

Economic Trends

October 2012 (September 15, 2012-October 12, 2012)

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FEDERAL RESERVE BANK
of CLEVELAND

A Snapshot of Bank Soundness

09.25.12

by Samuel Chapman and Kristle Romero Cortes

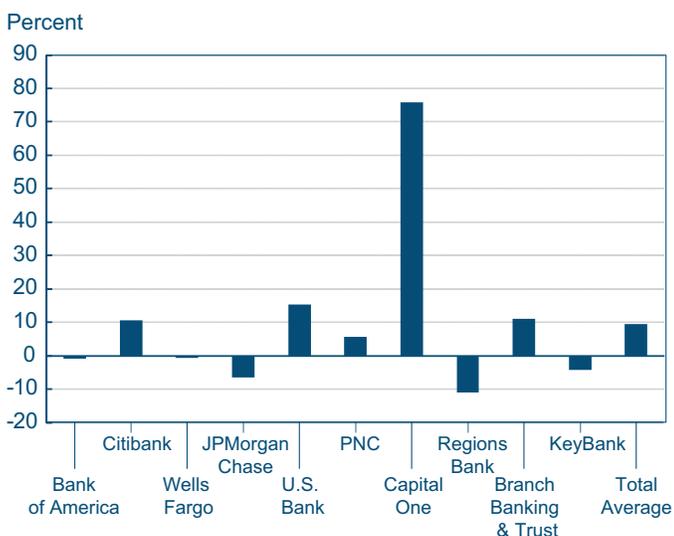
Recent reports indicate that banks are on much sounder footing than they were when Lehman Brothers declared bankruptcy four years ago. During this last quarter, nearly two out of every three banks reported higher earnings than a year ago.

Moreover, the U.S. Treasury recently reduced its stake in AIG to 15.9 percent; AIG was one of the largest recipients of Troubled Asset Relief Program (TARP) funds. The reduction in the government's stake indicates that AIG's balance sheet is improving, and this seems to be the case with other prominent firms in the financial industry as well. So now is a good time to take a snapshot of the health of a representative sample of banks to understand some trends affecting the banking industry overall. The 10 banks selected represent a peer group of Bank of America, according to the Uniform Bank Performance Report from the FFIEC. Bank of America was one of the first of the large banks to repay its TARP funding in 2010.

The average asset growth rate over the last quarter for the 10 selected banks is 9.57 percent (annualized). This represents an upward trend from last quarter's annualized growth rate of 5.22 percent for the same group of banks. Though the trend is increasing, growth has not been consistent, falling in the third quarter of 2001, for example. Out of the selected group, Capital One NA saw the largest increase of assets with a 75.91 percent annualized growth rate for the first quarter of this year. Total assets for all banks reporting to the FDIC increased by \$105.3 billion, or 0.8 percent, for the second quarter of this year (3.24 percent annualized), according to the FDIC's Quarterly Banking Profile. A primary driver of the increase in assets comes from the growth of loans.

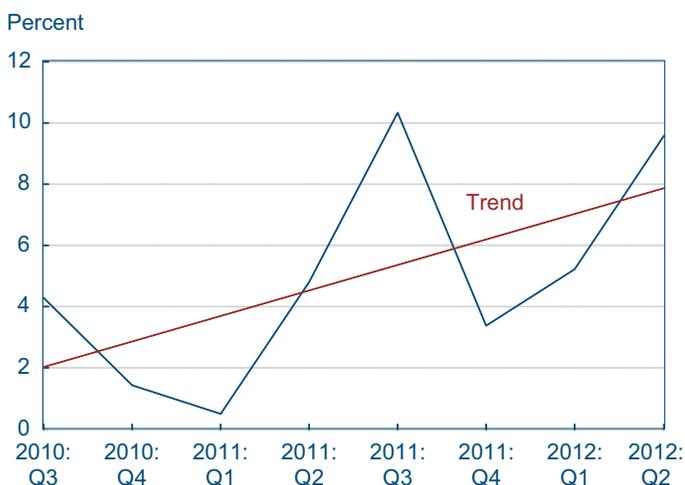
The growth rate of loans for our selected sample of banks was 16.73 percent (annualized) for the second quarter 2012. This is a large increase from the first-quarter annualized growth rate of 2.42

Asset Growth Rate, 2012:Q2



Source: SNL Financial, Call Report data.

Asset Growth Rate, Combined 10 Banks



Source: SNL Financial, Call Report data.

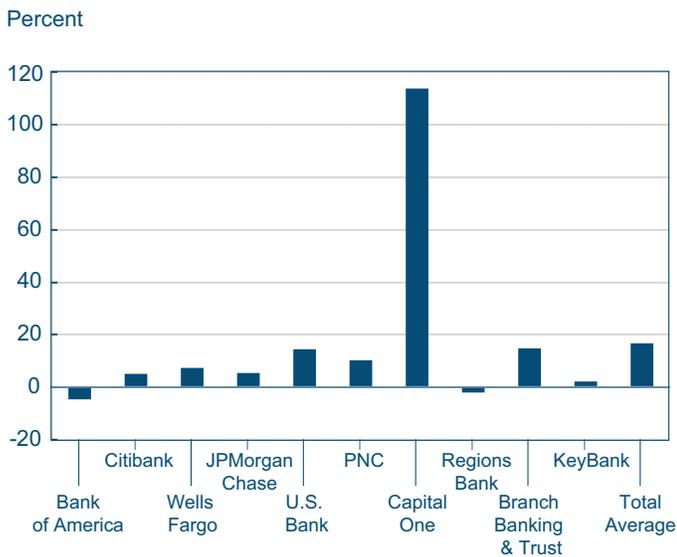
percent. The trend for loan growth is similar to that of asset growth, which is as expected, since loan and asset growth are positively related. Capital One NA again had the highest growth rate, with annualized loan growth of 113.83 percent, which explains its previously mentioned large increase in assets over the same period. Moving to the industry as a whole, loan balances have increased in four out of the last five quarters.

Total loans and leases, as reported in Call Reports, grew by \$102 billion, or 1.4 percent, during the second quarter (5.72 percent annualized). The largest contributing component to this increase was a \$48.9 billion, or 3.6 percent (15.20 percent annualized) increase in loans to commercial and industrial borrowers. Residential and credit card balances grew by \$16.6 billion, or 0.9 percent (3.65 percent annualized) and \$14.7 billion, or 2.3 percent (9.52 percent annualized), respectively, during the second quarter of 2012. Balances of real estate construction and development loans and home equity lines of credit decreased \$10.9 billion, or 4.8 percent (20.63 percent annualized) and \$10.2 billion, or 1.7 percent (7.00 percent annualized), respectively, but these decreases were not enough to offset the increases from the other components over the same period.

Deposits at the selected sample of banks grew 1.40 percent (annualized) in the second quarter of 2012, compared to 9.18 percent (annualized) in the first quarter. The trend for the deposit growth rate is slightly decreasing over the past 8 quarters. The industry as a whole showed an increase of \$61.6 billion, or 0.6 percent (2.42 percent annualized), during the second quarter of 2012.

Digging a little deeper into the composition of the deposits will help explain where this growth came from. The Dodd-Frank Insurance Deposit Provision removed the upper limit on the amount of deposits the FDIC covers for noninterest-bearing accounts. This change took effect on December 31, 2010 (and it will expire December 31, 2012). In line with expectations, there has been an increase in deposits over the previous \$250,000 insured limit. Domestic noninterest-bearing deposits increased by \$65.6 billion, or 2.9 percent (12.11 percent annu-

Loan Growth Rate, 2012:Q2



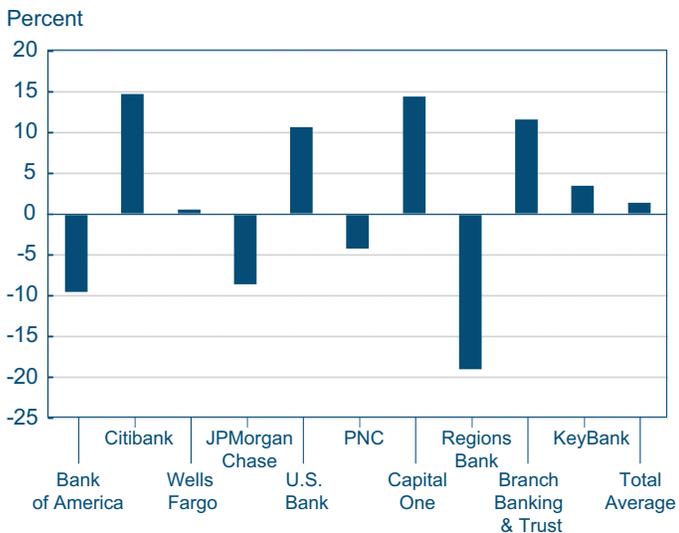
Source: SNL Financial, Call Report data.

Loan Growth Rate, Combined 10 Banks



Source: SNL Financial, Call Report data.

Deposit Growth Rate, 2012:Q2



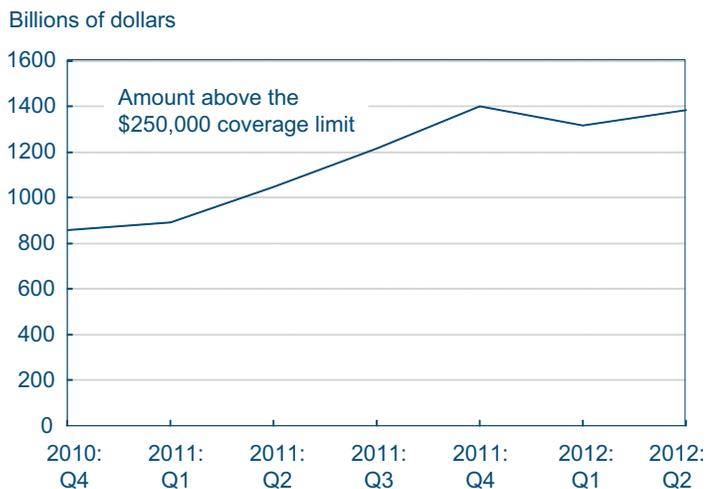
Source: SNL Financial, Call Report data.

alized) from the first to the second quarter of 2012. As the unlimited insurance program approaches expiration, it will be interesting to monitor the amount above the \$250,000 limit.

Banks also reduced the amount they set aside for loan losses. In the second quarter of 2012, they set aside \$14.2 billion, a \$5 billion (26.2 percent) decline from the second quarter 2011 and the smallest quarterly total in five years.

The latest data on asset growth, deposits, and loan loss reserves suggest that overall bank health is slowly on the road to recovery.

Domestic Noninterest-Bearing Transaction Accounts



Source: FDIC.

Estimating Real GDP Growth Trends

10.09.2012

by Margaret Jacobson and Filippo Occhino

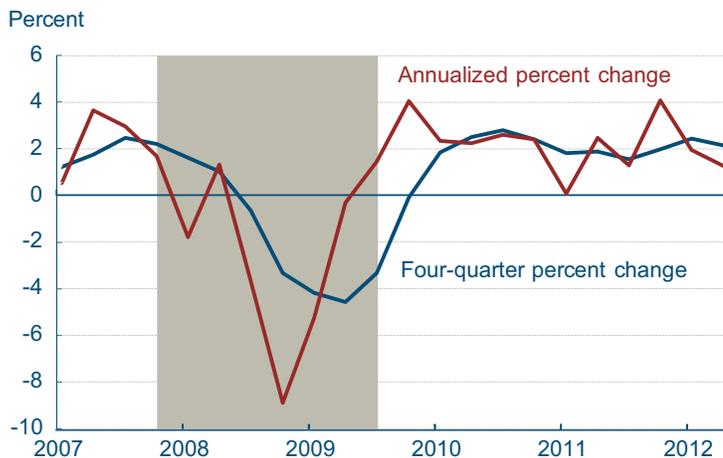
The economy continues to expand at a slow pace. Real GDP rose at an annual rate of 1.3 percent in the second quarter of 2012, down from 2 percent in the first quarter. The recent subpar growth rates, together with the pattern of productivity and hours worked, suggest that the trend level of real GDP is growing slower than in the past (see “Is Moderate Growth the New Normal?”). Here, we investigate this issue, looking for evidence on the current and long-run growth rates of the real GDP trend.

Learning about trend growth is important for several reasons. Current trend growth helps determine how the gap between actual and trend GDP is evolving over time, which in turn has implications for the outlook of economic growth and inflation. Long-run trend growth is even more important, as it is the rate at which the economy will expand in the long run.

We begin with a simple measure of trend growth that is based on real GDP data only. To construct it, we eliminate all short-term and medium-term fluctuations, including business cycles, and we keep the long-term changes only. According to this measure, trend growth reached a peak rate above 4 percent at the beginning of the 1960s, declined to rates well below 3 percent in the late 1970s, and partially recovered in the 1980s, only to drop further in the late 1990s and 2000s toward the current 2 percent rate. Other measures based on real GDP data lead to slightly different estimates, but they all agree that trend growth is currently close to historically low rates.

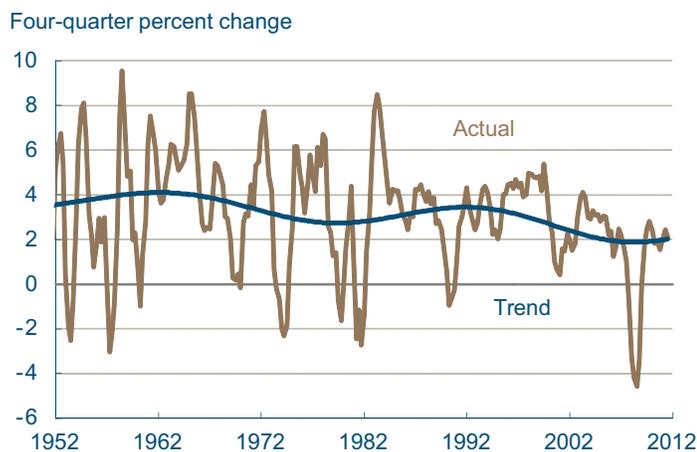
Besides real GDP data, other information is useful for estimating trend growth. Real GDP trend growth can be decomposed into the sum of the trend growths of three components: output per employee (employee productivity henceforth), the labor force, and the ratio of employment to the labor force. The latter component, which is related to changes in the trend of the unemployment rate,

Real GDP



Note: Shaded bar indicates a recession.
Source: Bureau of Economic Analysis.

Real GDP and Trend



Note: Trend computed using a band-pass filter that eliminates cycles shorter than 25 years.
Sources: Bureau of Economic Analysis; authors' calculations.

contributes little to real GDP trend growth, so we focus on the other two components, first on employee productivity and then on the labor force.

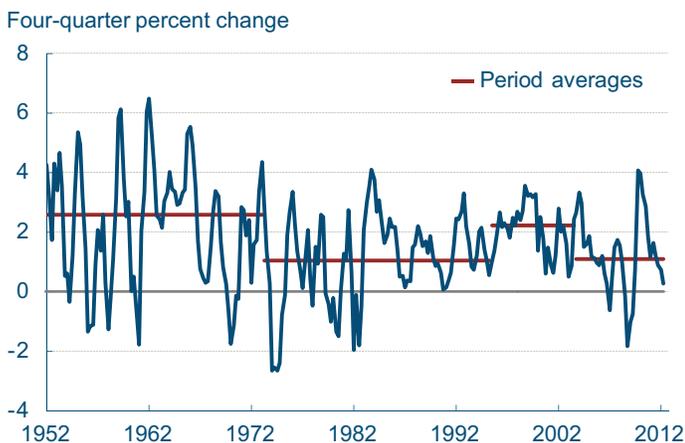
To learn about the trend growth of employee productivity, we look at its average growth rate in the past. Employee productivity grew rapidly at a 2.57 percent average rate in the 1948:Q2-1973:Q1 period. Then, the average growth rate dropped to 1.04 percent in the 1973:Q2-1995:Q2 slowdown period, picked up to 2.23 percent in the 1995:Q3-2003:Q3 acceleration period, and then declined again to 1.11 percent afterward.

There is large uncertainty around the current trend of employee productivity. Given that employee productivity has been growing slowly since 2003, the current trend growth rate likely lies in the interval between 1 percent and 1.5 percent. The uncertainty around the long-run trend is even larger, as it will depend on the technologies that will become available in the future. Historical data show that the average growth rate of employee productivity can vary widely from values as low as 1 percent to values as high as 2.5 percent, so a plausible interval for the long-run trend growth of employee productivity is 1 percent to 2.5 percent. The large width of this interval simply reflects the large degree of uncertainty surrounding the forecast.

Turning to the trend growth of the labor force, the data reveal a clear pattern: It increased during the 1950s and 1960s, peaked at rates around 2.5 percent in the 1970s, and then steadily declined toward the current rate below 1 percent. One important factor behind this decline was that the labor force participation rate decelerated in the 1990s and declined in the 2000s. Looking ahead, the Bureau of Labor Statistics forecasts that the labor force will likely grow at a 0.7 percent average annual rate from 2010 to 2020, so we use this rate as our estimate for the current and long-run labor force trend growth. There is uncertainty around this estimate, too, since the labor force trend will be affected by changes in the trends of population and labor force participation. However, the uncertainty here is smaller than in the case of the employee productivity trend.

Summing up our estimates for the trend growth

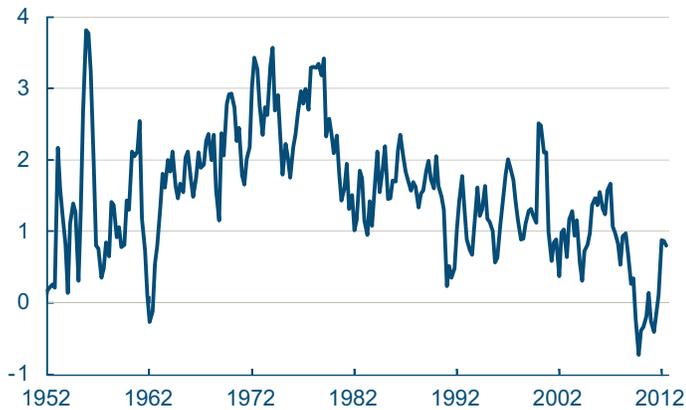
Output Per Employee



Note: Output per employee computed as the ratio of real GDP to employed.
Source: Bureau of Economic Analysis; Bureau of Labor Statistics; authors' calculations.

Labor Force

Four-quarter percent change



Source: Bureau of Labor Statistics.

rates of employee productivity and the labor force, we obtain the implied growth rate of the real GDP trend. The current rate likely lies in the interval between 1.7 percent and 2.2 percent, while the long-run rate will plausibly be between 1.7 percent and 3.2 percent. Our interval for the long-run trend growth encompasses other estimates of the long-run growth rate of real GDP, including the Congressional Budget Office estimate of potential GDP growth, 2.3 percent, and the bottom-10 and the top-10 averages of the Blue Chip Financial Forecasts, 2.2 percent and 2.8 percent, respectively. The midpoints of our intervals are 1.95 percent for the current rate and 2.45 percent for the long-run rate, but the uncertainty surrounding these estimates is large.

For the full text of "Is Moderate Growth the New Nomal?", please visit <http://www.clevelandfed.org/research/trends/2012/0812/01gropro.cfm>.

Consumer Finances and a Sustainable Recovery

10.05.2012

by O. Emre Ergungor and Patricia Waiwood

Three rounds of quantitative easing since the official end of the recession 39 months ago testify to the fact that the economy is languishing. To evaluate the possibility of a sustainable recovery in the near future, we take a closer look at consumer finances, since consumption accounts for roughly 70 percent of gross domestic product.

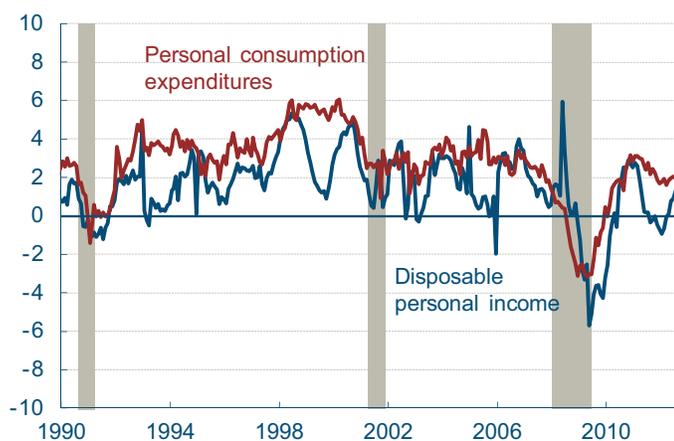
In thinking about consumer finances, the primary resource available for new consumption is disposable personal income. The recession and financial crisis in 2008 pushed both disposable income and consumption growth negative for the first time in over 20 years. However, both have reemerged in positive territory and are slowly gaining momentum. Since turning positive in April, personal income has logged growth rates of less than 1 percent in every month save for July, when it cleared 1 percent by 0.3 percentage points.

The corresponding growth figures for households' net worth have been positive since the end of 2009 and have averaged 5 percent since then. One reason for the increase is a lack of new borrowing: As a percentage of disposable income, new borrowing is still negative, meaning that on a net, aggregated basis loans are either being paid off (and not renewed) or are defaulting, or a combination of the two. Another reason, which originates on the other side of households' balance sheet, is that the value of real-estate holdings is increasing: It jumped about \$400 billion, or 2.1 percent, to \$19.1 trillion, in the second quarter, which is its highest level since the last quarter of 2008.

Over the same period, growth in consumption stayed steady at approximately 2 percent, which is slightly below last year's average monthly growth rate of 2.5 percent and also below where it was 12 months ago. The personal savings rate, at 4.2 percent in July 2012, shows that households are saving more than they have been over the past 12 months. For additional evidence on the trajec

Personal Income and Consumption

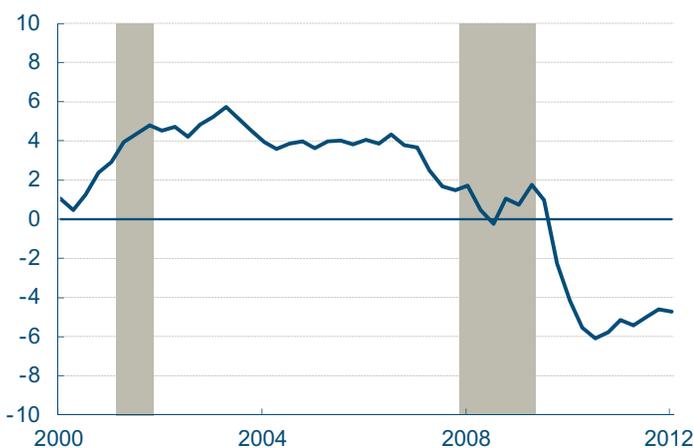
12-month percent change



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

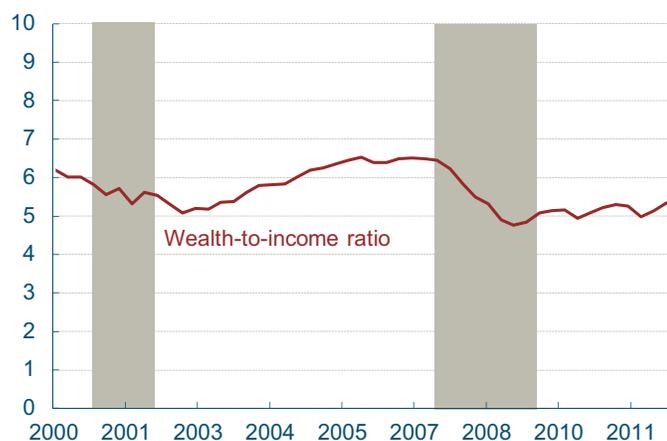
Net Household Borrowing

Percent of nominal GDP



Notes: Shaded bars indicate recessions.
Sources: Bureau of Economic Analysis, Federal Reserve Board.

Household Wealth

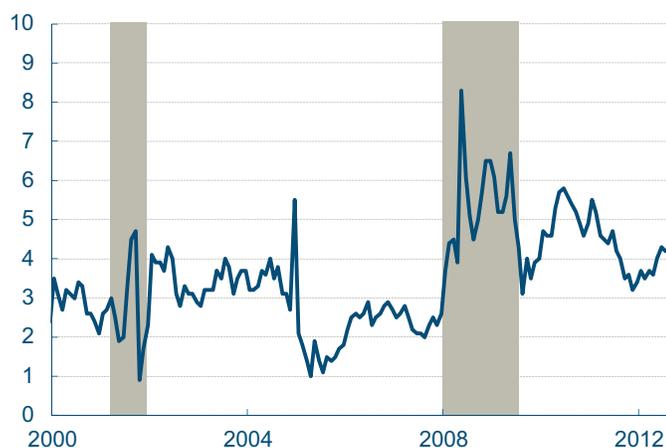


Notes: Shaded bars indicate recessions. Wealth is defined as household net worth. Income is defined as personal disposable income.

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

Personal Savings Rate

Percent of income

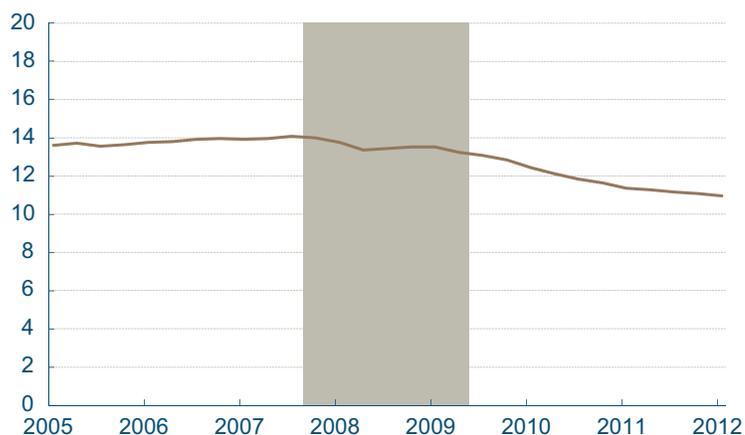


Note: Shaded bars indicate recessions.

Source: Bureau of Economic Analysis.

Household Debt Service Ratio

Percent of disposable personal income



Note: Shaded bar indicates a recession.

Source: Federal Reserve Board.

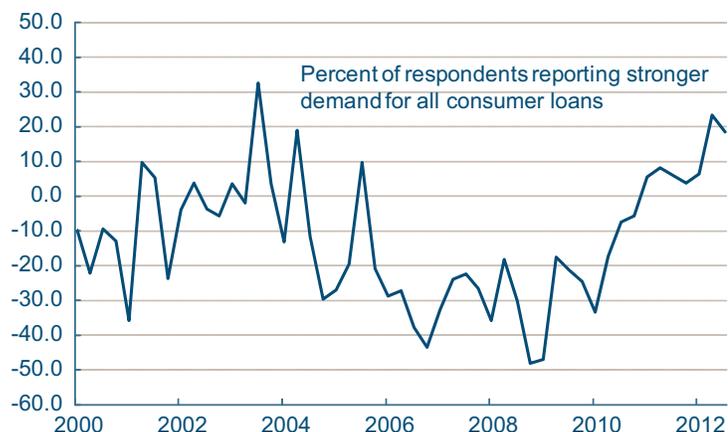
tory and strength of consumer spending, look to retail sales. According to the Census Bureau, sales excluding autos and gas rose only 0.1 percent in August, as many retailers saw sales decline. Looking into the near future, real consumer spending can be expected to average about 1.8 percent from the fourth quarter of 2012 to the first quarter of 2013, according to the University of Michigan's Survey of Consumers.

Total outstanding household debt is down nearly \$1.3 trillion since its peak in the third quarter of 2008, according to the Household Debt and Credit Report of the New York Fed. As debt levels shrink, consumers are spending less of their disposable income on repayments related to mortgages and consumer loans. The household debt service ratio, which measures repayments as a share of income, has been on a downward path since the third quarter of 2008. Much of the drop is likely to be coming from historically low interest rates, which lower debt service requirements on new debt, refinanced debt, or debt that carries floating interest rates. The sharp decline since 2008 indicates that the debt-service burden has fallen substantially, which may make borrowers more inclined to borrow again and financial institutions more willing to lend.

Then again, consumer lending may not be seeing robust growth. According to the latest Senior Loan Officer Survey, banks are showing a bit more enthusiasm to lend now than they showed at the end of the recession. In fact, banks were more enthusiastic about making consumer loans just one year after the end of the recession than they are now. On the demand side of the equation, banks are reporting weakening demand for all types of consumer loans, yet the net percentage of domestic banks reporting stronger demand is still positive, as it has been since the beginning of last year.

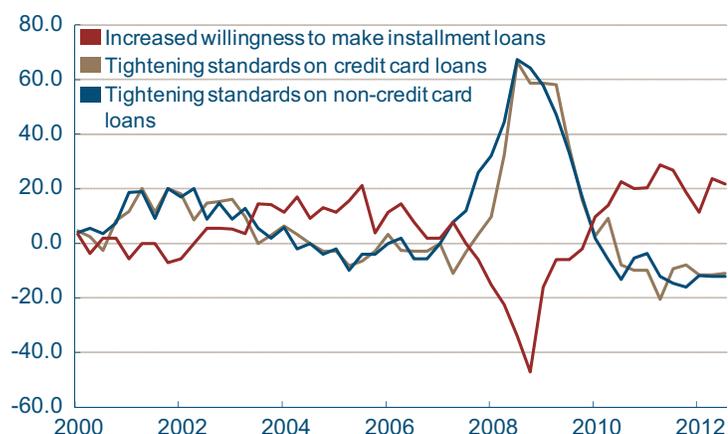
Another way to gauge the health of consumers' finances is to ask consumers themselves for their opinions on their financial condition both now and in the near future. The University of Michigan does this every month. In September 2012, both measures posted gains. The gains in personal finances were based on reduced debt balances and increased asset values. Thirty-seven percent of all consumers

Survey Measure of Demand for Consumer Loans



Source: Senior Loan Officer Opinion Survey.

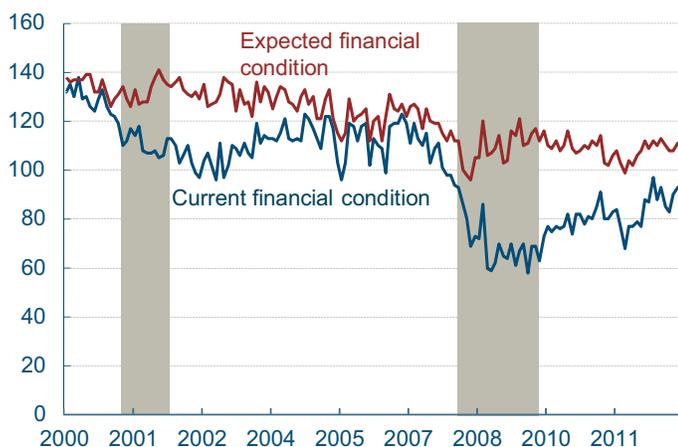
Survey Measure of Supply of Consumer Loans



Source: Senior Loan Officer Opinion Survey

Survey Measures of Consumer Finances

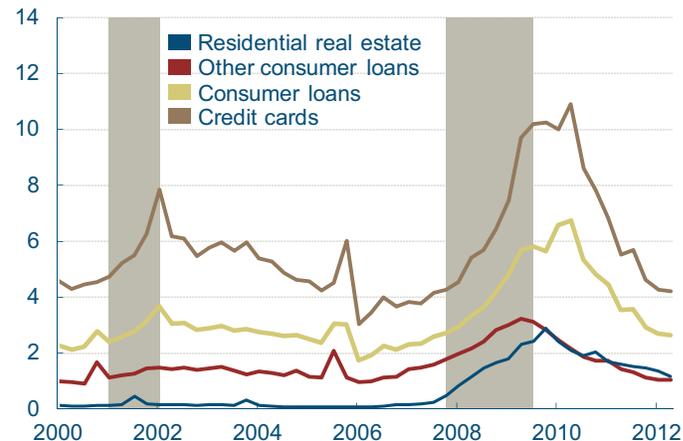
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Note: Shaded bars indicate recessions.
 Source: University of Michigan.

Debt Charge-Offs

Percent of average loan balances



Note: Shaded bars indicate recessions.
 Sources: Board of Governors of the Federal Reserve System, Standard & Poor's.

reported that their financial situation is worsening, down from 40 percent in August and 49 percent a year ago. When asked about their financial prospects for the next year, 61 percent of families predict that their financial situation will remain unchanged, and the majority expected no increase in their nominal incomes during the year ahead.

What do these data samples bode for a recovery of consumption, the primary driver of the U.S. economy? The data shown here suggest that consumers' financial condition is improving, which may sharpen their appetite for spending, all else equal. Yet consumers seem to be cautious, saving a greater share of their incomes and refraining from new borrowing. This situation, perhaps caused by economic uncertainty and the prospect of facing hefty tax hikes in the not-too-distant future, may be slowing consumer spending and the recovery.

New Fed Policies and Market-Based Inflation Expectations

10.09.2012

by Mehmet Pasaogullari and Patricia Waiwood

Market-based measures of inflation expectations reflect what investors anticipate inflation will be in the future. These measures rose in the days after September 13, when the Federal Reserve announced a third round of large-scale asset purchases and decided to keep the target range for the federal funds rate at an exceptionally low level at least through mid-2015. This round of asset purchases, unlike its predecessors, is open-ended, meaning it will continue until the outlook for the labor market improves substantially.

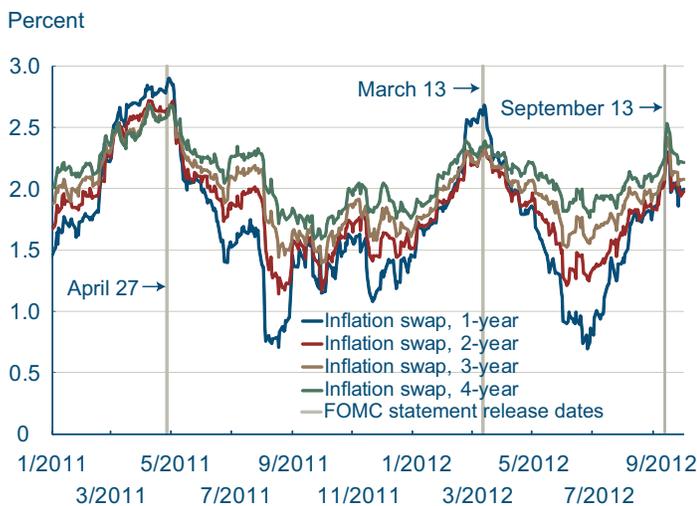
Immediately after the announcement, speculation arose that the new policies would push inflation higher than the target rate. Yet between then and now, market measures of inflation expectations have fallen considerably. This change suggests that market participants are now not expecting the new policies to boost inflation across any time horizon.

The spike in inflation expectations in the days surrounding the September announcement shows up in measures that are based on a range of short-term and long-term rates of different maturities. The peak occurs almost invariably either on the day of the announcement or on the day following it, as the rightmost vertical markers in the charts below show.

Some rates—more specifically, some forward rates—buck the trend by hitting their respective peaks just a handful of days later. Forward rates focus on a period between one point in the future and another point even farther in the future. Their appeal to analysts is that they give a view of future inflation that abstracts from current short-term shocks. For example, the 10-year, 10-year forward inflation swap rate was 3.3 percent on September 14. This means that on that day, market participants expected inflation to average 3.3 percent during the decade starting in 10 years.

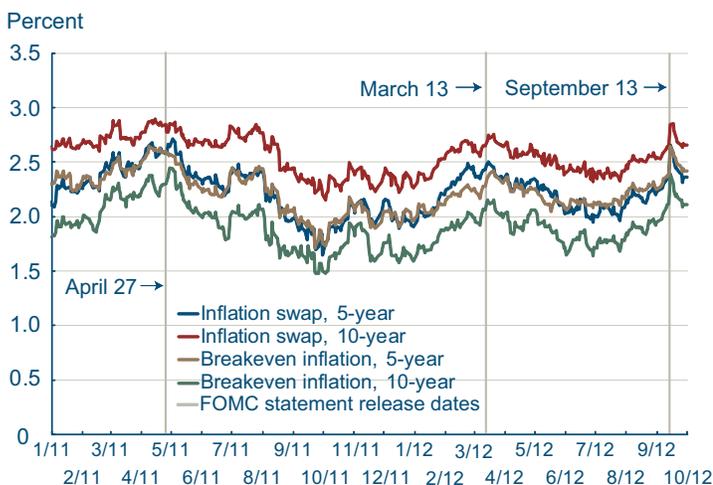
Inflation expectations fell quickly after the September announcement. By the tenth day after the

Short-and Medium-Term Inflation Expectations



Source: Bloomberg.

Longer-Term Measures of Inflation Expectations



Sources: Bloomberg; Federal Reserve Board.

Forward Measures of Long-Term Inflation Expectations



Sources: Bloomberg; Federal Reserve Board.

announcement, all measures had returned to the same band in which they were prior to the announcement, effectively erasing nearly all traces of the increases. For example, the same 10-year, 10-year forward inflation swap rate that we mentioned earlier stood at 2.9 percent on October 1, which is where it was prior to the September 13 announcement.

Taken in isolation, this sharp increase and rapid decline in expectations might seem rare and merit special attention. This is not the case. For example, data on the various measures of inflation expectations since the beginning of 2011 exhibit unmistakable spikes and dips. These are most pronounced in the short-term data—which makes sense, because short-term expectations react more forcefully to shocks than do longer-term ones. In contrast, the data on forward rates, which are not given to short-lived swings, vary less.

What we see from these market-based measures of inflation expectations is that markets are putting negligible weight on a high inflationary environment in the medium- and long-term future. In fact, these expectations have settled near their preannouncement levels. Of course, we cannot associate all the swings in the measures with the Fed's policy announcements. Like any other macroeconomic variable, expectations are affected by other variables and beliefs about future economic conditions. It is very hard to disentangle the effects of such assessments from announcements of policy changes. However, looking at the data, it seems that market participants who actually bet their money on the future inflation outlook do not see an inflationary threat in the Fed's new policies.

Regional Differences in Science and Engineering Schooling and Employment

10.09.2012

by Timothy Dunne and Kyle Fee

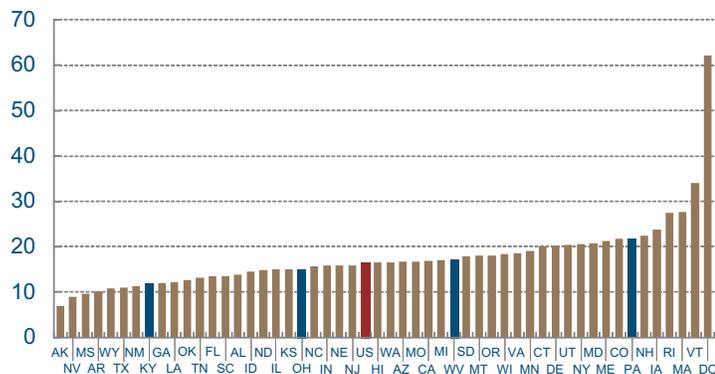
Differences in human capital across regions are associated with differences in economic performance. For example, many studies have documented that regions with higher human capital, typically measured in terms of educational attainment, experience higher income growth. The correlation is attributed to many channels, but key among them is the view that more educated locations are more innovative and can take better advantage of new technologies.

Of particular interest in some policy quarters is the ability of a region to assemble a college-educated, technically sophisticated workforce. At the state level, one measure of this capacity is the production of baccalaureates with science or engineering (S&E) degrees in a state. The number of bachelor's degrees (BAs) conferred in science and engineering in the United States in 2009 is 17 per 1,000 individuals aged 18-24 years old. This compares to the roughly 53 BAs per 1,000 across all degree fields. Fourth district states produce S&E graduates across nearly the full range of the distribution, with Kentucky on the lower end and Pennsylvania on the upper end.

States on the lower end of the distribution produce about 10 S&E degrees per 1,000 individuals aged 18-24, while on the upper end degree production rises to the mid-to-high 20s per 1000. Some of the difference in production rates is due to differences in the rate at which young people attend 4-year colleges across states, and some of the difference reflects the fact that certain states are net exporters or importers of college services. For example, states in the upper end of the distribution such as Iowa, Massachusetts, Pennsylvania, and Rhode Island serve significant numbers of students that come from out of state, as does the District of Columbia (Table 234: Digest of Education Statistics, National Center for Education Statistics).

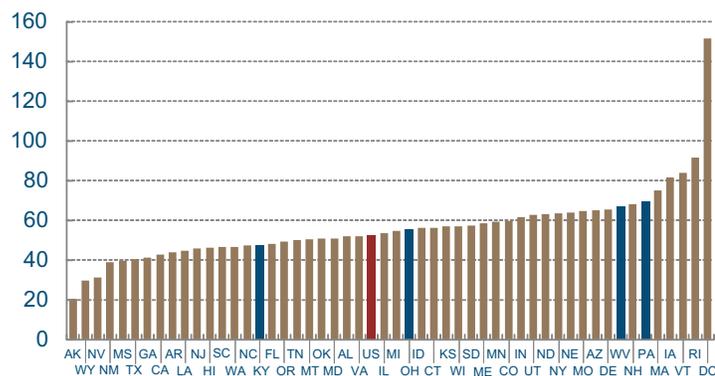
Science and Engineering Bachelor's Degrees Conferred, 2009

Per 1,000 individuals 18-24 years old



Source: National Science Foundation.

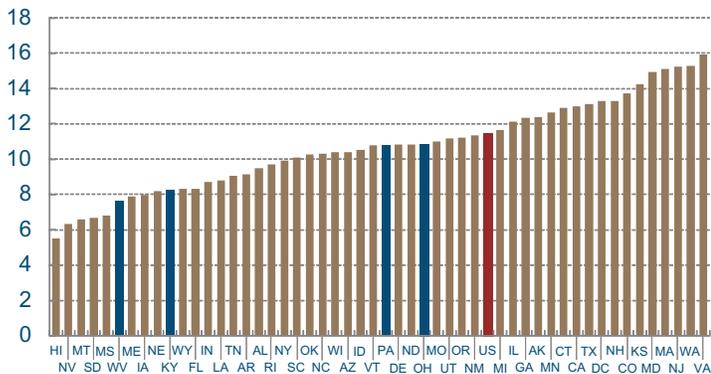
Bachelor's Degrees Conferred, 2009



Source: National Science Foundation.

High Tech Employment, 2008

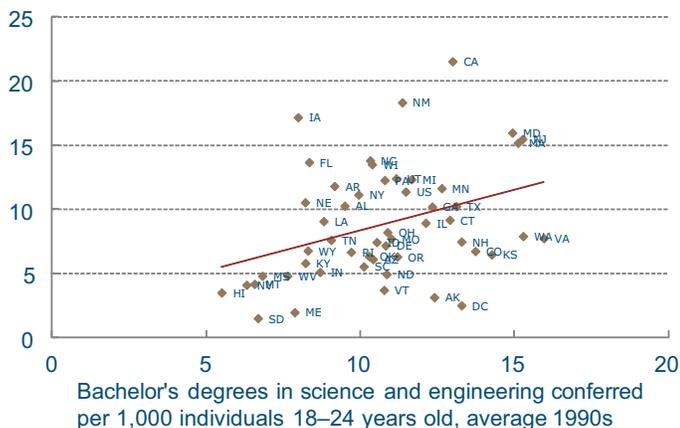
Percent of total employment



Source: National Science Foundation.

High Tech Employment and Science and Engineering Degrees

Employment in high technology establishments as a percent of total employment, 2008



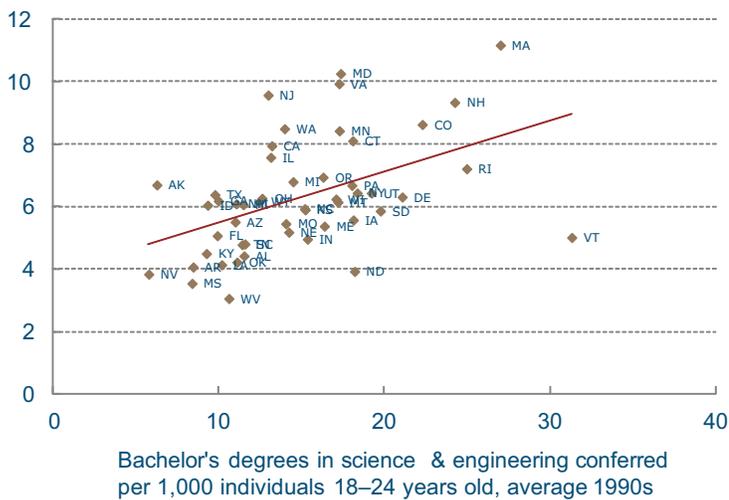
Source: National Science Foundation.

A natural question is whether S&E degree production in a region is related to the development of high technology industries in a region? The National Science Foundation (NSF) identified 46 industries that require a substantial fraction of the workforce to have “in-depth knowledge” of science, engineering, or mathematics. These industries include information technologies, biotechnology and pharmaceuticals, scientific equipment and instrument manufacturing, computer system design, engineering services, and aerospace manufacturing and design, among others. The location of such industries is not uniform across the country. As a share of a state’s employment, these high-tech industries vary from a low of around 6 percent to a high of around 15 percent across the states. States with particularly large shares of high-technology employment include Maryland, Massachusetts, New Jersey, Virginia, and Washington.

The relationship between S&E degree production and high-technology employment shares is positive, though not particularly tight. States that produced a high number of S&E degrees in the 1990s had, on average, somewhat higher employment shares in high-technology industries in 2008. The relatively weak relationship is not too surprising for a number of reasons. First, as discussed above, some states are net exporters (or importers) of college educations. Export states will confer an above-average number of degrees, but it is likely some of these students will return to their home states or move to another state. Second, the labor markets for many highly trained scientists and engineers are national in scope, reducing the link between local supply and local demand. Highly educated workers are quite mobile. Third, many S&E graduates will work in industries (and in occupations) that require strong science backgrounds but that are not high-technology industries, as defined by the NSF. An example is medical personnel, as hospital and medical service industries are not included as high technology industries. Another example is higher education. Indeed, if one examines the relationship between S&E degree production in the 1990s and the share of the population aged 30-44 in 2010 with a science or engineering degree regardless of the industry they work in, the relationship tightens

Science and Engineering Degrees: Share in Population versus Degree Production

Share of individuals ages 30-44 with a science and engineering degree, 2010



Source: National Science Foundation.

up. The point is that S&E degree production in a state is related to the future science and engineering talent in the workforce, though by no means is there a one-to-one correspondence.

Still, one needs to be cautious in interpreting the relationship between degree production and high technology employment. On the one hand, one might want to infer that a higher supply of S&E graduates in a state fosters the development of high-technology industries in the location. This is a traditional workforce development story. Investments in the training and development of particular workforce skills allow for the growth of industries that utilize such labor inputs. On the other hand, it is also plausible that higher education institutions and students in a region are simply responding to shifts in demand or expected shifts in demand by high-technology firms. In this case, it is demand for high-technology workers that leads to a rise in the S&E graduates. Looking at simple correlations cannot reveal the underlying drivers of the relationship. That said, it would not be surprising if it is a combination of both stories that form the basis of the observed relationship.

Balance Sheet Implications of New Fed Policies

09.20.12

by Bill Bednar and Todd E. Clark

Since the target federal funds rate bottomed out near its zero lower bound during the financial crisis, the Federal Reserve's balance sheet has been an important policy tool for the Federal Open Market Committee (FOMC). As a result, the Fed's balance sheet has expanded from just under \$900 billion in early 2008 to just over \$2.8 trillion currently. The expansion follows two rounds of large-scale asset purchases, which included traditional assets, such as U.S. Treasury securities, as well as non-traditional assets like mortgage-backed securities and agency debt. Changes in the composition of the balance sheet have been occurring also, as short-term Treasury securities are being sold to purchase longer-term Treasury securities, in order to further increase the average maturity of security holdings and put more downward pressure on long-term interest rates.

On September 13, the FOMC decided to take additional policy actions in order to boost the pace of economic recovery and further ease financial conditions. One change came in the form of communication, as the Committee stated that it expected to keep the target federal funds rate low into mid-2015 and that rates would remain low "for a considerable time after the economic recovery strengthens." This statement should help to lower longer-term interest rates by setting expectations about future policy, thereby encouraging investment and spending.

Additionally, the Committee decided to engage in another round of asset purchases, which will further expand the balance sheet. This time, the Federal Reserve will purchase \$40 billion in additional mortgage-backed securities (MBS) each month until conditions in the labor market show significant improvement, marking the first asset purchase plan with no defined limits. The Committee also indicated that it will continue its MBS purchases next

year if the outlook for the labor market does not improve substantially in coming months. It may undertake additional asset purchases as well.

Given current Fed policy, which reinvests the repayments of current mortgage-backed securities and agency debt in new MBSs, there should be no reduction in current MBS holdings over time, just mild variation due to the timing of repayment and reinvestment. Assuming a constant level of current holdings through the end of the year, the decision to purchase an additional \$40 billion each month will expand the Fed’s portfolio of MBSs by about \$145 billion during that time. This would bring the total value of MBS holdings up to nearly \$987 billion, a 17 percent increase from the value in early September.

Assuming that the level of the other assets on the Fed’s balance sheet remain somewhat constant throughout the remainder of the year—a reasonable assumption—the \$145 billion in additional mortgage-backed securities should lead to a comparable increase in the size of the balance sheet overall. The resulting size of approximately \$2.9 trillion would be about a 5 percent increase from the balance sheet’s current level.

Also, as part of the September FOMC statement, the Committee reiterated that the Maturity Extension Program (MEP) would continue for the remainder of the year. Through this program, long-term Treasury securities are purchased with the proceeds obtained from the sale and maturation of short-term Treasury securities, effectively extending the average maturity of the Fed’s Treasury holdings. Prior to the financial crisis, Treasury securities maturing in less than 1 year made up approximately half of the Fed’s Treasury holdings. Currently, securities with this maturity make up less than 1 percent of the Fed’s Treasury portfolio. The current proportion of Treasury securities held with a maturity greater than ten years is about 22 percent. The percentage of Treasury securities set to mature between 5 and 10 years is 48 percent, and the proportion maturing between 1 and 5 years is 30 percent.

Projected MBS Holdings through 2012

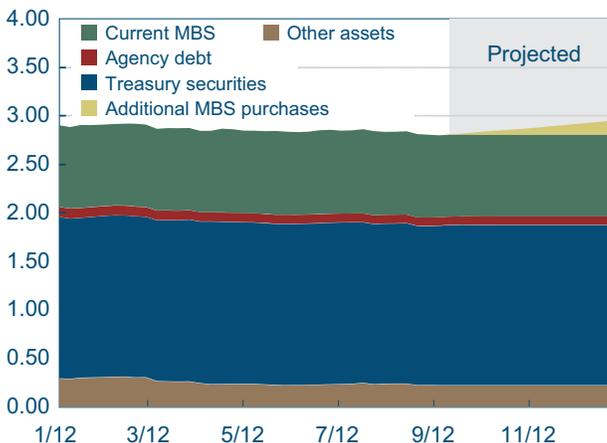
Trillions of dollars



Source: Federal Reserve Board.

Federal Reserve Balance Sheet

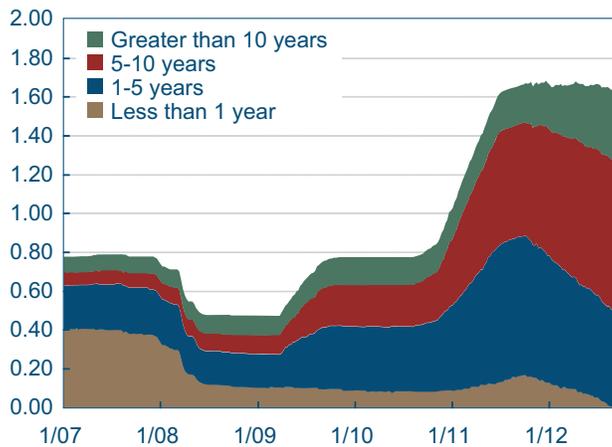
Trillions of dollars



Source: Federal Reserve Board.

Maturity Distribution of Treasury Securities

Trillions of dollars



Source: Federal Reserve Board.

The typical amount of short-term Treasury securities sold each month by the Fed in order to purchase longer-term securities has been between \$40 billion and \$45 billion. Since the amount of Treasury securities in the portfolio with a maturity less than 1 year is at very low level, sales for the most recent months have consisted mainly of Treasury securities with maturities in the 1- to 5-year range. If a similar trend were to continue until the end of the year, the percentage of Treasury securities in the Fed's portfolio with a maturity between 1 and 5 years could drop an additional 10 percent, meaning securities maturing in 5 years or more would make up nearly 80 percent of all Treasury securities held. This change in the maturity distribution of the Treasury securities held, along with the reinvestment in and additional purchases of mortgage-backed securities, which are long-term securities as well, will extend the average maturity of the Fed's security portfolio even further and should put additional downward pressure on long-term interest rates.

Looking ahead to next year, if the Committee continues to purchase MBS to support the economic recovery, the size of the Federal Reserve's balance sheet will likely continue to expand. These purchases will also continue to shift the composition of the balance sheet away from shorter-term assets to longer-term assets. The statement released by the FOMC in mid-September indicates that the size and composition of the balance sheet changes will depend on economic conditions.

Yield Curve and Predicted GDP Growth, September 2012

Covering August 24, 2012–September 25, 2012
by Joseph G. Haubrich and Patricia Waiwood

Highlights

	September	August	July
3-month Treasury bill rate (percent)	0.11	0.10	0.10
10-year Treasury bond rate (percent)	1.81	1.76	1.47
Yield curve slope (basis points)	170	166	137
Prediction for GDP growth (percent)	0.6	0.6	0.6
Probability of recession in 1 year (percent)	8.1	8.5	11.7

Overview of the Latest Yield Curve Figures

Over the past month, the yield curve has steepened somewhat, even as both long and short rates moved up. The three-month Treasury bill at 0.11 percent (for the week ending September 21) inched up from the 0.10 percent seen in July and August. The ten-year rate rose by 5 basis points, coming in at 1.81 percent, up from August’s 1.76 percent, which was a big jump from July’s 1.47 percent. The twist increased the slope to 170 basis points, just a bit above August’s 166 basis points but well above July’s 137 basis points.

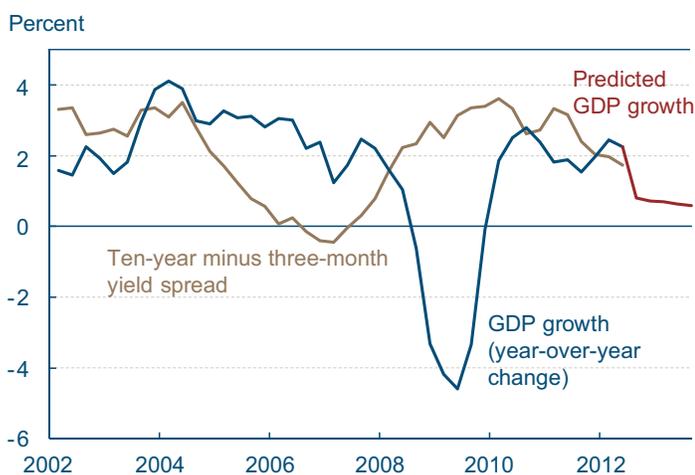
The steeper slope was not enough to have an appreciable change in projected future growth, however. Projecting forward using past values of the spread and GDP growth suggests that real GDP will grow at about a 0.6 percent rate over the next year, even with the projections from both July and August. The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

The steeper slope did lead to a more optimistic outlook on the recession front, however. 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 September is 8.1 percent, down from July’s 11.7 percent. So although our approach is somewhat pessimistic as regards the level of growth over the next year, it is quite optimistic about the recovery continuing.

The Yield Curve as a Predictor of Economic Growth

The slope of the yield curve—the difference between the yields on short- and long-term maturity

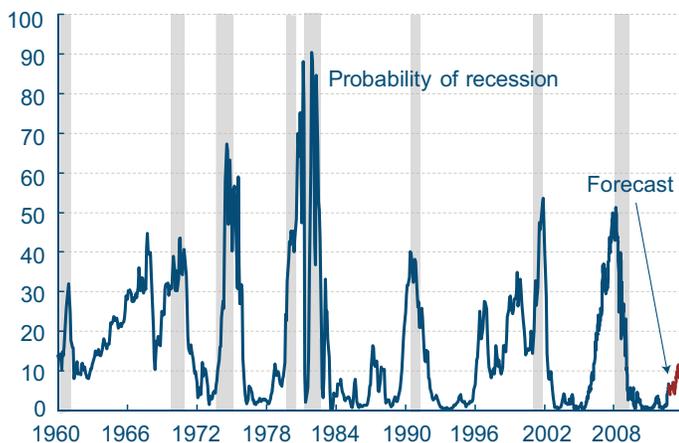
Yield Curve Predicted GDP Growth



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

Recession Probability from Yield Curve

Percent probability, as predicted by a probit model



Note: Shaded bars indicate recessions.

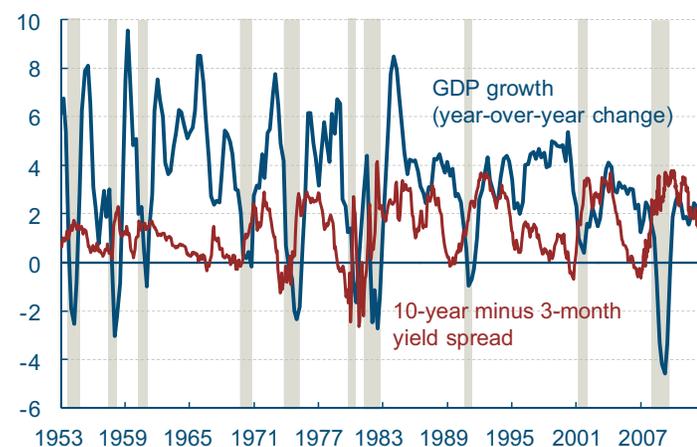
Sources: Bureau of Economic Analysis, Federal Reserve Board, authors' calculations.

bonds—has achieved some notoriety as a simple forecaster of economic growth. The rule of thumb is that an inverted yield curve (short rates above long rates) indicates a recession in about a year, and yield curve inversions have preceded each of the last seven recessions (as defined by the NBER). One of the recessions predicted by the yield curve was the most recent one. The yield curve inverted in August 2006, a bit more than a year before the current recession started in December 2007. There have been two notable false positives: an inversion in late 1966 and a very flat curve in late 1998.

More generally, a flat curve indicates weak growth, and conversely, a steep curve indicates strong growth. One measure of slope, the spread between ten-year Treasury bonds and three-month Treasury bills, bears out this relation, particularly when real GDP growth is lagged a year to line up growth with the spread that predicts it.

Yield Curve Spread and Real GDP Growth

Percent



Note: Shaded bars indicate recessions.

Source: Bureau of Economic Analysis, Federal Reserve Board.

Predicting GDP Growth

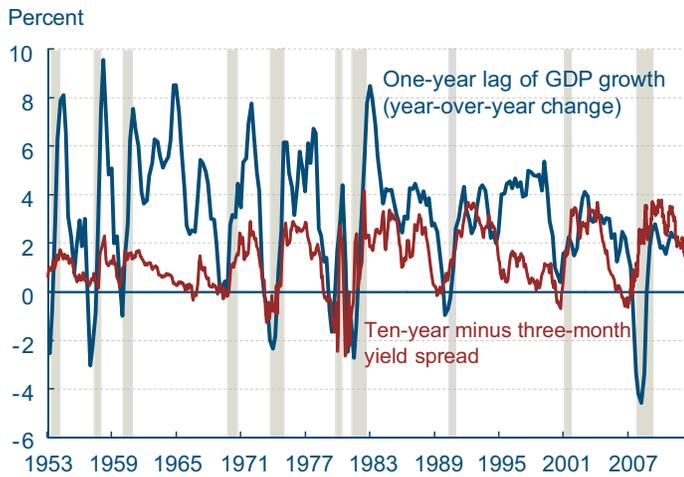
We use past values of the yield spread and GDP growth to project what real GDP will be in the future. We typically calculate and post the prediction for real GDP growth one year forward.

Predicting the Probability of Recession

While we can use the yield curve to predict whether future GDP growth will be above or below average, it does not do so well in predicting an actual number, especially in the case of recessions. Alternatively, we can employ features of the yield curve to predict whether or not the economy will be in a recession at a given point in the future. Typically, we calculate and post the probability of recession one year forward.

Of course, it might not be advisable to take these numbers quite so literally, for two reasons. First, this probability is itself subject to error, as is the case with all statistical estimates. Second, other researchers have postulated that the underlying determinants of the yield spread today are materially different from the determinants that generated yield spreads during prior decades. Differences could arise from changes in international capital flows and inflation expectations, for example. The

Yield Spread and Lagged Real GDP Growth



Note: Shaded bars indicate recessions.

Sources: Bureau of Economic Analysis, Federal Reserve Board.

bottom line is that yield curves contain important information for business cycle analysis, but, like other indicators, should be interpreted with caution. For more detail on these and other issues related to using the yield curve to predict recessions, see the Commentary “Does the Yield Curve Signal Recession?” Our friends at the Federal Reserve Bank of New York also maintain a website with much useful information on the topic, including their own estimate of recession probabilities.

Changes in Household Borrowing across Metropolitan Areas

10.09.2012

by Guhan Venkatu

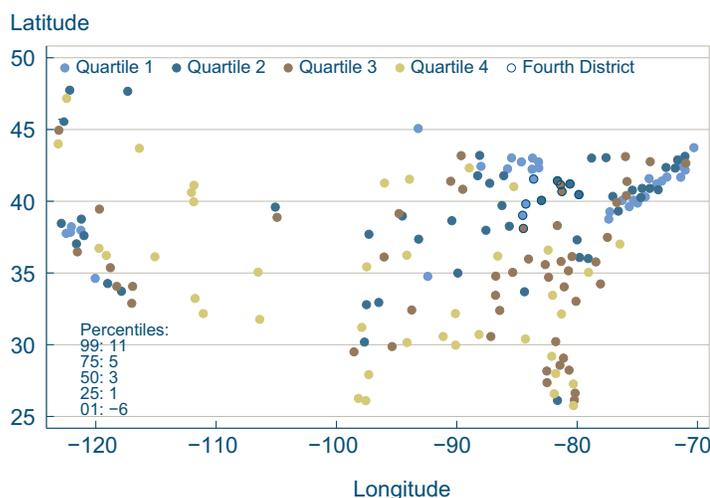
Household debt levels rose sharply in the years that preceded the Great Recession. In the 4½ years between 2003:Q2 and 2007:Q4, U.S. household debt levels rose roughly 70 percent. Over the same number of years since 2007:Q4 (to the second quarter of 2012), they have fallen almost 8 percent. Household debt accumulation was an important factor in the previous expansion, and the deleveraging, or drawing down of debt, that households are now in the midst of is likely to prove important to both the pace and path of the current expansion.

Much of the increase in debt last decade was driven by mortgage borrowing, which accounts for about 70 percent of U.S. household liabilities. Because this borrowing was driven by (and also drove) high home-price appreciation in some parts of the country, there is a clear geographic pattern to changes in credit usage over the last decade.

Across 170 metropolitan areas, or those that had more than 250,000 residents with credit reports in 2011, the average increase in mortgage debt per capita was a substantial 11.2 percent per year from 2003:Q4 to 2007:Q4. Metropolitan areas in the so-called sand states—California, Arizona, Nevada, and Florida—generally saw the largest increases in mortgage debt, with average growth equaling or exceeding 14 percent per year. Areas in the northeast and along the eastern seaboard also experienced above-average growth in per capita mortgage credit. By contrast, throughout the Midwest, including in the Fourth District, increases in mortgage debt were generally below average throughout this period, though still increasing. Outside of Lexington, Kentucky, all Fourth District metro areas with at least 250,000 residents experienced increases in mortgage debt below the 25th percentile.

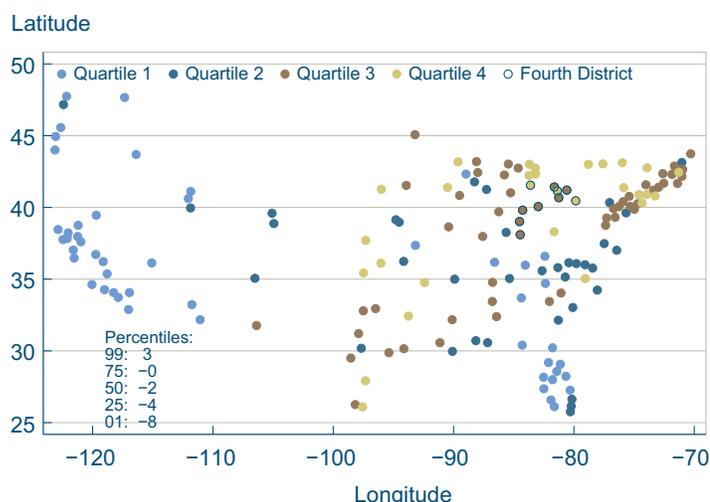
These patterns are, of course, very consistent with metro-area-level home price changes prior to 2008. As home prices began to decline, however, per capita mortgage debt generally declined along with

Average Annual Per Capita Auto Credit Growth, 2003:Q4–2007:Q4



Note: The total population used to compute per capita credit corresponds to individuals with credit reports.
Source: Equifax Inc.

Average Annual Per Capita Auto Credit Growth, 2007:Q4–2011:Q4

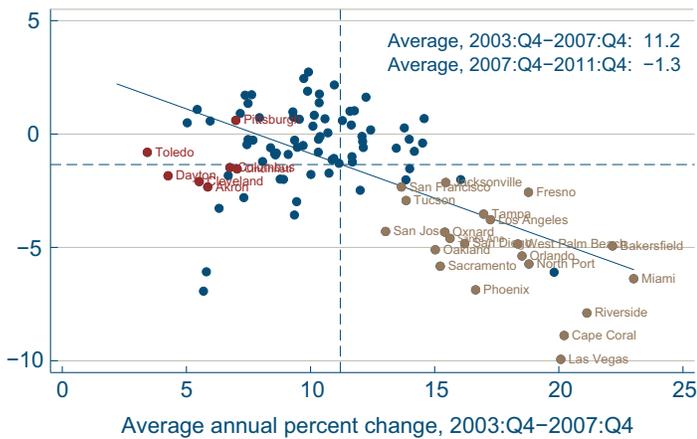


Note: The total population used to compute per capita credit corresponds to individuals with credit reports.
Source: Equifax Inc.

it. The change was most abrupt in the sand states. From 2007:Q4 to 2011:Q4, these areas, which had previously had the largest increases in mortgage debt, saw the sharpest declines. Some of this change was the product of rising foreclosure rates, where debts were effectively repaid through the forced sales of homes. Undoubtedly, this process was important in many District metro areas as well, which may partly explain why areas here, which were below average in changes in mortgage debt prior to 2007, often continued to be below average on this dimension after 2007. Several metro areas, nevertheless, were above average in both periods, notably along the Atlantic coast outside of Florida, and in some parts of Texas. Overall, mortgage debt for all 170 areas from 2007:Q4 to 2011:Q4 fell by about 1 percent per year.

Per Capita Mortgage Credit Growth, Before and After 2007

Average annual percent change, 2007:Q4–2011:Q4



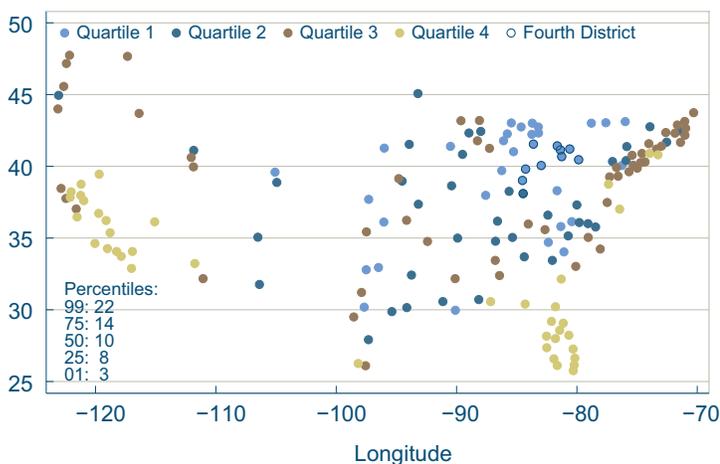
Notes: The solid line shows the best fit for all 170 MSAs. Dashed lines show averages for the two periods for all 170 MSAs, with the associated figures at the top right. Only the 100 largest MSAs are shown on the plot. Sand-state MSAs are highlighted in brown and Fourth District MSAs are highlighted in red. The total population used to compute per capita credit corresponds to individuals with credit reports.

Source: Equifax Inc.

Automobile-related borrowing is another important category of household credit, although a much smaller fraction of U.S. household liabilities than that represented by mortgage debt. In recent years, automobile-related borrowing has constituted between 6 percent and 9 percent of U.S. household liabilities. Relative to mortgage credit (excluding home equity lines of credit, or HELOCs), automobile credit expanded significantly more slowly in the middle of the last decade, growing 31.0 percent between 2003:Q2 and 2007:Q4 versus 79.2 percent. Changes since 2007, however, have been much more similar, with automobile-related liabilities declining 8.0 percent, versus a decline of 10.5 percent for non-HELOC mortgage borrowing.

Average Annual Per Capita Mortgage Credit Growth, 2003:Q4–2007:Q4

Latitude



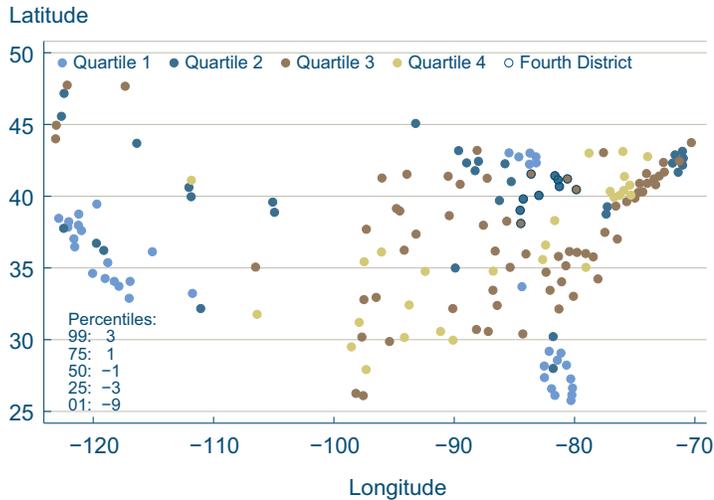
Note: The total population used to compute per capita credit corresponds to individuals with credit reports.

Source: Equifax Inc.

Though the growth rates differed during the last expansion, in general, metro areas that saw stronger growth in mortgage credit also experienced relatively larger increases in automobile credit. Similarly, after 2007, those areas that saw weaker growth in mortgage credit (or outright declines) also experienced relatively weaker growth in automobile credit. In the 4-year period prior to and after 2007:Q4, the correlation between changes in automobile-related and mortgage borrowing at the metro area-level was about 0.4 and 0.5, respectively.

The negative relationship between mortgage credit changes before and after 2007 is also evident with automobile-related borrowing. Many metropolitan

Average Annual Per Capita Mortgage Credit Growth, 2007:Q4–2011:Q4

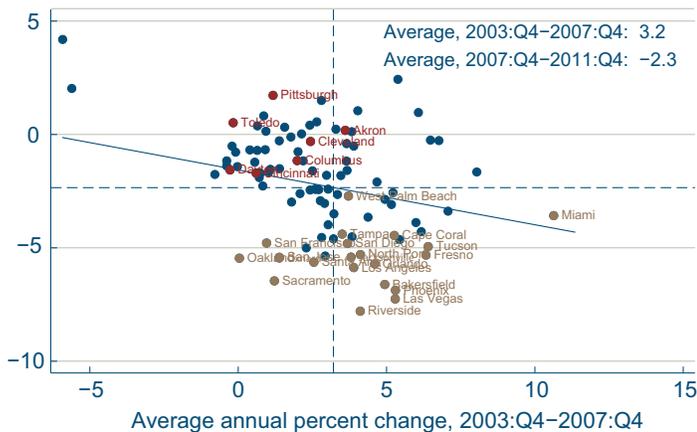


Note: The total population used to compute per capita credit corresponds to individuals with credit reports.
Source: Equifax Inc.

areas from the sand states experienced above-average gains in auto credit in the years prior to 2007 and below-average gains thereafter (placing them in the lower-right quadrant of the chart below). Interestingly, several California metro areas were actually below average in both periods. For Fourth District metro areas, the pattern differs from what was seen for mortgage lending. While District metro areas were generally below average in automobile-related borrowing prior to 2007, they have been above average since. This is true for northeastern metro areas as well. However, it's worth noting that these above-average changes still correspond to declining automobile debt in most cases.

Per Capita Auto Credit Growth, Before and After 2007

Average annual percent change, 2007:Q4–2011:Q4



Notes: The solid line shows the best fit for all 170 MSAs. Dashed lines show averages for the two periods for all 170 MSAs, with the associated figures at the top right. Only the 100 largest MSAs are shown on the plot. Sand-state MSAs are highlighted in brown and Fourth District MSAs are highlighted in red. The total population used to compute per capita credit corresponds to individuals with credit reports.
Source: Equifax Inc.

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