yields



Note: Shaded bars indicate recessions.  
Sources: Federal Reserve Board; NBER.

12.08.10

by Joseph G. Haubrich and John Lindner

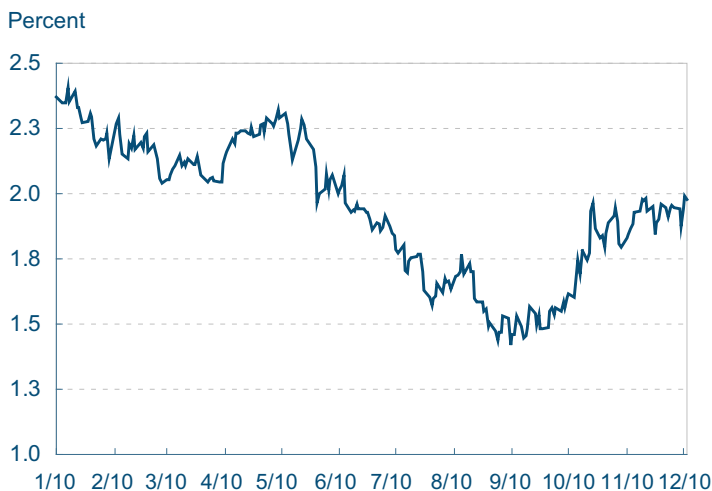
One way to find out what markets expect for future inflation is to look at the inflation swaps market. In an inflation swap, one side makes a variable payment that is based on the realized inflation rate, and the other makes a fixed payment. To make the swap fairly priced, the fixed payment must approximate the expected value of inflation. Since actual inflation is uncertain, however, there is a risk premium involved as well.

One nice thing about inflation swaps is that they trade in an active market making prices available at a high frequency. Thus it's possible to see how expectations of inflation change day by day and week by week. A look at the swaps market shows that five-year inflation expectations have declined steadily since the spring of this year, leading some experts to worry about the possibility of deflation. Since September, however, the trend has reversed, and expectations have moved back up into the 2 percent range.

The timing of this increase in inflation expectations is significant. Inflation expectations reached a nadir in late August. Between the September and November Federal Open Market Committee (FOMC) meetings, information on the potential purchases of additional assets was gradual revealed. In particular, the release of the September meeting minutes on October 12 revealed that several members of the FOMC “would consider it appropriate to take action soon,” unless “the pace of economic recovery strengthened or underlying inflation moved back toward a level consistent with the Committee’s mandate. . .” This and other communications seem to have altered inflation expectations, as the likelihood of further purchases rose. Inflation expectations have been fairly stable since the November 2-3 FOMC meeting.

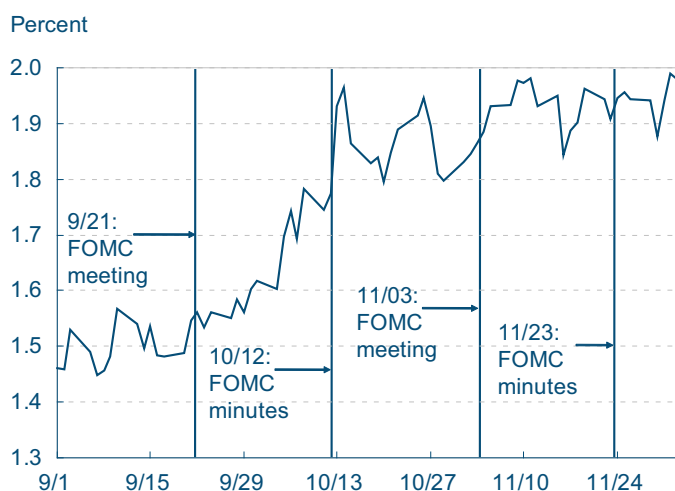
By combining different maturities of inflation swaps it is also possible to get measures of forward inflation rates, that is, what inflation is expected

### Five-Year Expected Inflation Rate



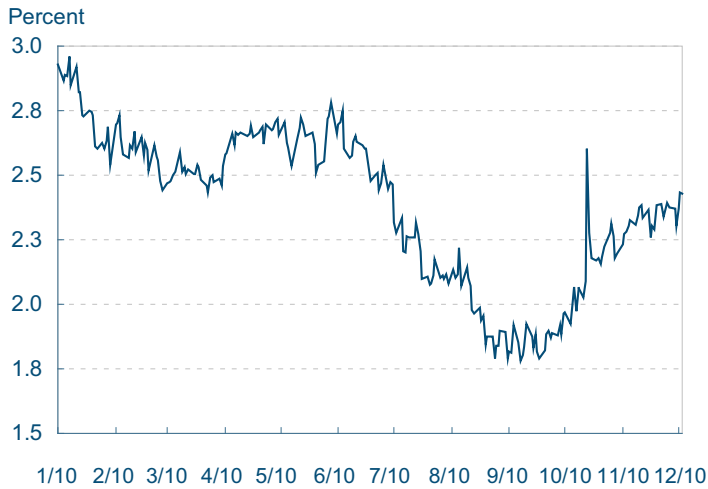
Note: Calculated using Inflation Swaps.  
 Source: Bloomberg.

### Year Expected Inflation Rate (2010)



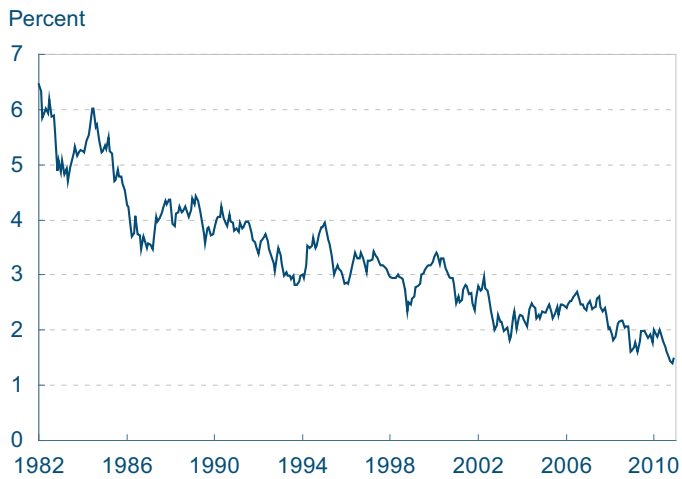
Note: Calculated using Inflation Swaps.  
 Source: Bloomberg.

## Three-Year, Two-Year-Forward Inflation Rate



Note: Calculated using Inflation Swaps.  
Source: Bloomberg.

## Three-Year, Two-Year-Forward Inflation Rate



Source: Haubrich, Pennacchi, Ritchken (2008).

to be in the future. Looking at expectations of the three-year inflation rate two years in the future (for example, inflation between 2012 and 2015, as in the chart below) shows a similar pattern of decline and recovery, though rates are higher, approaching 2½ percent.

The level of three-year inflation expectations two years in the future appear to be above the FOMC view of inflation rates consistent with price stability; however, this measure does not account for risk premia that are relevant in these contracts. The Federal Reserve Bank of Cleveland's model of inflation expectations is able to account for these risk premia and finds that inflation expectations remain lower, in the 1.5 percent range.

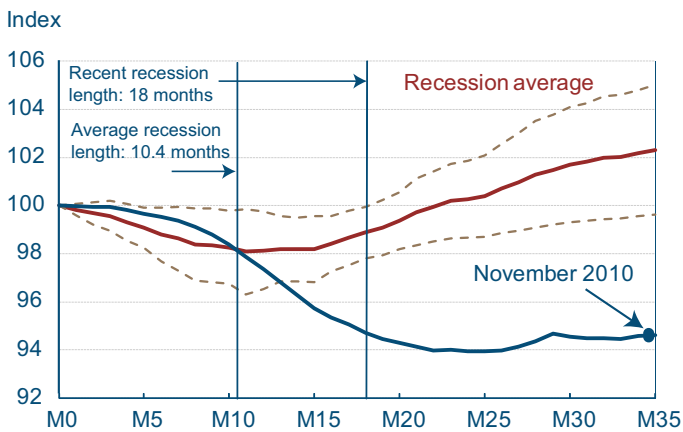
These measures may give estimates that are different from those gotten in a popular way, which is to compare the interest rate on Treasury bonds that are protected against inflation (TIPS) with ordinary, nominal Treasury bonds, which are not. The difference between those rates, often called the breakeven rate, is the estimate of expected inflation. Using inflation swaps to gauge expected inflation has an advantage over the TIPS-based way because the difference between TIPS and Treasury rates can change with liquidity differences between the two instruments. However, the breakeven rate, whether derived from TIPS or from inflation swaps, also includes an inflation risk premium, and so is not a pure measure of inflation expectations. Getting a pure measure of expected inflation is possible, but it is more difficult to update day-by-day and to see high frequency patterns. (For more detail, see our inflation expectations page. And as always, market conditions, taxes, and other complications mean these series must be taken as estimates of the underlying expectations, and so used with care.

## Where Are We in the Labor Market Recovery?

12.08.10

by Murat Tasci and Mary Zenker

### Cumulative Decline in Employment: Beginning of Recession to 35 Months Out

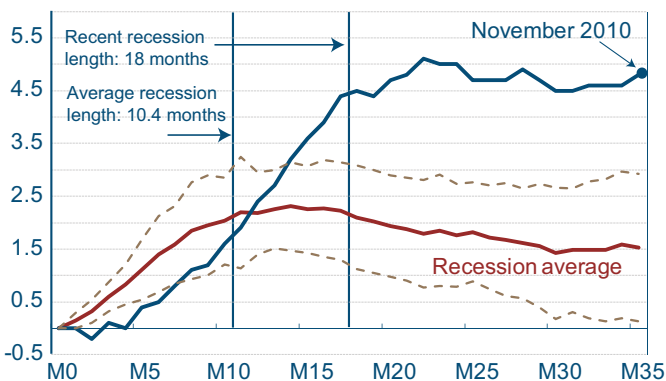


Notes: X-axis represents months from start of the recession. Recession start level of payroll employment is normalized to 100. Red line represents the average employment index progression for post-war recessions, and dotted lines are +/- one standard deviation.

Source: Bureau of Labor Statistics

### Cumulative Increase in Unemployment Rate: Beginning of Recession to 35 Months Out

Percentage points



Notes: X-axis represents months from start of the recession. Recession start level of payroll employment is normalized to 100. Red line represents the average employment index progression for post-war recessions, and dotted lines are +/- one standard deviation.

Source: Bureau of Labor Statistics

The effects of the recent recession have been especially bad for the labor market. With the current estimate of real GDP only 0.6 percent lower than its prerecession peak, most of the loss in real GDP over the course of the recession has been recovered, but payroll employment is still about 5.4 percent less than its pre-recession peak. The U.S. economy has been generating only 86,000 new nonfarm payroll jobs a month on average since the beginning of 2010. Though blurred somewhat by the hiring of temporary Census workers, total private nonfarm payrolls gives a similar picture; firms on average created 106,000 jobs in the first eleven months of 2010.

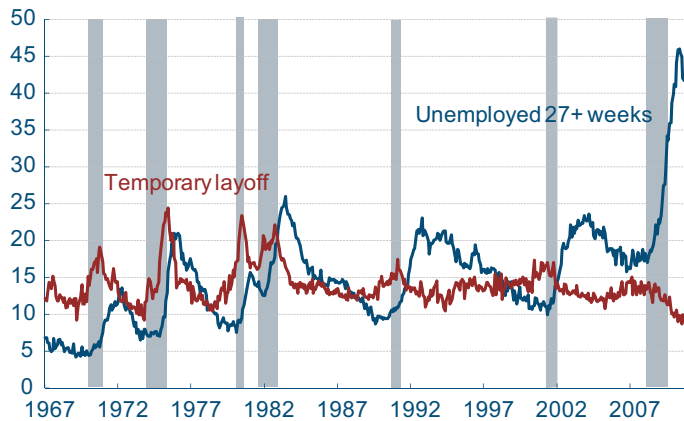
The recovery in payroll employment so far is relatively weak by historical standards. In previous recessionary episodes, it took almost 23 months for payroll employment to return to its pre-recession peak. The current recovery presents a stark contrast; even after 35 months, we are still 5.4 percent below the previous peak. The slow recovery might be due to the unusually long duration of the last recession. On average, recessions last about 10 months, but the last one lasted 18 months.

However, the unusually long duration doesn't seem to explain the sluggish recovery in payroll employment entirely. One problem is the timing of the recovery. In all previous recessionary episodes, the end of the decline in payrolls coincided with the official end of the recession on average, about 10 months. After the last recession, however, payroll employment reached its trough in 24 months, half a year after the official end of the recession.

Another aggregate measure that we can look at to judge the strength of the recovery is the unemployment rate. The unemployment rate increased from about 5 percent in December 2007 to 10.1 percent in October 2009. Since then, it has been relatively steady above 9.5 percent, without showing much sign of improvement. The recovery so far measured

## Persons Unemployed 27+ Weeks and on Temporary Layoff

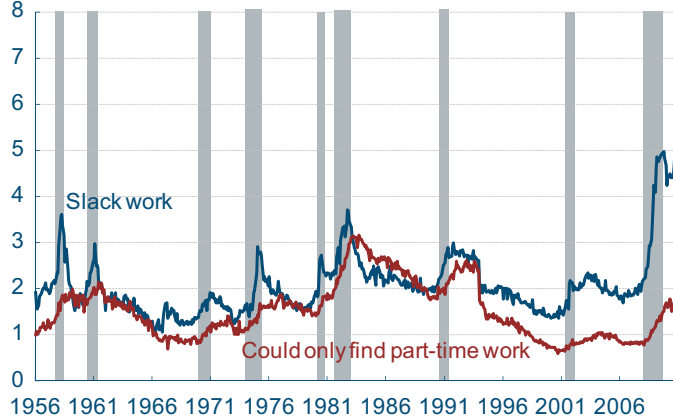
Share of civilians unemployed, percent



Source: Bureau of Labor Statistics.

## Persons Working Part-time by Reason

Share of civilians employed, percent



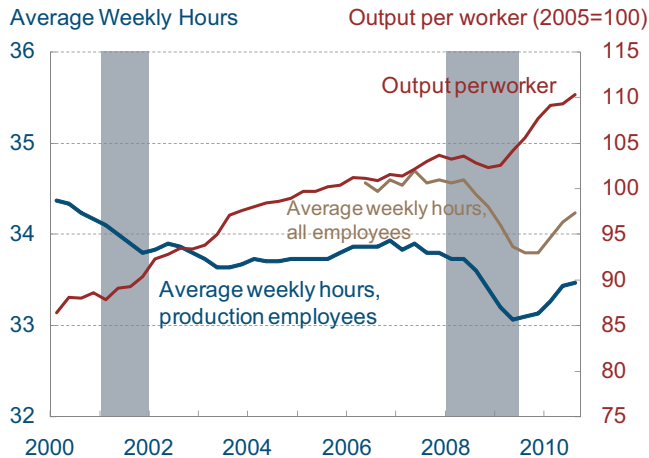
Source: Bureau of Labor Statistics.

by unemployment also presents a stark outlier relative to the behavior of the unemployment rate throughout previous cycles. Not only was the extent of the increase in the unemployment rate large, it has also been persistent. This level of persistence is not entirely surprising: Unemployment usually lags behind the recovery in output. On average, the unemployment rate peaks about three months after the end of the recession. In the current cycle, it took the unemployment rate four months after the end of the recession end to reach its peak. However, the picture since then is really troubling; we have not seen the unemployment rate drop below 9.5 percent since July 2009. Thus, two main measures of the aggregate labor market suggest that the labor market recovery is exceptionally weak so far.

Another disturbing feature of the weak labor market recovery so far, is the presence of the unusually high ratio of long-term unemployed. The ratio of unemployed workers who are unemployed for more than six months among the total unemployed has sharply increased over the last recession to unprecedented levels. As of May 2010, 46 percent of the unemployed reported to be out of work for more than six months, almost double the any previous recession peak in this measure in the data. Over the past six months, this fraction declined somewhat, but it still points to a pervasive long-term unemployment problem. Another measure, we can look at to see the sign of persistent unemployment is the relatively small fraction of the unemployed who are on temporary layoffs. Especially in manufacturing, some employers used to lay off their employees when the demand for their products was low, with the implicit (sometimes even explicit) understanding that they will be recalled when business conditions improve. This type of temporary adjustment in firms' employment had a common cyclical pattern in the past. However, during the last recession, if anything, temporary layoffs declined, as a fraction of the total unemployed. Once again, this might imply that employers did not anticipate economic conditions to improve as quickly or else they were willing to go through a costly rehiring without committing to their previous employees. Thus, both of these measures indicate that long-term unemployment was a significant part of the

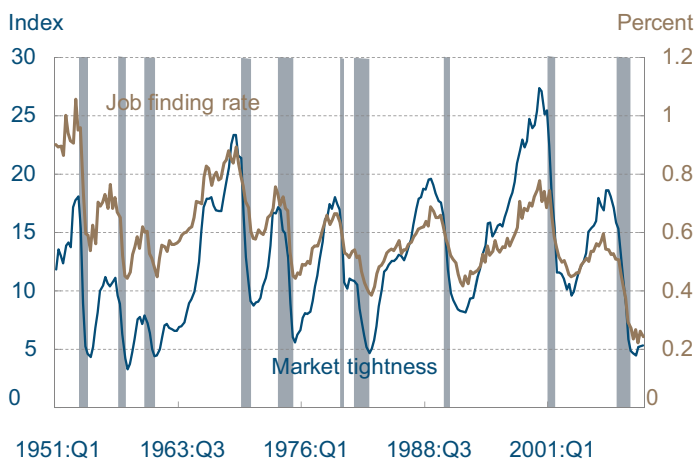


## Average Weekly Hours and Non-farm Business Sector Productivity



Note: Seasonally-adjusted, quarterly  
Source: Bureau of Labor Statistics, authors' calculations.

## Labor Market Tightness (V/U)



Source: Authors' calculations.

unemployment picture in this cycle and it has not improved drastically yet.

One can think of various reasons why employment has not increased significantly in the post-recession period. Individuals working part-time for economic reasons tell part of the story. The share of workers working part-time due to slack work is at an all-time high. The share of workers who can only find part-time work although they would prefer full-time employment rose steadily throughout the recent recession as well and has just recently shown signs of leveling off. Firms can utilize those workers along the intensive margin before rehiring again. A possible evidence of that strategy could be seen in average hours data. After hitting a low-point in the 2nd quarter of 2009, average weekly hours have been steadily increasing while employment is little changed as we showed above over the same period. Average weekly hours of production employees have risen by 1.5 percent since the second quarter of 2009 as have average weekly hours of all employees. Over the same period, output per worker, or productivity, increased by almost 6 percent. Putting that gain in context, over the previous post-recessionary period (2003:Q3 to 2007:Q4), productivity increased by about 7 percent. Thus in a little over a year, productivity gains already almost equal the productivity gains of the previous post-recessionary period, despite the fact that employment growth has been sluggish.

Taken together, these data suggest weak labor demand will persist until employers exhaust the current ranks of workers who are willing to put in more hours. These conditions are indicative of a loose, rather than tight, labor market. Labor market tightness is measured by comparing job vacancies to the unemployment rate. A tight labor market is one in which the ratio of vacancies to unemployment is high. The historical pattern is clear: in tight labor markets, the probability of finding a job increases as there are a large number of vacancies relative to the pool of people looking for work. Conversely, in a looser labor market, the ratio of vacancies to unemployment is lower which translates to a lower probability of finding employment. Indeed, the current job finding rate is at an historical low while the labor market is also experiencing one of its weakest periods in several decades.

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