

Economic Trends

January 2014 (December 11, 2013-January 20, 2013)

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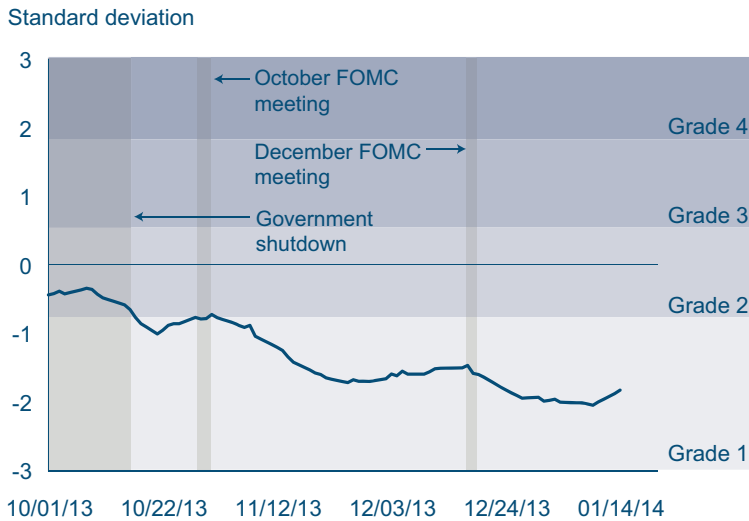
FEDERAL RESERVE BANK
of CLEVELAND

Tracking Recent Levels of Financial Stress

01.17.14

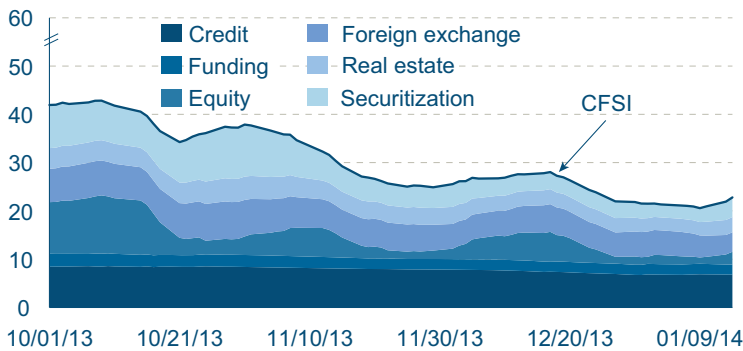
by Amanda Janosko

Cleveland Financial Stress Index



Source: Oet, Bianco, Gramlich, and Ong, 2012. "A Lens for Supervising the Financial System," Federal Reserve Bank of Cleveland working paper no. 1237.

Stress-Level Contributions of Component Markets to CFSI



Note: These contributions refer to levels of stress, where a value of 0 indicates the least possible stress and a value of 100 indicates the most possible stress. The sum of these contributions is the level of the CFSI, but this differs from the actual CFSI, which is computed as the standardized distance from the mean, or the z-score. Source: Oet, Bianco, Gramlich, and Ong, 2012. "A Lens for Supervising the Financial System," Federal Reserve Bank of Cleveland working paper no. 1237.

The Cleveland Financial Stress Index (CFSI) has trended down throughout the fourth quarter of 2013 and early this year, indicating a reduction in the level of stress in the US financial system. During the federal government shutdown in October 2013, the CFSI was in Grade 2 or a “normal stress” period, but as the year progressed the index moved into Grade 1, indicating a “low stress” period. As of January 14, the index stood at -1.833 , substantially below the CFSI’s historic high reading of 3.094 on December 29, 2008 and slightly above the CFSI’s historic low of -2.023 on January 9, 2014.

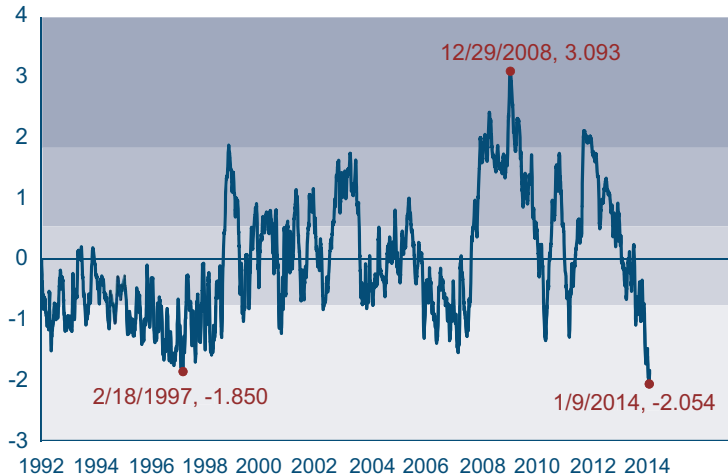
In addition to measuring the overall level of stress in the financial system, the CFSI can also tell us about the relative contributions of six different financial markets to overall systemic stress. Again, looking over the fourth quarter of 2013 and into the first quarter of 2014, we can see that all of the markets—credit, equity, funding, foreign exchange, securitization, and real estate—contributed to the reduction in stress. The equity and securitization markets experienced the most significant reductions in their contributions to stress, while the foreign exchange, credit, real estate, and funding markets experienced more moderate reductions.

The joint reduction in stress in all six financial markets led to a new historical low for the index on January 9, 2014. Previously, the lowest index reading had occurred in February 1997.

We can dive another level down into the factors contributing to stress by looking at the components that we track in each of these six financial markets. Stock market crashes, the only component in the equity market, reduced its contribution to stress by 85.2 percent during the fourth quarter of 2013. In the securitization market, the reduction in the residential-mortgage-backed-security spread drove the market’s overall reduced contribution to stress. Other notable components that helped drive the reduction in system stress include weighted dollar

Recent Highs and Lows of the CFSI

Standard deviation



Source: Oet, Bianco, Gramlich, and Ong, 2012. "A Lens for Supervising the Financial System," Federal Reserve Bank of Cleveland working paper no. 1237.

crashes, the commercial real estate spread, and the residential real estate spread. Note that the components responsible for the decline in overall stress share two characteristics; they contributed a large share to stress in the last quarter and their contribution has fallen significantly since. Some components, like the ABS spread, by contrast, show large percent change over the previous quarter but their contribution was very small to begin with.

The Cleveland Financial Stress Index and all of its accompanying data are posted to the Federal Reserve Bank of Cleveland's website at 3 p.m. daily. The data can be accessed at http://www.clevelandfed.org/research/data/financial_stress_index/.

For a brief overview of how the index is constructed, visit http://www.clevelandfed.org/research/data/financial_stress_index/about.cfm.

Factors Contributing to Financial Market Stress

Market	Component	Contribution to stress, 10/1/13	Contribution to stress, 12/31/13	Percent
Equity	Stock market crashes	10.613	1.567	-85.2
Securitization	Commercial MBS spread	0.545	0.551	1.1
	Residential MBS spread	7.795	2.490	-68.1
	ABS spread	0.593	0.051	91.4
Real estate	Commercial real estate spread	1.637	0.838	-48.8
	Residential real estate spread	2.641	1.971	-25.4
Foreign exchange	Weighted dollar crashes	6.914	5.208	-24.7
Funding	Financial beta	0.602	0.352	-41.6
	Bank bond spread	1.527	1.475	-3.4
	Interbank liquidity spread	0.497	0.164	-67.1
	Interbank cost of borrowing	0.139	0.125	-9.8
Credit	Covered interest spread	0.525	0.272	-48.2
	Corporate bond spread	2.950	2.152	-27.0
	Liquidity spread	3.536	3.183	-10.0
	Commercial paper T-bill spread	0.424	0.130	-69.4
	Treasury yield curve spread	1.001	0.987	-1.4

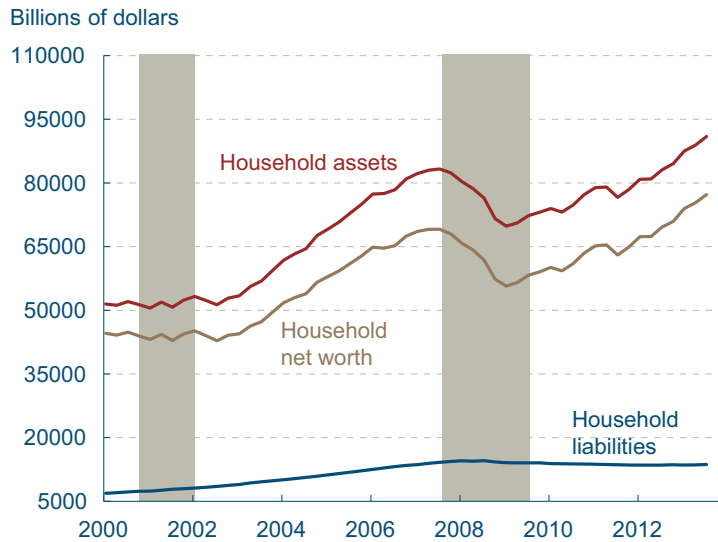
Note: "Contributions to stress" refers to levels of stress, where a value of 0 indicates the least possible stress and a value of 100 indicates the most possible stress. The sum of these contributions is the level of the CFSI, but this differs from the actual CFSI, which is computed as the standardized distance from the mean, or the z-score.

Household Financial Conditions

01.08.14

O.Emre Ergungor and Daniel Kolliner

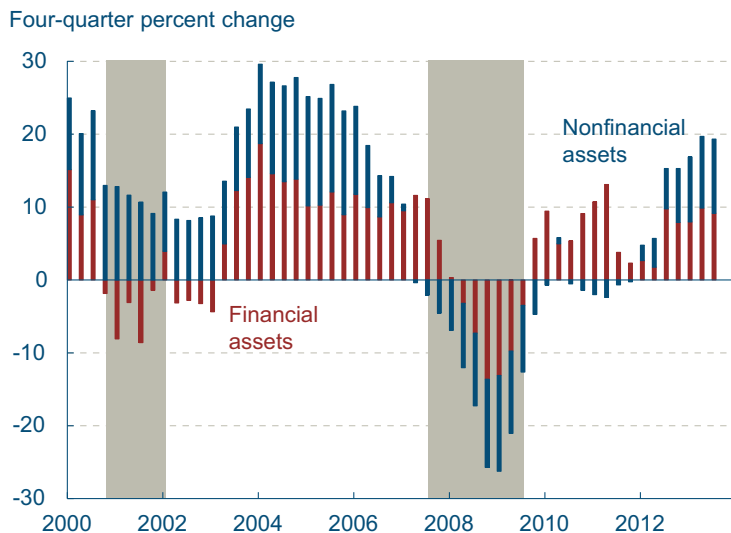
Household Financial Balance Sheet



Note: Shaded bars indicate recessions.

Source: Board of Governors of the Federal Reserve System.

Household Assets Growth



Note: Shaded bars indicate recessions.

Source: Board of Governors of the Federal Reserve System.

During the Great Recession, household wealth fell nearly 20 percent. Due to the sluggish growth of the economy, it took five years for households to recover the lost ground. Since 2011, the growth of household assets and net worth has been on a strong upward trend. Should we worry about this trend, given that the Great Recession was preceded by a similar boom in household assets? We don't think so. Unlike the pre-recession period, the current growth in assets is not carried on the shoulders of overextended consumers who are racking up substantial debt. Household liabilities have essentially been flat for almost two years.

In previous recessions, Americans' homes typically retained their value, but during the Great Recession, the housing market was hit hard. From 2007 all the way to 2011, nonfinancial assets—basically housing—have been a drag on household wealth. Only in recent quarters did home values once again become the stalwart supporter of household balance sheets. Thus, the asset growth we observed in the previous chart has been primarily driven by the growth in financial assets.

With the hard lessons of the Great Recession still fresh in our collective memory, households have been slow to take up new debt in the last two years, and lenders have been slow to extend revolving consumer credit, which primarily consists of credit card debt. Revolving consumer credit balances plummeted in 2008 and are currently barely higher than their level in the third quarter of 2012. Outstanding home mortgage debt is still contracting due to record write-offs and reduced demand for homes in previous years. Nonrevolving consumer credit, which consists of secured and unsecured credit for student loans, automobiles, durable goods, and other purposes, is the only credit category that shows some sign of life. It is currently 8.5 percent above year-ago levels. Note, however,

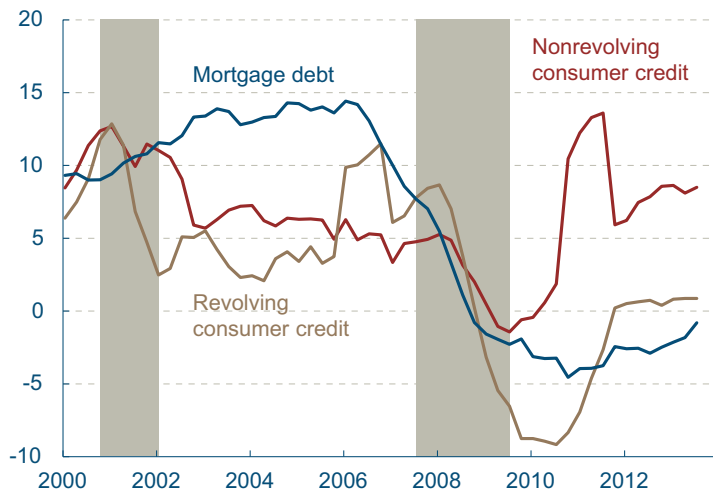
that the student loan component is entirely driven by federal government loans to students and does not reflect private market activity.

On a more positive note, declining credit balances and historically low interest rates have cleared household balance sheets of their dangerous levels of debt from the pre-crisis period. The financial obligation ratio, which expresses household liabilities, such as credit card payments, mortgage payments, home property taxes, and rent payments, as a percentage of disposable income, is at its lowest level since the third quarter of 1981.

The cautious behavior of American households is also manifesting itself in the savings rate. Before the downturn, in July 2005, the personal savings rate reached a record low of just 2.0 percent. Since then, the rate has steadily increased, peaking at 8.7 percent in 2012 due to high dividend and accelerated bonus payments before the rise in personal tax rates. Since that peak, households have maintained their savings rate above 4 percent, roughly where it was in 2004.

Outstanding Debt

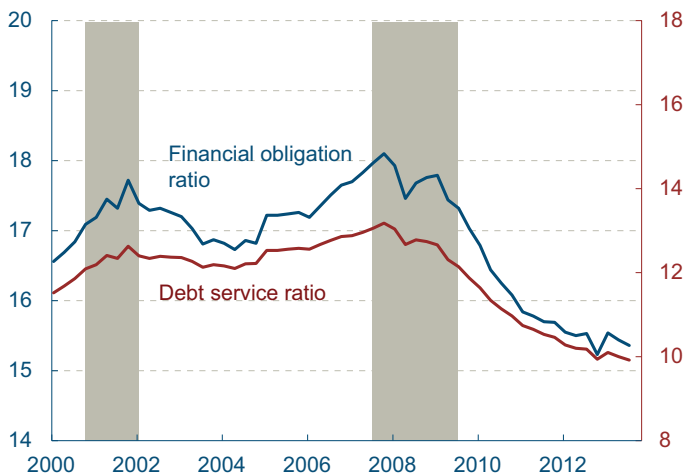
Four-quarter percent change



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

Household Debt Service

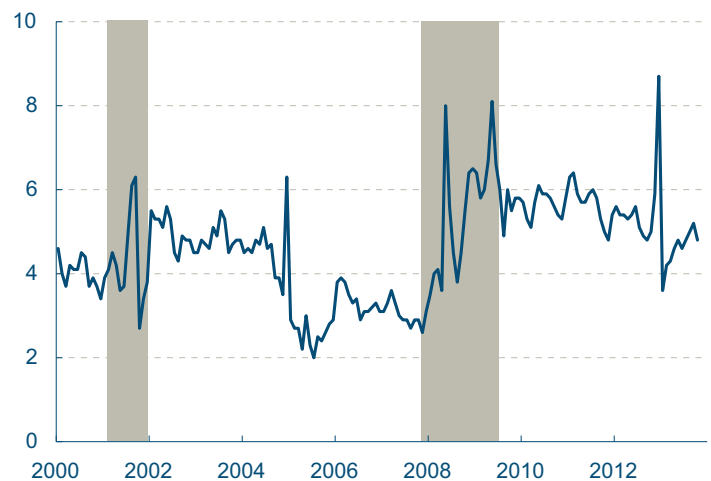
Percent of disposable income



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

Personal Savings Rate

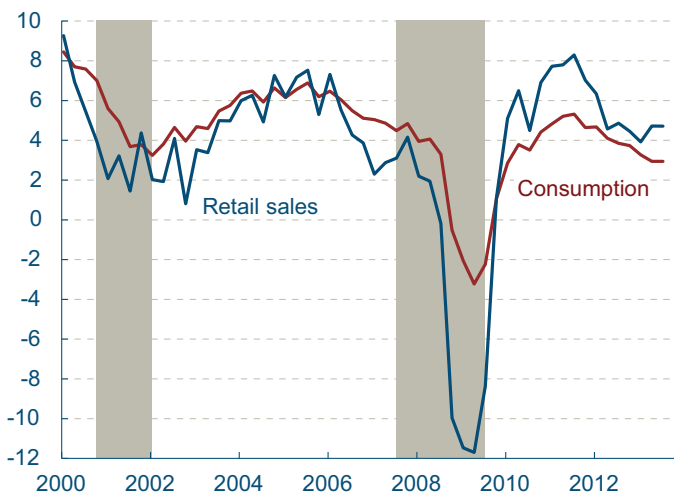
Percent



Note: Shaded bars indicate recessions.
Source: Bureau of Economic Analysis.

Consumption

Four-quarter percent change

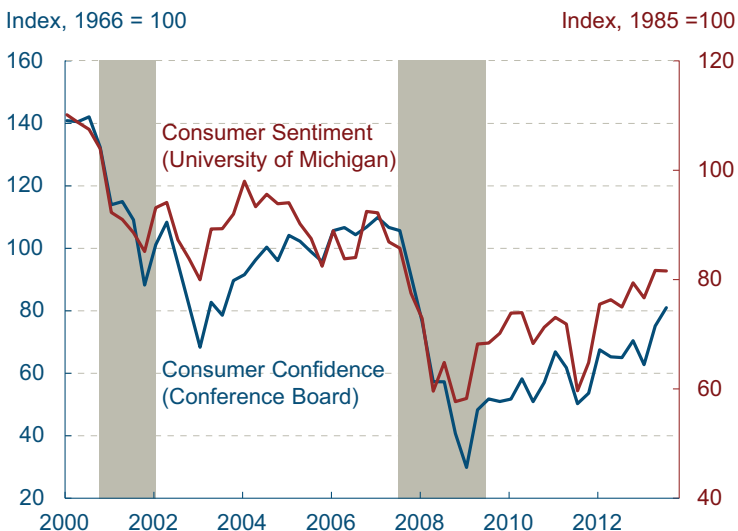


Note: Shaded bars indicate recessions.
Sources: Bureau of Economic Analysis; Bureau of the Census.

Parallel to their savings behavior, households have been circumspect in their spending, too. Consumption growth, up 3 percent since last year, indicates little appetite for spending. This is perhaps to be expected given that measures of consumer confidence and sentiment remain at the lowest levels of the 2001 recession (though they have recovered from their lows of the Great Recession). As confidence continues to improve, consumption growth should pick up pace.

Indexes of consumer sentiment and confidence have gained traction since early 2009, likely due in part to recent small payroll gains, stabilizing (though still depressed) home sales, and stock market performance this past year. But consumers still seem to be proceeding with caution.

Consumer Attitudes



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

Expectations Stay Anchored in Spite of Declining Inflation

01.20.14

by Charles T. Carlstrom and Margaret Jacobson

The Federal Open Market Committee (FOMC) has stated that its long-run target for inflation is 2 percent. Inflation does and will always vary around that target, but some observers are worried that the recent decline we have seen in inflation is especially troublesome because the federal funds rate is essentially zero.

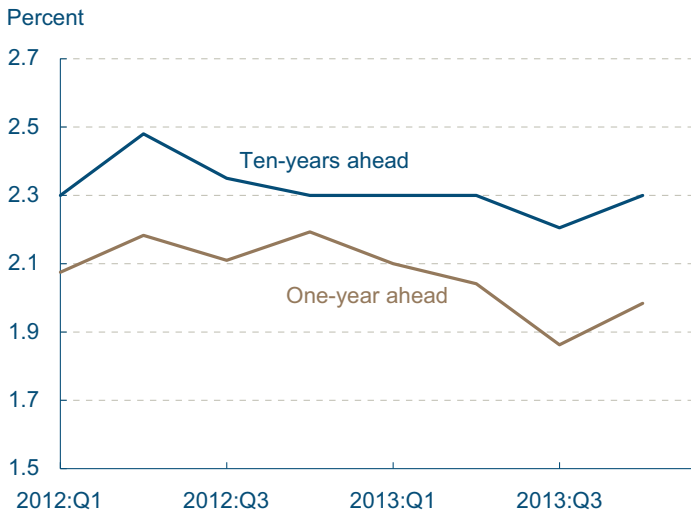
The worry is that with what is basically the economy's short-term interest rate at zero, declines in inflation will cause one-for-one increases in the real interest rate (the after-inflation cost of borrowing). As a result, a decrease in economic activity could push down prices, and real economic activity could suffer because of the increase in real interest rates.

Though we have only limited information to go on, the decline in inflation is not likely to continue. While short-term inflation expectations have declined somewhat with the recent declines in inflation, longer-term inflation expectations have not drifted down to any meaningful extent, which should help mute ongoing declines in inflation.

Personal Consumption Expenditures (PCE) inflation was essentially zero in the fourth quarter of 2013, significantly under the FOMC's target. Throughout 2013, PCE inflation averaged about 1.0 percent, still below the 2 percent target. Meanwhile, core PCE inflation, which excludes the volatile energy and food components, averaged 1.1 percent for the first two months of the fourth quarter and over 2013 as well. While the FOMC is concerned about PCE inflation as a gauge of price stability, core PCE inflation is closely watched because there is some evidence that it predicts inflation over longer horizons better than total inflation.

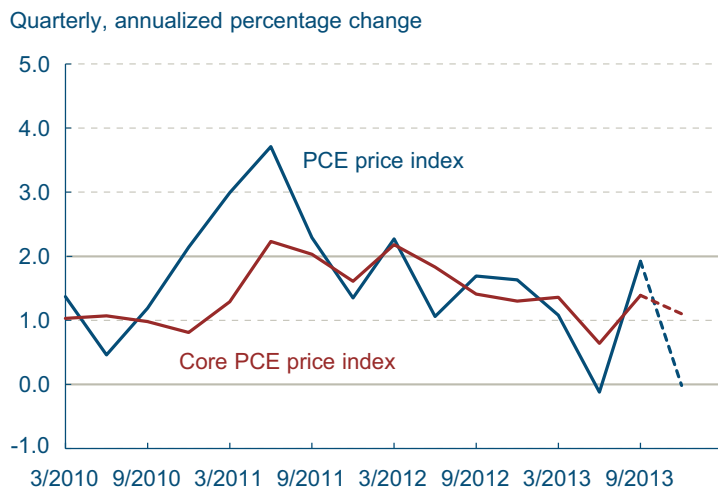
Although the FOMC focuses on the PCE, the Consumer Price Index provides another useful measure of inflation. The CPI is constructed from the prices faced by the average consumer, and CPI inflation typically runs about 25 basis points higher than PCE inflation. The overall pattern in recent

Inflation Expectations



Source: Federal Reserve Bank of Philadelphia.

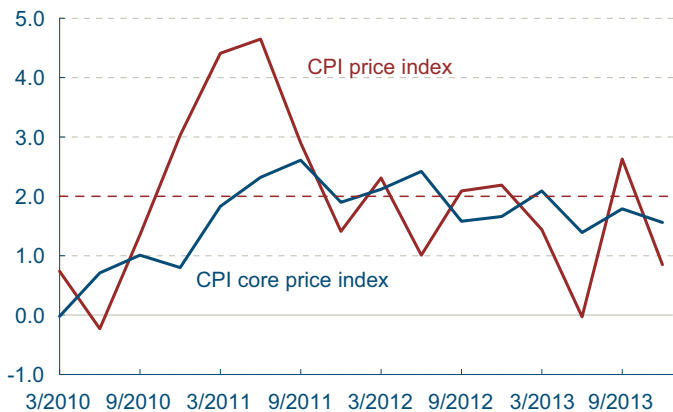
PCE Inflation



Note: dashed lines for 2013:Q4 represent the average annualized percentage change for the months of October and November.
Source: Bureau of Economic Analysis.

CPI Inflation

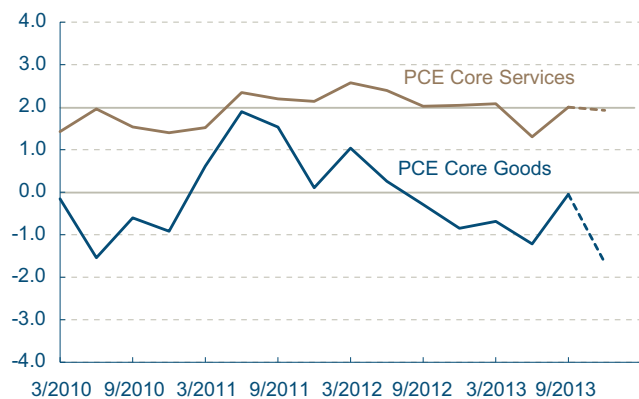
Quarterly, annualized percentage change



Source: Bureau of Labor Statistics.

PCE Inflation: Core Goods and Services

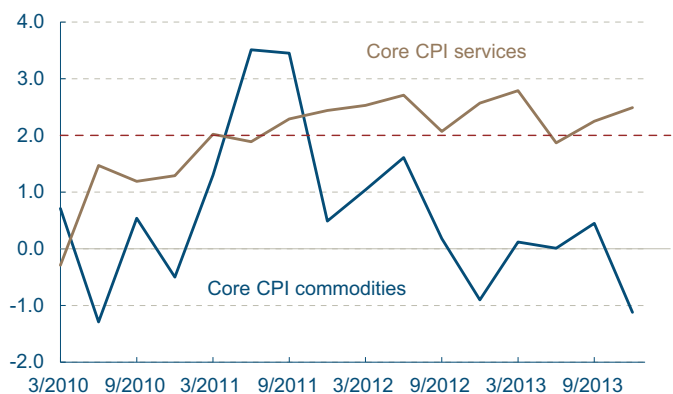
Quarterly, annualized percentage change



Note: dashed lines for 2013:Q4 represent the average annualized percentage change for the months of October and November.
Source: Bureau of Economic Analysis.

CPI Inflation: Core Commodities and Services

Quarterly, annualized percentage change



Source: Bureau of Labor Statistics.

CPI inflation is quite similar to PCE inflation. CPI inflation in the fourth quarter was 0.9 percent, and core CPI inflation was approximately 1.6 percent. This is also what core CPI inflation averaged over the past year, though in the previous two years it averaged between 1.9 percent and 2.2 percent. Therefore, it too has shown a continual decline over the past two years.

An interesting feature of both PCE and CPI inflation is the difference between the behaviors of inflation for service prices and goods prices. While the FOMC's objective is for total inflation, some people are particularly concerned about the dramatic decline in goods prices. For example, PCE core-goods-price inflation has been falling steadily, dropping from 1 percent in 2011 to -0.7 percent in 2013, while inflation in core PCE service prices has been almost perfectly flat for three years, hovering around 2 percent.

We see the same pattern with the CPI. Core service inflation has been nearly steady for two years at a tad above 2 percent. But over that time, core goods inflation fell sharply, dropping from an increase of 2.2 percent in 2011 to a decrease of 0.1 percent in 2013.

The decline in core goods inflation would be troublesome if core goods inflation predicted future inflation better than either core service or total core inflation. But arguably this is not the case. PCE service inflation is a better predictor of future inflation than goods inflation, while the evidence is mixed for the CPI. In the end, core (total) inflation is as good a predictor of both PCE or CPI inflation as goods or services inflation.

Another way of gauging whether or not the recent declines in inflation are a problem is to look at the long-term inflation outlooks of Blue Chip forecasters. Although their forecasts for near-term inflation have fallen a bit, the decrease seems to be transitory. While their prediction for inflation in the first quarter of 2014 is now ½ percentage point lower than they predicted in October, their forecasts for the second quarter of 2014 and onward have largely stayed the same.

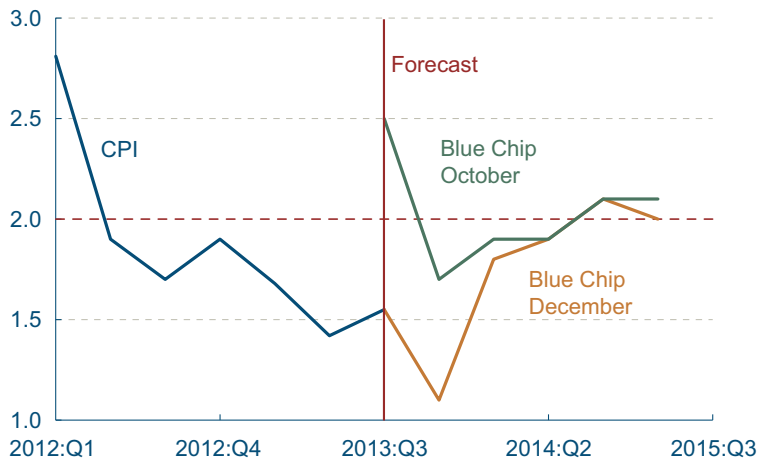
Highlights

Predictor	PCE		Predictor	CPI	
	One quarter ahead	Four quarters ahead		One quarter ahead	Four quarters ahead
Core PCE	0.81	0.65	Core CPI	0.73	0.55
Core PCE goods	0.74	0.57	Core CPI commodities	0.69	0.53
Core PCE services	0.78	0.65	Core CPI services	0.68	0.52

Note: Correlations are calculated from 1967:Q2 to 2013:Q3.
 Sources: Bureau of Labor Statistics, authors' calculations.

Blue Chip CPI Projections

Quarterly, annualized percent change

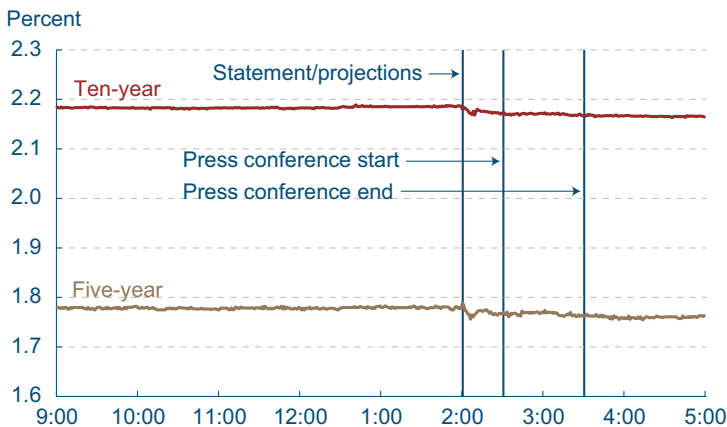


Source: Bureau of Labor Statistics/Blue Chip Newsletters.

Longer-term inflation forecasts, as measured through TIPS (Treasury inflation-protected securities), were basically unaffected by the FOMC's (surprising) December decision to taper asset purchases. Both 5- and 10-year forecasted rates show an insignificant decrease of around 2 basis points.

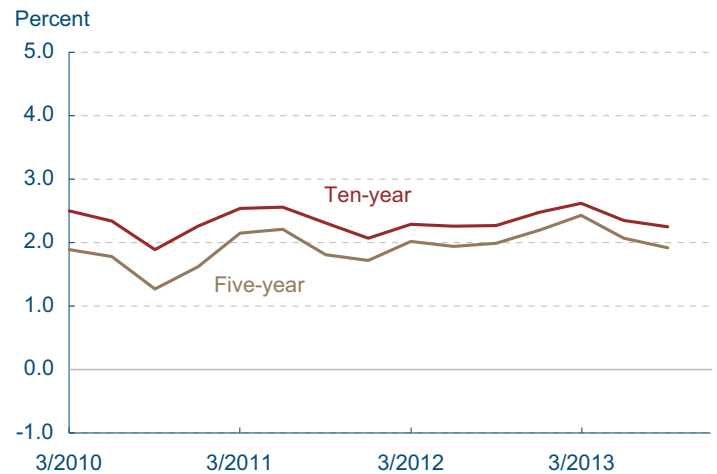
While there is uncertainty about short-term inflation, every indication is that longer-term inflation expectations remain anchored around 2 percent.

Five- and Ten-Year Breakeven Inflation, December 18, 2013



Source: Bloomberg.

Five- and Ten-Year Breakeven Inflation



Source: Bloomberg.

Employee Compensation Costs during the Recovery

01.10.14

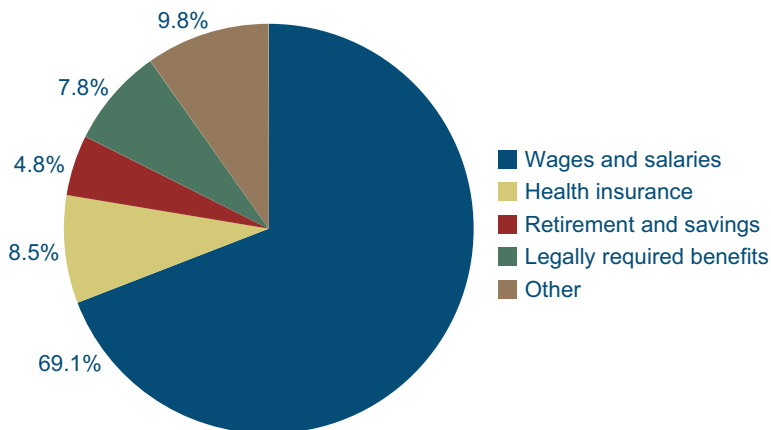
by Joel Elvery

The Federal Reserve's two mandates—to keep inflation under control and to promote employment growth—overlap when it comes to employee compensation. Inflation typically leads to increases in nominal compensation, and firms increase prices in response, creating a feedback loop that pushes inflation higher. Compensation also rises when labor markets are strong and firms have to compete for workers, and it falls when labor markets are weak. So when compensation costs are rising, it can indicate greater risk of inflation and strengthening labor markets. When they're falling, it can indicate the reverse. Which has it been lately?

The Bureau of Labor Statistics' quarterly Employer Costs for Employee Compensation provides detail on the components of average hourly compensation. As shown in the chart below, in the third quarter of 2013 wages and salaries were 69.1 percent of compensation costs. The other major parts of compensation are health insurance (8.5 percent), legally required benefits (which includes unemployment insurance and the employer's share of payroll taxes) (7.8 percent), and retirement and savings benefits (4.8 percent). Though we most often use salary earnings as a proxy for compensation, earnings and compensation can have different trends since earnings make up only about two-thirds of compensation. For example, from the first quarter of 2004 to the third quarter of 2007, average real hourly wages declined 0.8 percent, while average real hourly total compensation rose 0.9 percent.

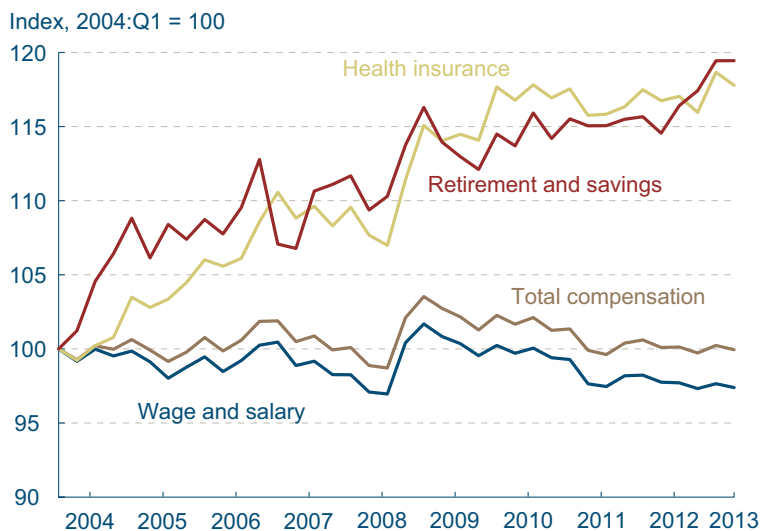
All components of compensation costs dramatically shifted up during the most recent recession. This shift is most likely due to the fact that these measures are average hourly costs for employed workers. Less-skilled workers are more likely to lose their job in a recession than high-skilled workers, so the skill and compensation levels of the workers who remain employed during a recession are higher. While real average hourly wages and salaries fell 3 percent from the first quarter of 2004 to the third

Share of Average Compensation Costs



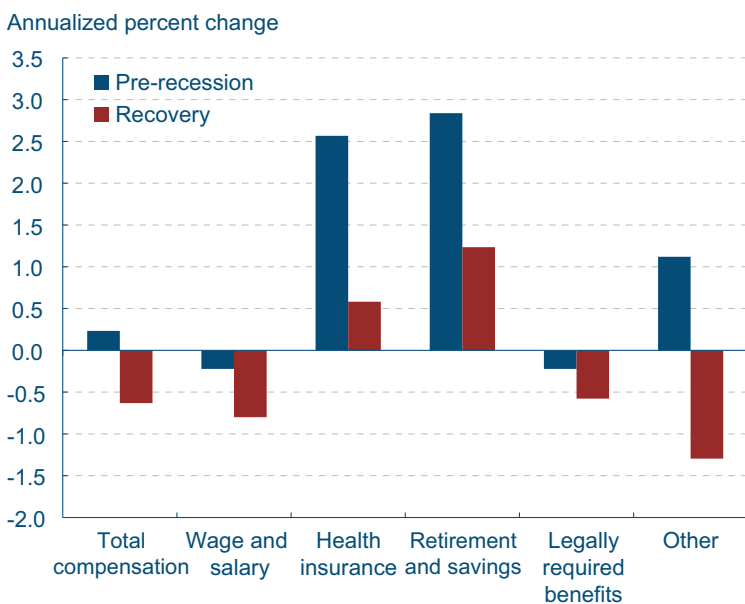
Sources: Bureau of Labor Statistics' Employer Costs for Employee Compensation: September 2013.

Real Average Hourly Compensation Costs Index (2004:Q1 = 100)



Source: Author's calculations from the Bureau of Labor Statistics' Employer Costs for Employee Compensation: March 2004 through September 2013.

Change in Real Average Hourly Compensation Costs



Source: Author's calculations from the Bureau of Labor Statistics' Employer Costs for Employee Compensation: March 2004 through September 2013.

quarter of 2013, both health insurance and retirement and savings markedly increased (17 percent and 20 percent, respectively). As a result, total average hourly compensation was effectively the same in the two periods.

We divide the data into pre-recession (2004:Q1 to 2007:Q3) and recovery (2009:Q2 to 2013:Q3) subsets and omit the recession due to the sudden change in who is employed. When we do this, we see that while total compensation rose 0.2 percent per year before the recession, it has declined 0.5 percent per year since the recovery began. Meanwhile, wage and salary compensation fell 0.2 percent per year before the recession and 0.8 percent per year since the recovery began. Legally required benefits and wages and salaries follow similar trends during the two periods, which is unsurprising since most components of legally required benefits are based on wages and salaries. Health insurance and retirement and savings benefits grew in both periods, but the rate of growth was much higher before the recession (4.4 times as high for health insurance and 2.3 times for retirement and savings). Other compensation grew about 1 percent per year before the recession, and it has declined about 1 percent per year since the recovery began.

What explains the decline in average compensation during the recovery? As the economy recovers, less-skilled workers find work again and average hourly compensation falls. Also, the higher-than-normal unemployment rate means employers do not need to increase compensation to fill openings. The decline in average compensation may also reflect the shift to more part-time employment during the recession. Part-time workers are less likely to receive health insurance and retirement benefits than are full-time workers, so part-time workers have lower compensation costs. The share of workers who are part-time fell more quickly in the pre-recession period than it has during the recovery, which would suggest slower benefit growth in the recovery.

Employers' average health insurance costs are growing more slowly both because a smaller fraction of workers have employer-provided health insurance and because health care costs are rising more slowly than they did in the past. Based on the

microdata from the American Community Survey, the fraction of workers who have employer-provided health insurance declined 4.5 percentage points from 2008 to 2011, with part-time workers experiencing the largest decline. We also know that health care costs, which increased faster than the general rate of inflation for many years, have been growing more slowly. The Bureau of Economic Analysis's Personal Consumption Expenditure Health Care Price Index shows that during the recovery, health care prices grew about half as fast as before the recession.

The decline in compensation costs during the recovery suggests that the two components of the Federal Reserve's dual mandate are not in conflict at this time. Inflation risk is low, and the labor market is soft enough that firms can hire without having to increase compensation.

Yield Curve and Predicted GDP Growth, December 2013

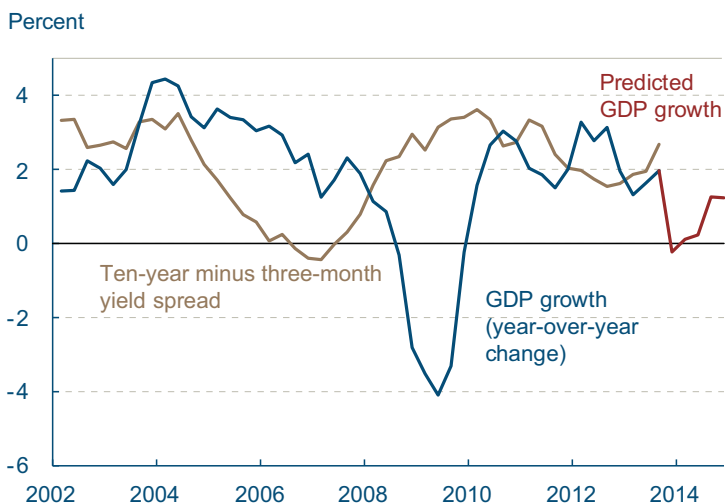
Covering November 23, 2013–December 13, 2013
by Joseph G. Haubrich and Sara Millington

Highlights

	December	November	October
Three-month Treasury bill rate (percent)	0.07	0.08	0.08
Ten-year Treasury bond rate (percent)	2.86	2.74	2.66
Yield curve slope (basis points)	279	266	258
Prediction for GDP growth (percent)	1.2	1.2	1.2
Probability of recession in one year (percent)	1.50	1.86	2.24

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 somewhat steeper over the past month, with the three-month (constant maturity) Treasury bill rate dropping to 0.07 percent (for the week ending December 13), just down from November's 0.08 percent, which was unchanged from October. The ten-year rate (also constant maturity) moved up to 2.86 percent, up from November's 2.74 percent and a good twenty basis points above October's 2.66 percent. The slope increased to 279 basis points, up from November's 266 basis points and from October's 258 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 November and October'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 December is 1.50 percent, down from November's estimate of 1.86 percent, as well as the October estimate of 2.24 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.

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.

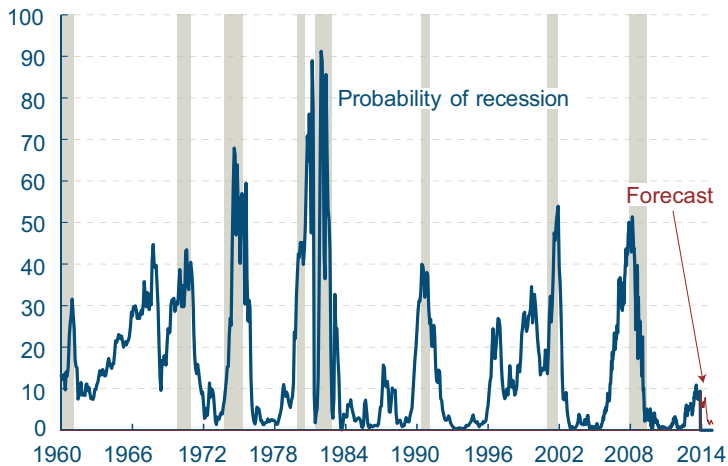
Predicting the Probability of Recession

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

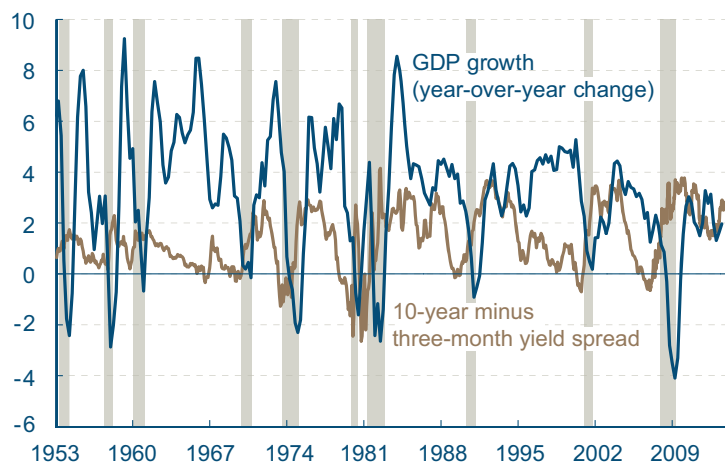


Note: Shaded bars indicate recessions.

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

Yield Curve Spread and Real GDP Growth

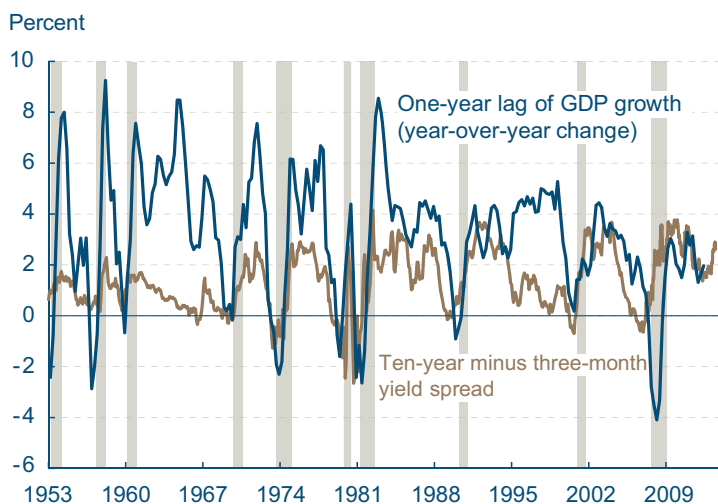
Percent



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



Note: Shaded bars indicate recessions.

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

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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