

Economic Trends

May 2014 (April 11, 2014-May 8, 2014)

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FEDERAL RESERVE BANK
of CLEVELAND

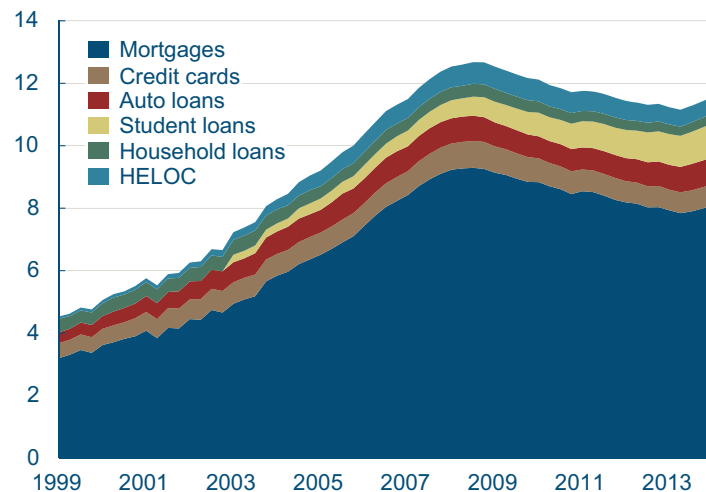
Household Debt Inches Higher

05.08.14

by O. Emre Ergungor and Daniel Kolliner

Composition of Total Debt

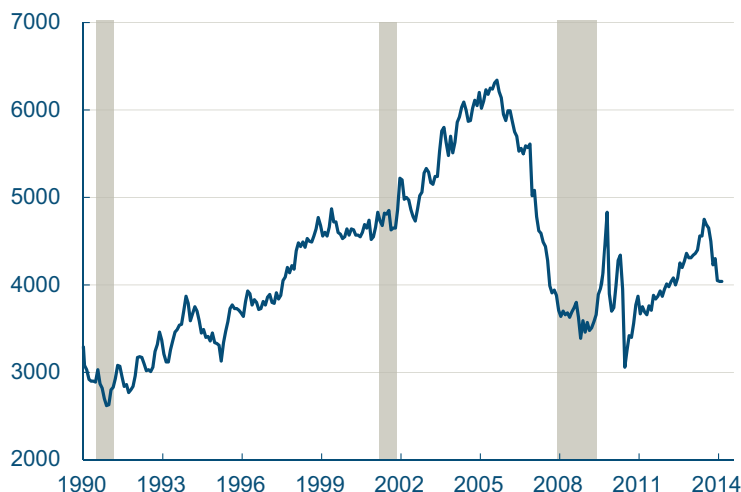
Trillions of dollars



Source: Federal Reserve Bank of New York.

Existing Single-Family Home Sales

Thousands of units



Note: Shaded bars indicate recessions.
Source: National Association of Realtors.

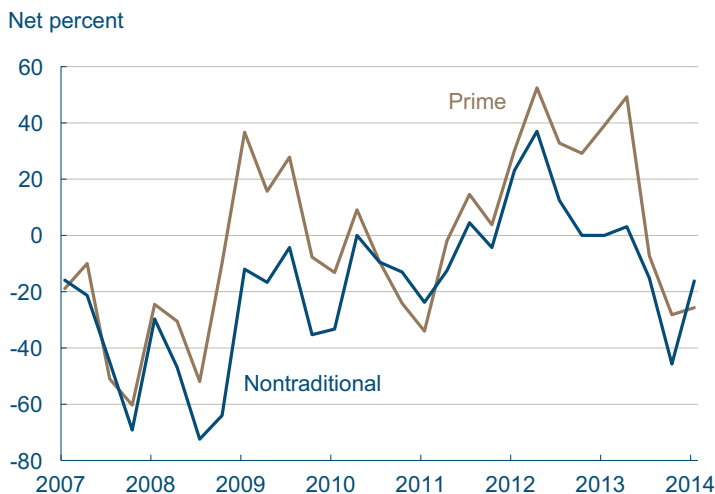
Household debt began to shrink in early 2009 and dropped by nearly \$1.4 trillion before bottoming out in mid-2013. According to the most recent data, consumer debt has increased in back-to-back quarters for the first time since early 2008. The Federal Reserve Bank of New York reports that household debt has grown from \$11.28 trillion in the third quarter of 2013 to \$11.52 trillion in the fourth quarter.

In the fourth quarter of 2013, 75 percent of household debt consisted of obligations secured by real estate (mortgages and home equity loans), 6 percent of credit card debt, 7.5 percent auto loans, and 9.3 percent student loans. Mortgages were responsible for 63 percent of the increase in household debt, followed by student and auto loans. However, going forward, mortgage lending may face stronger headwinds if mortgage rates continue to rise.

Households' net worth has been increasing since the end of 2009 and has averaged 7.4 percent year-over-year growth since then. There are two reasons that household net worth can increase: liabilities can decrease or assets can increase. In the current case, household net worth is increasing because households' financial assets are increasing faster than their liabilities. Households' total real estate holdings increased 11.5 percent from the fourth quarter of 2012 to the fourth quarter of 2013. Meanwhile, year-over-year mortgage growth was just 0.2 percent.

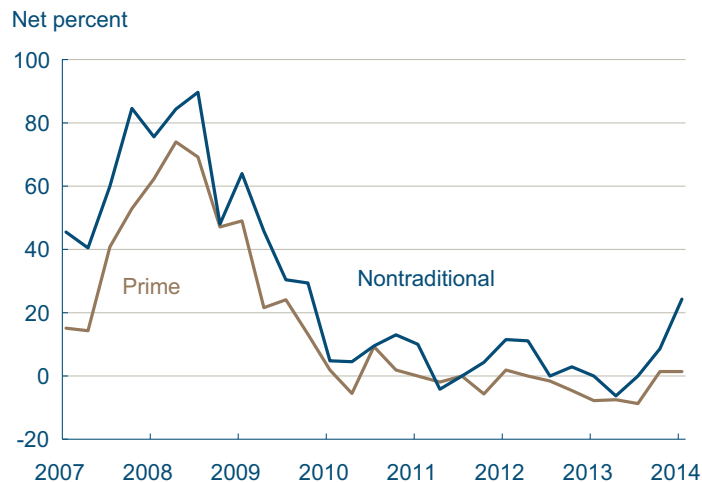
According to the National Association of Realtors (NAR), the number of existing single-family home sales decreased from 4.36 million in March of last year to 4.04 million in March of this year. In a quarterly survey of senior loan officers, a net 26 percent of respondents reported that demand for prime mortgages is down (that is, the reports of decline exceed the reports of increase by 26 percentage points). A net 16 percent reported a decline in demand for nontraditional mortgages, while

Changes in Demand for Residential Mortgage Loans: Net Percentage Reporting Stronger Demand



Source: Board of Governors of the Federal Reserve System.

Changes in Standards for Residential Mortgage Loans: Net Percentage Reporting Tightening Standards



Source: Board of Governors of the Federal Reserve System.

a net 14 percent reported a decline for subprime mortgages. As recently as the third quarter of 2013, a net 49 percent and 25 percent of loan officers had been reporting stronger demand for prime and subprime mortgages, respectively.

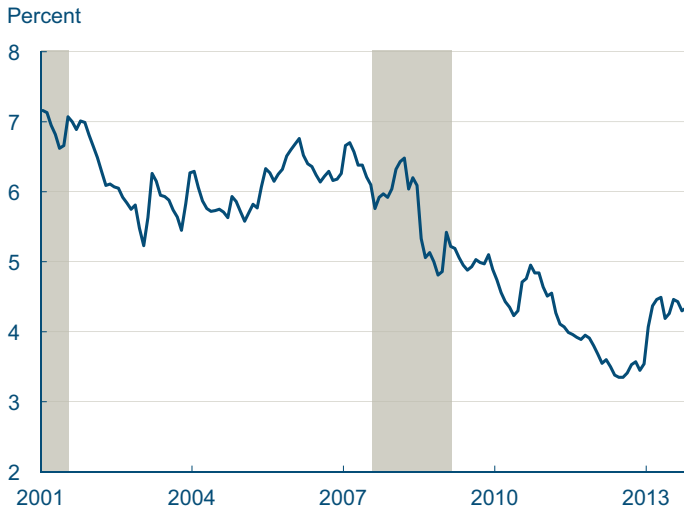
In the same survey, senior loan officers are asked if approval standards are tightening, loosening, or remaining unchanged. Leading up to and during the recession, standards tightened significantly, peaking at a net 74 percent of respondents reporting that their banks were tightening approval standards for prime mortgages in the third quarter of 2008, and 90 percent and 100 percent reporting tightening of standards for the nontraditional and subprime products. For the last two years, most loan officers have reported no change in their prime and nontraditional mortgage lending standards, with a bias toward easing for prime borrowers. While the standards remain unchanged for prime borrowers, there has been a significant jump in tightening for nontraditional and subprime borrowers in the second quarter.

In addition to creditors tightening their lending standards, the 30-year conventional mortgage rate has gone up since its post-recession low of 3.35 percent in December 2012. Currently, the 30-year conventional mortgage rate lies at around 4.3 percent, which is still low compared to historical values.

Even though mortgage interest rates and home values are rising, homes are currently more affordable than they were during the 1990s and early 2000s, which could encourage further growth in home sales. The NAR's Housing Affordability Index was 175.7 in February 2014. An index value greater than 100 means that a family earning the median income has more than enough income to qualify for a mortgage loan on a median-priced home, assuming a 20 percent down payment.

Do these data points bode continued improvement in the real estate market? The data present a mixed picture. On one hand, houses are still very affordable despite rising mortgage rates and home prices. On the other hand, lenders and consumers seem to be highly sensitive to perceived risks in the market,

30-Year Conventional Mortgage Rate

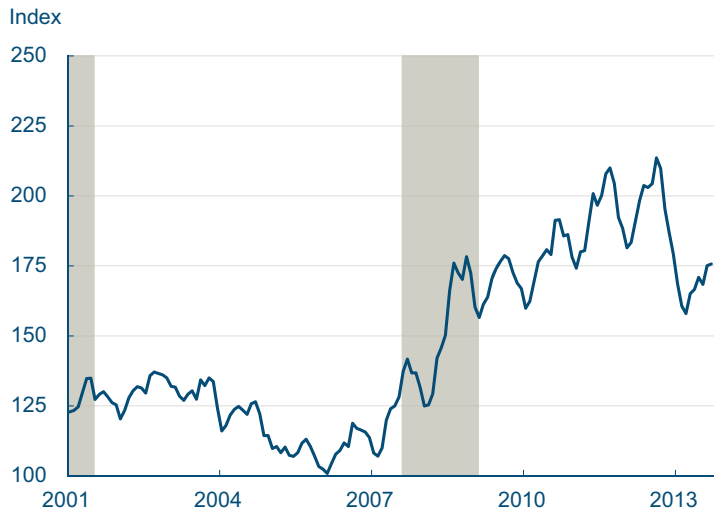


Note: Shaded bars indicate recessions.
Source: Board of Governors of the Federal Reserve System.

as evidenced by the tightening credit standards and the sharp decline in mortgage demand following a mild increase in mortgage rates.

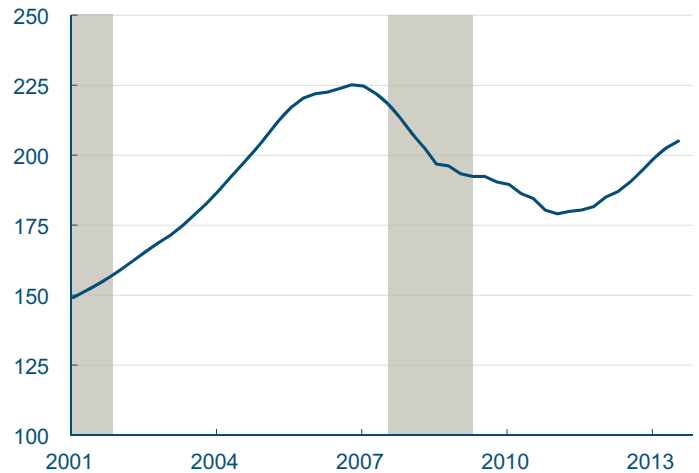
Going forward, the uncertainty over the future pace of the housing recovery may cap the rate of increase in home values and the pace of construction activity. These may be interpreted as headwinds for economic growth. But from a financial stability point of view, the apparent sensitivity to the inherent risks of real estate transactions may be preferable to the nonchalant approach to real estate investments in years past.

Home Affordability



Note: Shaded bars indicate recessions.
Source: National Association of Realtors.

FHFA Housing Price Index

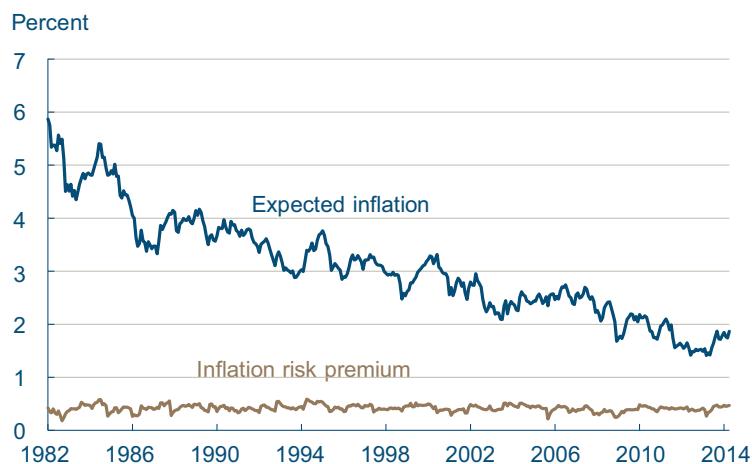


Note: Shaded bars indicate recessions.
Source: Federal Housing Finance Agency.

Cleveland Fed Estimates of Inflation Expectations

News Release: April 15, 2014

Ten-Year Expected Inflation and Real and Nominal Risk Premia

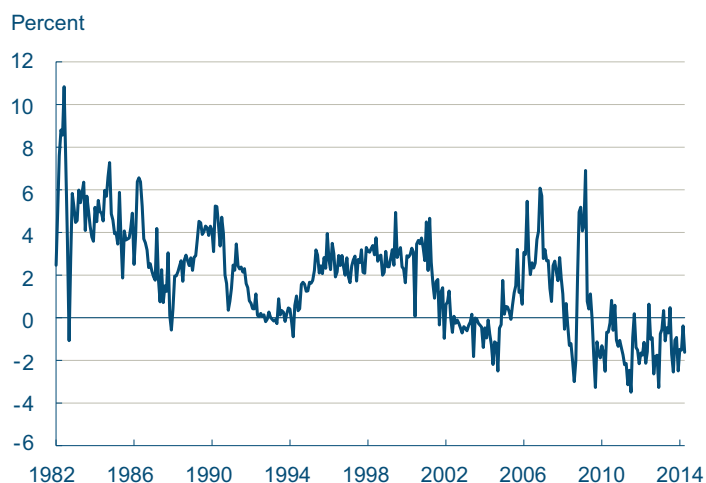


Source: Haubrich, Pennacchi, Ritchken (2012).

The latest estimate of 10-year expected inflation is 1.74 percent, according to the Federal Reserve Bank of Cleveland. In other words, the public currently expects the inflation rate to be less than 2 percent on average over the next decade.

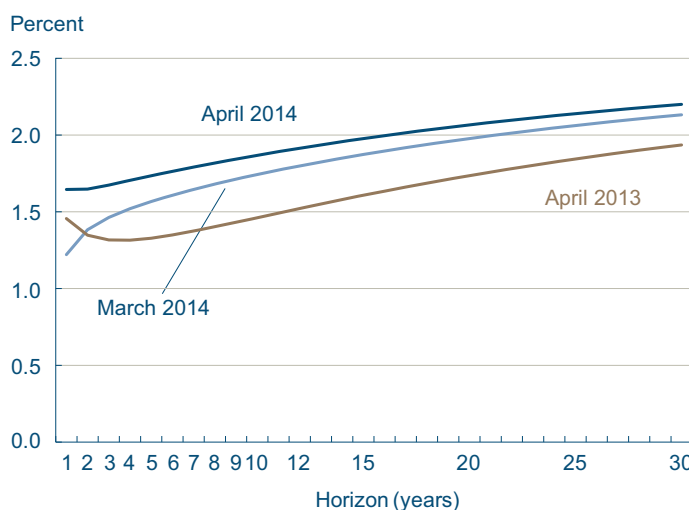
The Cleveland Fed's estimate of inflation expectations is based on a model that combines information from a number of sources to address the shortcomings of other, commonly used measures, such as the "break-even" rate derived from Treasury inflation protected securities (TIPS) or survey-based estimates. The Cleveland Fed model can produce estimates for many time horizons, and it isolates not only inflation expectations, but several other interesting variables, such as the real interest rate and the inflation risk premium.

Real Interest Rate



Source: Haubrich, Pennacchi, Ritchken (2012).

Expected Inflation Yield Curve



Source: Haubrich, Pennacchi, Ritchken (2012).

PCE and CPI Inflation: What's the Difference?

04.17.14

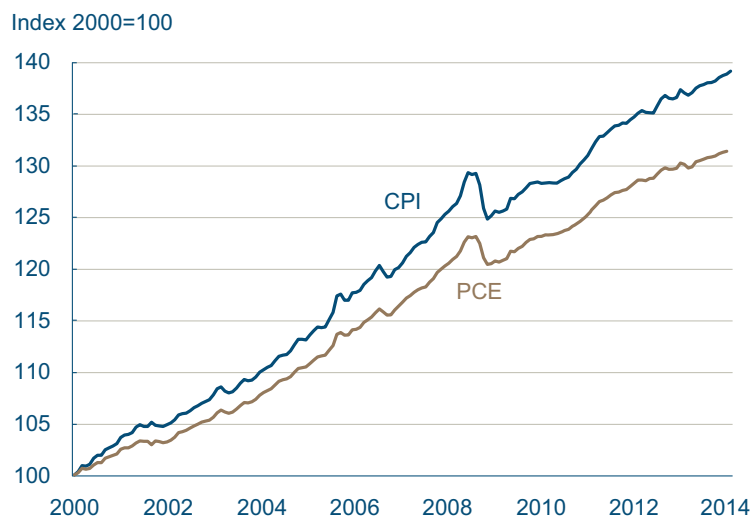
by Joseph G. Haubrich and Sara Millington

There are two common measures of inflation in the US today: the Consumer Price Index (CPI) released by the Bureau of Labor Statistics and the Personal Consumption Expenditures price index (PCE) issued by the Bureau of Economic Analysis. The CPI probably gets more press, in that it is used to adjust social security payments and is also the reference rate for some financial contracts, such as Treasury Inflation Protected Securities (TIPS) and inflation swaps. The Federal Reserve, however, states its goal for inflation in terms of the PCE.

The two measures, though following broadly similar trends, are certainly not identical. In general, the CPI tends to report somewhat higher inflation. Since 2000, prices as measured by the CPI have risen by 39 percent, while those measured by the PCE have risen by 31 percent, leading to differing average annual inflation rates of 2.4 and 1.9 percent. In this century, then, CPI inflation has run about half a percentage point higher than PCE inflation. When calculated from 1960 the difference is almost the same, 3.9 percent for the CPI and 3.4 percent for the PCE. Since 2008, however, the difference has been smaller, 1.7 percent and 1.4 percent.

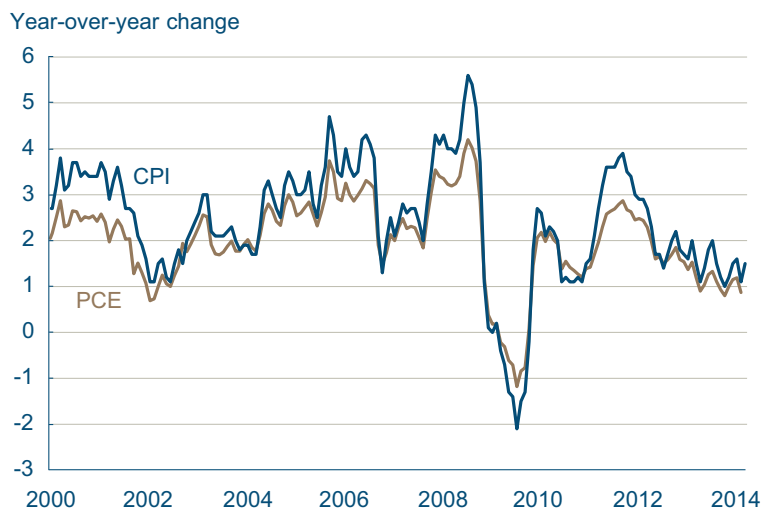
The CPI and PCE each come in two flavors, a so-called “headline” measure and a core measure, which strips out the more volatile food and energy components. Over the short term, the core measure may give a more accurate reading of where inflation is headed, but people do buy food, fill up their gas tanks, and heat their homes, so headline inflation more accurately represents people’s actual expenses. Like the headline measures, core CPI tends to show higher inflation than core PCE. Since 2000, core CPI has averaged annual increases of 3.9 percent, and core PCE has averaged 3.4 percent, the same half a percentage point difference as between the headline numbers. More recently, the differences have been smaller, with core inflation running at 2.0 percent for the CPI and 1.7 percent for the PCE since 2000, and 1.7 percent and 1.5 percent since 2008.

CPI and PCE Levels



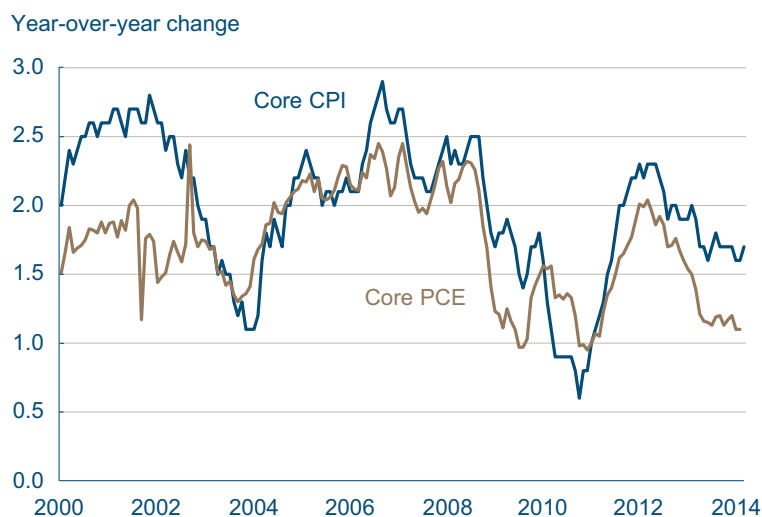
Source: FRED, Federal Reserve Bank of St. Louis.

Headline CPI and PCE



Source: Bureau of Labor Statistics/Haver Analytics.

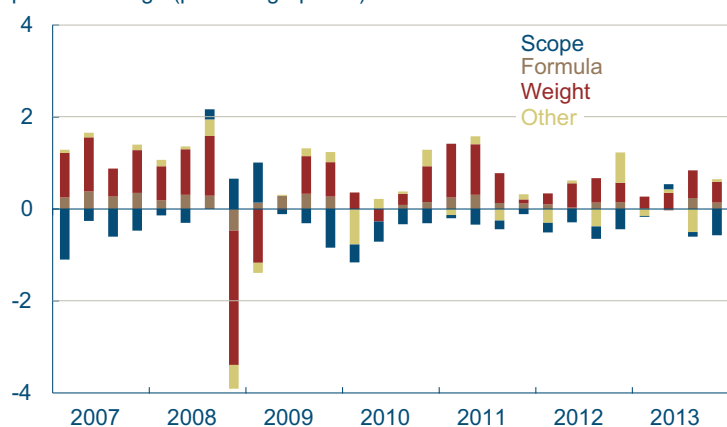
Core PCE and CPI



Source: Bureau of Labor Statistics/Haver Analytics.

Factors Accounting for Difference between CPI and PCE

Contribution to difference in annualized quarterly percent change (percentage points)



Source: Bureau of Economic Analysis.

What accounts for the difference between the two measures? Both indexes calculate the price level by pricing a basket of goods. If the price of the basket goes up, the price index goes up. But the baskets aren't the same, and it turns out that the biggest differences between the CPI and PCE arise from the differences in their baskets.

The first difference is sometimes called the weight effect. In calculating an index number, which is a sort of average, some prices get a heavier weight than others. People spend more on some items than others, so they are a larger part of the basket and thus get more weight in the index. For example, spending is affected more if the price of gasoline rises than if the price of limes goes up. The two indexes have different estimates of the appropriate basket. The CPI is based on a survey of what households are buying; the PCE is based on surveys of what businesses are selling.

Another aspect of the baskets that leads to differences is referred to as coverage or scope. The CPI only covers out-of-pocket expenditures on goods and services purchased. It excludes other expenditures that are not paid for directly, for example, medical care paid for by employer-provided insurance, Medicare, and Medicaid. These are, however, included in the PCE.

Finally, the indexes differ in how they account for changes in the basket. This is referred to as the formula effect, because the indexes themselves are calculated using different formulae. The details can get quite complicated, but the gist of the matter is that the PCE tries to account for substitution between goods when one good gets more expensive. Thus, if the price of bread goes up, people buy less bread, and the PCE uses a new basket of goods that accounts for people buying less bread. The CPI uses the same basket as before (again, roughly; the details get complicated).

There are a few more, mostly minor differences, related to items such as how seasonal adjustments are handled. These are usually referred to as other effects.

The chart below breaks down the differences between the CPI and PCE into these four effects for

each quarter starting in 2007. The largest difference tends to be the weight effect, which contributes to bigger changes in the CPI, while the scope effect tends to lessen the difference.

Updated Policy Projections and Improvement in the Unemployment Rate

04.17.14

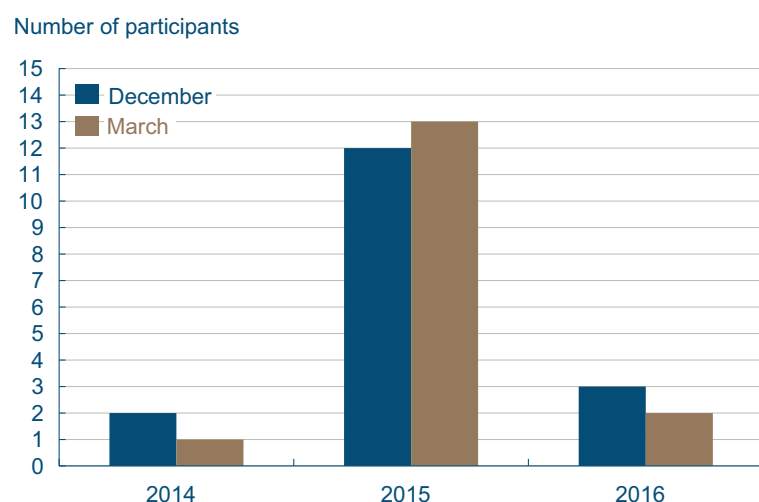
by William Bednar and John B. Carlson

In March, the Federal Open Market Committee (FOMC) released its updated Summary of Economic Projections (SEP). The SEP includes the FOMC's forecasts for GDP, inflation, and the unemployment rate. It also includes the Committee members' expectations for when the federal funds rate will be raised above the 0 to 0.25 percent range, and where they expect the rate to be at the end of the next few years and in the long run. Most of the FOMC members see the funds rate going above the 0 to 0.25 percent range some time in 2015, as they did in the December SEP. However, changes from December to March in where participants see the rate at the end of the next few years suggest some shifting in the policy expectations of Committee members, and changes in the forecasts for other key variables provide evidence as to why this might be the case.

As in December, the March SEP showed that most FOMC participants believe that the federal funds rate will start to increase in 2015. In fact, 13 of the 16 participants in March believed this to be the case (compared with 12 of 17 in December). However, the opinions about when in 2015 and how fast the funds rate will rise are a bit more divergent. For example, the expected federal funds rate at the end of 2015 in the March SEP ranged from 0.25 percent to 3.0 percent, and for 2016, it ranged from 0.75 to 4.25 percent.

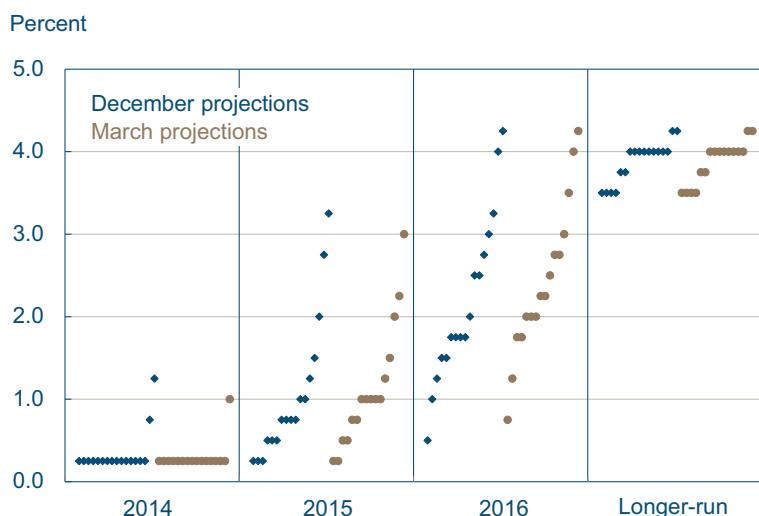
Regardless of these differing opinions, there seems to have been some shifting of policy expectations from December to March. In December, 10 of the 17 FOMC participants saw the federal funds rate below 1.0 percent at the end of 2015, while in March, 9 of the 16 FOMC participants saw it at 1.0 percent or above. Likewise, in December, 9 of the 17 FOMC participants saw the rate below 2.0 percent at the end of 2016, while in March, 12 of the 16 FOMC participants saw it at 2.0 percent or higher. A higher expected policy rate at these fixed dates would suggest one of two scenarios for any

FOMC Projections: Timing of Policy Firming



Source: Board of Governors of the Federal Reserve System.

FOMC Projections: Federal Funds Rate

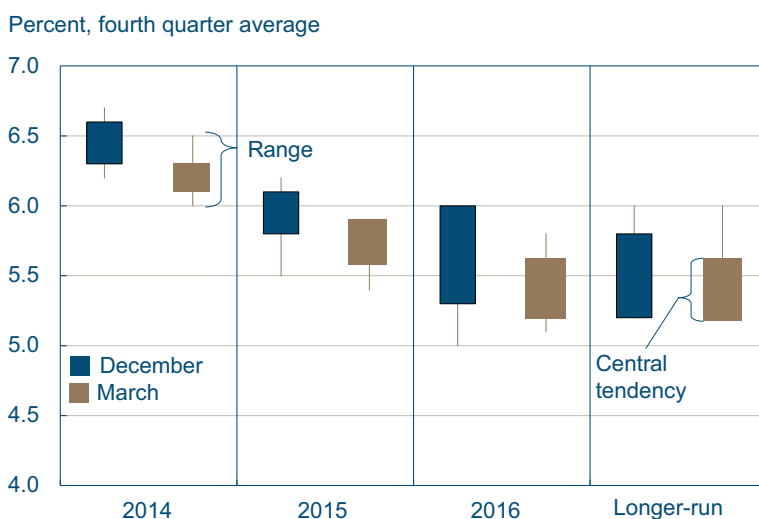


Source: Board of Governors of the Federal Reserve System.

given participant. Either they see the federal funds rate coming out of the 0 to 0.25 percent range earlier in 2015 than they previously projected, or they see the rate increasing faster once it does exit that range. Without more detail on participants' projections, it would be tough to indicate which of these is driving the change from December to March for a given FOMC member. However, these changes do indicate that the participants on the FOMC generally see a slightly tighter policy environment over the next few years than they saw in December of 2013.

Given that the FOMC has a dual mandate to maintain price stability and maximum employment, it would not be surprising that the Committee's outlook for the unemployment rate and inflation play a primary role in determining its projection for the path of the federal funds rate. Therefore, changes in FOMC participants' forecasts for these primary variables over the next couple of years will likely influence the way they see funds-rate policy evolving over the same time period. The unemployment rate continued to fall in late 2013 and early 2014. The rate declined from 7.2 percent to 7.0 percent from November to December, and then from 7.0 percent to 6.7 percent from December to February.

FOMC Projections: Unemployment Rate



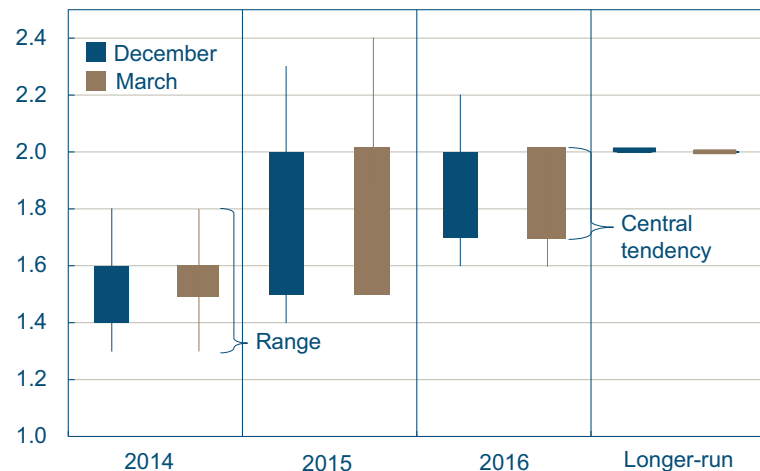
Source: Board of Governors of the Federal Reserve System.

The recent improvement in the unemployment rate is expected to persist, as is evident in the lower projected path for unemployment in the projections from the March SEP. The central tendency of FOMC forecasts for the unemployment rate at the end of 2014 declined from 6.3 to 6.6 percent in December to 6.1 to 6.3 percent in March. For 2015, it declined from 5.8 to 6.1 percent to 5.6 to 5.9 percent, and for 2016, it declined from 5.3 to 5.8 percent to 5.2 to 5.6 percent. Therefore, there was a general downward shift in the FOMC's expectation for the unemployment rate over the next few years.

Unlike the unemployment rate, however, FOMC projections for inflation were largely unchanged from December to March. The central tendency for PCE inflation in 2014 went from 1.4 to 1.6 percent in December to 1.5 to 1.6 percent in March. For 2015, it stayed at 1.5 to 2.0 percent, and for 2016, it stayed at 1.7 to 2.0 percent.

FOMC Projections: PCE Inflation

Q4/Q4 percent change



Source: Board of Governors of the Federal Reserve System.

The fact that the FOMC's outlook for the unemployment rate generally improved from December to March and the outlook for inflation generally remained the same explains why there might have been some slight shifting in the expected path of the federal funds rate. As these employment and inflation variables are projected to return to their longer-run values over time, the federal funds rate will be projected to return its longer-run value accordingly. Given that the outlook for inflation remained steady, and the outlook for the unemployment rate improved, this means that the unemployment rate is expected to reach its longer-run value sooner than previously projected, and so the federal funds rate may be expected to return closer to its longer-run value sooner than previously projected as well.

Yield Curve and Predicted GDP Growth, April 2014

Covering March 22, 2014–April 25, 2014
by Joseph G. Haubrich and Sara Millington

Highlights

	April	March	February
Three-month Treasury bill rate (percent)	0.03	0.06	0.04
Ten-year Treasury bond rate (percent)	2.71	2.74	2.75
Yield curve slope (basis points)	268	268	271
Prediction for GDP growth (percent)	1.5	1.4	1.3
Probability of recession in one year (percent)	1.78	1.81	1.74

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

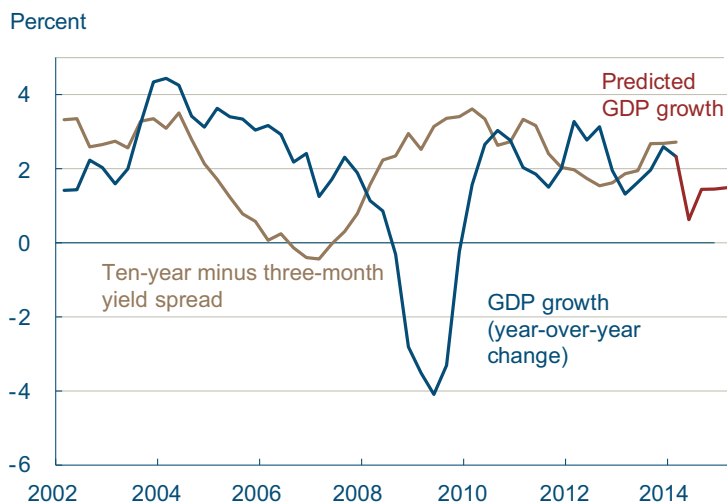
Overview of the Latest Yield Curve Figures

The yield curve took a roughly parallel shift downward since last month, with the three-month (constant maturity) Treasury bill rate dropping down to 0.03 percent (for the week ending April 25) from March's 0.06 percent and just below February's 0.04 percent. The ten-year rate (also constant maturity) dropped three basis points to 2.71 percent, also down from March's 2.74 percent and below February's level of 2.75 percent. The shift down kept the slope constant at 268 basis points, down from February's 271 basis points.

The steeper slope had a small 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 1.5 percentage rate over the next year, just up (mainly due to rounding) from March's 1.4 percentage rate, which itself was slightly up from the 1.3 percentage rate seen in February. 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 April at 1.78 percent, down from March's estimate of 1.81 percent and up a bit from February's 1.74 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.

Yield Curve Predicted GDP Growth



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

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.

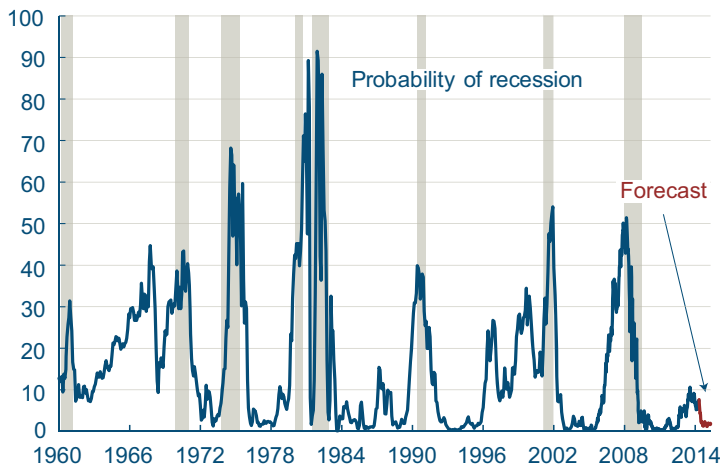
Predicting the Probability of Recession

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

Recession Probability from Yield Curve

Percent probability, as predicted by a probit model

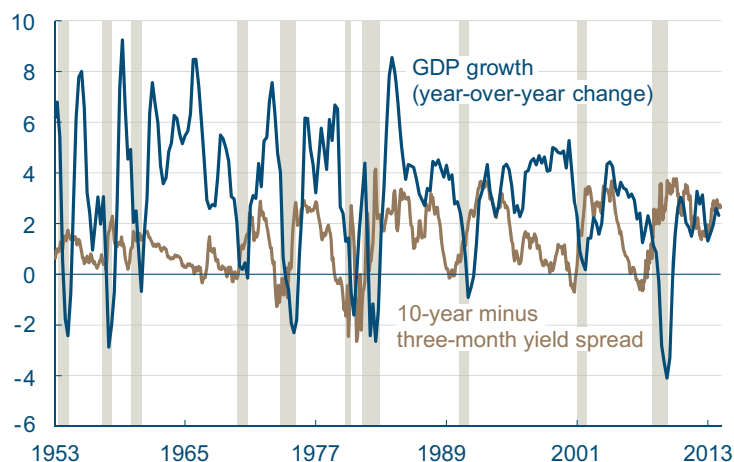


Note: Shaded bars indicate recessions.

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

Yield Curve Spread and Real GDP Growth

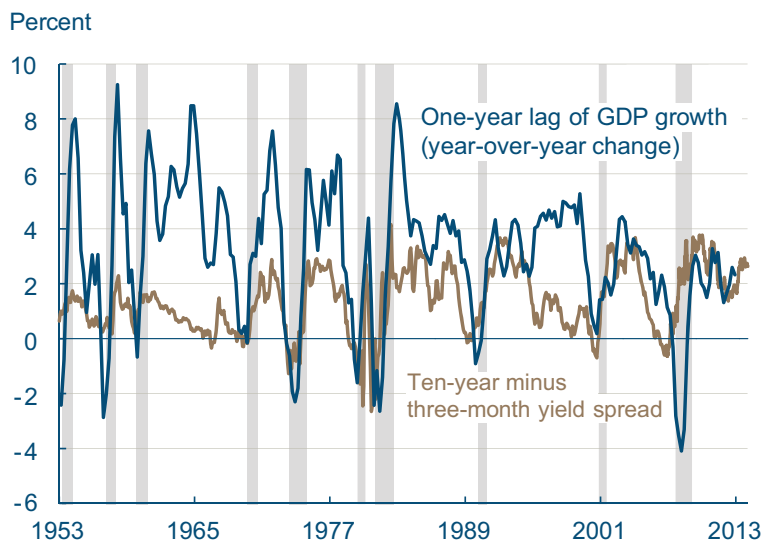
Percent



Note: Shaded bars indicate recessions.

Source: Bureau of Economic Analysis, Board of Governors of the Federal Reserve System.

Yield Spread and Lagged Real GDP Growth



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?” 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.

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