

Economic Trends

April 2014 (March 14, 2014-April 10, 2014)

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FEDERAL RESERVE BANK
of CLEVELAND

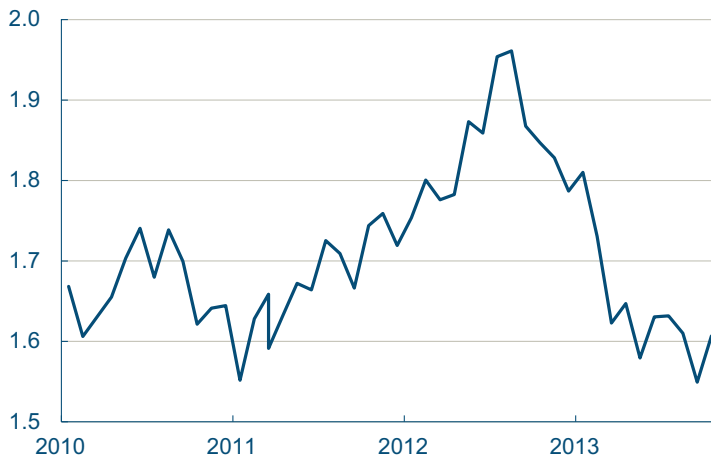
What's behind the Decline in Tri-party Repo Trading Volumes?

04.03.14

by Mahmoud Elamin and William Bednar

Total Collateral Value

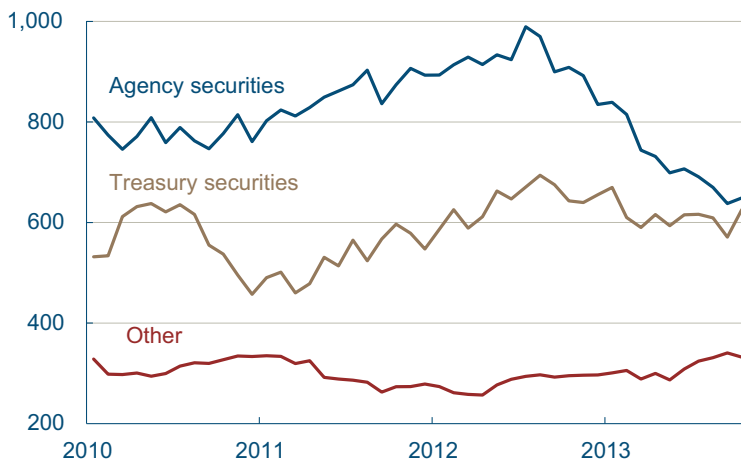
Trillions of dollars



Source: Federal Reserve Bank of New York.

Total Collateral Value by Asset Class

Billions of dollars



Source: Federal Reserve Bank of New York.

The tri-party repo market is a platform where security-rich borrowers are matched with cash-rich lenders. The borrowers pledge their securities as collateral for the cash they want to borrow. It is called tri-party because the transactions are settled on the books of two banks: The Bank of New York Mellon (BNYM) and JPMorgan Chase (JPMC), which act as third-party custodians for the collateral securities. These banks provide, among other things, settlement services to finalize the transaction.

At its peak, around \$2 trillion worth of securities changed hands daily in this market. Often referred to as the bloodline and plumbing of the financial system, the tri-party repo market motivated a number of policy interventions during the recent financial crisis after the potential for disruptions in the market threatened to interrupt funding flows. Here we look at what is happening currently in this important market.

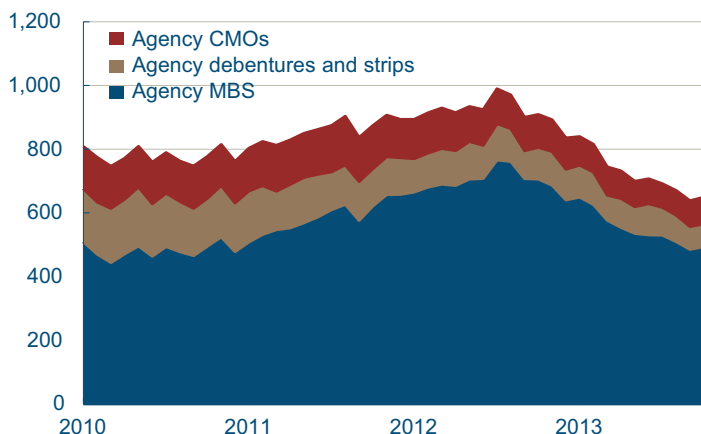
Total collateral value is an estimate of the market value of the underlying securities involved in the deals that are made in a market. Total collateral value in the tri-party repo market rose steeply after 2011, peaked toward the end of 2012, and then fell steeply.

Tri-party repos can be classified according to the type of asset that acts as collateral. We can decompose total collateral value into its respective asset-class categories to see which asset class was most responsible for the decline. When we do this, we see that the decline in the total is mainly due to a decline in agency securities that are used for tri-party collateral, while the value of Treasury securities and other securities seems to have held roughly steady. The submarket for agency securities has experienced a steep decline of almost 40 percent since mid-2012.

The agencies referred to here are government-supported enterprises or GSEs (Fannie Mae, Freddie Mac, Ginnie Mae), which are supported by the US

Total Collateral Value: Agency Securities

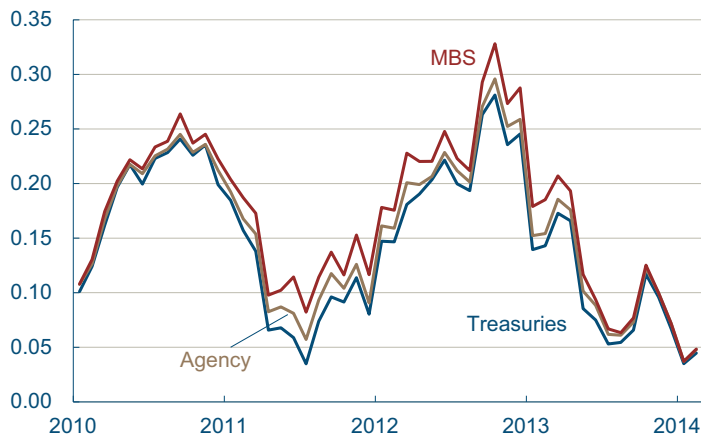
Billions of dollars



Source: Federal Reserve Bank of New York.

GCF Repo Rate Index

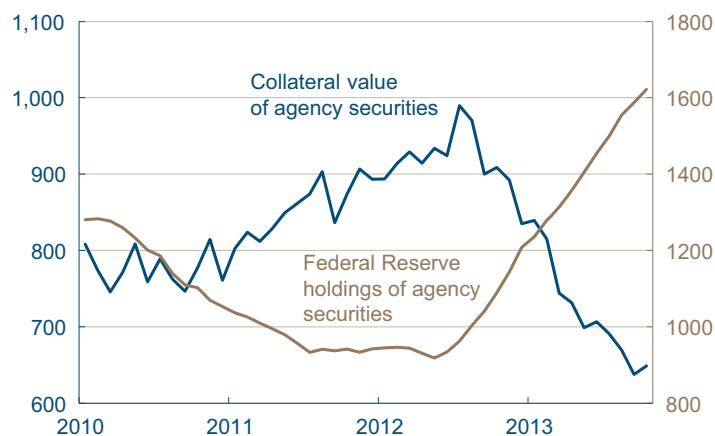
Percent



Source: Depository Trust and Clearing Corporation.

Total Collateral Value: Agency Securities

Billions of dollars



Source: Federal Reserve Bank of New York; Board of Governors of the Federal Reserve System.

government to help the housing market. Agency securities are the sum of three different types of securities: agency collateralized mortgage obligations (CMOs), agency debentures and strips, and agency mortgage-backed securities (MBS). The decline in agency securities traded is mainly the result of a decline in agency MBS, which represent a big chunk of the agency securities traded in the tri-party market.

Next, we present data on repo rates. These are the interest rates charged on the loans supported by the collateral. We see that concurrent with the drop in the collateral value traded, there is a drop in rates charged for the repo transactions.

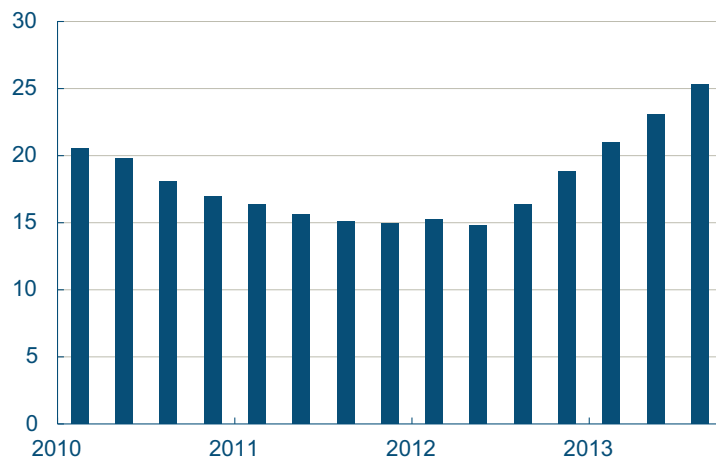
One possible explanation for these concurrent declines in repo rates and in total tri-party collateral value traded is Federal Reserve purchases of securities from the open market. As part of its policy response in the aftermath of the financial crisis, the Fed started buying securities for its own account. Asset holders who previously funded their assets in the tri-party repo market can now sell them to the Fed instead, reducing demand in the tri-party market.

In fact, there is some evidence that supports the story of the Fed playing a role in the tri-party market decline. The chart below shows the Federal Reserve's holdings of agency securities along with the agency securities used as collateral in tri-party repos. These two series show a strong negative correlation. When Fed holdings declined or held steady, there was a rise in the volume of agency securities in the tri-party repo market. A steep increase in Fed holdings beginning in 2011 happened at the same time that this type of repo collateral began its steep decline. To put the numbers in this figure into perspective, we next analyze changes in the total share of the MBS market going to the Fed and to tri-party repo collateral.

One of the new securities being purchased on the open market by the Fed is agency MBS. The Fed owned about 20 percent of the MBS market around the beginning of 2010. The Fed's share of total market declined slightly to about 15 percent around mid-2012. After that, we see a clear upward trend in the Fed's holdings of these securities, coin-

Share of Agency Mortgage-Backed Securities Held by the Federal Reserve

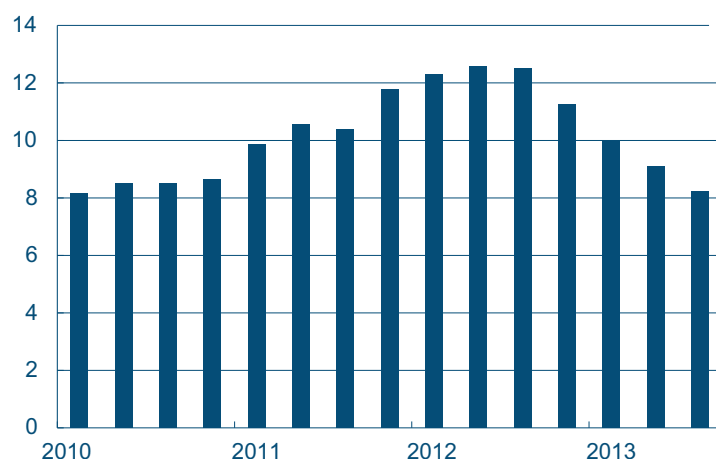
Percentage of total agency MBS



Sources: Board of Governors of the Federal Reserve System; Securities Industry and Financial Markets Association; authors' calculations.

Ratio of Collateral Value to Outstanding Mortgage-Backed Securities

Percentage of total agency MBS



Sources: Board of Governors of the Federal Reserve System; Securities Industry and Financial Markets Association; authors' calculations.

ciding with the decline in the tri-party repo volumes. Currently, the Fed owns about 25 percent of the market, having increased its share by 10 percent since mid-2012.

Only about 8 percent to 12 percent of the total MBS market is traded in the tri-party market. This is a small amount of the total market. But given that the MBS market is a huge market, this share translates into a pretty big number.

As we saw with agency securities in general, the upward trend in Fed purchases and holdings of MBS coincides with the decline in the share of MBS traded in the tri-party market. This is surprising, particularly because the Fed increased its market share of these securities by only 10 percent of the total market since mid-2012, and the tri-party MBS constituted only about 12 percent of that market at the time. These observations suggest that Fed purchases were from market participants who were otherwise willing to borrow in the tri-party market. If the Fed purchases dipped into the almost 90 percent of the market not trading in the tri-party repo, we might not see such a strong negative correlation between Fed purchases and the drop in the MBS tri-party repo.

We have presented some evidence that the increase in Fed purchases and holdings of agency securities might have been responsible for some of the decline in the volume of agency securities traded in the tri-party repo market. With the Fed tapering its purchases, it will be interesting to see if the tri-party repo market experiences a rebound as Fed purchases start to fade away.

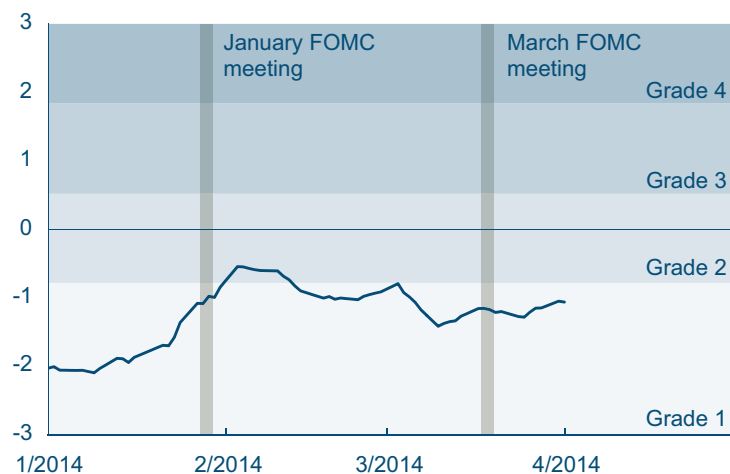
Tracking Recent Levels of Financial Stress

04.03.14

by Amanda Janosko

Cleveland Financial Stress Index

Standard deviation

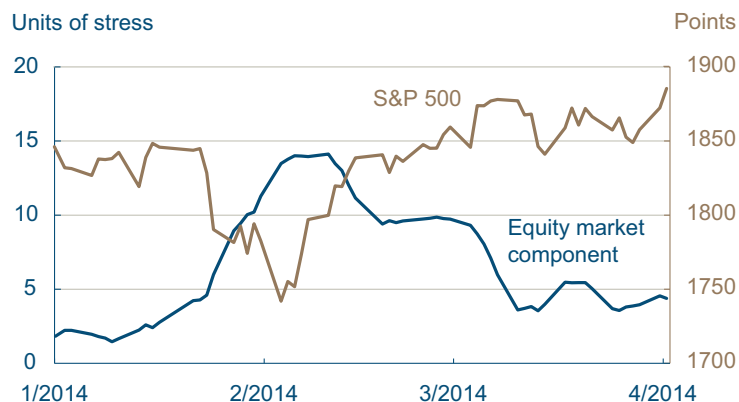


Source: Oet, Bianco, Gramlich, and Ong, 2012. "A Lens for Supervising the Financial System," Federal Reserve Bank of Cleveland working paper no. 1237.

The Cleveland Financial Stress Index (CFSI) remained in a Grade 1 or "low stress" period throughout most of the first quarter of 2014. As January progressed, the index trended upward until it reached its recent peak in early February and crossed into a Grade 2 or a "normal stress" period. Since that time, the index has subsided while remaining at an elevated level within Grade 1. As of April 1, the index stands at -1.06 , which is 4.15 standard deviations below the historical high in December 2008 and 1.03 standard deviations above the historical low in January 2014. The index is down 0.87 standard deviations from this time last year.

Increased contributions of the equity market to overall financial stress accounted for the majority of the uptick in the CFSI in early February. From the beginning of January to early February, the contribution of the equity market to overall financial stress increased. Toward the end of the quarter, the equity market's contribution began to wane, and the overall index fell as a result.

Equity Market Contribution to Stress



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. Sources: Author's calculations; Haver Analytics.

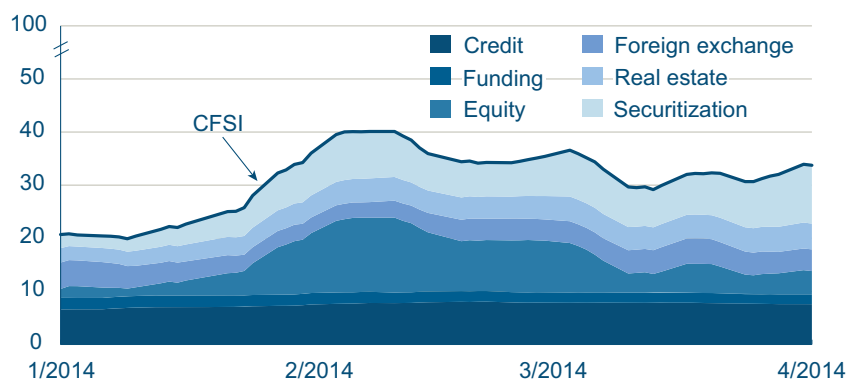
Of the remaining financial markets measured by the CFSI, the credit, funding, foreign exchange, and real estate markets contributed to stress at relatively constant levels over the first quarter of 2014. The securitization market showed moderate increased contributions to stress in early February, which were sustained through the end of the quarter.

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. For a brief overview of how the index is constructed see this page. The CFSI and its components are also available on FRED (Federal Reserve Economic

Data), a service of the Federal Reserve Bank of St. Louis. FRED allows users to download, graph, and track more than 200,000 data series.

For more on the Cleveland Financial Stress Index, visit http://www.clevelandfed.org/research/data/financial_stress_index/.

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.

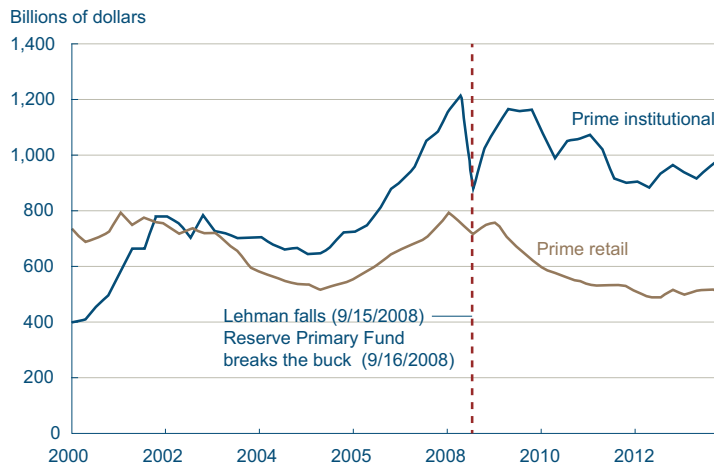
Source: Oet, Bianco, Gramlich, and Ong, 2012. "A Lens for Supervising the Financial System," Federal Reserve Bank of Cleveland working paper no. 1237.

Money Market Mutual Funds and Financial Stability

04.03.14

by Lakshmi Balasubramanyan

Money Market Mutual Fund Assets

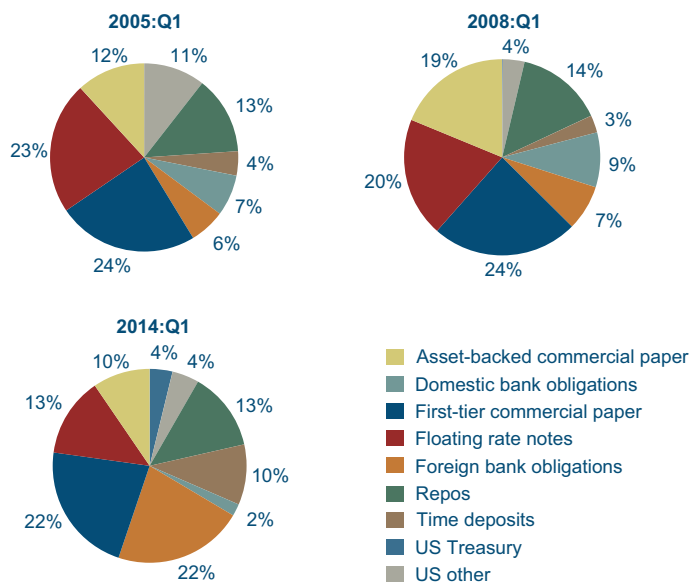


Source: iMoneyNet.

In the wake of Lehman Brothers' failure in September 2008, a money market mutual fund (MMMF) called the Reserve Primary Fund experienced substantial outflows. Investors were concerned about the fund's credit exposure to Lehman. More specifically, investors were concerned that losses from the Lehman exposure would cause Reserve Fund to "break the buck" (that is, redeem shares for less than one dollar) and violate MMMFs' implicit promise of being as safe as bank deposits. Problems at Reserve Fund also triggered large withdrawals from other MMMFs. In response to these runs, the Treasury Department and the Federal Reserve stepped in with the Exchange Stabilization Fund and the ABCP Money Market Mutual Fund Liquidity Facility (AMLF), respectively. These programs considerably mitigated the outflows.

Five years after the crisis, where do MMMFs stand? Are they taking on sources of risk that could pose a problem in the future? Are they sufficiently liquid to deal with sudden outflows or runs? The riskiness of the funds and their ability to meet sudden liquidity requirements are two litmus tests of stability and resiliency for the financial industry. In this article, we address these questions by comparing the aggregate portfolios of two types of MMMFs, prime institutional and prime retail funds, before and after the crisis. Prime funds are MMMFs that are invested primarily in private credit instruments as opposed to US Treasuries and federal agency and tax-exempt securities. The terms institutional and retail refer to the investors—institutions or individuals. During the 2008 financial crisis, prime funds were the most affected type of MMMF and suffered the most disruption due to losses in private credit investments. We also examine the liquidity position of prime funds in 2011 (when the data became available).

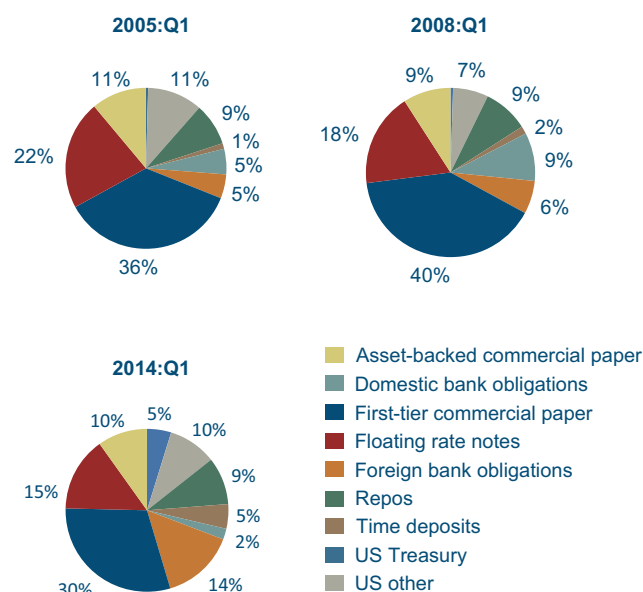
Weighted Average Portfolio Composition of Prime Institutional Money Market Mutual Funds



Source: iMoneyNet.

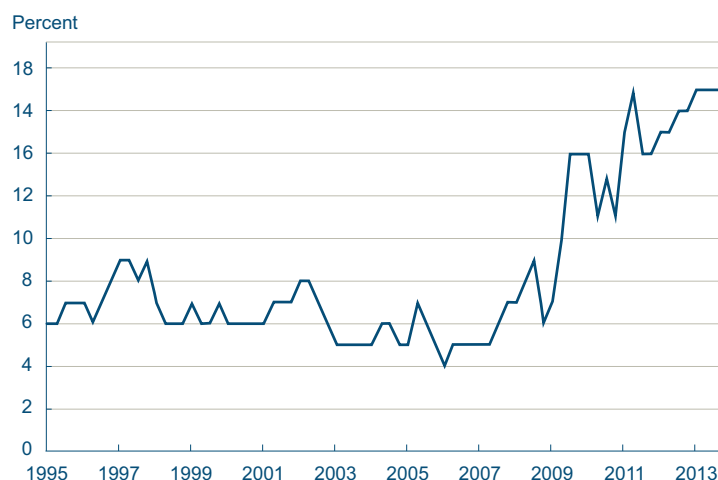
Looking at the average composition of prime institutional MMMFs' portfolios, we can see that commercial paper holdings have clearly declined below

Weighted Average Portfolio Composition of Prime Retail Money Market Mutual Funds



Source: iMoneyNet.

Prime Funds' Foreign Bank Obligations (as a Share of the Portfolio)



Source: iMoneyNet.

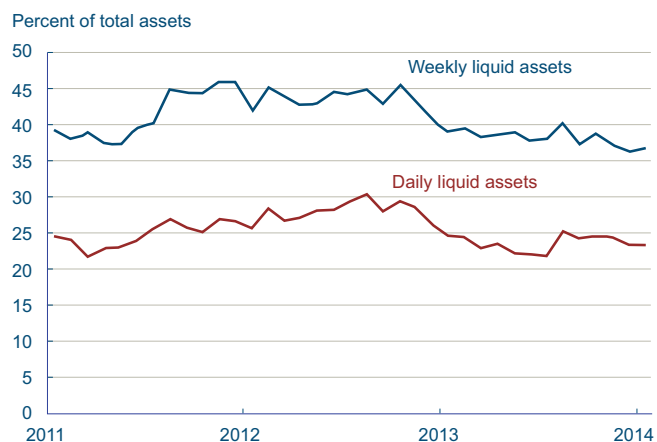
pre-crisis levels. Well before the crisis, in 2005:Q1, asset-backed commercial paper (ABCP) constituted 12 percent of the average portfolio of prime institutional MMMFs, while Tier-1 commercial paper excluding ABCP made up 24 percent of the portfolio (jointly 36 percent). Just prior to the crisis, Tier-1 and asset-backed commercial paper formed about 43 percent of the institutional portfolio. Currently, Tier-1 commercial paper and ABCP jointly constitute 32 percent of the institutional portfolio. Holdings of floating-rate notes have also declined from 23 percent to 13 percent for prime institutional funds. Foreign bank obligations have risen steadily from 7 percent in the pre-crisis period to 22 percent as of 2014:Q1.

Turning to the portfolio composition of prime retail MMMFs, we can see patterns similar to those of the prime institutional funds. Foreign bank obligations have risen steadily from 5 percent to 14 percent. In addition, the share of foreign bank obligations in the portfolios of both retail and institutional funds has steadily risen since 1995, from 6 percent to over 17 percent.

To assess liquidity conditions in the MMMFs, we use data from new reports that MMMFs are required to file. The Securities and Exchange Commission (SEC) started collecting information on prime funds' liquidity positions in 2011 through Form N-MFP. Data gathered from this form suggest that the liquidity positions of prime funds have weakened somewhat since 2011. Daily liquid assets formed 30 percent of the prime portfolio in 2012:Q3. Weekly liquid assets formed 45.4 percent of the prime portfolio in 2012:Q4. As of 2014:Q1, daily liquid assets comprised 23.2 percent of the prime portfolio, and weekly liquid assets comprised 36.7 percent of the portfolio. The liquidity of assets is likely to fluctuate based on varying maturities of the assets held. However, it is important to ensure that there are no huge fluctuations in the daily and weekly liquidity positions of prime portfolios.

Given their current aggregate portfolios and liquidity positions, MMMFs seem to pose no serious threats to financial stability at the moment. However, we must keep a vigilant watch on the MMMFs' holdings of liquid funds. Large fluctuations in

Prime Funds' Daily and Weekly Liquidity Holdings as a Percentage of Total Assets



Sources: Investment Company Institute (www.ICI.org), SEC Form N-MFP.

liquid-fund holdings can pose a threat in the event of financial stress, which can in turn lead to financial instability.

References

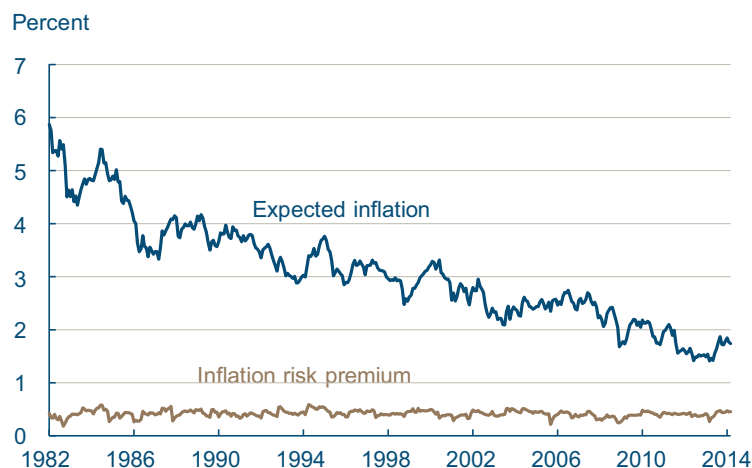
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Ennis, H.M., and Haltom, R., (2014), Reforming Money Market Mutual Funds: A Difficult Assignment, Federal Reserve Bank of Richmond Economic Brief, EB14-02.

Cleveland Fed Estimates of Inflation Expectations

News Release: March 18, 2014

Ten-Year Expected Inflation and Real and Nominal Risk Premia

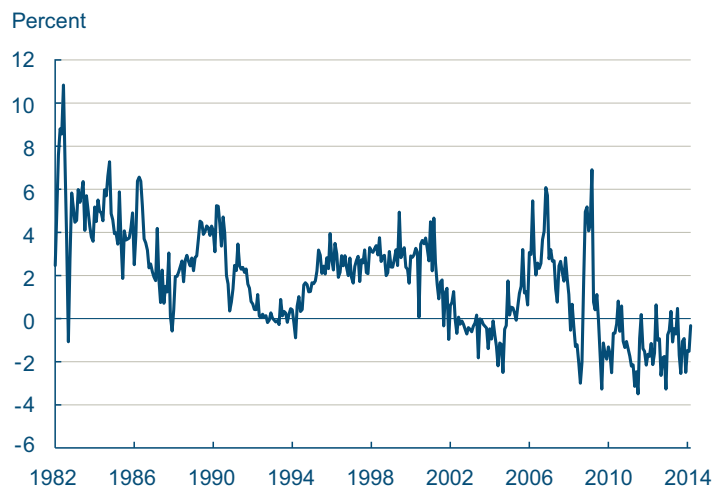


Source: Haubrich, Pennacchi, Ritchken (2012).

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.

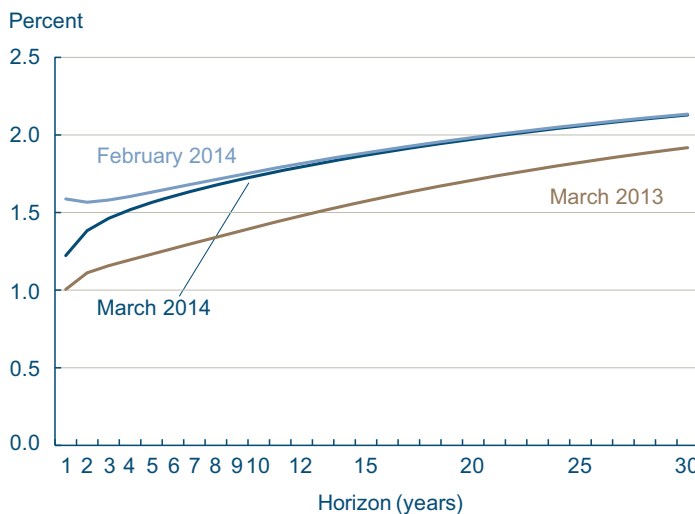
The Cleveland Fed's estimate of inflation expectations is based on a model that combines information from a number of sources to address the shortcomings of other, commonly used measures, such as the "break-even" rate derived from Treasury inflation protected securities (TIPS) or survey-based estimates. 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).

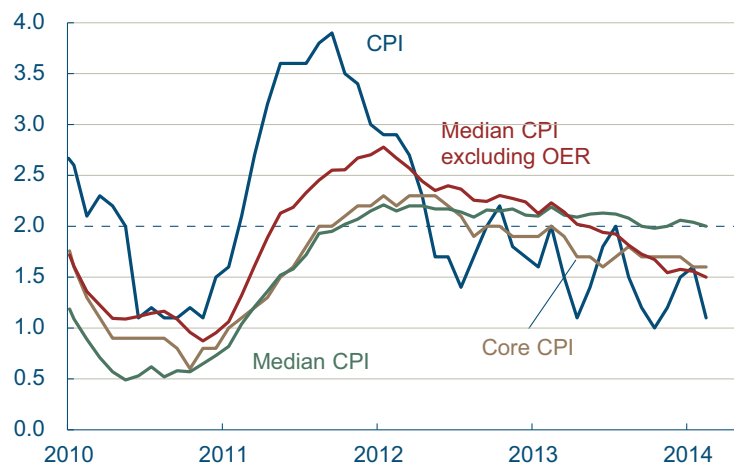
Methods for Evaluating Recent Trend Inflation

03.28.14

by William Bednar and Todd Clark

CPI-Based Inflation Measures

Year-over-year percent change

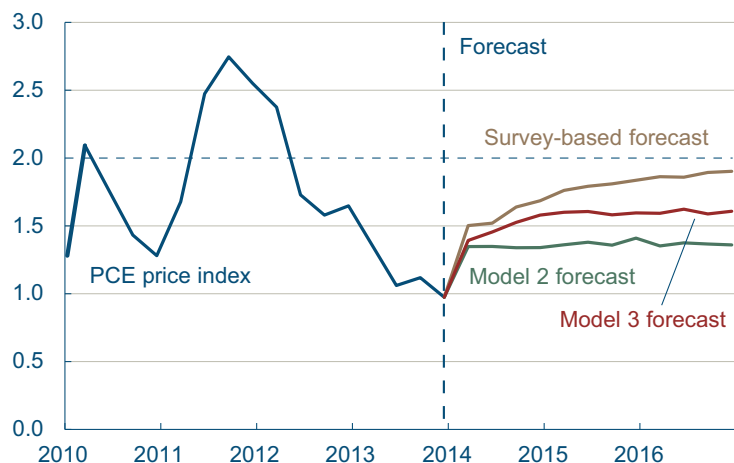


Source: Bureau of Labor Statistics.

The Federal Reserve's Federal Open Market Committee (FOMC) has set a long-run objective for consumer price inflation of 2.0 percent. However, most measures of inflation in the US have declined over the past year and are running consistently below this objective. For example, in February, the year-over-year percent change in the Consumer Price Index (CPI) was just 1.1 percent, and the percent change in the CPI excluding food and energy (core CPI) was just 1.6 percent. One measure of inflation that has been relatively steady around 2 percent is the median CPI produced by the Federal Reserve Bank of Cleveland. However, the higher rate of inflation in the median CPI is driven largely by the Owner's Equivalent Rent (OER) component of the index. If this component is omitted, inflation in the median CPI (excluding OER) was 1.5 percent in February, following a trajectory similar to that of core CPI inflation.

Forecasts of PCE Inflation

Year-over-year percent change



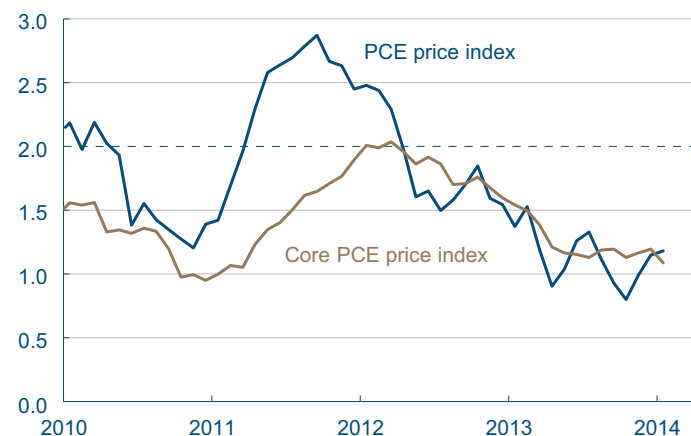
Source: Bureau of Economic Analysis; authors' calculations.

The FOMC's preferred inflation indicators, which are based on the Personal Consumption Expenditures (PCE) price index, have also been persistently below 2.0 percent. In January, the most recent month for which data are available, the year-over-year percent change in the PCE price index was 1.2 percent, and the percent change in the core PCE price index was 1.1 percent. Each of these indicators has been running below 2.0 percent since early in 2012. More broadly, inflation in the core PCE price index has been consistently below 2.0 percent since the middle of the most recent recession, apart from a few months in the beginning of 2012.

The long-running pattern of core PCE inflation falling short of 2 percent raises a fundamental question: has the longer-term trend rate of inflation declined, or are we simply experiencing an extended period of inflation running below its unchanged trend? Trend inflation can be thought of as the rate of inflation that would be expected to prevail if there were no temporary factors, such as a level of economic activity below the economy's potential,

PCE-Based Inflation Measures

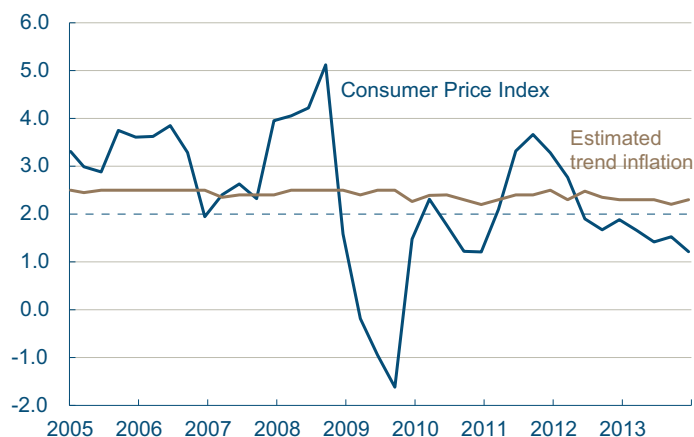
Year-over-year percent change



Source: Bureau of Economic Analysis.

Survey-Based Trend Inflation: CPI

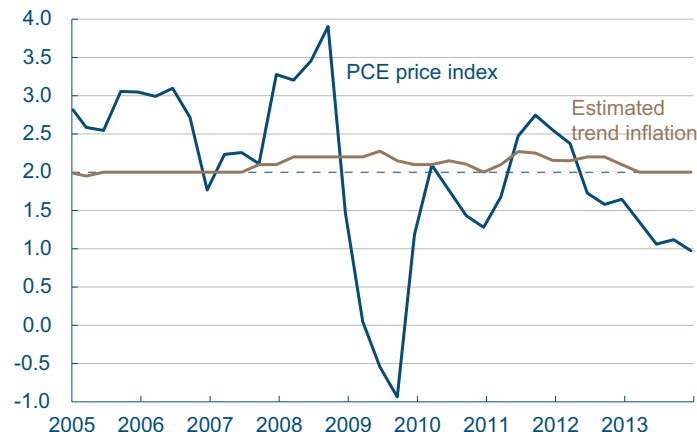
Year-over-year percent change



Sources: Bureau of Labor Statistics; authors' calculations.

Survey-Based Trend Inflation: PCE

Year-over-year percent change



Sources: Bureau of Economic Analysis; authors' calculations.

influencing the inflation rate. Put another way, trend inflation is the inflation rate that we would expect after temporary factors subside.

There are a number of ways to measure or estimate trend inflation. Different approaches can be reasonable because, with the available data, it can be difficult to distinguish a change in trend from a persistent deviation of inflation from the trend. One model might attribute a long-running change in inflation to a change in the trend, while another attributes the change to a persistent deviation of inflation from an unchanged trend. Both models may nonetheless predict a similar path of inflation in the future.

Recent research (see Clark and Doh 2014) compares how well different models or measures of trend inflation fare in forecasting inflation from 1975 through 2012. Several measures stand out for forecasting relatively well, yet they are quite different. We apply three of these measures to quarterly data through 2013:Q4 to assess what each says about whether trend inflation may have declined in recent years and what each implies for the inflation outlook.

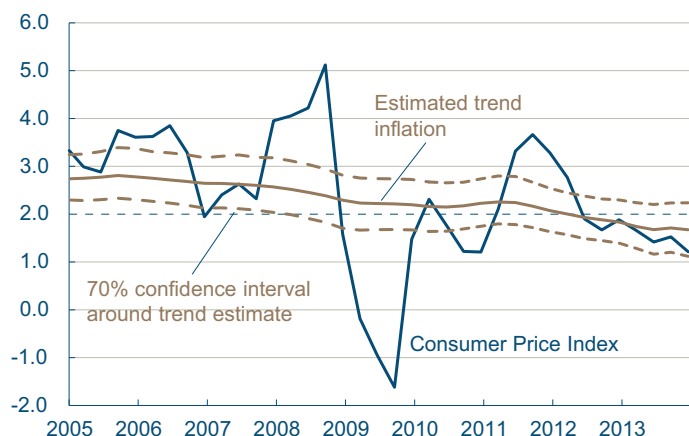
3 Measures of Trend Inflation

One approach to measuring trend inflation is to define it as the long-run forecast of professional forecasters. The forecast used is the 1-10 year ahead average inflation forecast from the Survey of Professional Forecasters (SPF). By this measure, trend inflation has remained stable: the survey estimates of long-run inflation haven't changed much in recent years. This definition of trend inflation implies that the recent decline in inflation is a persistent deviation from an unchanged trend, rather than a change in the trend itself.

A second approach to quantifying trend inflation relies on a simple statistical model that decomposes inflation into a trend component and noise—very temporary deviations from trend (see Stock and Watson 2007 for details). According to this approach, trend inflation has fallen noticeably. However, the estimate of trend from this model has been quite variable over time, and it tends to move somewhat in line with actual inflation. As a result,

Trend Inflation from Model 2: CPI

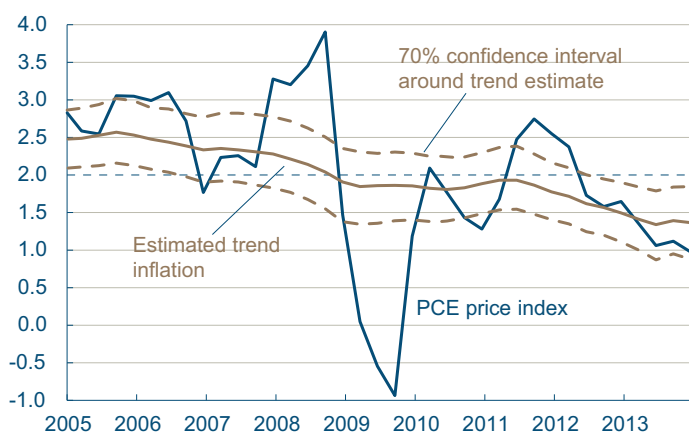
Year-over-year percent change



Sources: Bureau of Labor Statistics; authors' calculations.

Trend Inflation from Model 2: PCE

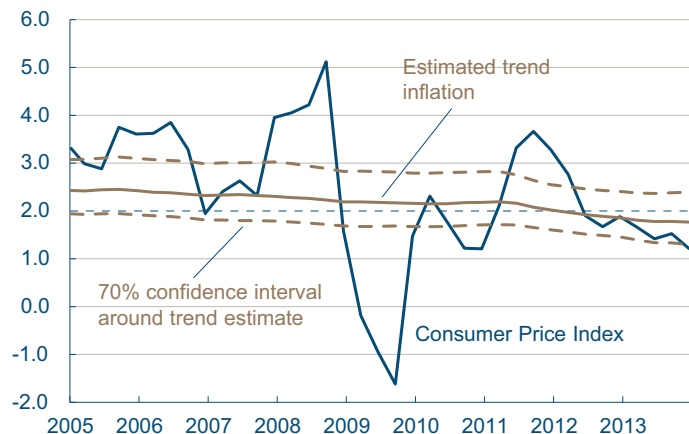
Year-over-year percent change



Sources: Bureau of Economic Analysis; authors' calculations.

Trend Inflation from Model 3: CPI

Year-over-year percent change



Sources: Bureau of Labor Statistics; authors' calculations.

by this method the recent disinflation looks to be caused by both the decline in the trend and temporary deviation from it.

A third measure of trend inflation comes from a model that decomposes inflation into a trend component and somewhat persistent deviations from trend (see Cogley and Sargent 2005 for details). Estimates of the trend from this model fall somewhere in between those of the first two measures. By this measure, trend inflation has moved down gradually in recent years. So, like the second approach, this one implies that recent low inflation is the result of both a lower trend inflation rate and a temporary fall of inflation below the trend.

Implications for the Inflation Outlook

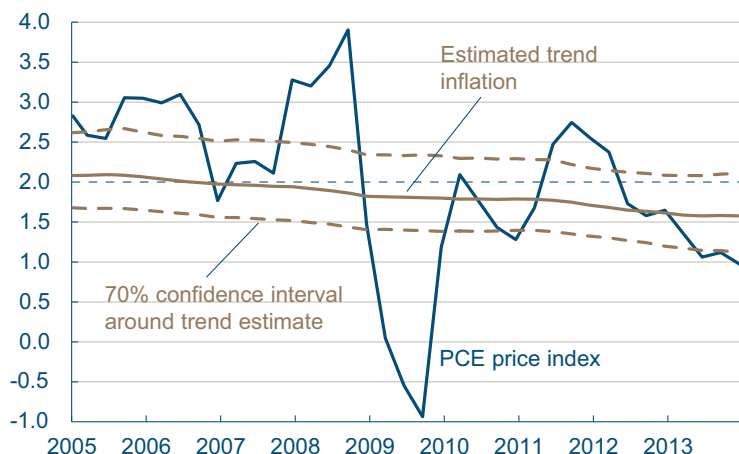
Overall, these three trend inflation measures are a bit like the choices facing Goldilocks when she wandered into the home of the three bears: one measure implies trend inflation has changed very little, another that it has fallen by a little, and the third that it has declined by relatively a lot. Since they all have been similarly successful in predicting future inflation in the past, it is not easy to say which will give the most accurate forecast going forward. They do imply slightly different outlooks for inflation over the next few years.

Let's start with the forecasting approach that defines trend inflation as the long-run forecast of professional forecasters. In the model that uses this measure of the trend, inflation depends on this trend and past departures of inflation from the trend. This specification yields a forecast of PCE inflation gradually rising over time to about 2 percent and a forecast of CPI inflation rising slightly above 2 percent. This is not surprising given that the inflation trend estimated by this method has been stable around these levels.

The models based on the other two trend inflation estimates yield forecasts that are relatively flat around the recent estimate of the trend rate, with the forecasted inflation rate from the model with the smoother trend (using the third measure) a bit higher than the forecasted rate from the model with the most variable trend (using the second measure). Putting all of this together, by any measure we have

Trend Inflation from Model 3: PCE

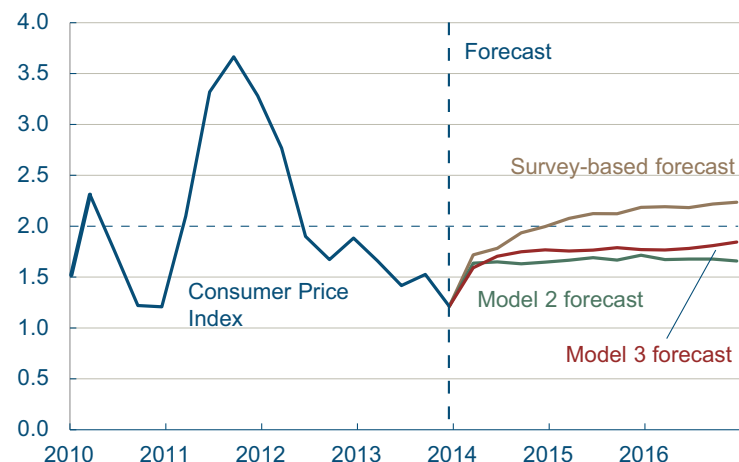
Year-over-year percent change



Source: Bureau of Economic Analysis; authors' calculations.

Forecasts of CPI Inflation

Year-over-year percent change



Source: Bureau of Labor Statistics; authors' calculations.

considered, recent inflation trends suggest inflation is likely to remain low in coming quarters.

We have considered only a few of the ways that trend inflation can be estimated. Though simple, the models we have considered are competitive in terms of forecast accuracy with more sophisticated models that include information on more than just inflation. Still, the models we have considered are limited in that they do not include other information on some of the factors that may impact inflation over the business cycle, such as employment and wages. Other recent research, such as Clark and Zaman 2013, which uses forecasting models that include a broader set of indicators, has projected a gradual rise in inflation toward 2 percent.

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Yield Curve and Predicted GDP Growth, March 2014

Covering February 15, 2014–March 21, 2014
by Joseph G. Haubrich and Sara Millington

Highlights

	March	February	January
Three-month Treasury bill rate (percent)	0.06	0.04	0.04
Ten-year Treasury bond rate (percent)	2.74	2.75	2.86
Yield curve slope (basis points)	268	271	282
Prediction for GDP growth (percent)	1.4	1.3	1.3
Probability of recession in one year (percent)	1.81	1.74	1.48

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

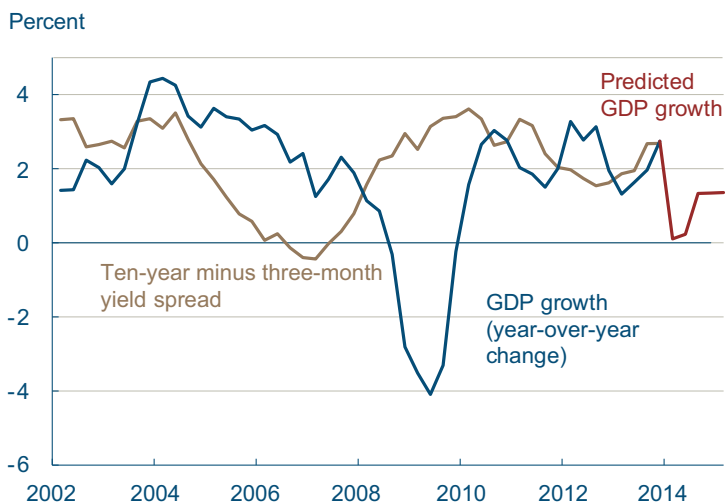
Overview of the Latest Yield Curve Figures

The yield curve flattened slightly over the past month, with the three-month (constant maturity) Treasury bill rate inching up to 0.06 percent (for the week ending March 21) from February's 0.04 percent, which was even with January's reading. The ten-year rate (also constant maturity) dropped a mere one basis point to 2.74 percent, just down from February's 2.75 percent and down a bit more from January's level of 2.86 percent. This dropped the slope to 268 basis points, down from February's 271 basis points and January's 282 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 1.4 percentage rate over the next year, just up (mainly due to rounding) from the 1.3 percentage rate seen in February, which was even with January's rate. 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 March at 1.81 percent, up a bit from the February's estimate of 1.74 percent and a bit more January's 1.48 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.

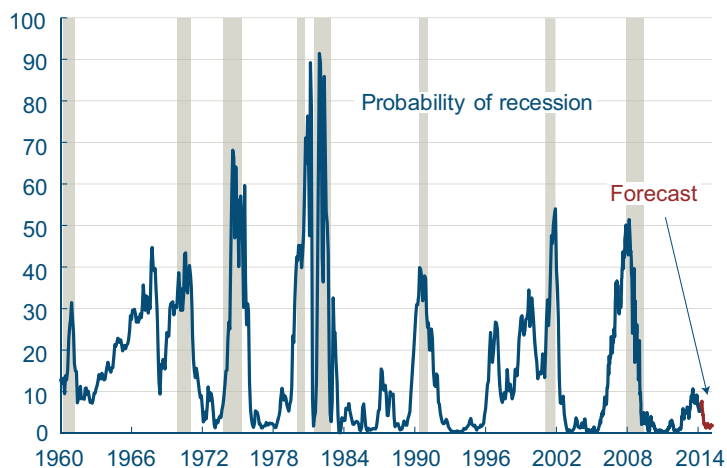
Predicting the Probability of Recession

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 de-

Recession Probability from Yield Curve

Percent probability, as predicted by a probit model

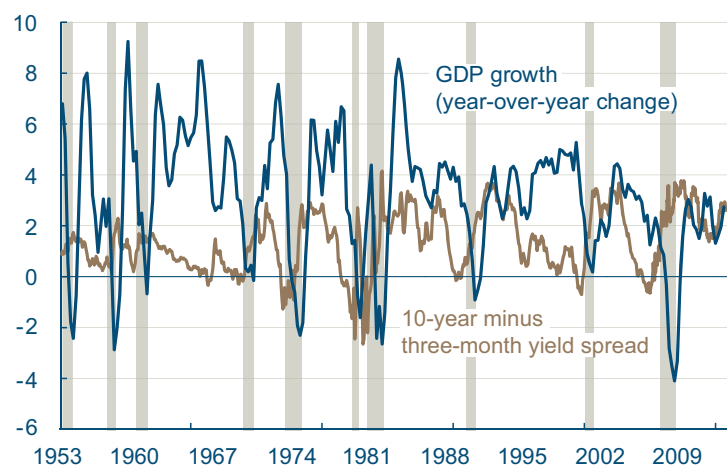


Note: Shaded bars indicate recessions.

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

Yield Curve Spread and Real GDP Growth

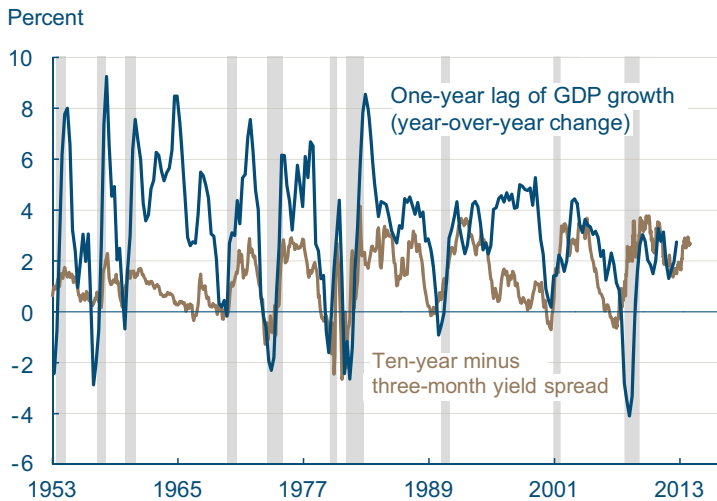
Percent



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.

terminants 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.

Annual Revisions to Metro-Level Jobs Data Shed New Light on Job Growth in Fourth District Metro Areas

04.01.14

by Joel Elvery and Christopher Vecchio

On March 21, the Bureau of Labor Statistics (BLS) released benchmarked State and Metro-Area Employment, Hours, and Earnings (SAE) data. The benchmarked data, which come out once a year, are the most accurate employment statistics available for metropolitan areas. Previous versions of the metro-level jobs data, like the initial SAE estimates released five weeks after the close of each month, can often be revised substantially when the benchmarked data come out.

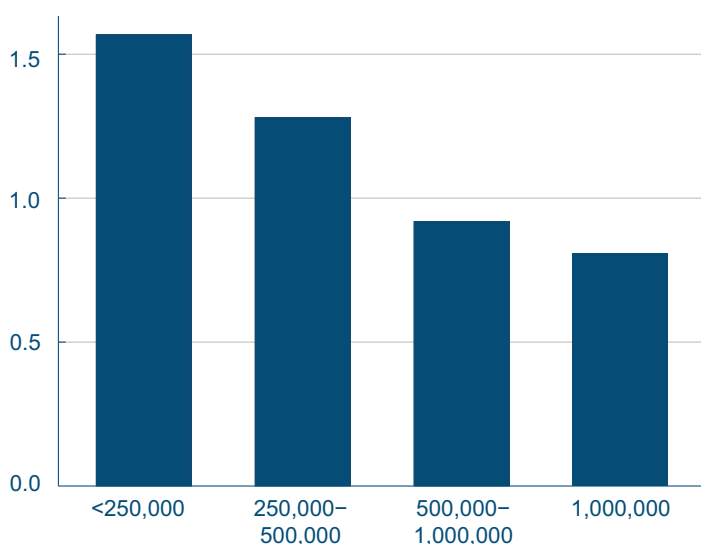
So the release of the benchmarked SAE is a moment of truth for the BLS and for metro areas. For the BLS, the size of the revisions to the initial SAE shows how accurate the earlier estimates were. For metro areas, the benchmarked SAE provides a reliable and complete estimate of their employment through September 2013.

Every month, the initial SAE estimates how many jobs states and metro areas had two months earlier. These initial estimates are based on a combination of responses to the Current Employment Survey and imputation models for areas where the sample size is too small to generate reliable estimates. Even if done perfectly, estimates from survey data or models are subject to errors. Once a year, the SAE data are benchmarked to the Quarterly Census of Employment and Wages (QCEW), which provides counts of jobs based on administrative data covering 98 percent of employment. These data come from a census of jobs, so they are more accurate than the initial SAE. (For more detail on the benchmarking process, the reliability of the initial estimates, and the advantages of using the QCEW to measure employment growth, see “Which Estimates of Metropolitan-Area Jobs Growth Should We Trust?”)

We assess the magnitude of the latest revisions by comparing final and benchmarked jobs estimates for September 2013. We focus on this month

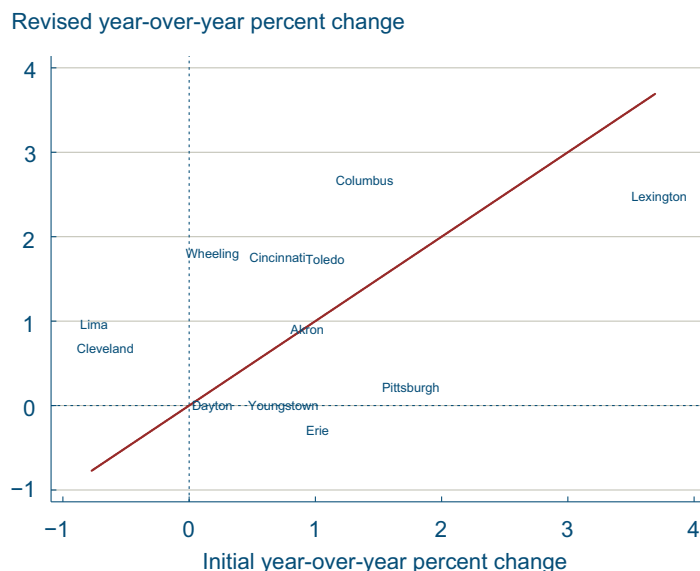
Mean Absolute Revisions by Population for US Metro Areas

Mean absolute revision as a percentage of employment



Source: Authors' calculations from Current Employment Statistics State and Metro-Area Employment, Hours, and Earnings accessed through Haver Analytics.

Initial and Revised Change in Jobs for Metro Areas in the Fourth District, September 2012–September 2013



Source: Authors' calculations from Current Employment Statistics State and Metro-Area Employment, Hours, and Earnings accessed through Haver Analytics.

because the most recent benchmarking revised the SAE data from October 2012 to December 2013, but the QCEW is only available through September 2013. The SAE estimates for October 2013 to December 2013 are subject to additional revisions with the next round of benchmarking in March 2015. We define revisions as the difference between the benchmarked SAE and the initial SAE.

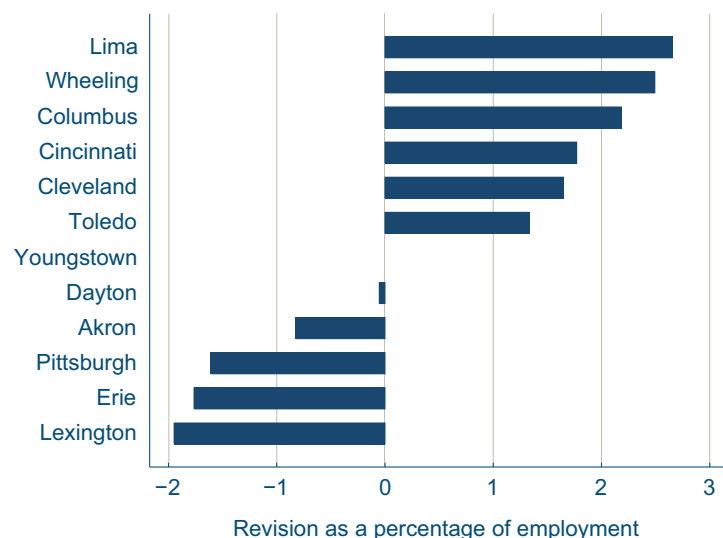
For all metro areas in the US, the average revision in the benchmarked data is plus or minus 1.2 percent of employment. So if a metro area with 500,000 jobs had the average revision, benchmarking would add or subtract 6,000 jobs to or from the initial estimate. Revisions are typically larger for small metro areas than large ones, in percentage terms. The average revision for metro areas with populations below 250,000 is plus or minus 1.6 percent, double that of metro areas with populations above one million.

We now turn our attention to a dozen metropolitan areas in the Fourth Federal Reserve District. Their revisions ranged from -2.0 percent in Lexington to +2.7 percent in Lima. Only Akron, Dayton, and Youngstown had smaller revisions than the national average.

The revisions can have a big impact on a metro area's year-over-year change in jobs. If the initial SAE shows that the number of jobs in a metro area grew 1.0 percent, then the average revision would change that to either a loss of 0.2 percent or a gain of 2.2 percent.

The chart below compares the initial and revised percent change in jobs from September 2012 to September 2013 for these Fourth District metro areas. The horizontal axis is the initial year-over-year percent change in jobs, and the vertical axis is the revised year-over-year percent change in jobs. The initial estimates underestimated the jobs growth of the metro areas above the diagonal line and overestimated the growth for the metro areas below the line. The further away the point is from the line, the more impact the revision had on the year-over-year change in jobs. To see the exact figures for each metro area, look at the last two columns in the table below.

Revisions to September 2013 Jobs Estimates for Metro Areas in the Fourth District



Source: Authors' calculations from Current Employment Statistics State and Metro-Area Employment, Hours, and Earnings accessed through Haver Analytics.

What do these revisions in the year-over-year changes mean in terms of jobs? The initial SAE said that the Cleveland metro area lost 7,200 jobs from September 2012 to September 2013, but it actually gained 7,400 jobs. Columbus gained almost twice as many jobs as originally estimated, 25,900 instead of 12,900. Revisions given, revisions taken away: Pittsburgh gained 2,400 jobs, not the 20,000 jobs suggested by the initial estimate. (See the table below for the numbers for the other Fourth District metro areas.)

In the table below, the metro areas are ordered by the percent change in employment from September 2012 to September 2013 based on the revised data. Overall, metro areas in the US had jobs growth of 1.9 percent over this time. Columbus and Lexington both grew faster than metro areas overall. With gains between 1.7 and 1.8 percent, jobs growth in Wheeling, Cincinnati, and Toledo was just under that of US metro areas as a whole. In Lima, Akron, Cleveland, and Pittsburgh, jobs grew but less than half as fast as metro areas overall. Dayton and Youngstown had no change in the number of jobs, and Erie lost 0.3 percent of its jobs over the 12 months.

Initial and Revised Estimates of Jobs in Fourth District Metro Areas

Metro area	Jobs in September 2013		Year-over-year change in jobs		Year-over-year percent change	
	Initial	Revised	Initial	Revised	Initial	Revised
Columbus	967,200	988,800	12,900	25,600	1.3	2.6
Lexington	266,900	261,800	9,500	6,300	3.6	2.4
Wheeling	66,500	68,200	100	1,200	0.2	1.8
Cincinnati	1,015,200	1,033,500	6,700	17,800	0.7	1.7
Toledo	310,700	314,900	3,100	5,400	1.0	1.7
Lima	51,400	52,800	-400	500	-0.8	0.9
Akron	330,800	328,100	3,000	2,900	0.9	0.9
Cleveland	1,013,800	1,030,800	-7,200	7,400	-0.7	0.7
Pittsburgh	1,181,100	1,162,400	20,000	2,400	1.7	0.2
Dayton	378,900	378,700	600	0	0.2	0.0
Youngstown	227,300	227,300	1,400	0	0.6	0.0
Erie	132,700	130,400	1,200	-400	0.9	-0.3

Source: Authors' calculations from Current Employment Statistics State and Metro-Area Employment, Hours, and Earnings accessed through Haver Analytics.

People are naturally interested in the first set of jobs estimates that are made available, but they should be equally interested in the revisions to those estimates. The initial estimates are like a rough sketch, giving the general outline. The benchmarked estimates are like a good photograph, showing exactly what is.

Elvery, J., and Vecchio, C. (2014). Which Estimates of Metropolitan-Area Jobs Growth Should We Trust? Federal Reserve Bank of Cleveland, Economic Commentary.
<http://www.clevelandfed.org/research/commentary/2014/2014-05.cfm>

To see a spreadsheet with revised job growth estimates for all metro areas in the US, please visit
<http://www.clevelandfed.org/research/trends/2014/0414/01regecoX.xlsx>

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