Economic Trends

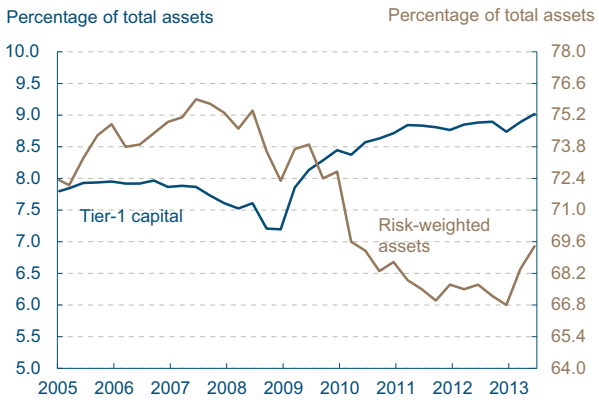
December 2013 (November 13, 2013-December 10, 2013)

In This Issue:

FEDERAL RESERVE BANK
of CLEVELAND

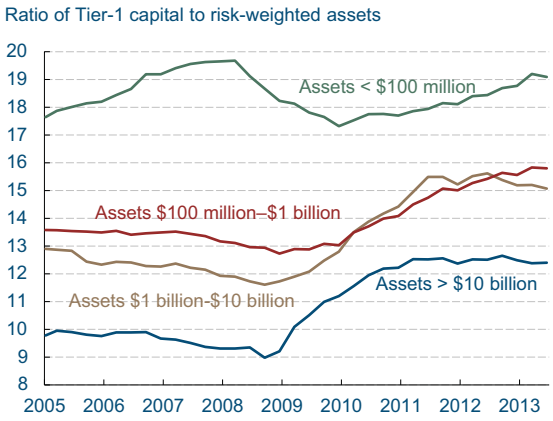
Risk-Based Capital Ratios at US Banks

Tier-1 Capital and Risk-Weighted Assets



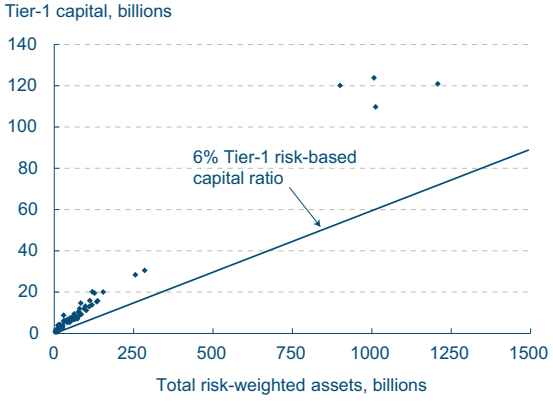
Source: FDIC.

Average Tier-1 Risk-Based Capital Ratio



Source: FDIC.

Tier-1 Risk-Based Capital Ratio Distribution: Depository Institutions with over $10 Billion in Assets



Source: FDIC.

12.09.13
by Mahmoud Elamin and William Bednar

Capital levels offer a glimpse into the health of the banking system. Capital is what remains when a bank's liabilities are subtracted from its assets. Higher capital levels signal that a bank has a higher buffer against a drop in the value of its assets. Banks with higher capital levels are healthier and more prepared to weather a downturn.

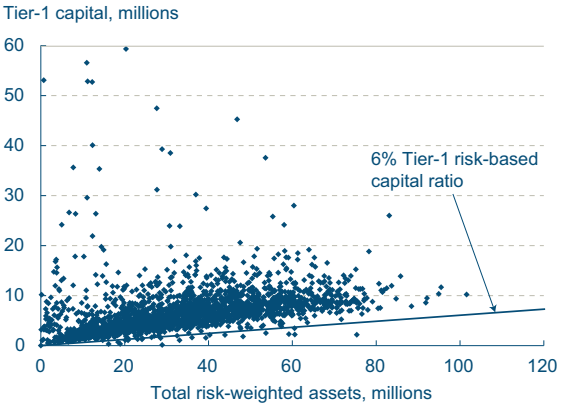
Tier-1 risk based capital is the ratio of a bank's "core capital" to its risk-weighted assets. Bank capital can be defined in many ways, and this ratio takes a rather restricted look at it. Risk-weighted assets are constructed by assigning different weights to assets with different levels of risk and summing the totals. The tier-1 risk-based-capital ratio measures how much buffer a bank has as a percentage of its riskiness. We focus on this particular ratio because it excludes more "exotic" elements from the calculation of capital and so serves as a better approximation of an adequate capital ratio.

Here we analyze the tier-1 risk-based capital at banks of different sizes. We look at banks with less than $100 million in assets up to banks with more than $10 billion and compare their capital levels to levels regulators deem sufficient. While regulators judge the overall health of a bank using many criteria, here we focus only on what they deem sufficient for this ratio. Regulators consider banks well-capitalized when this ratio is 6 percent or greater, adequately capitalized when it is 4 percent or more, undercapitalized below 3 percent, and critically undercapitalized at 2 percent or below.

In 2013, both components of the tier 1-risk-based capital ratio experienced an uptick. Average tier-1 capital at banks went up, but so did the riskiness of their assets, as measured by the risk-weighted assets.

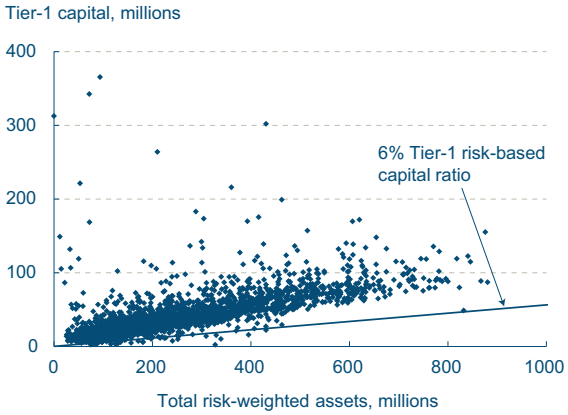
Meanwhile, tier-1 risk-based capital ratios stayed level for banks with assets between $100 million and $1 billion in 2013 and decreased very slightly for banks in the remaining categories. Ratios have been improving since they bottomed out during

Tier-1 Risk-Based Capital Ratio Distribution: Depository Institutions with Less than $100 Million in Assets



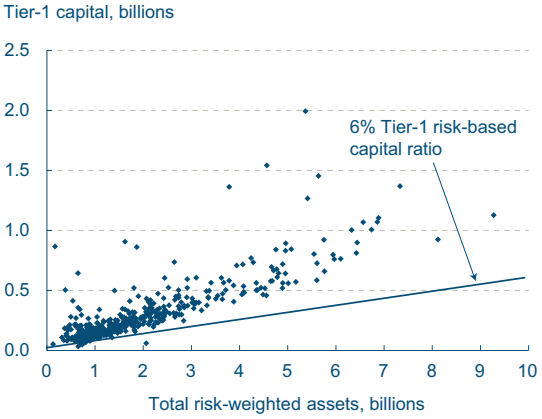
Source: FDIC.

Tier-1 Risk-Based Capital Ratio Distribution: Depository Institutions with $100 Million-$1 Billion in Assets



Source: FDIC

Tier-1 Risk-Based Capital Ratio Distribution: Depository Institutions with $1 Billion-$10 Billion in Assets



Source: FDIC.

the crisis, and as of 2013, they are higher than they were before the crisis for all but the largest banks.

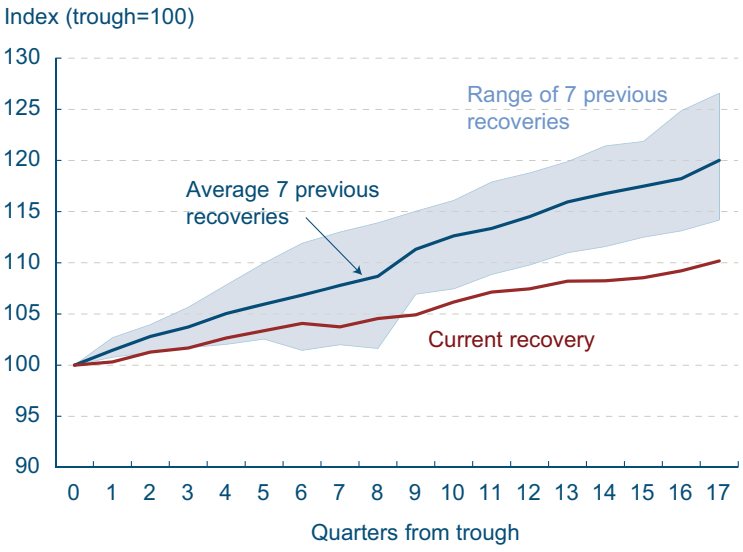
We next look at the data underlying these averages (the cross-section of banks). Averages might be deceiving; the average might be high because it is very high for some banks, even though it is low for many. The cross-section reveals the distribution of banks and allows us to judge if the average is skewed by a few outliers. A look at individual banks in each of the four size categories shows that more than 95 percent carry ratios over 10 percent, well above the 6 percent level deemed well-capitalized by regulators. This shows that most banks prefer to hold tier-1 levels of capital well above those required and that this holds not only for the largest banks, but also for banks of all sizes.

Banks have been increasing their tier-1 risk-based capital ratios since the crisis. During 2013, ratios stayed level or fell slightly, but the significant gains achieved since the financial crisis have been preserved. Most banks now have capital ratios that are much higher than regulators require.

Households' Expenditures on Services and the Recovery

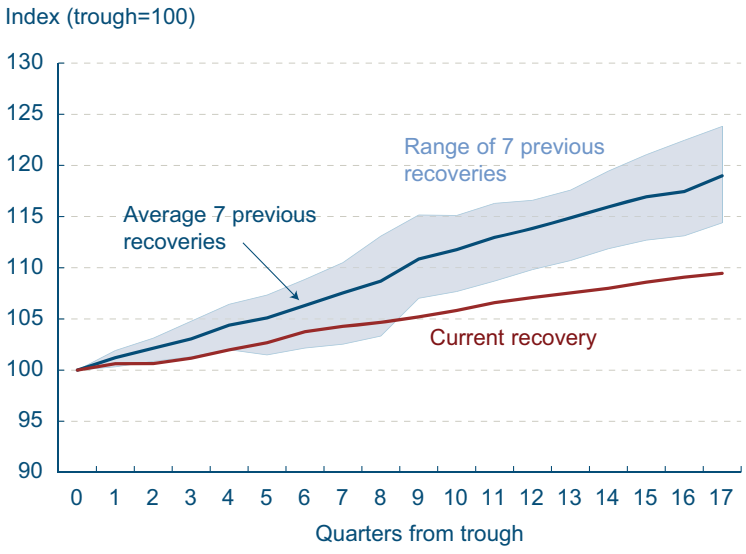
12.09.13
by Pedro Amaral and Sara Millington

GDP



Source: Bureau of Economic Analysis, Federal Reserve Bank of Cleveland calculations.

Personal Consumption Expenditures



Source: Bureau of Economic Analysis, Federal Reserve Bank of Cleveland calculations.

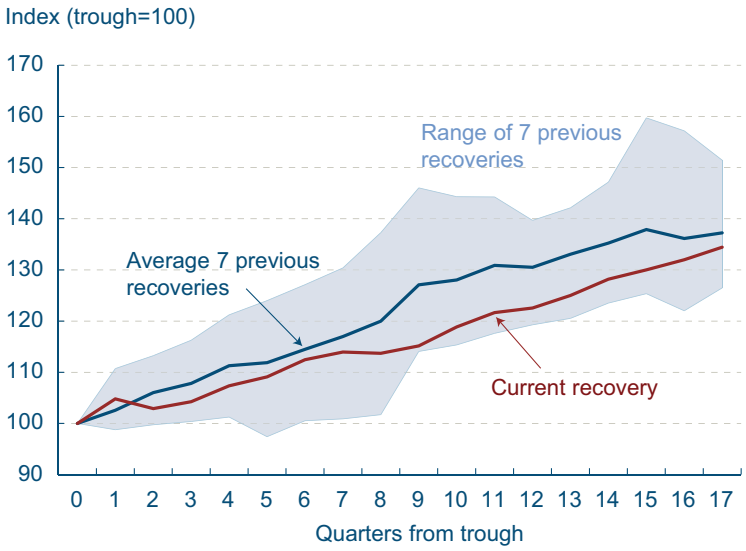
Real GDP grew at an annualized rate of 3.6 percent in the third quarter of 2013 according to the Bureau of Economic Analysis's second estimate. This is considerably above the advance estimate of 2.8 percent that was released in November, and it's the fastest pace since the first quarter of 2012. The second estimate incorporates a more complete set of data than the advance estimate, and the upward revision is mainly the result of upward revisions to private inventory investment. In fact, this was the largest inflation-adjusted increase in inventories since 1998.

Netting out the change in inventories, real (inflation-adjusted) final sales of domestic products grew only at a 1.9 percent annualized rate, slightly less than in the previous quarter, as real personal consumption expenditures grew at an anemic 1.4 percent pace, down from 1.8 percent in the second quarter.

The slow recovery from the Great Recession is now a well-established fact. The figure measures GDP growth from the trough of the recession (to isolate the recovery) and shows exactly just how slow this recovery has been compared to all other recessions since the early 1960s. Real GDP has grown at an annualized rate of 2.3 percent since the second quarter of 2009, compared to 4.4 percent in the average recovery.

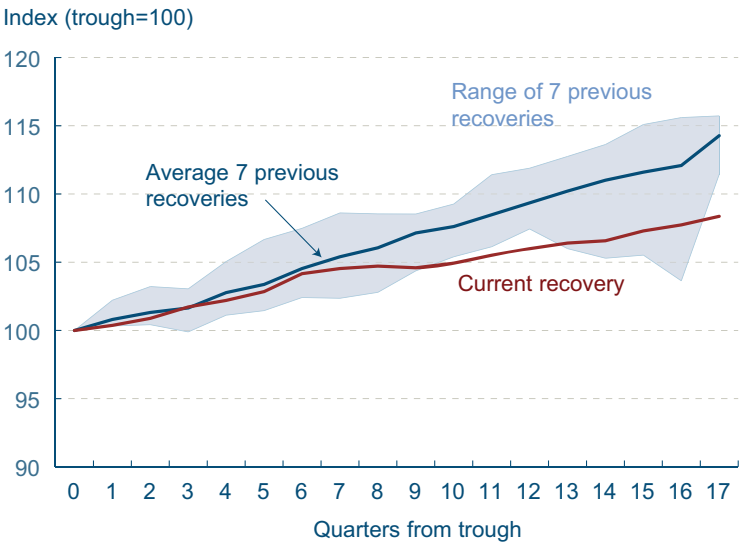
Going deeper into the National Income and Product Accounts helps elucidate what categories are underperforming relative to the average recovery. Private investment, no doubt spurred by some of the lowest real interest rates in US history, has actually been growing at a pace that is close to that of previous recoveries. This is not to say that the behavior of private investment was average-like throughout the recession. Since this recession was much deeper than the average one, private investment would still be lagging the average recession if we had started our analysis at the pre-recession

Durable Goods



Source: Bureau of Economic Analysis, Federal Reserve Bank of Cleveland calculations.

Non-Durable Goods



Source: Bureau of Economic Analysis, Federal Reserve Bank of Cleveland calculations.

peak. Meanwhile, growth in personal consumption expenditures (PCE) and government consumption and investment has lagged substantially in the recovery period.

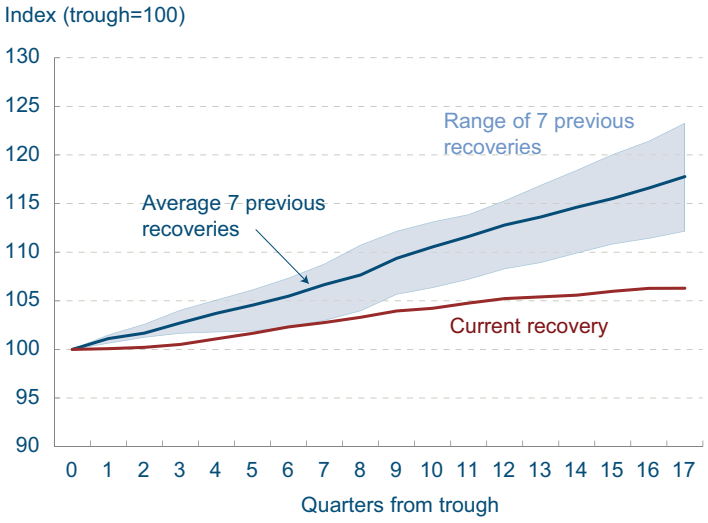
Because PCE is a much larger share of total output than government spending, its subpar growth constitutes more of a drag on GDP than does government spending, even though the latter has actually declined through the recovery. This means that if PCE had grown according to its recovery average, GDP would have grown more than if government spending had grown at its average recovery pace instead.

Digging in a bit more into the way the subcomponents of private consumption have behaved, we see that consumer durables actually increased at a pace that is consistent, if a little below, the average recovery. Durables, by their nature, tend to behave similarly to investment goods, and therefore they have also benefited from the aforementioned low-interest-rate environment. In contrast, the growth of nondurable goods consumption has significantly lagged its average recovery pace. But nondurables represent only 23 percent of overall PCE; it is services expenditures, representing a massive two-thirds of overall PCE, which have been the major drag.

The largest component of services expenditures, housing and utilities expenditures (representing around 27 percent of services), has grown at an annualized rate below 1 percent in the current recovery in real terms. Even health care (representing 25 percent of services expenditures), which has traditionally grown faster than overall GDP in real terms in the last 40 years, has grown at only 2.1 percent in this recovery. Other services categories, like transportation services, have been growing at an even slower pace, but they represent a much smaller share of overall services.

It is not our purpose here to provide an in-depth analysis of the recovery; that cannot really be done without investigating the causes of the recession and their consequences. At a very cursory level though, to the extent that the Great Recession resulted in a substantive deleveraging effort on the part of households, we would expect to see

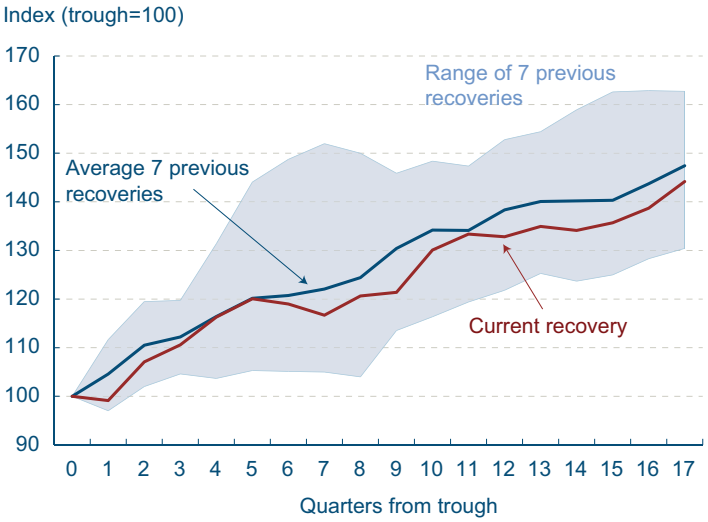
Services



Source: Bureau of Economic Analysis, Federal Reserve Bank of Cleveland calculations.

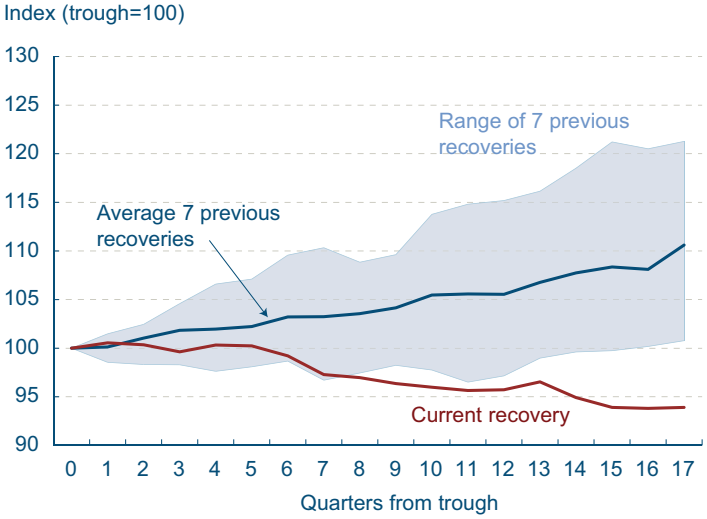
most consumer expenditure categories lagging the average recovery. But if we had to pinpoint exactly which one is hurting the overall economy the most in terms of real GDP growth, we would have to say it is services expenditures.

Gross Private Domestic Investment



Source: Bureau of Economic Analysis, Federal Reserve Bank of Cleveland calculations.

Government Spending



Source: Bureau of Economic Analysis, Federal Reserve Bank of Cleveland calculations.

Prices from a Monetary Perspective

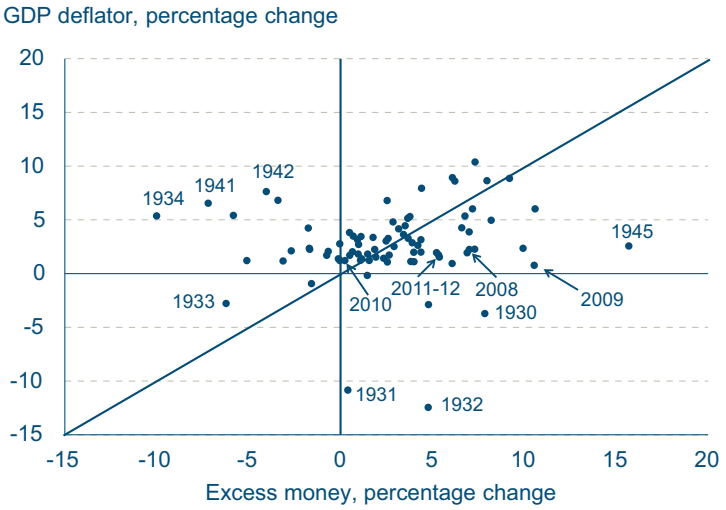
11.27.13
by Owen F. Humpage and Margaret Jacobson

Economists like to remind people that inflation and deflation are monetary phenomena and that they ultimately stem from central banks' monetary policies. Inflation results when a nation's central bank creates more money than its public wants to hold, and deflation occurs when a central bank creates too little. The connection between central banks' monetary policies and inflation, however, is imprecise and often drawn out over many years. This imprecision happens for two reasons: Not all price changes stem from inflation; some instead reflect an emerging scarcity or abundance of particular goods. And the public's demand for money, the amount it wants to hold, often is not very stable. Economists can, however, employ a simple technique that helps us see more clearly the relationship between money and price movements.

To get at the monetary nature of inflation and deflation, economists can divide price changes into two components: excess-money growth and changes in the velocity of money. Excess-money growth is simply the difference between the growth of money and the growth in real output. The velocity of money, in theory, represents the average rate at which money changes hands in a given time period. In practice, economists calculate velocity as anything that affects aggregate prices besides excess-money growth. Velocity might, for example, respond to relative price changes, price controls, and factors that affect money demand besides real GDP, like interest rates or inflation expectations.

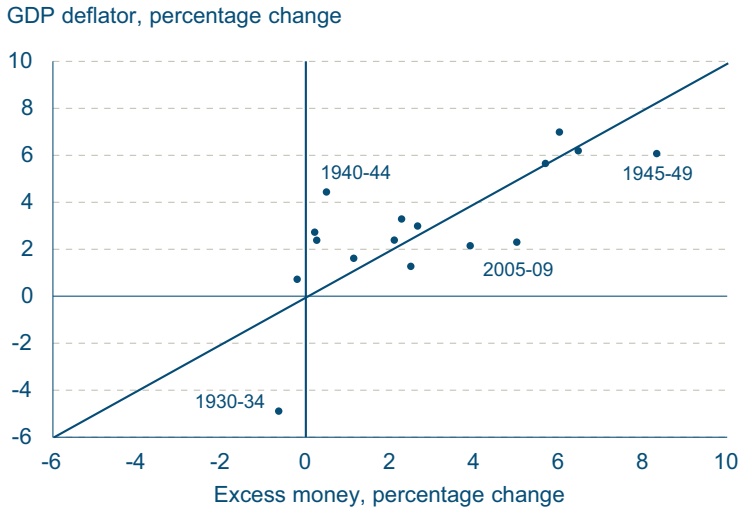
Applying this framework to the U.S. GDP deflator—a very broad price measure—provides an example. The GDP deflator rose 1.3 percent on average during the first three quarters of 2013. This average price change consisted of a 4.3 percent increase in excess-money growth and a 3 percent decline in velocity. As this method shows, the connection between aggregate price movements and U.S. money growth over the course of 2013 was so loose as to be unapparent.

Excess Money and Prices, Annual Averages, 1930-2012



Sources: Bureau of Labor Statistics, Board of Governors of the Federal Reserve System.

Excess Money and Prices, Five-Year Averages, 1930-2012



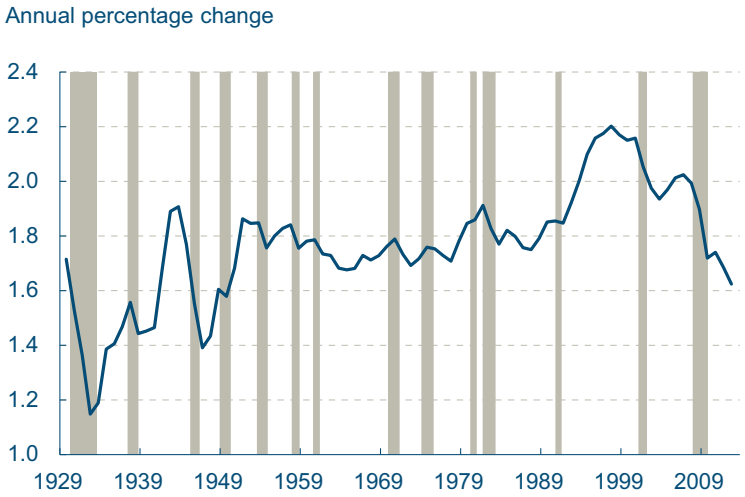
Sources: Bureau of Labor Statistics, Board of Governors of the Federal Reserve System.

This imprecision is not unusual. Over the short run—a year or two—excess-money growth explains very little of the changes in the GDP deflator. If excess-money growth explained all of the annual price changes, the dots in the scatter plot below would line up along the 45-degree line, and all price movements would be inflation—strictly a monetary phenomenon. Instead, the dots are spread about, showing almost no correspondence between the annual change in the GDP deflator and excess-money growth. The simple correlation coefficient is only 0.10. Moreover, the typical annual dispersion of price changes from excess-money growth is about 4 percentage points, but there are some enormous outliers. Many of the largest deviations occurred during the Great Depression and the Second World War, both highly disruptive and uncertain economic events. Likewise many dots associated with the recent Great Recession years also seem well off the mark. Clearly, central banks do not have much control over aggregate-price movements on a year-to-year basis.

As time passes, the effects of nonmonetary events (velocity) on the GDP deflator fade and the connection between excess-money growth and prices starts to predominate. Five-year averages of excess-money growth and price changes, for example, line up more closely along the 45 degree line. At this interval, the correlation between excess-money growth and price changes increases to 0.72, and the typical annual dispersion of price changes from excess-money growth falls by roughly half, to about 2 percentage points. Still, big outlying observations exist; particularly noticeable are again those associated with the Great Depression and the Second World War.

The velocity of money often falls during recessions or shortly thereafter, and its decline can persist for a long time after an economic recovery has taken hold. This is certainly true today. Since the onset of the Great Recession in 2007, the velocity of money in the United States has fallen sharply, at an annual average rate of 3.1 percent. This decline has offset average annual excess-money growth of 4.9 percent, resulting in an average annual increase in the GDP deflator of 1.8 percent.

Velocity of Money



Note: Shaded bars indicate recessions.
Sources: Bureau of Labor Statistics, Board of Governors of the Federal Reserve System.

While many factors affect prices that are beyond the Federal Reserve's direct control, eventually monetary policy tends to re-emerge as the key driver of inflation. After abstracting from short-term movements caused by economic disruptions, recessions, and wars, inflation is ultimately a monetary phenomenon: since 1929, the average annual percentage increase in the GDP deflator has been 2.8 percent, and the average annual growth in excess money has been 2.9 percent.

Yield Curve and Predicted GDP Growth, November 2013

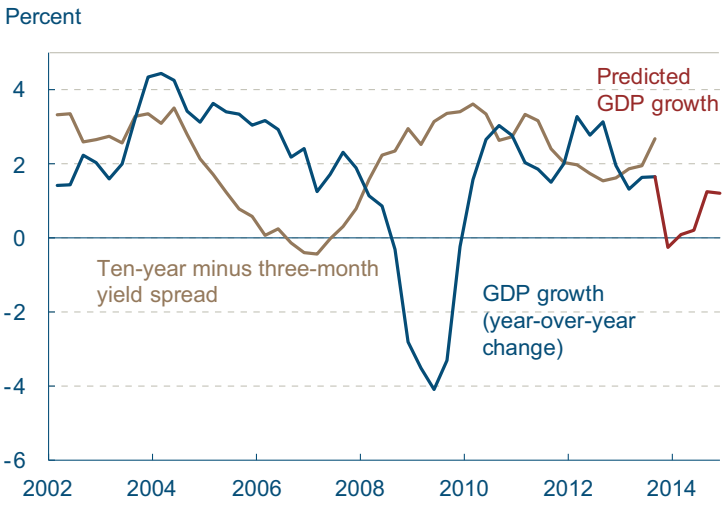
Covering October 19, 2013–November 22, 2013
by Joseph G. Haubrich and Sara Millington

Highlights

	November	October	September
Three-month Treasury bill rate (percent)	0.08	0.08	0.02
Ten-year Treasury bond rate (percent)	2.74	2.66	2.64
Yield curve slope (basis points)	266	258	262
Prediction for GDP growth (percent)	1.2	1.2	1.2
Probability of recession in one year (percent)	1.86	2.24	2.12

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

Yield Curve Predicted GDP Growth



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

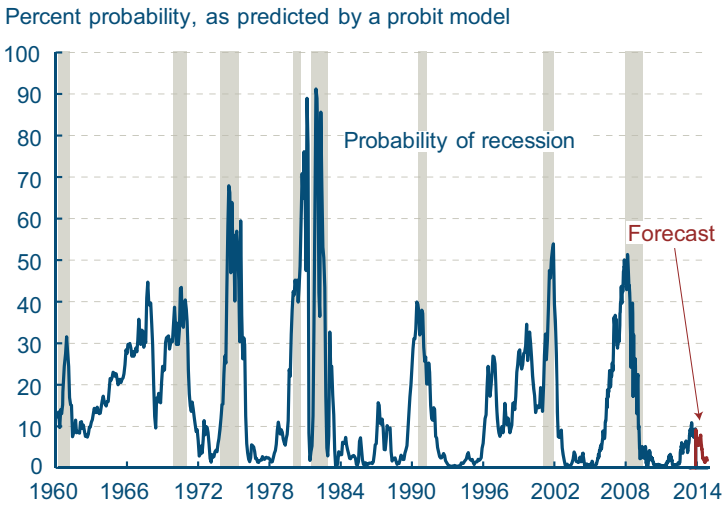
Overview of the Latest Yield Curve Figures

The yield curve became slightly steeper over the past month, with the three-month (constant maturity) Treasury bill rate steady at 0.08 percent (for the week ending November 22), which is still above September's 0.02 percent. The ten-year rate (also constant maturity) moved up to a level of 2.74 percent, up from October's 2.66 percent and above September's 2.64 percent. The slope increased to 266 basis points, up from October's 258 basis points and even rebounding past September's 262 basis points.

The steeper slope had a negligible impact on projected future growth. Projecting forward using past values of the spread and GDP growth suggests that real GDP will grow at about a 1.2 percentage rate over the next year, even with October and September's projections. The influence of the past recession continues to push towards relatively low growth rates. Although the time horizons do not match exactly, the forecast is slightly more pessimistic than some other predictions but like them, it does show moderate growth for the year.

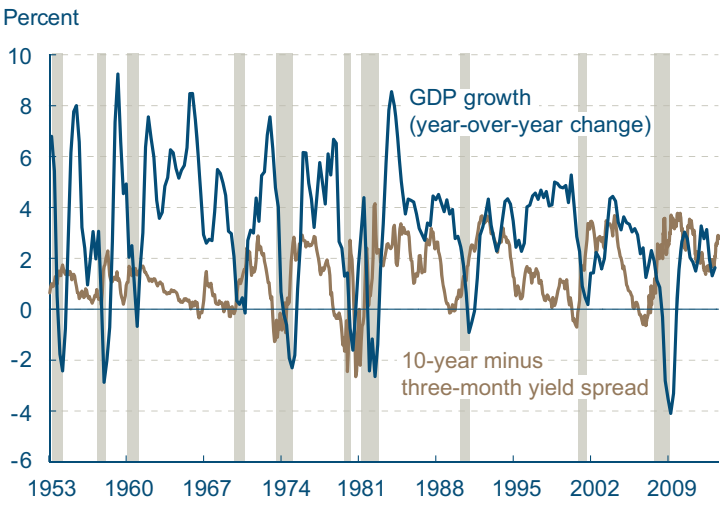
The slope change had only a slight impact on the probability of a recession. Using the yield curve to predict whether or not the economy will be in recession in the future, we estimate that the expected chance of the economy being in a recession next November is 1.86 percent, down a bit from October's estimate of 2.24 percent and September's 2.12 percent. So although our approach is somewhat pessimistic with regard to the level of growth over the next year, it is quite optimistic about the recovery continuing.

Recession Probability from Yield Curve



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

Yield Curve Spread and Real GDP Growth



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

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 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

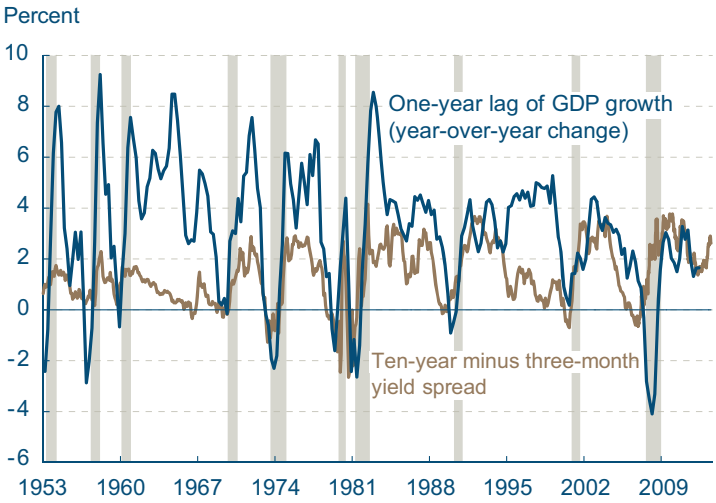
We use past values of the yield spread and GDP growth to project what real GDP will be in the future. We typically calculate and post the prediction for real GDP growth one year forward.

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 materi

Yield Spread and Lagged Real GDP Growth



Note: Shaded bars indicate recessions.
Sources: Bureau of Economic Analysis, Board of Governors of the Federal Reserve System.

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?" 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.

The Pittsburgh Labor Market

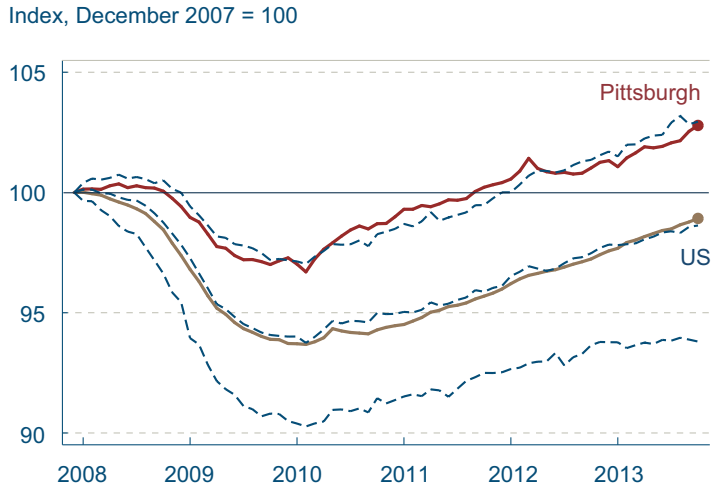
12.09.13
by Guhan Venkatu

Though the United States has been experiencing one of the weakest labor markets in decades, employment conditions in the Pittsburgh area have been much more favorable in recent years. While employment fell 5.4 percent across the US during the Great Recession—the steepest decline since the 1930s—in the Pittsburgh metropolitan statistical area (MSA), it fell by about half as much (2.7 percent). Only 15 of the largest 100 US metro areas saw smaller employment declines during this period. This experience contrasts sharply with what happened in the Pittsburgh area in the early 1980s, when the steel industry underwent significant change and consolidation. From January 1980 to December 1982, during the so-called twin recessions, employment in the Pittsburgh MSA declined dramatically by 8.5 percent.

Because of its more modest employment decline during the last recession, Pittsburgh was one of the first metro areas to return to its pre-recession employment levels in the recovery that followed. In September 2011, when Pittsburgh-area employment eclipsed its pre-recession level, only eight other US metro areas among the 100 largest had achieved the same milestone. The nation as a whole has yet to return to its pre-recession employment peak. In addition, the Pittsburgh area's cumulative employment change since the end of the previous expansion (December 2007) is currently the fifteenth best among these 100 American metro areas. Again, though, this largely reflects the milder employment decline the area experienced throughout the recession. Employment growth during the recovery (after June 2009), while better in the Pittsburgh area, has been much closer to the national average: 5.4 percent for the Pittsburgh MSA versus 4.6 percent for the US through October 2013.

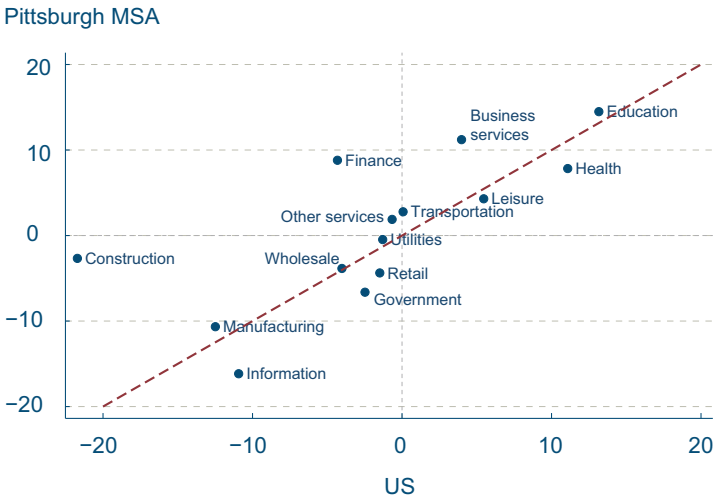
The industries driving Pittsburgh's above-average employment gains in this business cycle include construction, financial services, and business services. In the case of construction, the US housing

Payroll Employment, US and Pittsburgh MSA



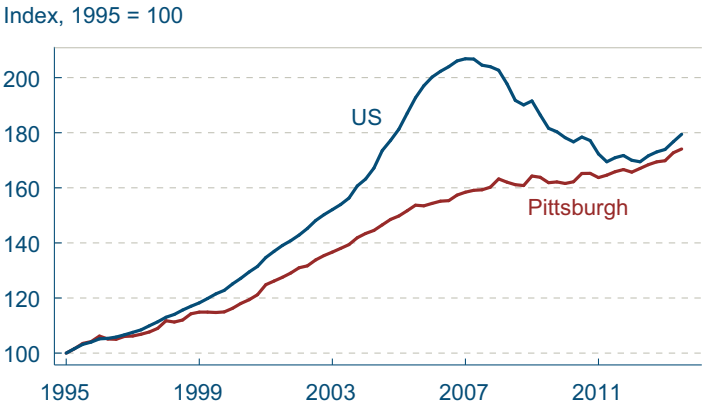
Note: Outcomes for the 100 largest US MSAs, by employment, are shown by the dashed lines. The median outcome is in the middle of the chart; the top-most and bottom-most dashed lines depict the 10th best and worst outcomes, respectively, at any given point.
Source: Bureau of Labor Statistics.

Percent Change in Employment by Industry, December 2007−October 2013



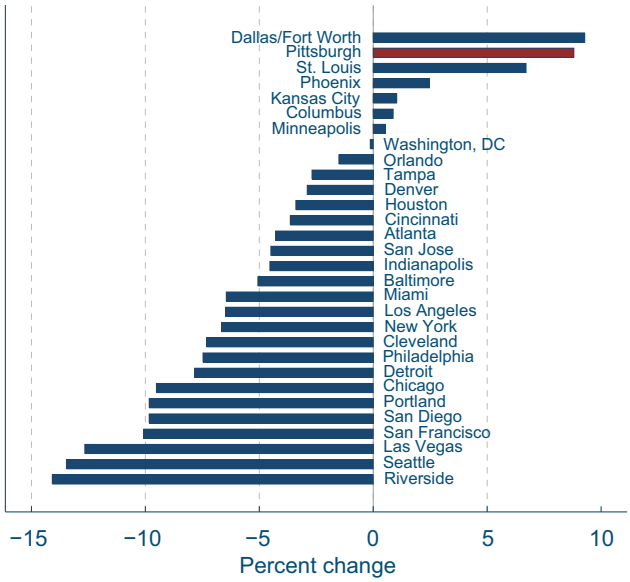
Note: The dashed line indicates 45 degrees.
Source: Bureau of Labor Statistics.

Home Price Index, US and Pittsburgh MSA



Source: Federal Housing Finance Agency.

Financial Sector Employment Growth in the 30 Largest MSAs, December 2007–October 2013



Note: Data are for the 30 largest US MSAs by employment. Cities listed are a shortened version of the full MSA name.
Source: Bureau of Labor Statistics.

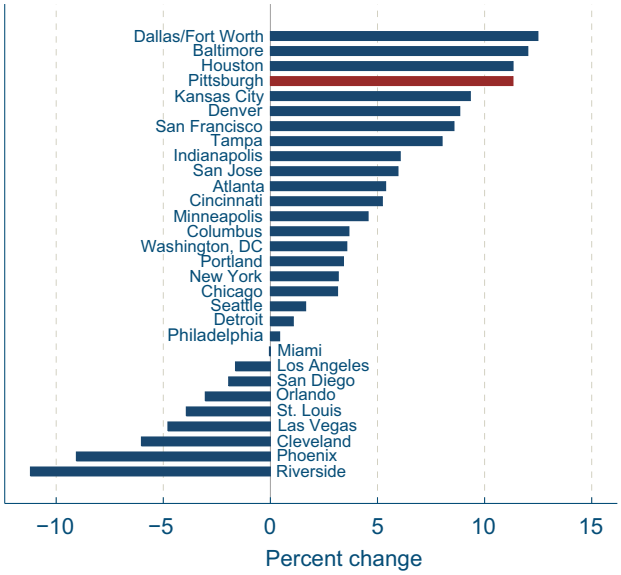
crisis caused national construction employment to fall sharply after 2007. As of October 2013, national construction employment had fallen about 22 percent from its December 2007 level. By contrast, construction employment fell just over 2 percent in the Pittsburgh area over the same span. The area also never saw the bust in residential real estate values experienced nationally. While US home prices fell more than 12 percent from the fourth quarter of 2007 to the third quarter of 2013 (according to the Federal Housing Finance Agency), Pittsburgh area prices rose almost 9 percent.

The fallout from the housing crisis has also been an important factor in reducing financial services employment nationally. Weakened financial firm balance sheets have driven consolidation in the industry in recent years, while at the same time, households have generally been reducing their debt levels. As a result, employment in financial services nationally fell about 4.5 percent from December 2007 to October 2013. However, over the same period, Pittsburgh saw financial services employment grow almost 9 percent. In fact, it is among just a handful of metro areas among the 30 largest where financial services employment increased over this period. Only the Dallas metro area saw stronger financial services employment growth.

Finally, employment in professional and business services—which includes things like legal, accounting, and advertising services, as well as scientific research and the management of companies—has grown nationally since the last expansion ended in late 2007. From December 2007 to October 2013, employment in this collection of industries increased almost 4 percent. In the Pittsburgh area, the same set of industries grew more than twice as rapidly, at just over 11 percent. Again, among the largest 30 American metro areas, Pittsburgh's employment growth in these industries was in the top 5.

The area's recent employment growth in these two service-sector categories—financial and business services—is notable and a potentially promising sign for the future of the Pittsburgh economy. In a recent article, economist Joel Elvery described the positive correlation between "knowledge jobs" in

Professional and Business Services Employment Growth in the 30 Largest MSAs, December 2007–October 2013



Note: Data are for the 30 largest US MSAs by employment. Cities listed are a shortened version of the full MSA name.
Source: Bureau of Labor Statistics.

tradable-service-sector industries—which he identifies as jobs in information, financial services, and business services—and an area's growth over the past 50 years. Drawing on the work of economist Enrico Moretti, Elvery suggests that these trends are likely to continue in the years to come.

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