

# Economic Trends

December 2012 (November 15, 2012-December 14, 2012)

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FEDERAL RESERVE BANK  
*of* CLEVELAND

# Foreign Banks in the United States

12.14.12

by Kristle Romero Cortes and Sara Millington

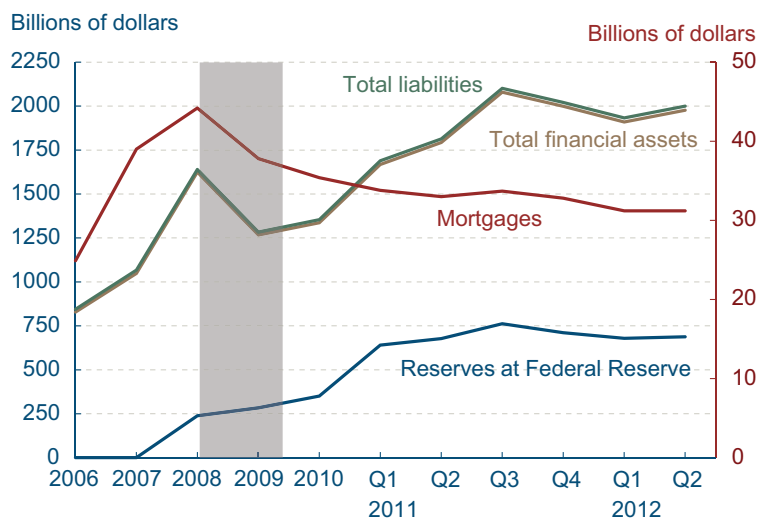
Currently, banks from 57 countries have offices in the United States. Up until the beginning of the financial crisis, the liability and asset holdings of these foreign bank offices had been increasing. But in 2008, their holdings fell by \$357 billion (a seasonally adjusted annual decline of 28 percent). Following the crisis, liability and asset holdings returned to pre-crisis levels and surpassed them within two years. Most analysts think this resurgence reflects a continuous improvement of these banks' balance sheets overall.

While the total financial assets and total liabilities have both been increasing, liabilities have been increasing at a faster rate. From 2006 to 2010 the average gap between liabilities and financial assets held by foreign bank offices in the U.S. was \$16.7 billion dollars. This gap increased \$5.2 billion between 2011 and 2012 (a 23 percent increase).

Displaying total financial assets and total liability holdings in percent change shows the overall trend that the banks are experiencing from one year to another. In 2008 foreign bank offices increased their asset and liability holdings by 35 percent. In 2009 they decreased both by 28 percent. Since 2010, they have been adding to their holdings of both year over year. The shift downward observed in 2012 may in part reflect having just two quarters of data for this year.

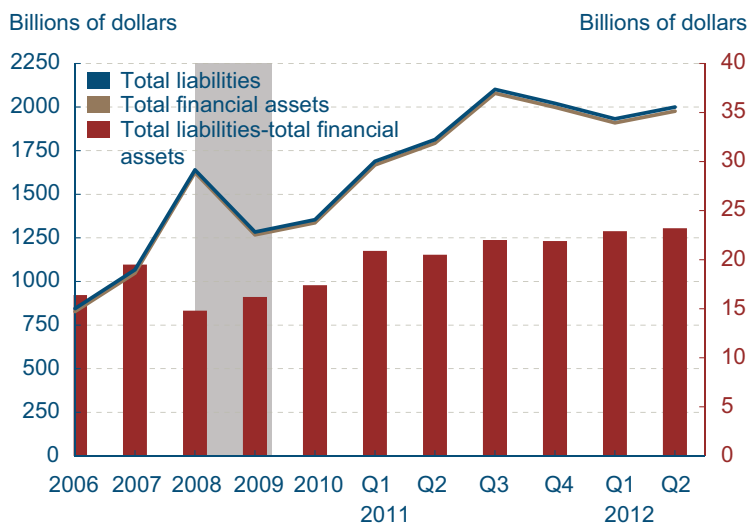
Banks' balance sheets have not fully recovered from the recent financial crisis, most notably some euro-zone banks. One indicator of how the balance sheets are faring is interbank lending rates. The interbank lending market is where banks that need to cover daily shortfalls of liquidity borrow from those that have excess liquid assets. The majority of the net interbank liabilities of foreign bank offices are made up of foreign bank liabilities, while domestics account only for a small portion. (Liabilities are funds due to any other bank, foreign or domestic; assets are the funds due to the foreign

## Foreign Bank Offices in the U.S.



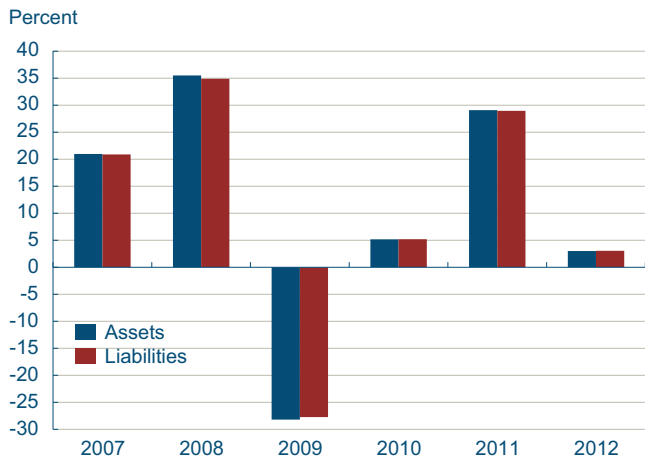
Note: Shaded bar indicates a recession.  
Source: Federal Reserve Board, Flow of Funds, Release September 20, 2012.

## Total Liabilities and Assets



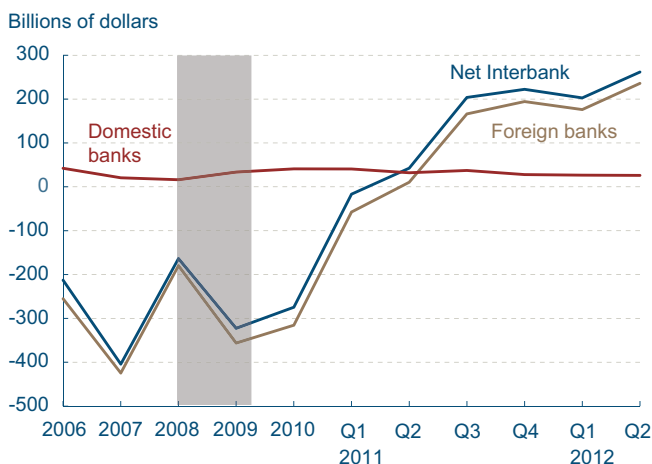
Note: Shaded bar indicates a recession.  
Source: Federal Reserve Board, Flow of Funds, Release September 20, 2012.

## Year-over-Year Change in Assets and Liabilities



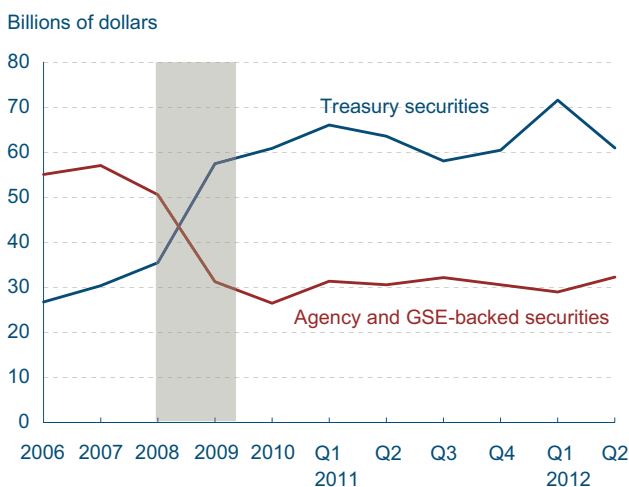
Source: Federal Reserve Board, Flow of Funds, Release September 20, 2012; Federal Reserve Bank of Cleveland's calculations.

## Net Interbank Liabilities



Note: Shaded bar indicates a recession.  
Source: Federal Reserve Board, Flow of Funds, Release September 20, 2012.

## Foreign Bank Securities



Note: Shaded bar indicates a recession.  
Source: Federal Reserve Board, Flow of Funds, Release September 20, 2012.

bank's U.S. office.) Foreign bank liabilities transition from a negative to a positive balance for their net interbank and foreign bank account balances starting in the first quarter of 2011. This means that foreign banks are lending funds to their U.S. offices, typically overnight, in greater proportions than the U.S. offices are posting funds at those foreign banks. The overall trend is for the U.S. offices to manage their funds with the foreign banks rather than domestic banks.

In all the data on foreign bank offices we've observed thus far there is a dramatic shift during the U.S. financial crisis in 2008-09. Each indicator is affected during that time period, undergoing a change in its direction or pace. This change is even more evident in the ratio of Treasury and GSE securities in foreign banks' portfolios. Government-sponsored enterprises (GSEs) are privately held corporations with public purposes created by Congress to reduce the cost of capital for certain borrowing sectors. In September 2008 the U.S. government took conservatorship of Fannie Mae and Freddie Mac, two GSEs that play a critical role in the mortgage market. At that time, foreign banks increased their Treasury holdings by 38.3 percent while decreasing their GSE holdings by 61.7 percent. Since then, foreign banks' share of GSE-backed securities remains much lower than their share of Treasury securities.

However, a slight shift began to emerge in the first quarter of 2012. Foreign banks started to increase their share of GSE-backed bonds. This trend continues in the second quarter as well. This increase in GSE-backed securities and the decrease in Treasury securities signal the banks' renewed interest in these securities while the housing market slowly improves.

## The Labor Market Then and Now

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12.03.12

by Pedro Amaral, Margaret Jacobson, and Sara Millington

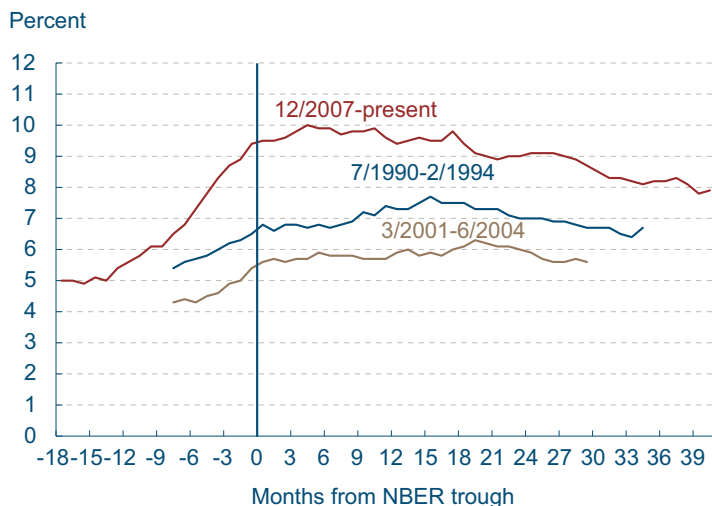
While the third-quarter's real GDP growth rate of 2.7 percent was an improvement over the second quarter's 1.3 percent, it may turn out to be the best in a lackluster year, as most forecasters are currently predicting that growth will slow down in the fourth quarter. The labor market has been front and center in the minds of economists as they have been evaluating growth prospects. The Federal Open Market Committee (FOMC), the Fed's monetary policymaking body, is no exception. In its most recent statement, the Committee emphasized that without substantial improvements in the labor market, the Fed will "continue its purchases of agency MBS, undertake additional asset purchases, and employ its other policy tools as appropriate until such improvement is achieved in a context of price stability."

To get an idea of what such improvements might consist of, we compare current labor market conditions to those at the times when the FOMC started to increase the federal funds rate after the last two recessions, in the early 1990s and early 2000s. We use these points in time as a proxy for dates at which the FOMC might have thought the labor market had improved substantially. Of course, given the dual mandate, this proxy is not perfect. For example, the Committee might not have been fully satisfied with the progress in the labor market on these dates, but because inflation was picking up, it had to tighten policy. Looking back at past inflation, we feel this might have been the case in February 1994, when the FOMC first increased the federal funds rate following the 1991 recession, but it does not seem to have been the case in June 2004, when the Committee first started tightening policy following the "tech bust." With this caveat in mind, the comparison should still be informative.

The last three recoveries have been dubbed "job-less," as substantial increases in employment have lagged behind increases in GDP. This can be seen

by looking at the path of the unemployment rate from the peak before each recession, through the trough of the recession (centered at zero in the chart below), and up to the first fed funds rate increase. In the current episode, the unemployment rate went from 5 percent to a peak of 10 percent and is now back down at 7.9 percent. If the goal was to get back to the pre-recession level of 5 percent, we would be roughly 40 percent of the way. This percentage is very close to where we were when the FOMC started tightening in the recovery in the 1990s and a lot better than in 2004, when the FOMC started tightening after the unemployment rate had only recovered 35 percent of its pre-recession level.

## Unemployment Rate

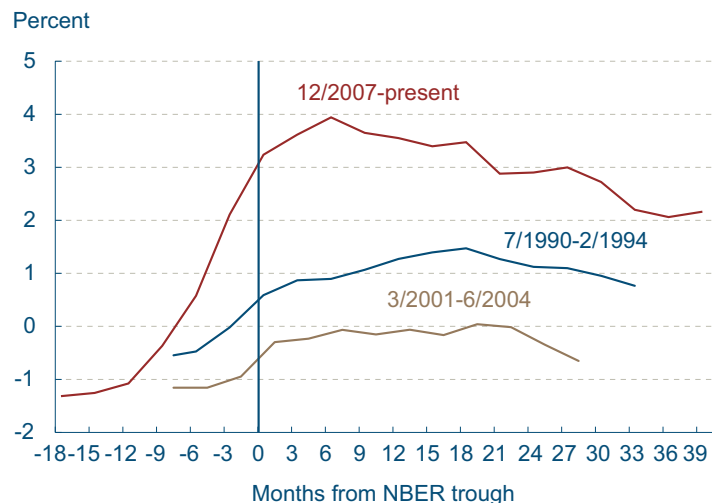


Sources: Bureau of Labor Statistics; Federal Reserve Bank of Philadelphia.

Does this mean the labor market is in the same or better shape than at the time tightening started in previous recoveries? No. First and foremost the current level of the unemployment rate is simply too high for comfort. Second, proximity to the pre-recession unemployment rate is a pretty uninformative metric: it tells us nothing about what the “normal” unemployment rate was at these different times, or what was happening to the labor force, or how lengthy the unemployment spells were.

To see how far the unemployment rate was from “normal” when the Fed started tightening in the previous recoveries, we look at estimates of the long-run level of natural unemployment currently estimated by Tasci and Zaman (2010) and compute the gap between it and the actual unemployment rate. The larger the gap, the further we are from a situation in which the labor market has normalized. While this gap was slightly below 1 percent in 1994 and even negative in 2004, it now stands at over 2 percent. By this measure it does seem the current situation is very different from 1994 and 2004.

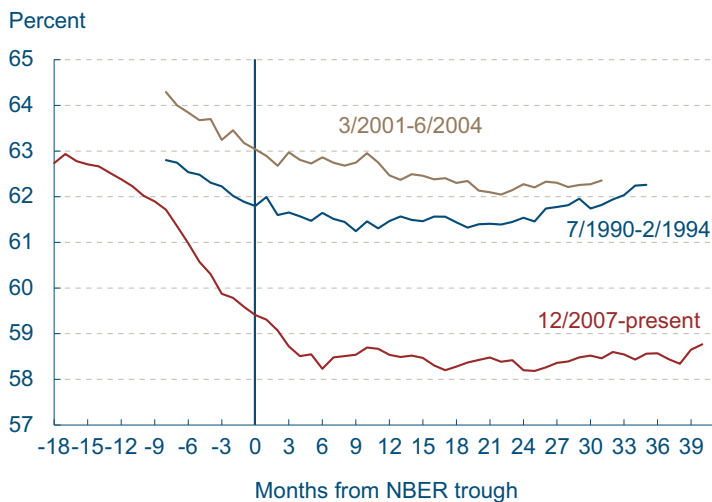
## Unemployment Gap



Sources: Bureau of Labor Statistics; Federal Reserve Bank of Cleveland calculations.

The unemployment rate, which is the number of unemployed workers divided by the labor force—those with a job or actively looking for one—can be influenced by movements of people in and out of the labor force. These labor force inflows and outflows might cause the unemployment rate to be a less informative indicator of labor market health. Take the case of an unemployed job seeker who gets discouraged and stops looking for a job. When this

## Employment-to-Population Ratio



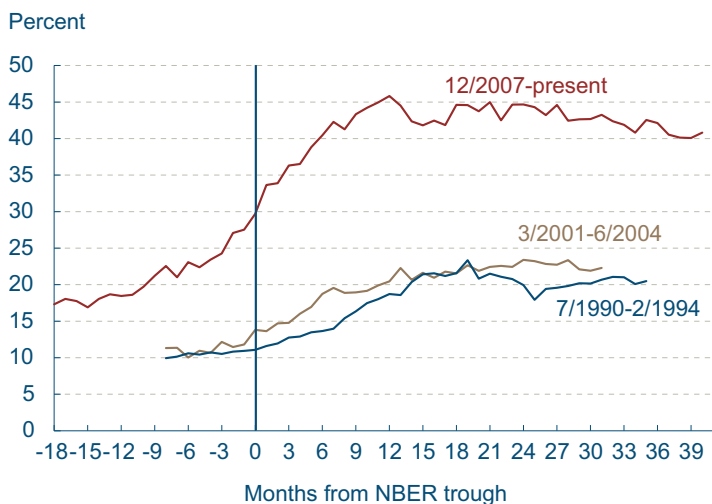
Source: Bureau of Labor Statistics.

happens, the unemployment rate mechanically goes down, but ostensibly, things did not improve. There is another measure, the employment-to-population ratio, which is immune to such movements and because of that it is preferred by some economists for evaluating the labor market.

It is apparent, from looking at this measure, why the “jobless” moniker has stuck, even though, in fairness, there was some employment recovery in 1993. What is astounding is how much the ratio fell in the most recent cycle and for how long it has been sitting between 58 and 59 percent—for over three years now. Note, however, that some of this change might not be entirely due to cyclical factors; it may have more structural sources like changes in demographics or a skills-jobs mismatch. Just how much of it should be attributed to those sources is the object of much debate in the economics profession.

Speaking of skills, the amount of time workers spend being unemployed has been shown to have a very significant effect on skill deterioration. While the fraction of long-term unemployed (those unemployed for 27 weeks or more) has increased in all of the past three recessions, right now a full 40 percent of the unemployed fall into this category. It is true that there are factors, like the differences in unemployment subsidies, that make the comparison across recoveries difficult, but the current number is much higher than the post-World War II average for the U.S. economy of roughly 15 percent.

## Fraction of Long-Term Unemployed



Source: Bureau of Labor Statistics.

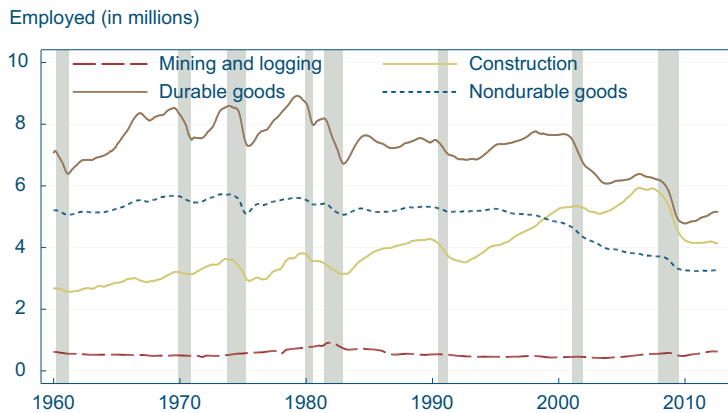
The labor market was hit harder in the Great Recession than in the previous two downturns. As a result, policy is much more accommodative now than it was then. In addition to a low federal funds rate, the Federal Reserve has been using other potentially stimulative instruments like large-scale asset purchases and forward guidance (statements about what the FOMC might do in the future), which are themselves conditioning labor market outcomes. Despite all this, and judging by the measures discussed above, the labor market seems to be in much worse condition than it was at the time the FOMC started tightening policy during the previous two recoveries.

# Market Sectors and the Decline in Average Hours Worked

12.04.12

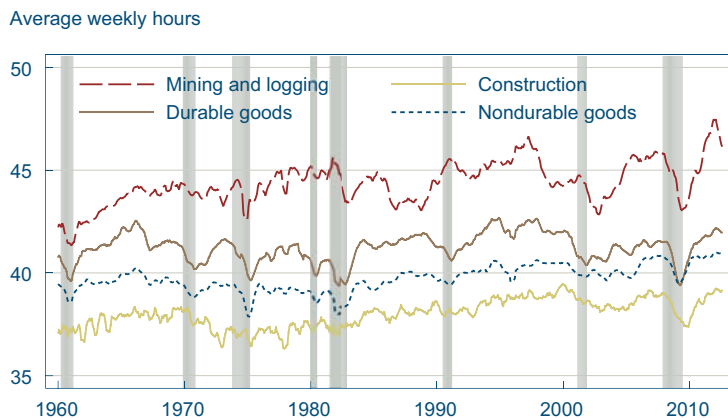
by Dionissi Aliprantis and Nelson Oliver

## Employment in the Goods Sector



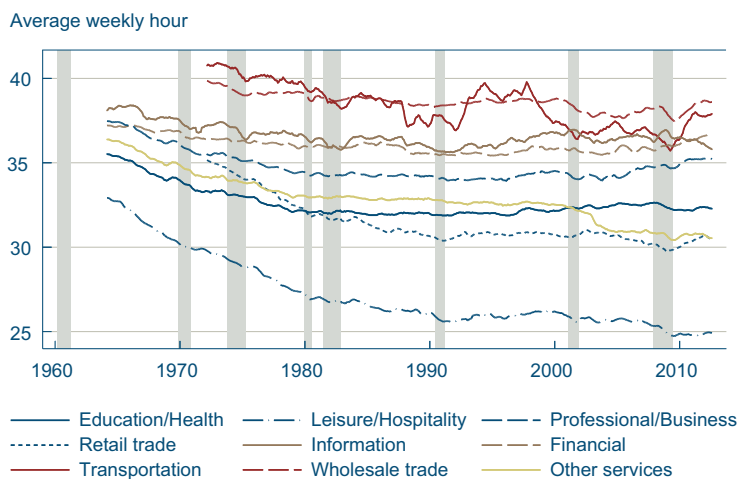
Note: Shaded bars indicate recessions.  
Sources: Bureau of Labor Statistics, Current Employment Statistics.

## Average Weekly Hours in the Goods Sector



Note: Shaded bars indicate recessions.  
Sources: Bureau of Labor Statistics, Current Employment Statistics.

## Average Weekly Hours in the Service Sector



Note: Shaded bars indicate recessions.  
Sources: Bureau of Labor Statistics, Current Employment Statistics.

Since the 1960s, the average number of hours U.S. workers have put in on the job has been decreasing. We looked at recent trends in nonsupervisory employment and average hours worked within the goods-producing and service-providing sectors to identify the specific subsectors behind this change.

In the goods-producing sector, both durable- and nondurable-goods producers experienced significant downturns in the number of people they employed during the Great Recession and the decade before. In the durables sector, employment fell as much in some years before the Great Recession as during it. For example, employment fell 1.6 million between July 2000 and 2003 and again by 1.6 million between mid-2006 and February 2010 (the year before the recession, during it, and through the recovery). Similarly, employment in the nondurables sector shrank from 5.3 million to 3.7 million before the recession (January 1995 to December 2007) and declined further to 3.3 million by January 2010. In comparison, construction employment increased dramatically in the 15 years prior to the Great Recession, and then gave back most of those gains in the last recession. It is notable that even though the goods-producing sector was only 17.1 percent of the total private workforce in December 2007, it accounted for 46.7 percent of the decline in employment between December 2007 and June 2009.

In the service-providing sector, the trends in employment and average hours worked have been quite different. The decrease in overall average hours is due to the growing number of people working in service-sector jobs in recent decades, combined with the fact that the average number of hours worked in that sector has been falling. The share of total employment in the service-providing sector has ballooned since the 1960s. In 1965, 61.4 percent of nonsupervisory positions were in the service sector. By 1985 it was 73.3 percent, by 2005, 82.3 percent, and by January 2012, 85.6 percent.

## Share of Overall Employment (Private, Nonfarm, Nonsupervisory)

Subsector	1965	1975	1985	1995	2005	2012
Education and health	8.1	9.7	11.7	14.6	16.6	19.3
Leisure and hospitality	8.1	9.3	10.3	11.6	12.4	13.1
Professional and business	8.3	9.5	11.0	13.2	15.0	16.0
Retail trade		14.9	15.8	14.9	14.3	14.0
Total for four subsectors		43.4	48.9	54.4	58.4	62.3

Source: Bureau of Labor Statistics, Current Employment Statistics.

## Average Hours Worked per Week by Service-Providing Subsector (Private, Nonfarm, Nonsupervisory)

Subsector	1965	1975	1985	1995	2005	2012
Education and health	35.4	33.1	31.9	32	32.6	32.4
Leisure and hospitality	32.7	28.8	26.5	26	25.7	24.9
Professional and business	37.4	35.1	34.2	34.1	34.1	35.3
Retail trade		34.1	31.4	30.7	30.7	30.8
Total private average hours	38.7	36.1	34.9	34.5	33.7	33.8

Source: Bureau of Labor Statistics, Current Employment Statistics.

Average hours worked per week in the service-providing sector decreased dramatically between 1965 and 1985, going from 37.4 to 33.0 hours. Since 1995 the average hours worked in the service-providing sector has remained relatively constant, and was 32.5 hours in January 2012.

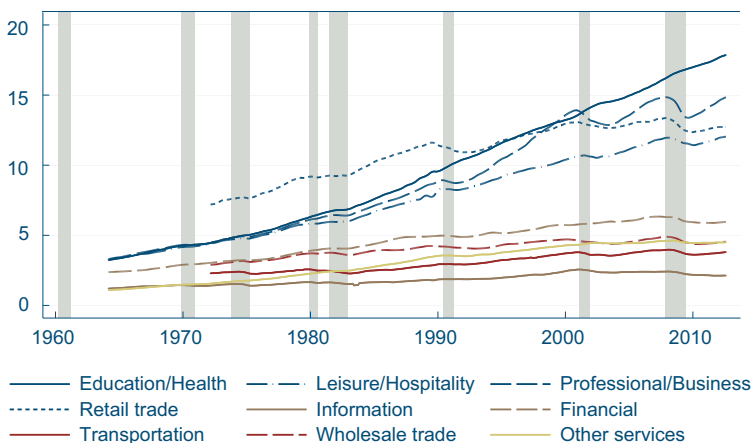
The four largest service-providing subsectors were primarily responsible for these changes: education and health, leisure and hospitality, professional and business, and retail trade services. In January 1975, these four subsectors represented 43.4 percent of private, nonfarm, nonsupervisory employment. This share has grown steadily, so that by January 2012 these four subsectors accounted for 62.3 percent of private employment.

With the exception of professional and business services, the average weekly hours in each of these subsectors has been below the average of all subsectors combined. Furthermore, the average hours worked in each subsector has experienced a net decline. The low and declining levels of average hours worked in these subsectors explains why, as the total share of employment has shifted to them, the overall average of hours worked per week has declined.

The analysis so far has considered only nonsupervisory employment and hours. If nonsupervisory positions have become a less significant share of employment in recent decades, the analysis would be less informative about current labor market conditions. Such a shift is plausible: Both increased automation and workers' higher educational attainment might lead one to suspect that nonsupervisory positions have become a smaller share of employment in recent decades. Perhaps surprisingly, we find that the share of nonsupervisory employment has remained relatively stable since 1965. So it seems reasonable to interpret an analysis of nonsupervisory workers as representative of the labor market in recent years.

## Employment in the Service Sector

Employed (in millions)



Note: Shaded bars indicate recessions.

Sources: Bureau of Labor Statistics, Current Employment Statistics.



## What Can We Glean from October's Report on Retail Prices?

11.30.12

by Brent Meyer

### October Price Statistics

	Percent change, last					
	1mo. <sup>a</sup>	3mo. <sup>a</sup>	6mo. <sup>a</sup>	12mo.	5yr. <sup>a</sup>	2011 average
Consumer Price Index						
All items	1.8	5.4	2.3	2.2	2.1	3.0
Excluding food and energy (core CPI)	2.2	1.5	1.8	2.1	1.7	2.2
Median <sup>b</sup>	2.3	2.5	2.2	2.2	1.9	2.6
16% trimmed mean <sup>b</sup>	1.7	2.1	1.8	1.9	1.9	2.6
Sticky CPI	2.4	2.1	2.1	2.2	1.9	2.1
Sticky CPI excluding shelter <sup>c</sup>	1.9	1.5	1.9	2.2	2.2	2.3

a. Annualized.

b. Calculated by the Federal Reserve Bank of Cleveland.

c. Author's calculations.

Source: Bureau of Labor Statistics.

The CPI rose at an annualized rate of 1.8 percent in October, as gasoline prices posted a modest decrease and general price pressure elsewhere in the retail market basket was fairly tame (though rents did post sizeable increases). On a year-over-year basis, the CPI is up 2.2 percent.

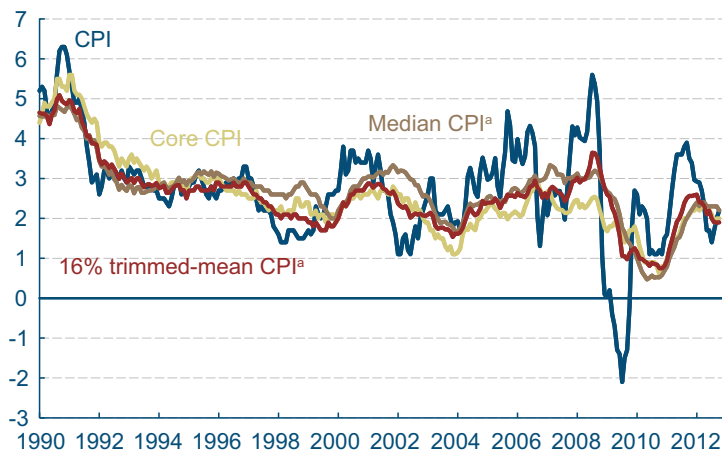
The “core” CPI, which excludes food and energy prices, rose 2.2 percent during the month, outpacing its near-term (three-month) growth rate of 1.5 percent, though it came in relatively close to its year-over-year growth rate of 2.0 percent. Measures of underlying inflation produced by the Federal Reserve Bank of Cleveland, the median CPI and 16 percent trimmed-mean CPI, rose 2.3 percent and 1.7 percent, respectively. Over the past year, the median is up 2.2 percent, while the trimmed-mean is up 1.9 percent. However, there does appear to be an upward nudge on October's data, stemming from rising shelter costs, which may be more indicative of a relative price change in housing prices than an indication of inflation.

Shelter prices jumped up 3.2 percent in October, their sharpest monthly increase since March 2008. A significant chunk of this was rent of primary residence, which spiked up 5.1 percent in October, well above its 12-month trend of 2.8 percent. Also, owners' equivalent rent (OER) rose 2.6 percent in October and has risen 2.8 percent over the past three months, accelerating over its 12-month growth rate of 2.1 percent. Shelter costs comprise a little over 30 percent of the market basket (with OER accounting for roughly 25 percent alone) and have the propensity to influence the measured underlying inflation trend.

As evidence of OER's, perhaps undue, influence on our read of inflation in October, excluding it from the median CPI calculation pulls the increase in the median CPI down from 2.3 percent to a mere 0.4 percent. This large a difference between the median CPI with and without OER is a marked shift

## Consumer Price Index

12-month percent change



a. Calculated by the Federal Reserve Bank of Cleveland.  
Sources: U.S. Department of Labor, Bureau of Labor Statistics, Federal Reserve Bank of Cleveland.

from recent months. Over the prior three months, the difference is only 0.2 percent. Moreover, the median CPI with or without OER is up 2.2 percent over the past year, suggesting that relative price changes in OER haven't clouded our perception of underlying inflation yet.

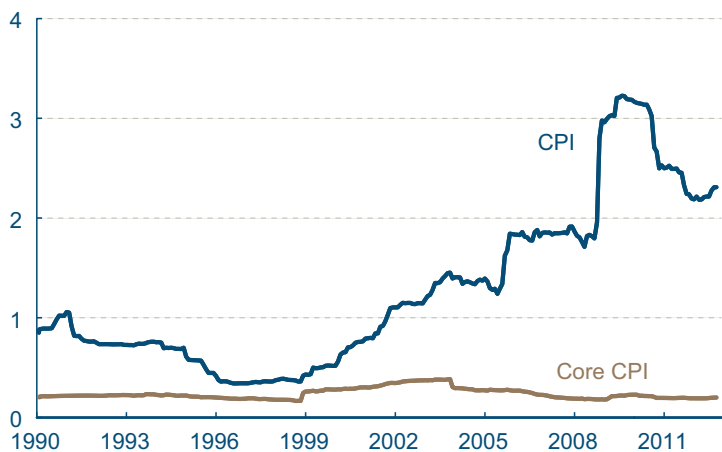
In fact, over the past 12 months, nearly every inflation indicator we track is trending within a few tenths of a percent of each other. This is somewhat unusual compared to the last 15 years or so. Large differences between the growth rates of the CPI and the underlying inflation measures, which are symptomatic of relative price swings, often lead to arguments about the underlying inflation trend.

One element related to the differences in growth rates between the CPI and the underlying inflation measures is the cross-sectional volatility in the overall consumer market basket, which reflects the change in the dispersion of prices from month to month. This volatility, as measured by the weighted cross-sectional variance of price changes across the goods and services in the retail market basket, has increased markedly since the late 1990s, making it harder to gauge underlying price pressure. Smoothing the changes in this variance over rolling 5-year periods helps distinguish whether there have been any marked changes in it. As hinted at by the sharp spike up in the cross-sectional variance in mid-2008, volatility has largely been tied to energy price swings. Excluding food and energy prices from the market basket eliminates much of this volatility. Interestingly, core-market-basket volatility hasn't increased appreciably since the onset of the Great Recession. If anything, the core price-change distribution is a little more uniform than it was in the early 2000s.

This pattern is also evident when examining the volatility of month-to-month (time-series) variance of the CPI and the underlying inflation measures. Sharp price swings in energy and food prices since the mid-2000s have markedly pushed up the month-to-month variance in the CPI relative to the underlying inflation measures. This suggests that attempting to gauge inflation pressure by solely paying attention to the CPI is a futile exercise, as the series is likely to increase sharply in one month

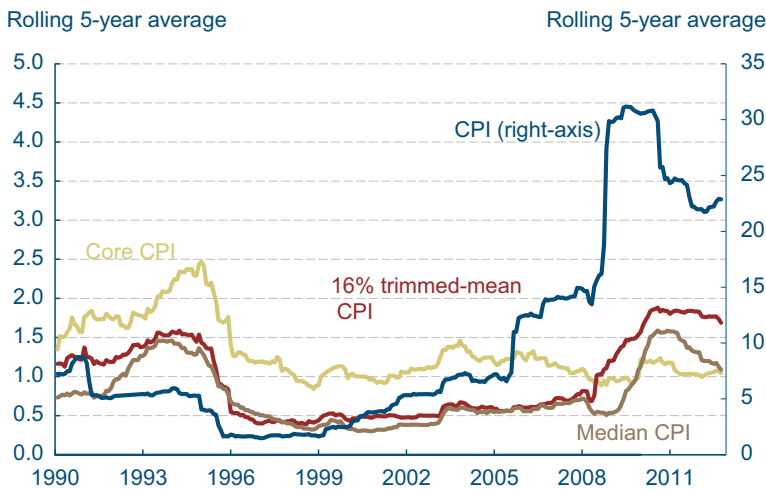
## CPI: Weighted Cross-Sectional Variance

Rolling 5-year average



Sources: U.S. Department of Labor, Bureau of Labor Statistics.

## CPI: Time-Series Variance



Sources: U.S. Department of Labor, Bureau of Labor Statistics, Federal Reserve Bank of Cleveland.

only to be followed by an equally sizeable decrease in the next.

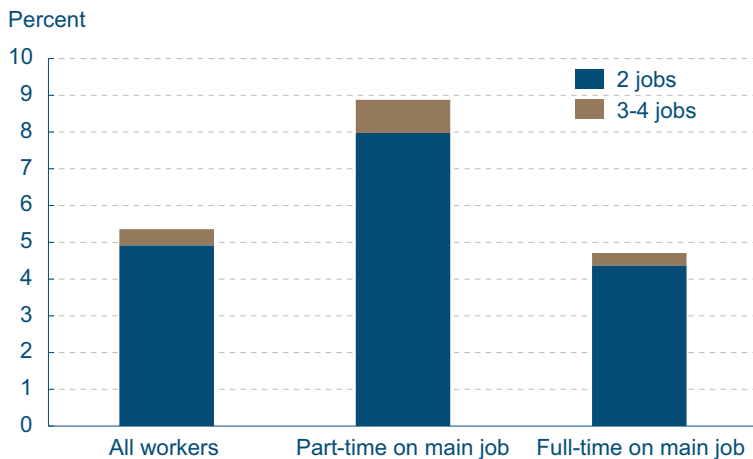
Comparing time-series variances of the CPI and the underlying inflation measures is informative, but comparing the two trimmed-mean CPI measures to the core CPI during the Great Recession is perhaps more so. This period marks the first time since 1990 that the variances in the median CPI and the 16 percent trimmed-mean CPI have risen above that of the core CPI. One interpretation of this state of affairs is that month-to-month volatility has increased since the recession in such a way that the core CPI cannot capture it. The conclusion from this line of thought would be that underlying inflation has become harder to gauge. However, the month-to-month volatility in the median CPI, which did increase sharply following the depth of the last recession, has ebbed back in line with the core CPI, while the variance in the 16 percent trimmed-mean CPI has stayed elevated. This difference may indicate that the 16 percent trimmed-mean CPI isn't an aggressive enough trim and is allowing too much relative price noise to seep in. This conclusion dovetails with the recent work of Meyer and Venkatu (2012), which shows that the aggressive (more than 20 percent) and symmetric trimmed-mean measures tend to perform better in forecasting future inflation.

# Moonlighting

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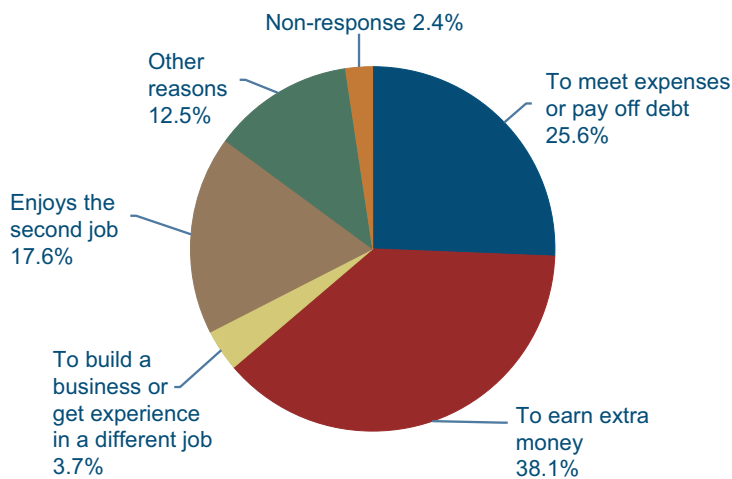
by Jonathan James

## Multiple Job Holding Rate by Employment Status



Sources: Bureau of Labor Statistics' *Current Population Survey* 2003-2012; author's calculations.

## Reasons for Holding Multiple Jobs



Source: Bureau of Labor Statistics.

For some workers, one job isn't enough. In any week, more than 5 percent of workers hold more than one job (about 7.2 million people in October 2012). While most multiple jobholders work only two jobs, a significant share, about 10 percent, work three or four jobs.

Why do workers hold multiple jobs? The reasons are varied. One explanation is that workers may use multiple part-time jobs as a substitute for one full-time job. This is evident in the data. Part-time workers are more than twice as likely to work a second job as full-time workers. Yet still more than 4 percent of full-time workers hold multiple jobs.

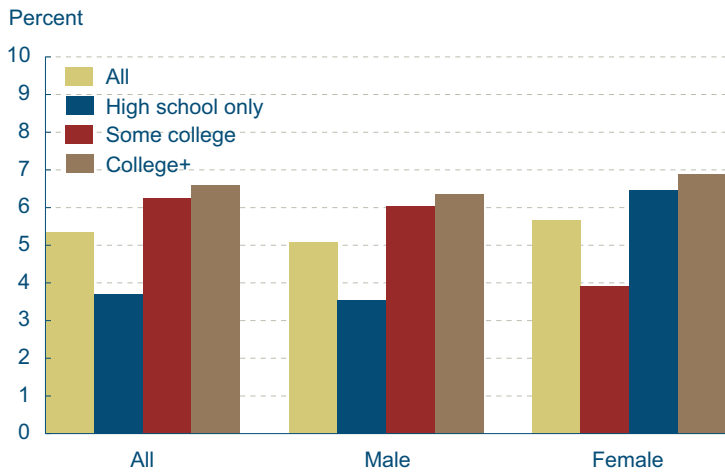
Another explanation for working multiple jobs is that a worker's main job provides income and their second job gives them an opportunity to do something they enjoy. In 2004, the most recent year in which multiple jobholders were surveyed on the reasons for taking extra work, almost 20 percent reported that they did so because they enjoyed the work done on their second job.

However, in this same survey, the primary reason most workers held multiple jobs was to supplement their income from their main job. Almost two-thirds of workers identified wanting to earn extra money or needing the additional income to meet current expenses as the primary reason for working more than one job.

The incidence of moonlighting shows important patterns across demographic groups. It has been well documented that females are more likely than males to hold multiple jobs. Perhaps less well known is that the rate of multiple job holding varies significantly by education level. Those with some college or a college degree are almost twice as likely to hold multiple jobs as those with just a high school degree.

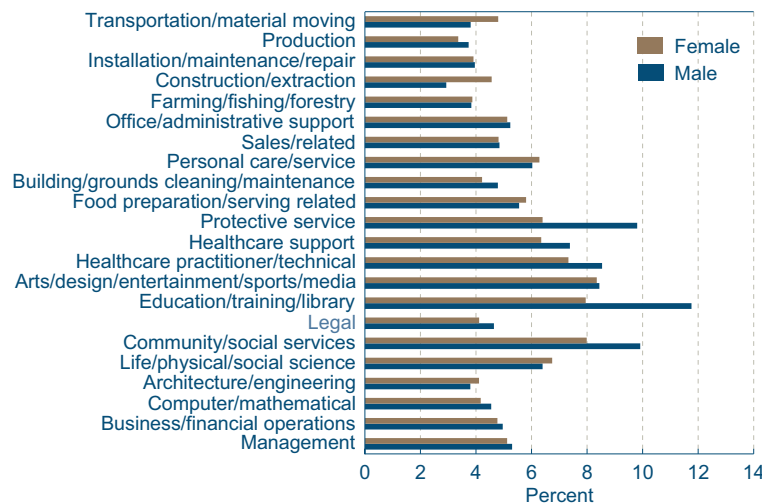
It is unclear whether these differences are driven by differences in workers' preferences or by other labor

## Multiple Job Holding by Gender and Education



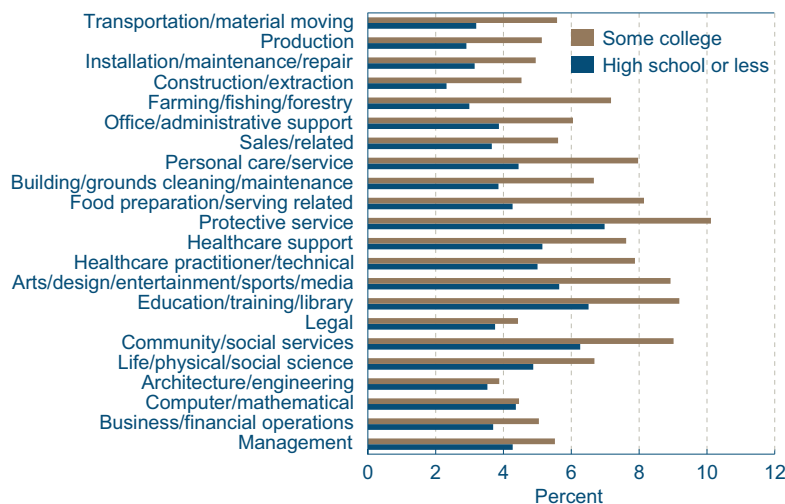
Sources: Bureau of Labor Statistics' *Current Population Survey* 2003-2012; author's calculations.

## Multiple Job Holding by Occupation



Sources: Bureau of Labor Statistics' *Current Population Survey* 2003-2012; author's calculations.

## Multiple Job Holding by Occupation, Full-Time Male Workers Only



Sources: Bureau of Labor Statistics' *Current Population Survey* 2003-2012; author's calculations.

market factors. One important factor in the decision to moonlight may be the type of work performed, or occupation, on the main job. This may be due to the fact that some occupations offer fewer hours to workers or have irregular work schedules, which may make moonlighting more necessary or amenable.

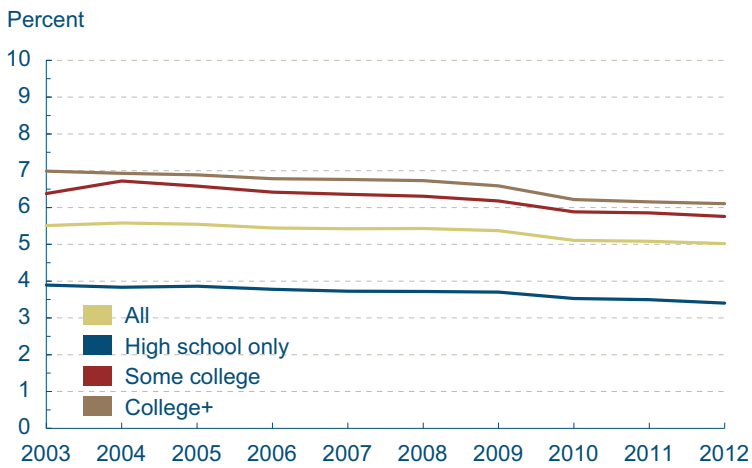
Unsurprisingly, the decision to moonlight is highly related to occupation on the main job. Moonlighting is strongest for education occupations, where the rate is 12 percent for males and 8 percent for females. Likewise, 10 percent of males in protective service occupations choose to take on an extra job. By contrast, fewer than three percent of males working in construction occupations work multiple jobs.

Looking at the incidence of moonlighting by occupation reveals one of the main reasons for the aggregate gender difference of multiple job holding. In education, where the rate of moonlighting is highest, females outnumber males three to one. So while the aggregate difference leads people to believe that females moonlight at a higher rate than males, the truth is that people in education moonlight more than other occupations and females are more likely to be in education. Males are actually more likely to moonlight in this occupation and in most other occupations.

While occupation can explain much of the difference in moonlighting by gender, it does very little to explain the differences by education. For most occupations, even restricting the analysis to only male workers who are working full-time on their main job, those with some college or higher are significantly more likely to work multiple jobs than those with a high school degree or below. This is even true for occupations that are heavily dominated by high school graduates, like construction, maintenance, production, and transportation occupations. One explanation for this disparity may be that individuals who choose to attain higher levels of education have above-average motivation and are likewise highly motivated to work additional jobs in the labor market.

Finally, unlike many other features of the labor

## Multiple Job Holding by Education Status



Source: Bureau of Labor Statistics.

market, for example unemployment and hours worked, the rate of multiple job holding has changed very little over the last 10 years. While the unemployment rate has close to doubled during the recent economic downturn, the overall incidence of moonlighting has changed only about 15 percent from a pre-recession high of 5.78 percent in 2004 to its current low in 2012 of five percent.

The relationship between recessions and multiple job holding is not well established. On the one hand, workers may be more willing to take on additional jobs as they experience falling incomes. At the same time, demand for workers from firms may be falling as well. The effects of these two forces may offset each other, producing little change in the overall rate. Alternatively, recessions may have only a minor effect on multiple job holding because many of these workers hold these jobs not for monetary reasons but to do something they enjoy. Finally, balancing multiple jobs is a difficult task. Another explanation may be that even the most challenging economic times cannot keep these highly motivated workers out of the labor market.

# Yield Curve and Predicted GDP Growth, November 2012

Covering October 20–November 23, 2012  
by Joseph G. Haubrich and Patricia Waiwood

## Highlights

	November	October	September
3-month Treasury bill rate (percent)	0.09	0.10	0.11
10-year Treasury bond rate (percent)	1.67	1.79	1.81
Yield curve slope (basis points)	158	169	170
Prediction for GDP growth (percent)	0.6	0.6	0.6
Probability of recession in 1 year (percent)	9.2	8.2	8.1

Sources: Board of Governors of the Federal Reserve System; authors' calculations.

## Overview of the Latest Yield Curve Figures

Over the past month, the yield curve has flattened slightly, with long rates falling more than short rates. The three-month Treasury bill fell to 0.09 percent (for the week ending November 23) just down from October's 0.1 percent, itself just a smidge down from September's 0.11 percent. The ten-year rate, at 1.67 percent came in a full twelve points below October's 1.79 percent, and remained well below September's 1.81 percent. The slope fell to 158 basis points, eleven down from the 169 bp seen in October, which was barely below September's 170 basis points.

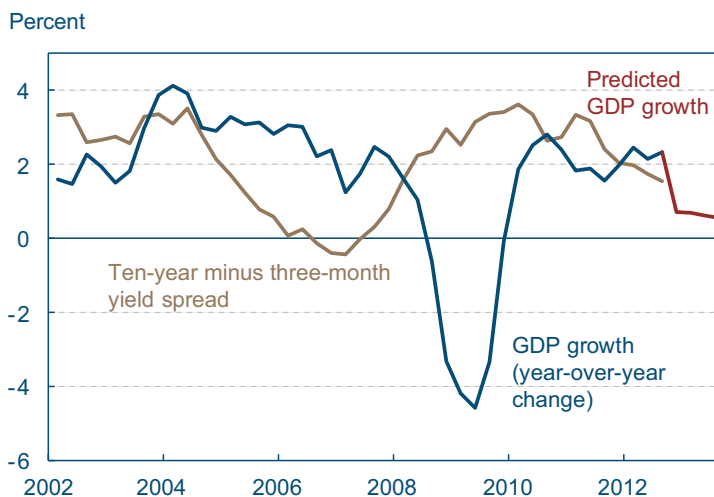
The flatter slope was not enough to have an appreciable change in projected future growth, however. Projecting forward using past values of the spread and GDP growth suggests that real GDP will grow at about a 0.6 percent rate over the next year, even with both September and October. The strong influence of the recent recession is still leading towards relatively low growth rates. Although the time horizons do not match exactly, the forecast comes in on the more pessimistic side of other predictions but like them, it does show moderate growth for the year.

The flatter slope had a bit more impact on the probability of a recession. Using the yield curve to predict whether or not the economy will be in recession in the future, we estimate that the expected chance of the economy being in a recession next November is 9.2 percent, up from October's 8.2 percent and September's probability of 8.1 percent. So although our approach is somewhat pessimistic as regards the level of growth over the next year, it is quite optimistic about the recovery continuing.

## 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

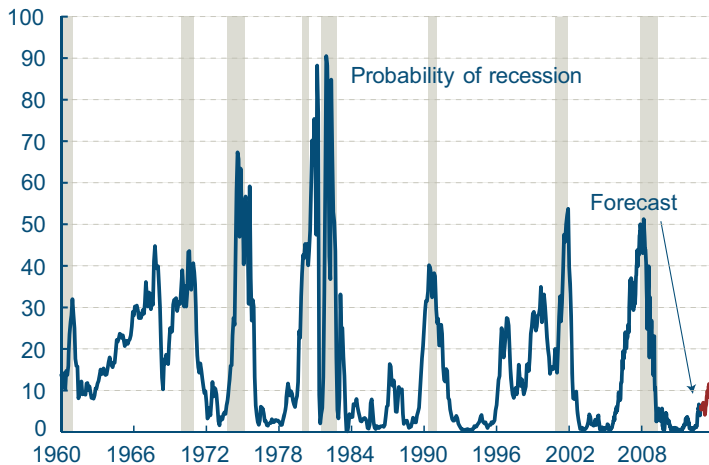
## Yield Curve Predicted GDP Growth



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

## Recession Probability from Yield Curve

Percent probability, as predicted by a probit model



Note: Shaded bars indicate recessions.  
Sources: Bureau of Economic Analysis, Federal Reserve Board, authors' calculations.

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 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.

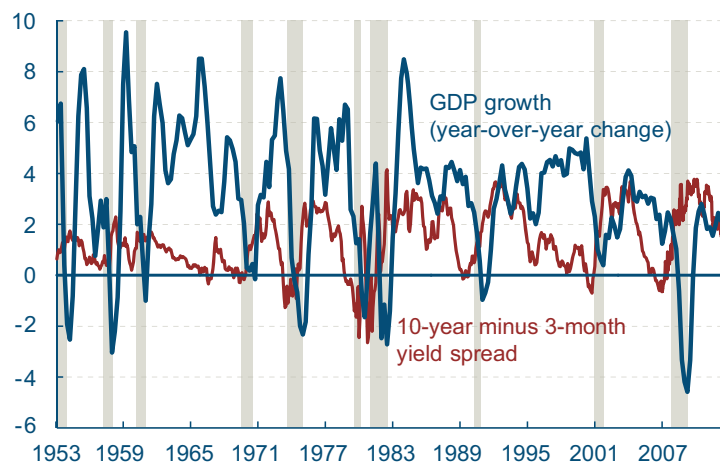
### Predicting the Probability of Recession

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 numbers 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

## Yield Curve Spread and Real GDP Growth

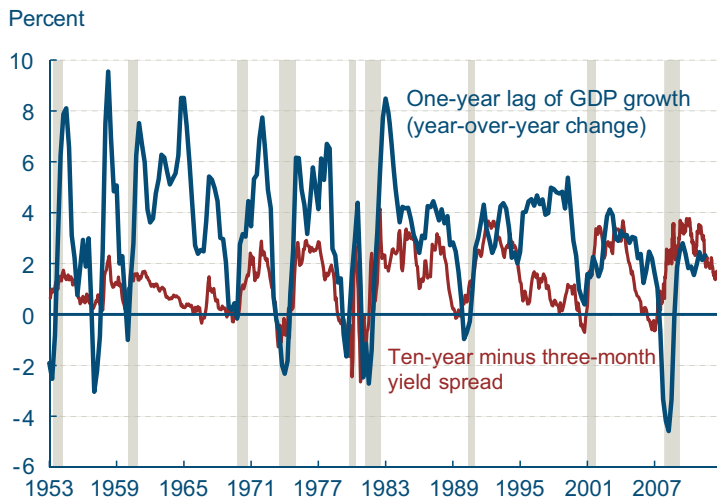
Percent



Note: Shaded bars indicate recessions.  
Source: Bureau of Economic Analysis, Federal Reserve Board.



## Yield Spread and Lagged Real GDP Growth



Note: Shaded bars indicate recessions.

Sources: Bureau of Economic Analysis, Federal Reserve Board.

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?” Our friends at the Federal Reserve Bank of New York also maintain a website with much useful information on the topic, including their own estimate of recession probabilities.

## How Long Will QE3 Last?

12.28.12

by Charles T. Carlstrom and Samuel Chapman

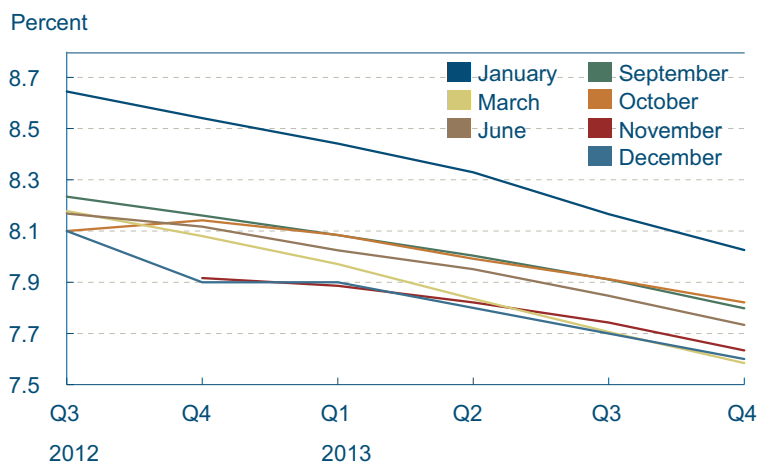
In September, the Federal Open Market Committee (FOMC), the Federal Reserve’s monetary policymaking body, announced what has widely been referred to as QE3 (quantitative easing 3). QE3 will consist of purchasing additional mortgage-backed securities (MBS) at the rate of \$40 billion per month. Unlike previous QEs, this one was described in open-ended terms, such that “if the outlook for the labor market does not improve substantially, the Committee will continue its purchases of agency mortgage-backed securities.” The Committee did not specify, however, what “substantial improvement” would be.

### Blue Chip Unemployment Rate Forecasts

	April	May	June	July	August	September	October	November	December
2012:Q1	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
2012:Q2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
2012:Q3	8.1	8.1	8.1	8.1	8.2	8.2	8.1	8.1	8.1
2012:Q4	8.0	8.0	8.0	8.1	8.1	8.2	8.1	7.9	7.9
2013:Q1	7.9	7.9	8.0	8.0	8.0	8.1	8.1	7.9	7.9
2013:Q2	7.8	7.8	7.8	7.9	8.0	8.0	8.0	7.8	7.8
2013:Q3	7.7	7.7	7.7	7.8	7.9	7.9	7.9	7.7	7.7
2013:Q4	7.5	7.6	7.6	7.7	7.7	7.8	7.8	7.6	7.6

Source: Blue Chip Consensus.

### Blue Chip Unemployment Rate Forecasts

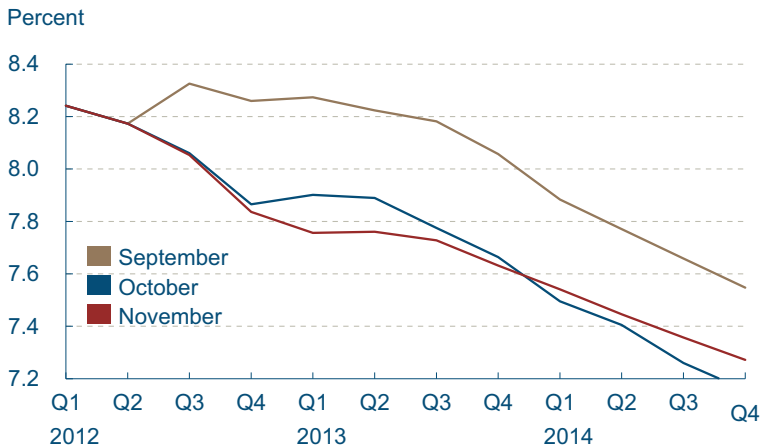


Source: Blue Chip Consensus.

To get an idea of whether labor market conditions going forward might be getting close to triggering this threshold, we look at how labor market conditions have been evolving, especially since September.

In August the unemployment rate was 8.1 percent. One month later it dropped to 7.8 percent. It now stands at 7.7 percent. While the improvement since August could be interpreted as a sign that the unemployment-rate decline is picking up steam (that is, declining more rapidly), professional forecasters don’t seem to view it that way. Judging by their expectations for the unemployment rate in the next couple of years, they see it as largely a one-time decrease in their forecasted path for

## Macroeconomic Advisors Unemployment Rate Forecast



Source: Macroeconomic Advisors.

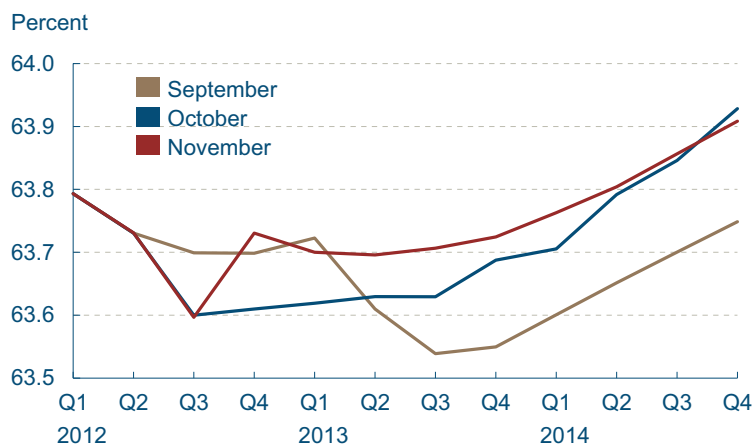
unemployment. In September, the median Blue Chip expectation for the unemployment rate at the end of 2013 was 7.8 percent, and in November it was 7.6 percent. This improvement is roughly the same as the decline in the current unemployment rate from September to November. Macroeconomic Advisors' forecast for the end of 2013 showed a 0.5 percent improvement in the unemployment rate from September to November. But by the end of 2014 the improvement in the forecast was only 0.2 percent.

Unemployment rates are not a complete indicator of labor market conditions. For example, the slight uptick in the unemployment rate from 7.8 percent in September to 7.9 percent in October was largely because the labor force increased. An increase in the labor force can be good news, if (as often is the case in recoveries) the number of discouraged workers decreases as they once again enter the labor force. Discouraged workers are those that drop out of the labor force because they think their job prospects are grim. Since September, the Macroeconomic Advisors' forecast of labor force participation rates in 2013 has shown moderate improvement. Thus the improvement in labor market conditions as indicated by the unemployment rate is likely understated.

So far, we have focused on changes in the outlook for labor markets since that is what the Committee referred to in its statement. But since current labor market conditions will probably play a role, we also look at changes in nonfarm payroll (employment). The employment figures for 2012 suggest that the labor market has improved substantially since its midyear slump. From May to July employment growth was a very anemic 63,000, but since August it has averaged 152,000. While this growth is certainly encouraging, it should be noted that this pace is consistent with only a very slow decline in the unemployment rate. To put this number in context, if we look at past recoveries, employment growth has averaged around 200,000 per month.

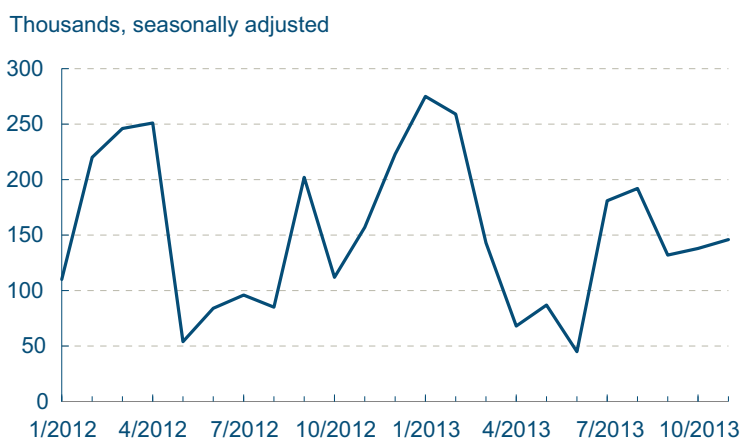
To get a sense of how widespread changes in labor market condition are, the BLS publishes an employment diffusion index. A higher score on the index means the gains or losses are more widely dispersed across industries, and a lower score means

## Macroeconomic Advisors Labor Force Participation Rate Forecast



Source: Macroeconomic Advisors.

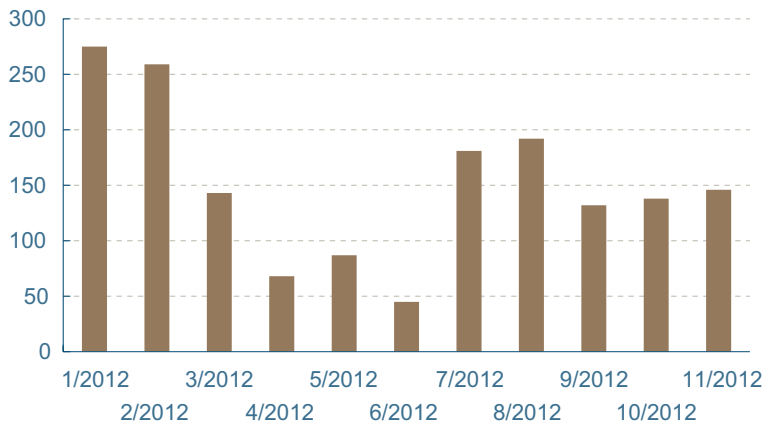
## Change in Total Nonfarm Payrolls



Source: Bureau of Labor Statistics.

## Change in Total Nonfarm Payrolls, 2012

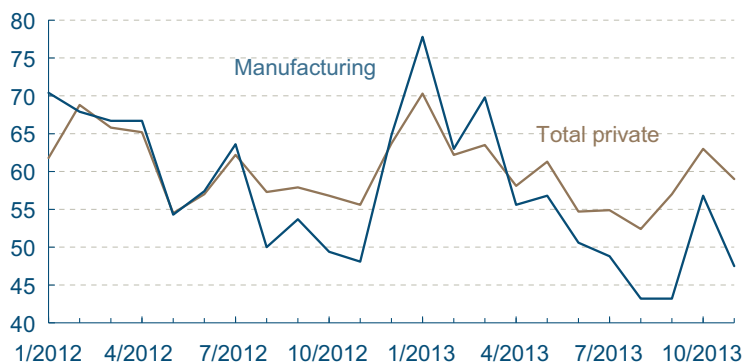
Thousands, seasonally adjusted



Source: Bureau of Labor Statistics.

## Establishment Survey Diffusion Index: Employment Change One-Month Span

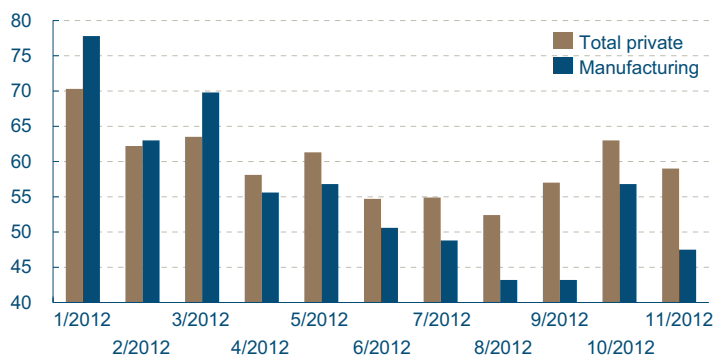
Percent



Note: Above 50 percent indicates employment growth.  
Sources: Bureau of Labor Statistics, Haver Analytics.

## Establishment Survey Diffusion Index: Employment Change One-Month Span

Percent



Note: Above 50 percent indicates employment growth.  
Sources: Bureau of Labor Statistics, Haver Analytics.

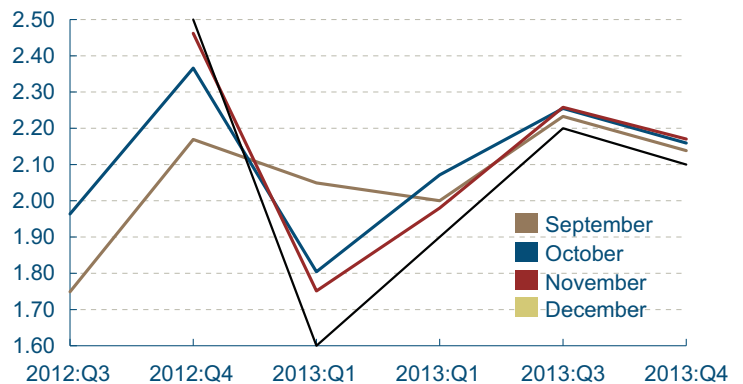
they are concentrated in a few growing or shrinking industries. The diffusion indexes for both manufacturing and total private employment have improved in recent months. In August the manufacturing employment diffusion index stood at 43.2, which showed that manufacturing employment was declining (greater than 50 roughly indicates employment growth). In October, it had increased to 56.8, but then it fell to 47.5 in November. The diffusion index for total private employment showed an increase from 52.4 in August to 59.0 in November.

Inflation will also enter into the FOMC's calculus when it deliberates on the ending of QE3. Since there has been little change in the Blue Chip inflation forecast, changes in labor market conditions will likely dominate discussions of QE3's continuation.

The outlook for the labor market has certainly improved since September, but it only roughly gets us back to where we were earlier in the year. For example, the Blue Chip unemployment forecast in March was largely the same as it is today. While conditions at that time did not warrant a QE program, that does not mean that QE3 is close to an end. Arguably the improvement in labor market conditions might be because of QE3 and the market's anticipation that it is probably not going to end imminently. It remains to be seen how much more improvement is necessary before the Committee ends QE3.

## Blue Chip Inflation Forecasts: Consumer Price Index

Percent change from previous quarter, annualized



Source: Blue Chip Consensus.

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