

Economic Trends

August 2010 (July 8, 2010-August 3, 2010)

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FEDERAL RESERVE BANK
of CLEVELAND

Economic Projections from the June FOMC Meeting

07.14.10

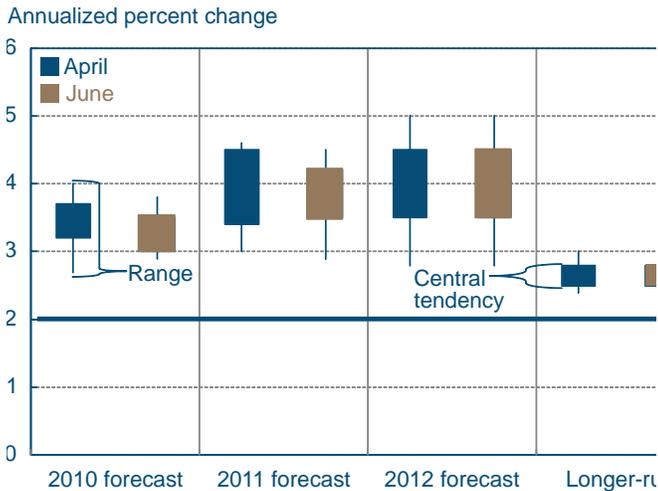
by Brent Meyer

Four times a year, we get a glimpse of the Federal Open Market Committee's (FOMC) forecasts for economic growth, unemployment, and inflation. The projections take into account all the available data at the time, assumptions about key economic factors, and each participant's view of the appropriate monetary policy that will satisfy the Fed's dual mandate (maximum sustainable employment and price stability).

Data available to FOMC participants on June 22–23 continued to point toward recovery, albeit at a pace that is expected to be somewhat slower than an average recovery. Developments since the April meeting suggested that growth will be slightly weaker over the near term. Notably, sovereign debt problems in the euro area contributed to a dollar appreciation in foreign exchange markets and were linked to roughly an 8 percent decrease in equity prices. That said, domestic data were still coming in relatively strong as of the meeting. The three-month annualized growth rate in industrial production through May was 9.4 percent, and personal consumption expenditures had risen 3.0 percent in the first quarter. However, private payrolls, which had increased by roughly 450,000 through the first four months of the year, rose just 41,000 in May, according to the initial estimate (disappointing private forecasters' expectations). Still, both hours and earnings were trending higher through May.

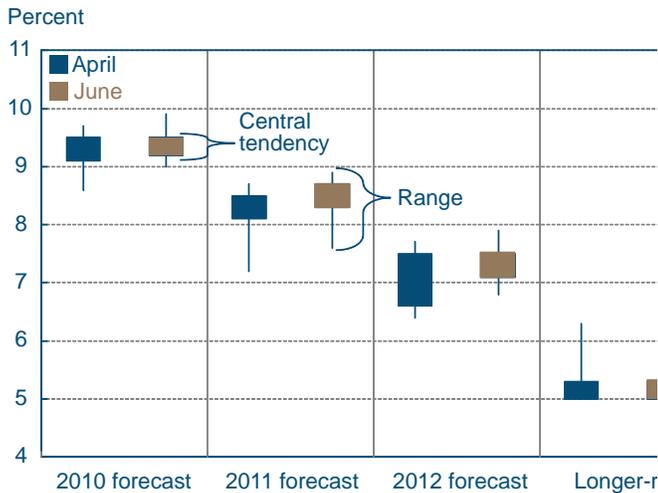
The Committee's forecasts for output growth were revised down at the June meeting relative to its projections in April. These revisions largely affected near-term growth, as the 2012 and longer-term projections were largely unchanged. In 2010, the central tendency for output growth is between 3.0 percent and 3.5 percent, a downward shift of roughly 0.2 percentage point. In 2011, the forecast is qualitatively similar except for a modest (0.3 percentage point) decrease in the upper end of the central tendency—from 4.5 percent to 4.2 percent in June. The overall pattern of recovery in these

FOMC Projections: Real GDP



Source: Federal Reserve Board.

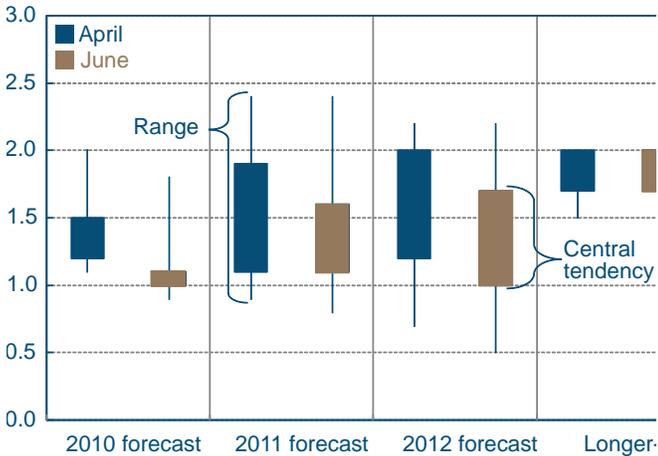
FOMC Projections: Unemployment Rate



Source: Federal Reserve Board.

FOMC Projections: PCE Inflation

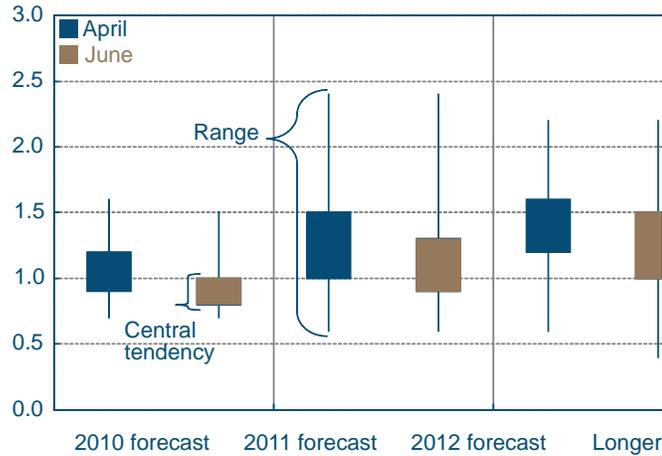
Annualized percent change



Source: Federal Reserve Board.

FOMC Projections: Core PCE Inflation

Annualized percent change



Source: Federal Reserve Board.

projections is somewhat more muted than the force of history would suggest, given the depth of the contraction. The committee continued to point to “uncertainty” on the part of businesses and households and “only gradual” labor-market improvements as limiting the pace of the recovery.

Likely reflecting the relatively weaker near-term growth profile, the Committee shaded up its already dour unemployment rate projections through 2012. The unemployment rate projections for 2012 now range from 6.8 percent to 7.9 percent, well above the Committee’s longer-run “sustainable rate” projections. Those longer-run estimates remained unchanged, though the release noted that a few Committee members were “concerned” that underlying structural adjustments may have edged down longer-term “sustainable” employment levels.

Committee members revised down their estimates for PCE and core PCE inflation through 2012, likely reflecting continued low readings on underlying inflation trends and downward revisions to unit labor costs and compensation estimates. The release noted that participants “generally anticipated that inflation would remain subdued over the next several years.” Indeed, the central tendency for core PCE in 2011 and 2012 did decrease relative to April’s projections. However, it is still clear Committee members disagree, as the range remained relatively large in 2011 (from 0.6 percent and 2.4 percent) and widened to between 0.4 percent and 2.2 percent in 2012.

The release noted that most participants judged that uncertainty remained elevated for all forecasted variables, compared to historical norms. In April, a “large majority” saw the risks to their growth projections as “balanced,” but that has since shifted. In June, roughly half of the Committee members judged that the risks are to the “downside.” With respect to their inflation forecasts, most Committee members regarded the risks to their individual forecasts as “balanced” in June. While current underlying inflation trends have been “subdued,” many participants noted that inflation expectations remained “well-anchored,” likely offsetting the downward response of inflation to continued

economic slack. In April, the release highlighted the possibility that inflation expectations could increase, “especially if extraordinarily accommodative monetary policy measures were not unwound in a timely fashion.” In an interesting reversal, June’s release cited the risk that inflation expectations “might start to decline in response to persistently low levels of actual inflation” and continued economic slack.

Monetary Policy

Measuring Market Beliefs about the Fed Policy Rates

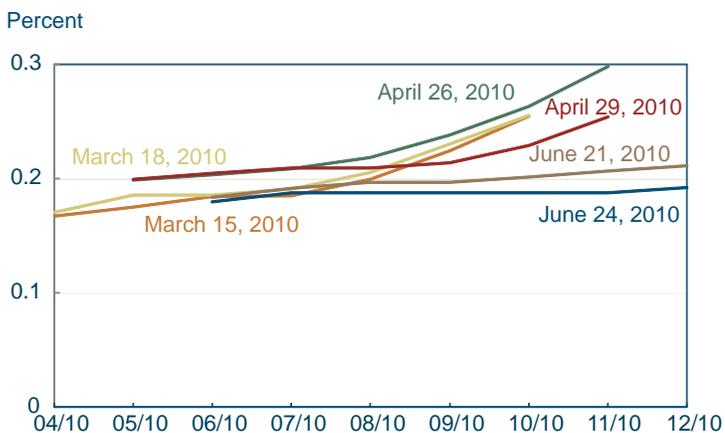
08.10.2010

Ben Craig and Matthew Koepke

Since March of 2009, the Federal Open Market Committee (FOMC) has communicated that it will maintain the federal funds rate between a range of 0 to 1/4 percent and that it anticipates keeping rates within this range for an “extended period of time.” Initially, the market anticipated that rates would begin to tighten in early 2011; however, this perception no longer holds and the market now anticipates that the FOMC will continue to maintain its position of exceptionally low interest rates far out into the future.

One way of measuring the market’s expectations about changes in FOMC policy is to examine Eurodollar and fed fund futures. Eurodollar and fed funds futures represent a bet on the risk associated with short-run interest rate changes. While financial experts could be consulted, they represent only a few opinions of the market. Eurodollar and fed funds futures include many more market participants, so they better reflect the market’s perception of future interest rates. Forward rates on Eurodollar and fed funds futures are also excellent measures of the market’s perception of future rates because they are short-term rates, they represent average risk assessments, and they incorporate rough assumptions of risk aversion. Other measures that use more complicated derivatives, however, are able to show the median, mode, and other aspects of the distribution of beliefs pertaining to short-term interest rates.

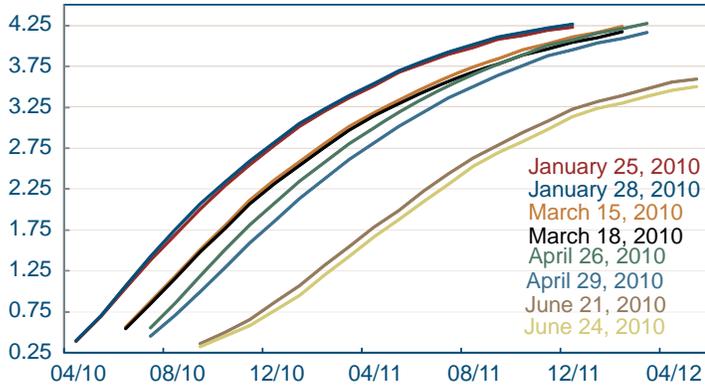
Implied Federal Funds Rate



Note: Federal fund futures were computed with a small term premium.
Source: Bloomberg; authors' calculations.

Eurodollar Futures

Percent



Source: Bloomberg.

The shift in the expected short rates can be explained by low inflation expectations and disappointing economic data. Currently, inflation remains low at 1.1 percent, and the Federal Reserve Bank of Cleveland's July estimate of inflation over the next 10 years is 1.69 percent. Additionally, economic data, particularly employment, has been disappointing. As of July 2010, unemployment has held steady at 9.5 percent, and the labor participation rate has declined by 4.3 percent since the onset of the recession.

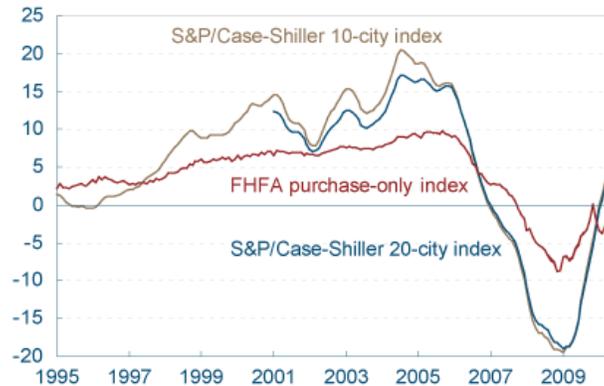
The market assumes the FOMC cares about these numbers and incorporates them into their forecasts. So long as low inflation expectations and disappointing news persists, it is reasonable that the market will bet that the FOMC will maintain its current policy for the foreseeable future.

Households and Consumers

The Homebuyer Tax Credit

Monthly Home Price Index

12-month percent change



Sources: S&P, Fiserv, and MacroMarkets, LLC, FHFA.

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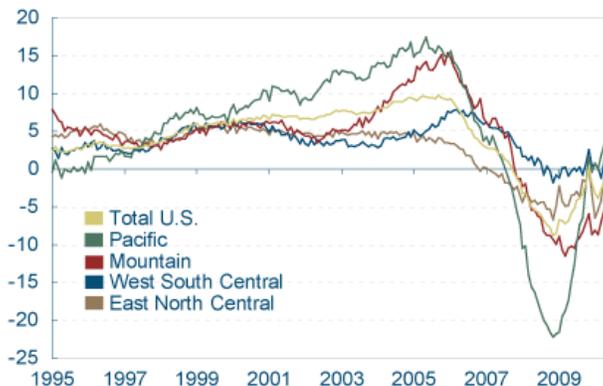
by Emre Ergungor and Beth Mowry

Efforts to aid the floundering housing market began in full force back in July 2008 with the passage of the Housing and Economic Recovery Act. The act created a \$7,500 maximum tax credit for first-time homebuyers, though it required homeowners to repay the full amount of the credit over a fifteen-year period. Later legislation expanded the credit to \$8,000 and removed the repayment requirement. Most recently, the Worker, Homeownership, and Business Assistance Act expanded the program even further by including existing homeowners who were purchasing new homes, allowing them to receive up to a \$6,500 credit, and extending the deadline to enter a binding contract to April 30. Now that the tax credit has expired, the question emerges as to whether the programs were enough to jump start the housing market or whether they merely cannibalized future sales.

Prices seem to have received a boost from the tax credit, as shown by positive year-over-year growth in the S&P/Case-Shiller Index and the FHFA Index's flirtation with positive territory. The year-over-year growth of the 20-city S&P/Case-Shiller

FHFA Monthly Home Price Index

12-month percent change



Source: Federal Housing Finance Administration.

Home Price Index climbed from its January 2009 trough of -19.0 percent to 3.9 percent in April, and the Federal Housing Financing Agency's (FHFA) monthly Purchase-Only Index has improved from a record year-over-year decline of -8.8 percent to its present -1.5 percent.

Note that the path of recovery is proceeding differently across various regions of the country. Generally, regions with the largest price buildup prior to 2007 also saw prices tumble the most. The Pacific region was hit hardest, with year-over-year growth in the FHFA price index dropping below -20 percent in 2009. The recent uptick of 3.1 percent suggests a return to a more stable pricing environment. West South Central is the only region that maintained a semblance of stability during the recession, with home prices essentially remaining unchanged. The East North Central region, which includes Ohio, fell 1.1 percent below its year-ago price levels, slightly beating the national FHFA index, which fell 1.5 percent.

The tax credit also appears to have provided support to new and existing home sales. The pace of new home sales had plummeted about 76 percent between its peak in July 2005 and January 2009. However, new sales spiked 14.7 percent in April before dropping off precipitously (32.7 percent) to a record-low sales pace of 300,000 annual units. This drop raises the possibility that the improvement in sales before the expiration of the tax credit may have come at the expense of future sales. It is also important to note that the most recent decline is primarily driven by the drop in sales in the South and West. The Midwest and Northeast were stable, albeit still stuck at very low levels.

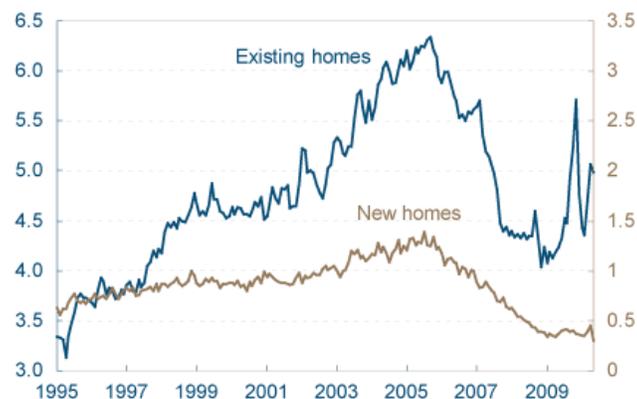
Existing home sales saw solid growth throughout much of 2009, particularly in November, when the tax credit was originally set to expire but instead was extended until April 2010. This final extension, however, seems to have created a much weaker sale response, suggesting that the credit may have lived out its effectiveness.

Immediately after the expanded tax credit went into effect, the inventory of existing single-family homes jumped from 6.2 months at the current sales pace to 8 months, primarily due to a sharp increase in

New and Existing Single-Family Home Sales

Millions of units, SAAR

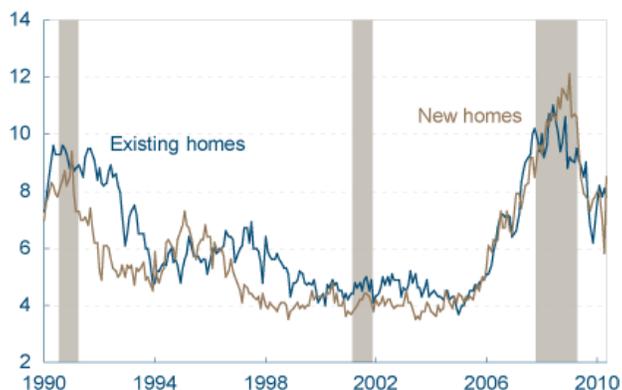
Millions of units, SAAR



Source: National Association of Realtors.

Single-Family Homes for Sale

Months of supply



Note: Shaded bars indicate recessions.
Source: Census Bureau.

the number of homes for sale. This suggests that the decline in inventory that occurred previously might be misleading. One would have hoped that the decline in excess supply is due to demand catching up with it permanently, which would indicate that prices are approaching stable levels. However, the rapid growth in inventory we are experiencing now suggests that there are a significant number of involuntary homeowners, who wish to sell their homes but have been sitting on the sidelines, waiting for the storm to pass. The activity created by the tax credit may have convinced some of them to list their properties for sale. This so-called “shadow inventory” of properties may have a depressing effect on housing prices going forward.

Overall, the housing sector remains on shaky ground and recovery is still a way off. The tax credit gave a temporary boost to the market up until May, and now the question will be whether the housing market can function without it.

Labor Markets, Unemployment and Wages

The Labor Market for Men and Women

07.19.10

by Tim Dunne and Kyle Fee

Over the course of this recession, men have experienced significantly higher unemployment rates than women. The unemployment rate for men rose by 6.7 percentage points from its 2007 average level, peaking at 11.4 percent, while the unemployment rate for women increased by 4.3 percentage points, peaking at 8.8 percent. This pattern of more cyclically sensitive unemployment rates for men has been apparent over the last four recessions.

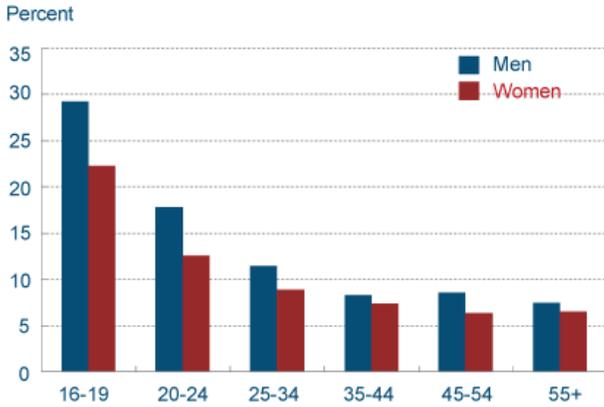
The higher unemployment rates for men compared to women during this cycle are seen in all age groups. For both men and women, unemployment rates generally decline with age. While the elevated unemployment rates of younger men relative to younger women account for some of the overall difference in rates between the two groups, the difference explained is small. This is because the share of younger workers in the labor force is relatively small and the share of women in the young age categories is actually slightly larger than men.

Unemployment Rates for Men and Women



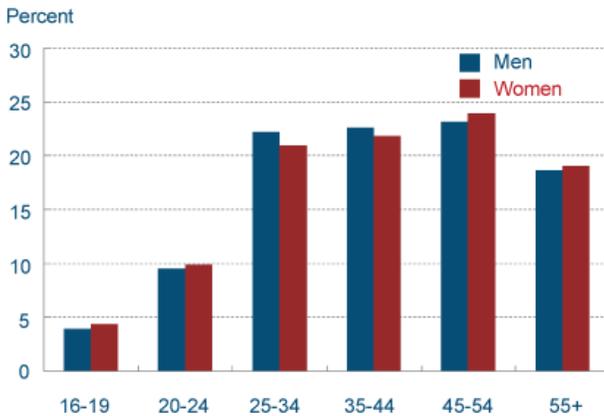
Source: Bureau of Labor Statistics.

Unemployment Rates by Age Group, June 2010



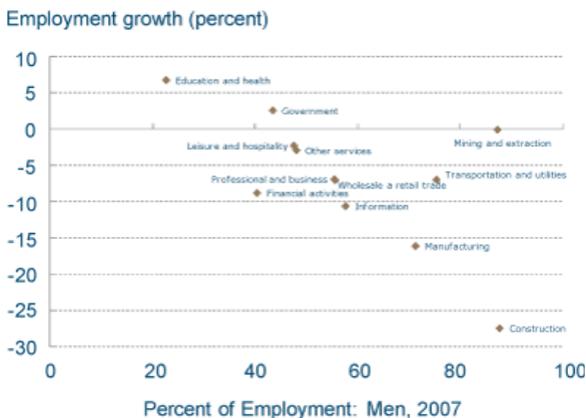
Source: Bureau of Labor Statistics.

Percent of Labor Force by Sex and Age Group, 2009



Source: Bureau of Labor Statistics.

Industry Employment Growth, June 2007-June 2010



Source: Bureau of Labor Statistics.

The key to explaining the difference in unemployment rates between men and women appears to be the fact that men and women are employed in different proportions in different industry sectors. Some sectors dominated by men have experienced above-average job losses and higher unemployment, while the reverse is true in industries with a relatively large share of female employees. This is especially true in those industries at the extremes of the male-female distribution. Construction, the most male-intensive industry, has experienced the highest increases in unemployment rates and the weakest employment growth, whereas the education and health service sector, which has by far the highest share of women, has actually added employment over the recession.

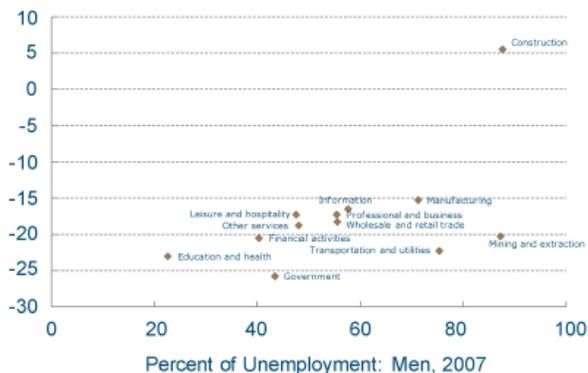
However, if one looks within industries, employment growth for men and women is quite similar. On average, changes in employment growth rates within individual industries did not differ systematically between men and women, as indicated by the fact that the growth rates for men and women within industries fall relatively symmetrically along the 45 degree line of the chart below. If for example, women's employment growth was higher, on average, across industries, one would expect the data points in the scatter plot to lie generally above the 45 degree line. The key point is that within industries, men and women employees experienced very similar employment loss.

The pattern for changes in the unemployment is not quite the same. The change in men's industry-level unemployment rate is, on average, somewhat greater than women's, so the points tend to lie somewhat below the 45 degree line (i.e. less symmetry).

What might explain this difference between the patterns of employment growth and changes in unemployment rates for men and women? One possibility is differences in the duration of unemployment for men and women working in the same industry. While employment growth measures the net job change in a sector, the unemployment rate is a more complicated metric, as it incorporates both the incidence and duration of job loss. Hence changes in unemployment rates can be due

Change in Industry Unemployment Rates, June 2007-June 2010

Unemployment rate change (percent)

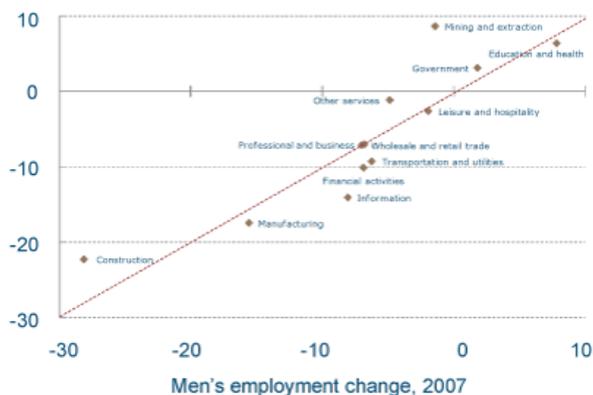


Source: Bureau of Labor Statistics.

to both forces and thus industry patterns of job loss and changes in unemployment rates need not correspond precisely. To be sure, at the aggregate level, men stay unemployed longer than women. In the second quarter of 2010, for example, women remained unemployed 4.2 fewer weeks than men.

Industry Employment Growth by Sex

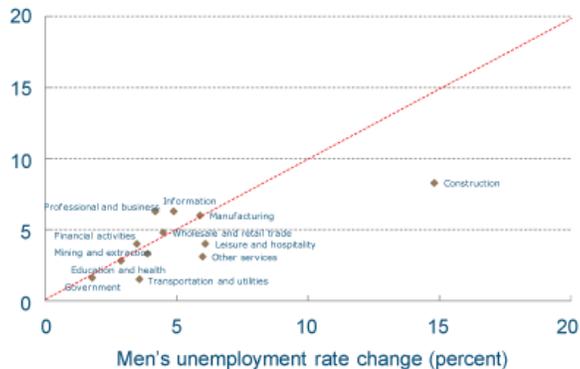
Women's employment change (percent)



Source: Bureau of Labor Statistics.

Changes in Industry Unemployment Rates by Sex, June 2007-June 2010

Women's unemployment rate change (percent)

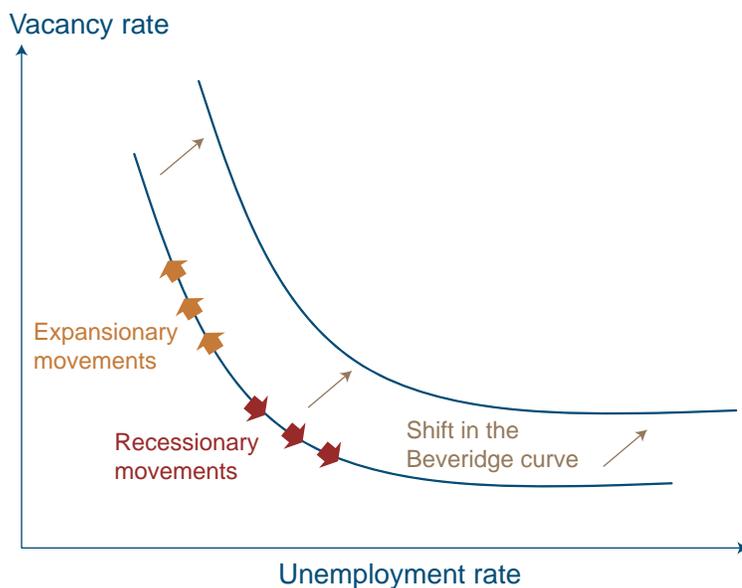


Source: Bureau of Labor Statistics.

08.10.2010

Murat Tasci and John Lindner

Beveridge Curve



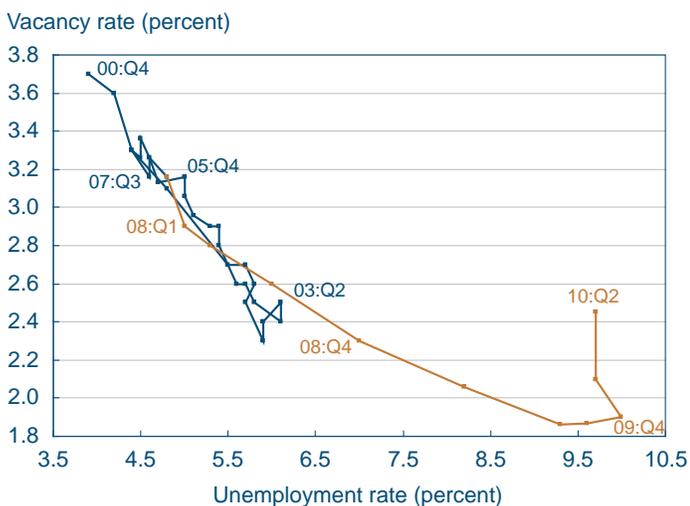
The Beveridge curve is an empirical relationship between job openings (vacancies) and unemployment. It serves as a simple representation of how efficient labor markets are in terms of matching unemployed workers to available job openings in the aggregate economy.

The fact that at any given point in time, there are unemployed workers looking for a job and firms looking for employees to fill their vacancies would be an anomaly in perfectly functioning markets. Economists attribute this apparent anomaly to frictions in the labor markets that prevent it from allocating unemployed workers to firms that are looking for employees. These frictions might take the form of skill-job mismatches, geographical mismatches, the cost of recruitment and job search, etc. Such frictions are typical, and we observe some level of vacancies and unemployment even in well-functioning labor markets. The Beveridge curve represents this equilibrium in the labor market over time in terms of these two variables.

Economists study movements in this curve to identify changes in the efficiency of the labor market. It is common to observe movements along this curve over the course of the business cycle. For instance, as the economy moves into a recession, unemployment goes up and firms post fewer vacancies, causing the equilibrium in the labor market to move downward along the curve (the red arrows in the figure above). Conversely, as the economy expands, firms look for new hires to increase their production and meet demand, which depletes the stock of the unemployed.

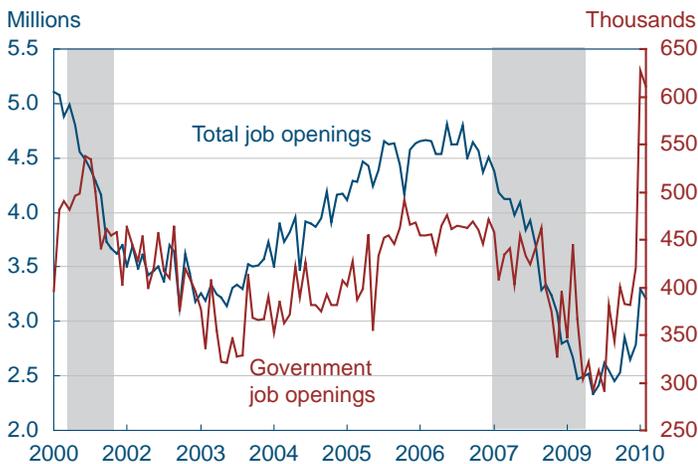
While the point of equilibrium can shift up and down the Beveridge curve, the entire curve can shift as well. Shifts in the Beveridge curve indicate changes in the matching efficiency of the labor market. A structural change might move the economy to equilibrium on a different Beveridge curve. An example of this might be fundamental

Beveridge Curve



Note: Data are quarterly, span the period 2000:Q4–2010:Q2, and are seasonally adjusted.
Source: Bureau of Labor Statistics (JOLTS and CPS data).

Job Openings



Note: Gray bars indicate recessions.
Source: Bureau of Labor Statistics (JOLTS).

technological change which creates a gap between the skills needed for open vacancies and the skill set of the unemployed. In this case, for the same level of job openings, equilibrium unemployment will be higher, illustrated by the Beveridge curve shifting up and to the right.

An economywide measure of vacancies is provided by the Job Openings and Labor Turnover Survey (JOLTS) published by the Bureau of Labor Statistics (BLS). According to the survey, the level of job openings has been increasing over the second quarter of 2010, spiking above 3 million for the first time since December 2008. The BLS also reports a job openings rate, which is the level of job openings as a percent of total employment plus the job openings level. This rate has been rising coincidentally with the job openings level, recently topping 2.5 percent. While there have been improvements as of late, both the vacancy level and rate are below their historical averages after dropping to all-time lows during the most recent recession. It is important to note that while vacancies have been rising, the unemployment rate has lingered well above 9 percent, spurring debate as to whether there has been a shift in the Beveridge curve.

The visible change in the Beveridge curve in the past two quarters suggests that the labor market's longer-term adjustment process may have been adversely impacted by the recession. However, a closer look at the data reveals that part of the rise in job openings in April and May was due to Census recruitment by the federal government. Looking at the figure below, the level of government job openings spiked in April and May 2010 and pushed the rate of government job openings from 1.8 percent in March to 2.7 percent in April and 2.6 percent in May.

This Census effect is actually larger when one takes into account the recent reduction in state and local government job openings, as states and cities tighten their budgets. Removing the federal government's reported surge in job openings reduces the job openings rate by 0.2 percentage point for both of these months, reducing the quarterly rate to 2.23 percent from 2.45 percent. A similar calculation for the first quarter of 2010, which was not

Conference Board Help Wanted Indexes



Note: The gray bars represent recessions.
Source: Conference Board.

affected by Census hiring, only reduces the overall rate to 2.03 percent from 2.1 percent.

The drawback to the data we have looked at so far is that they do not cover most of the postwar period. JOLTS data cover only the two most recent recessions. To get a longer-term picture and put the current movements in the context of a broader pattern, we need a measure of vacancies that starts before December 2000, when the JOLTS started. One candidate is the Conference Board's Help-Wanted Print Advertising Index (HWPAI), which starts in 1951. However, with the advances in computer technologies and the internet, print advertising has declined, especially since 1995, and this index has become a much less reliable measure of aggregate vacancies.

Recently, the Conference Board started to publish the Help-Wanted Online Advertising Index (HWOAI), which begins in May 2005. If we combine the data from the HWPAI, HWOAI, and JOLTS, we can get a longer-term look at the data. One can construct a composite index for vacancies from these sources by a simple method to have a consistent data that spans most of the postwar business cycles in the United States.

One important observation is that a longer-term look at the Beveridge curve shows that the dynamics we have seen recently are not an exception, but are common during the recovery phase of business cycles. As the economy starts improving, it takes time to deplete unemployment, even though job openings are relatively quick to adjust.

Hence, cyclical changes may not necessarily present themselves as they are displayed in the first figure above, as a neat movement along the curve. During and after recessions in the postwar period, the Beveridge curve has generally followed a pattern of shifting to the right during a recovery. One potential reason for this could be that even though some unemployed workers start filling the available job openings, workers who had left the labor force might get encouraged by the recovery and start looking for a job, thereby keeping the unemployment high. While the Census may have skewed the data for this recovery, the path of the curve going forward looks poised to follow in the footsteps of

previous recessionary periods. Firm conclusions will only be able to be drawn as more data are generated.

Banking and Financial Markets

The Yield Curve and Predicted GDP Growth, July 2010

August 10, 2010,
 Covering June 18, 2010–July 23, 2010
 Joseph G. Haubrich and Timothy Bianco

Highlights

	July	June	May
3-month Treasury bill rate (percent)	0.16	0.09	0.17
10-year Treasury bond rate (percent)	2.97	3.26	3.33
Yield curve slope (basis points)	281	317	316
Prediction for GDP growth (percent)	1.14	1.0	0.98
Probability of recession in 1 year (percent)	15.5	12.4	9.9

Overview of the Latest Yield Curve Figures

Since last month, the yield curve has flattened, as long rates dropped and short rates edged up. The three-month Treasury bill rate rose 0.16 percent from June's 0.09 percent--nearly back up to May's 0.17. The ten-year rate dropped to 2.97 percent, down from June's 3.26 percent and also below May's 3.33 percent. The slope dropped a full 36 basis points to 281 basis points, well below the June number of 317 basis points, and May's 316 basis points.

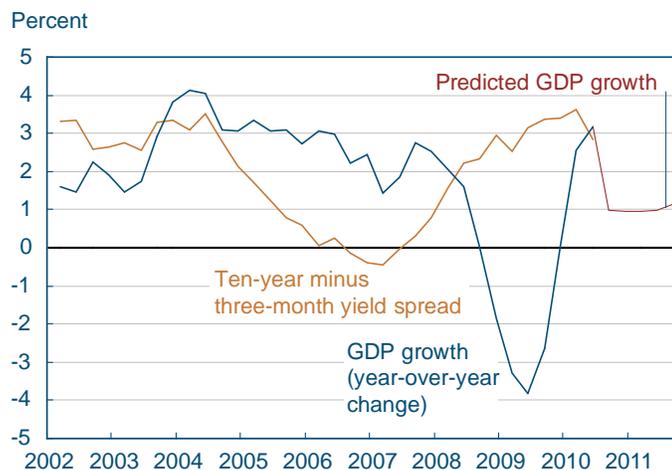
Projecting forward using past values of the spread and GDP growth suggests that real GDP will grow at about a 1.14 percent rate over the next year, just up from June's prediction of 1.00 percent. Although the time horizons do not match exactly, this comes in on the more pessimistic side of other forecasts, although, like them, it does show moderate growth for the year.

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 July rises to 15.5 percent, up from June's 12.4 percent, and May's 9.9 percent, something not surprising given the drop in the spread.

The Yield Curve as a Predictor of Economic Growth

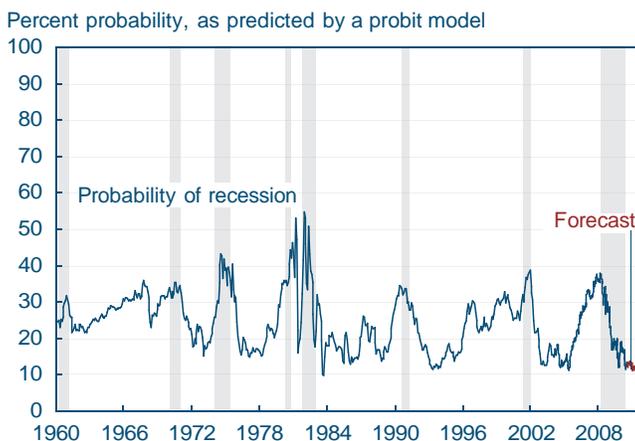
The slope of the yield curve—the difference between the yields on short- and long-term maturity bonds—has achieved some notoriety as a simple forecaster of economic growth. The rule of thumb is that an inverted yield curve (short rates above long rates) indicates a recession in about a year, and yield curve inversions have preceded each of the last seven recessions (as defined by the NBER). One of

Yield-Curve-Predicted GDP Growth



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

Recession Probability from Yield Curve



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

the recessions predicted by the yield curve was the most recent one. The yield curve inverted in August 2006, a bit more than a year before the current recession started in December 2007. There have been two notable false positives: an inversion in late 1966 and a very flat curve in late 1998.

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

Predicting GDP Growth.

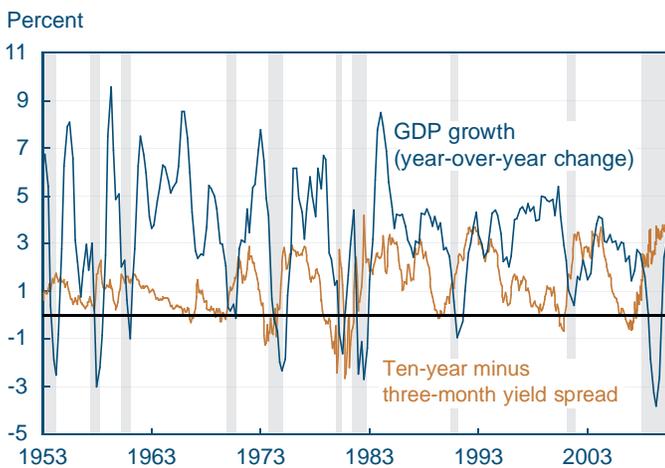
We use past values of the yield spread and GDP growth to project what real GDP will be in the future. We typically calculate and post the prediction for real GDP growth one year forward.

Predicting the Probability of Recession.

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

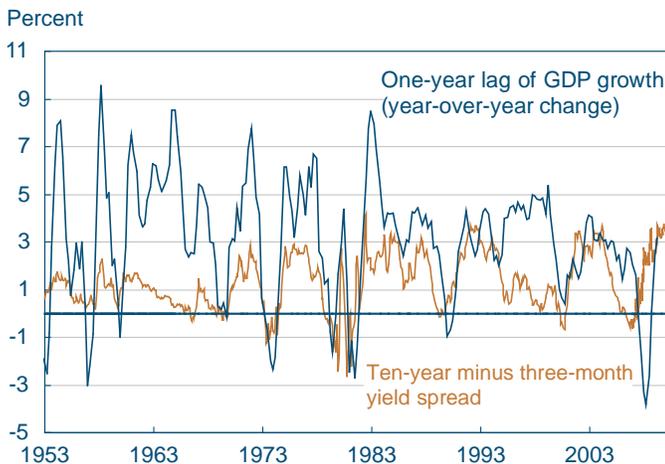
Of course, it might not be advisable to take these numbers quite so literally, for two reasons. First, this probability is itself subject to error, as is the case with all statistical estimates. Second, other researchers have postulated that the underlying determinants of the yield spread today are materially 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?” The Federal Reserve Bank of New York

Yield Curve Spread and Real GDP Growth



Note: Shaded bars indicate recessions.
Source: Bureau of Economic Analysis; Federal Reserve Board.

Yield Spread and Lagged Real GDP Growth



Sources: Bureau of Economic Analysis, Federal Reserve Board.

also maintains a website with much useful information on the topic, including its own estimate of recession probabilities.

For more information on other forecasts, please visit <http://online.wsj.com/public/resources/documents/info-flash08.html?project=EFORECAST07>

For more the New York Fed's website, please visit http://www.newyorkfed.org/research/capital_markets/ycfaq.html

You can find the Commentary, "Does the Yield Curve Signal Recession?," by Joseph G. Haubrich (2006) at <http://www.clevelandfed.org/Research/Commentary/2006/0415.pdf>.

International Markets

Renminbi Peg: On Again, Off Again

07.28.10

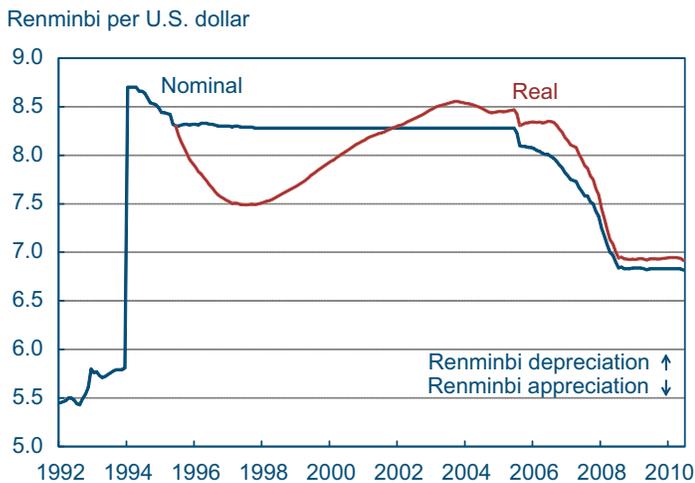
by Owen F. Humpage and Beth Mowry

On June 19, the People's Bank of China indicated—once again—that it would loosen its grip on the renminbi-dollar exchange rate and allow the renminbi to appreciate against the dollar. Since then, the renminbi has appreciated a meager 0.7 percent against the dollar. All else constant, a renminbi appreciation should raise the dollar price of Chinese goods, lower the renminbi price of U.S. goods, and whittle away at our trade deficit with that country. Still, unless the exchange rate moves by a substantial amount, we probably will not see much of an effect.

Between mid 2005 and mid 2009, when the People's Bank of China previously loosened its grip on the renminbi-dollar exchange rate, the renminbi appreciated approximately 20 percent on both a nominal and a real basis against the dollar. (The real basis is what matters for assessing competitive patterns, because it accounts for price pressures in both the United States and China.) If this appreciation had any effect on the U.S. merchandise trade deficit, it is imperceptible in the data. The U.S. merchandise trade deficit with China continued to grow from \$17.6 billion in June 2005 to around \$21 billion as the global economic slump settled in and dampened worldwide trade.

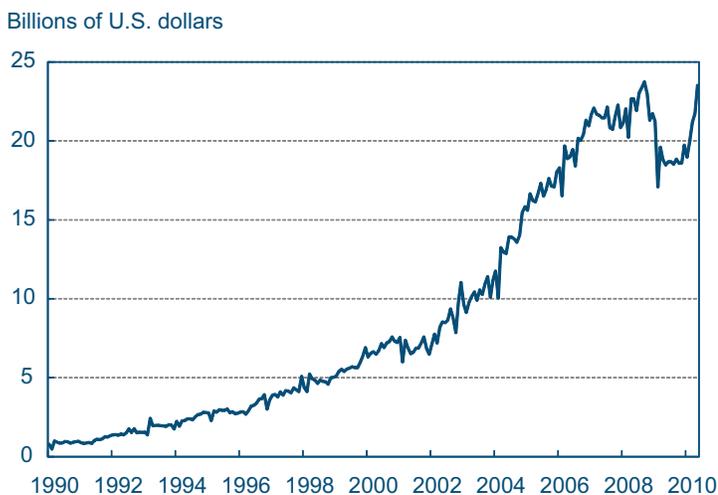
Over this same time period, China's current-account surplus rose sharply. It reached 10 percent of GDP in 2007 before narrowing in 2008 and 2009. As a result, foreign-exchange reserves flowed into the People's Bank. When the bank acquires foreign

Renminbi–Dollar Exchange Rate



Source: International Monetary Fund, International Financial Statistics.

U.S. Merchandise Trade Deficit with China



Source: U.S. Census Bureau.

exchange, it pays out renminbi, which should expand China's monetary base. The People's Bank of China, however, does not let this happen. To avoid the inflationary consequences of a rapidly expanding monetary base, the bank sells bonds into the banking system, thereby offsetting the consequential rise in the monetary base. Between 2005 and 2009, the People's Bank of China prevented 43 percent of its acquisition of foreign exchange reserves from passing through to the monetary base. Had it not offset the impact of reserve accumulation on the monetary base, inflation in China would have been higher, and China's competitive position would have been weaker.

Banking and Financial Markets

Bank Loans: Still Contracting

08.10.2010

Timothy Bianco and Filippo Occhino

Information from various sources suggests that the number of loans that banks are making to businesses continues to fall. The contraction appears to be driven by both supply and demand; banks are extending less credit, and businesses are asking for less. The restriction of credit may be one important factor that is constraining the current recovery, since businesses, especially small ones, rely on bank loans and access to credit to finance their operations, capital expenditures, and growth.

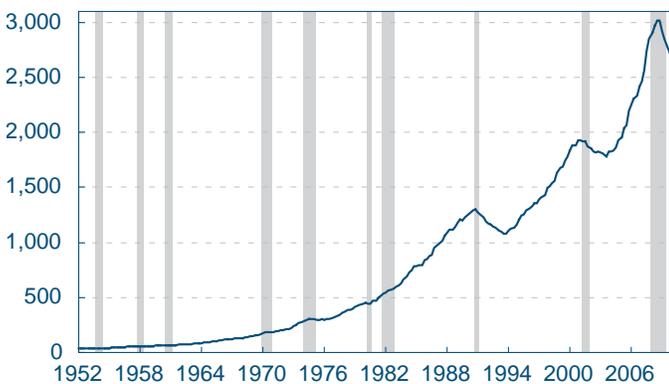
Bank lending has decreased by 11 percent relative to its 2008 peak. This represents the second largest percentage decline after the one that occurred in 1990–1993. Lines of credit have been greatly reduced as well, according to anecdotal evidence.

The rapid pace of the decline is especially conspicuous when lending growth is compared across past recession-recovery cycles. Loans have tended to increase on average during the recovery phase. Only in 1990–1993 did loans decline at a comparable pace at this stage of the business cycle.

Tight lending standards have contributed to the decline in loans. Evidence that current lending standards are unusually tight comes from the Senior Loan Officer Survey, which asks officers of large banks how their credit standards for commercial

Nonfarm Nonfinancial Corporate Business Loans

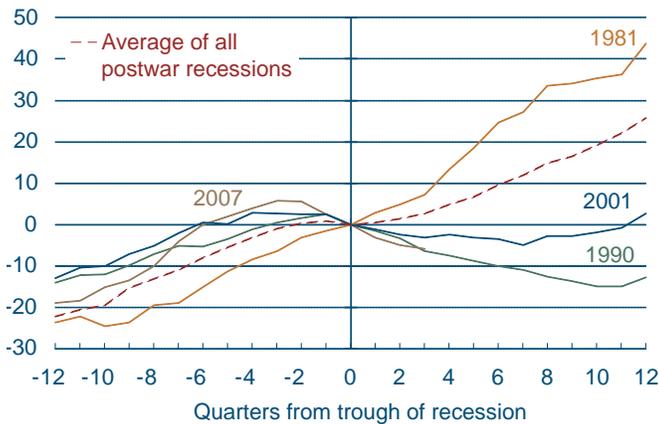
Billions of dollars



Sources: Flow of Funds; NBER.

Nonfarm Nonfinancial Corporate Business Loans

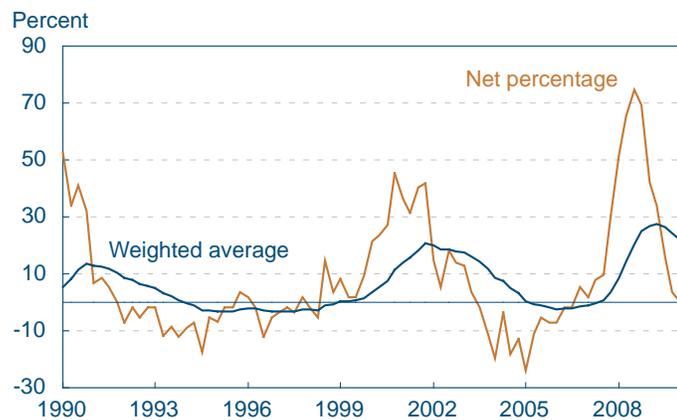
Percentage change



Note: We assume that the trough of the past recession occurred in the second quarter of 2009.

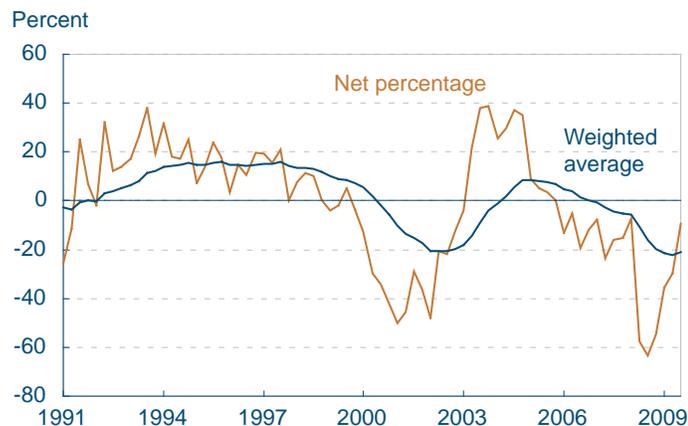
Sources: Authors' calculations; Flow of Funds; NBER.

Net Percentage Reporting Tightening Standards for C&I Loans to Small Firms



Note: Responses regarding large and medium firms convey a similar message.
Sources: Federal Reserve Board; authors' calculations.

Net Percentage Reporting Stronger Demand for C&I Loans by Small Firms



Note: Responses regarding large and medium firms convey a similar message.
Sources: Federal Reserve Board; authors' calculations.

and industrial loans or credit lines have changed over the past quarter. Officers reporting tightened standards have been outweighing those reporting eased standards for over three years. Since standards have been tightening for so long, their current level must be very tight. To see this clearly, we compute an index of how tight lending standards are, using a moving average of the net percentage of those reporting tighter standards. (More precisely, the index is a weighted average of current and past net percentage balances, with larger weights on more recent observations and smaller weights on older observations). This index is currently close to its historical peak, confirming that current lending standards are very tight.

Weak demand for loans has contributed to the decline in loans as well. The Senior Loan Officer Survey also asks how the demand for commercial and industrial loans has changed over the past quarter, and officers reporting weaker demand have been outweighing those reporting stronger demand for almost four years. Since demand has been weakening for so long, its current level must be very low. A moving average of the net percentage reporting stronger demand is currently close to its historical low, confirming that current loan demand is very weak.

For insight into what might be causing the decline in bank credit, we looked at some anecdotal evidence on small business credit. In 2010, the Federal Reserve hosted more than 40 meetings with bank and business representatives to gather information and perspectives on the credit needs of small businesses. The addendum to the Fed's July 2010 report to Congress contains a summary of the main results. Participants reinforced the conclusion that declines in both supply and demand have contributed to the contraction in small business credit.

With regard to supply, participants emphasized that bank lending standards remain tight and that the availability of credit is restricted. To extend new loans and renew old ones, banks require stronger cash flows, larger collateral values, and higher credit scores. One important reason why banks are tightening credit seems to be their concern for their current and expected capital and liquidity positions.

Participants also reported that loan demand from small businesses is weaker, that the demand for loans and credit from creditworthy businesses has fallen, and that the quality of loan applications from small businesses has deteriorated. A few factors help explain the decrease in small business loan demand: the economic downturn, which has diminished sales for many small businesses, the uncertainty about business prospects and the economic outlook, and the deterioration in small businesses' financial conditions.

Banking and Financial Markets

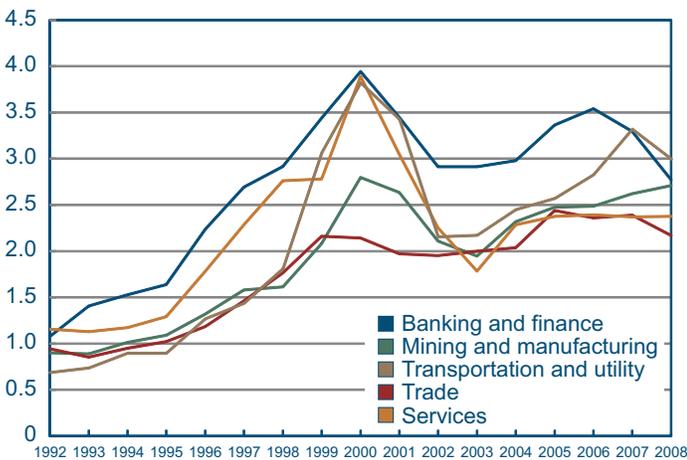
Bank Executive Pay

07.30.10

by Jian Cai and Todd Milbourn

Total Executive Compensation by Industry

Millions of U.S. dollars



Source: ExecuComp.

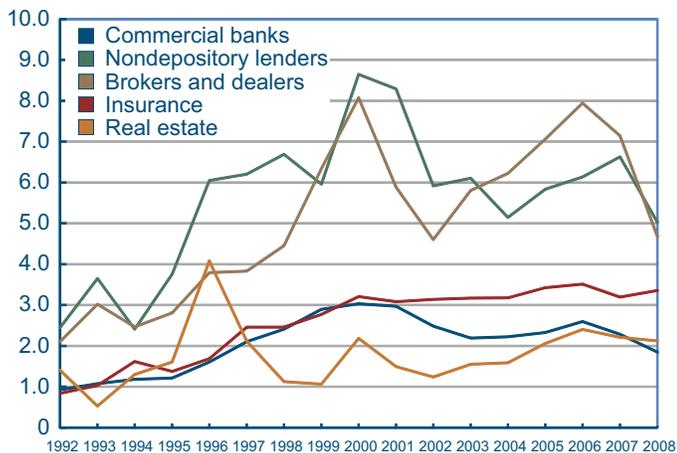
In the wake of the financial crisis and the unprecedented government intervention that followed, the compensation of bank executives has been heavily criticized. Some claim that it encouraged financial institutions to take excessive risks and had a hand in precipitating the crisis. To gain some understanding on the issue, we examine trends in executive compensation in the banking and finance industry over the past couple of decades. We look at whether bank executives received higher pay than executives in other industries and whether compensation patterns have implications for banks' risk-taking behavior.

Compensation rose steadily for executives in all industries from 1992 to 2000. Banking and finance executives were the best compensated executives of any industry over the period, and they reached their highest levels of pay in 2000, with the average compensation totaling nearly \$4 million. They were followed closely by executives in the service, transportation, and utility industries.

Total compensation declined significantly after the dot-com bubble burst in 2000. Banking and finance executives saw their pay fall around that time for two years straight (2001-2002) and then stay flat for another two (2003-2004). Then, as the credit boom took hold before the financial crisis, the pay of banking and finance executives picked up again in 2005, and it reached its second-highest

Total Executive Compensation in Banking

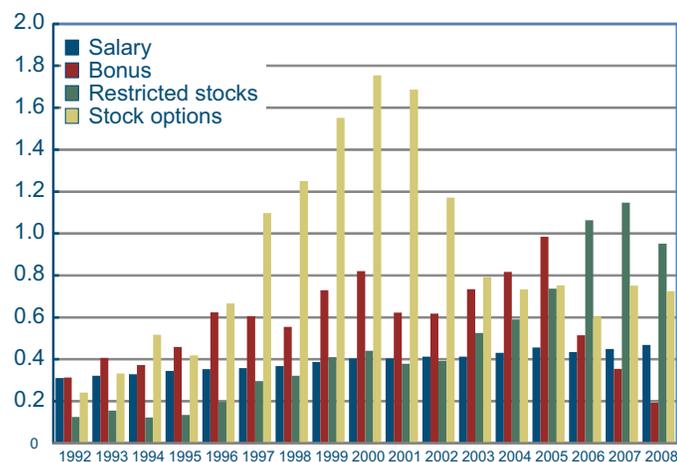
Millions of U.S. dollars



Source: ExecuComp.

Types of Executive Compensation in Banking

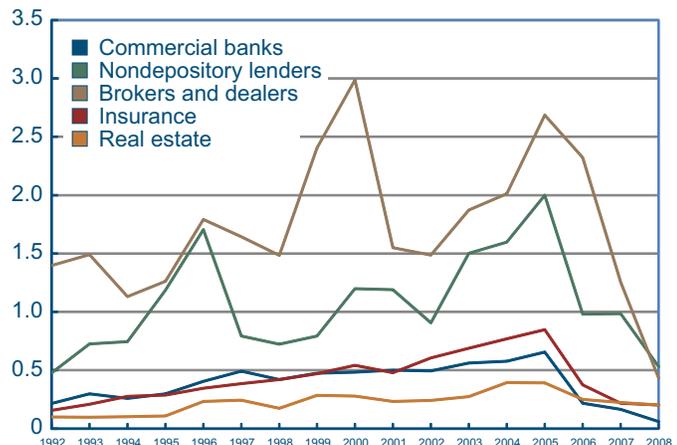
Millions of U.S. dollars



Source: ExecuComp.

Bonuses Received by Executives in Banking

Millions of U.S. dollars



Source: ExecuComp.

level in 2006. Thereafter, however, total compensation for bank executives declined more than 20 percent, falling from \$3.5 million in 2006 to \$2.8 million in 2008. It is expected to continue to decline as the federal government unfolds its plan for regulating compensation at financial institutions. As a result of the downward trend, banking and finance lost its position as the highest executive-paying industry in 2007 to transportation and utilities, and mining and manufacturing caught up with it in 2008.

The banking and finance industry can be divided into five groups: commercial banks, nondepository credit institutions (lenders), securities and commodities brokers and dealers, insurance, and real estate. Overall, nondepository lenders and brokers and dealers pay their executives most and account for most of the volatility in compensation across the entire industry. Following a trend that is similar to the industry as a whole over time, executives working for nondepository lenders and brokers and dealers received \$2.1-2.4 million in 1992, which had more than doubled to \$4.7-5.0 million by 2008 despite obvious drops in total compensation figures among brokers and dealers since 2006 and among nondepository lenders since 2007.

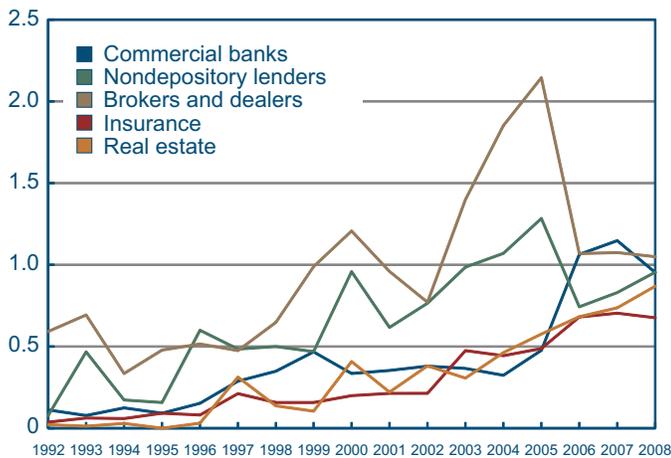
Executive pay at commercial banks, insurance firms, and real estate companies trailed far behind the industry leaders. The trend at commercial banks is almost identical to the industry as a whole, though with ups and downs of smaller scales, and their executive pay in 2008 was the lowest among all groups, with an average of \$1.8 million.

Insurance companies have increased their executive pay steadily since 1992, regardless of economic conditions, reaching an average of \$3.4 in 2008. Executive pay at real estate companies spiked in 1996, then declined sharply through 1998, and increased continuously from 2002 to 2006, all of which seems related to movements in the housing market. In 2008, real estate companies offered an average of \$2.1 million to their executives, slightly more than commercial banks.

There are four main types of compensation: salary, bonuses, restricted stocks, and stock options. Though it is the base for all other types of compen-

Restricted Stocks Received by Executives in Banking

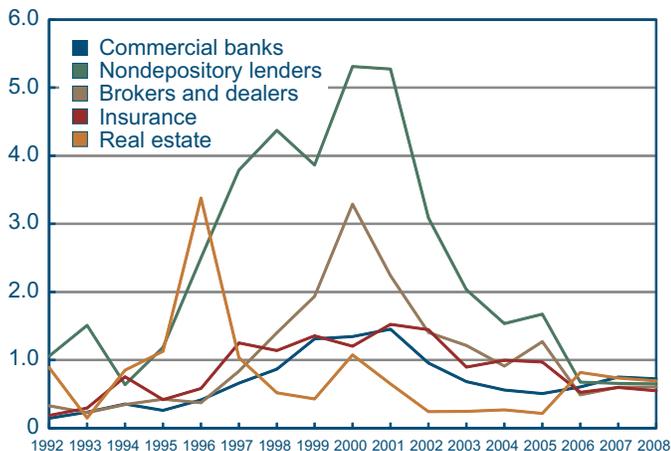
Millions of U.S. dollars



Source: ExecuComp.

Stock Options Received by Executives in Banking

Millions of U.S. dollars



Source: ExecuComp.

sation, salary comprises only a small portion of total compensation. For most of the years we've been looking at, salaries trailed bonuses (until 2006), restricted stocks (since 2003), and stock options (since 1994). Moreover, salaries increased steadily but slowly from \$311,000 in 1992 to \$468,000 in 2008, which was equivalent to an annual raise of 2.6 percent.

In the meantime, bonuses, which are typically tied to short-term financial performance, increased from 100 percent of salary in 1992 to 216 percent in 2005, then dropped by half to 118 percent in 2006 and more than another half to 41 percent in 2008. The boost in bonus payments up to 2005 might have encouraged bank executives and employees to take actions that favored short-term profitability at the expense of long-term financial health, and the subsequent drop could be a response to the general public's criticism as well as a reflection of declining profits (which could be the result of earlier activities of "short-termism").

Stock and stock option grants are usually considered to be a means of providing managerial incentive for developing long-term growth and profitability. When given the firm's equity or the option to acquire equity at a price that is below the market price, managers are likely to act more like shareholders. Holding too many shares or options can induce managers to take on higher risk, though. We see that the value of restricted stock grants has increased significantly over time, especially since 2003, whereas stock options dominated during the period of 1997 to 2002 (possibly due to the favorable accounting treatment for granting employee stock options at that time), then faded to some degree and stayed fairly constant at \$600,000-700,000 in later years.

Now let's look at how three specific types of compensation—bonuses, restricted stocks, and stock option—varied across the five groups in banking and finance over time. These trends may provide us with some ideas about who was more likely to engage in activities of short-termism or take on excessive risk and at what time.

First, commercial banks, insurance firms, and real estate companies stayed quite close to one another

in terms of the level of bonuses paid from 1992 to 2005. All of these sectors witnessed a persistent, gradual rise in bonuses over the period, yet a sharp decline afterward. Securities and commodities brokers and dealers paid the highest bonuses, but the figures changed considerably from year to year. Nondepository lenders offered the second-highest bonuses, and in a few years (1995, 1996, and 2008), their bonuses actually equaled those of brokers and dealers.

Second, commercial banks, insurance firms, and real estate companies, again, stayed quite close together in terms of restricted stock grants, whereas there were more variations in stock offerings at brokers and dealers as well as nondepository lenders. One noticeable change over time is that restricted stock grants at commercial banks have more than doubled since 2005. Stocks with an average market value of \$850,000 to \$1 million per executive were offered in 2008 among all banking and finance groups except insurance companies.

Third, all of the banking and finance groups except real estate companies increased the amount of stock options granted to executives between 1996 and 2000, but have, in general, decreased them thereafter. Between 1997 and 2005, nondepository lenders offered the highest value of stock options, followed by brokers and dealers, insurance companies, commercial banks, and real estate companies. The option value offered by real estate companies reached its peak in 1996. Finally, the differences between these groups in stock options granted have been getting smaller since 2006.

State Revenue Declines in the Fourth District

08.10.2010

Stephan Whitaker

Each state in the Fourth District has experienced substantial declines in tax revenue during the most recent recession. Those of us outside the statehouses might not be surprised to hear this, but we may not know the details. How much are revenues down? Did one source of revenue take a bigger hit than others? Are additional tax rate increases and service cuts looming in the near future, or are revenues leveling out?

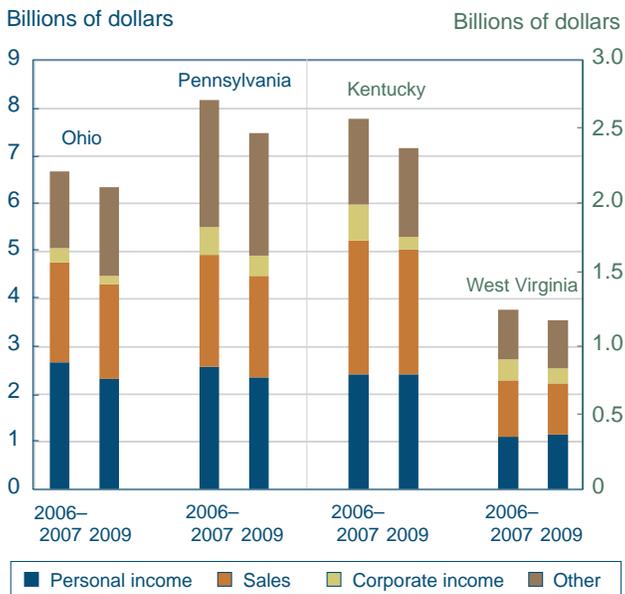
The slide in state revenues can be characterized by comparing each state's recent revenue peak to its trough. Over this cycle, total revenue fell between 10 percent and 13 percent for all four states in the Fourth District. These declines are close to that which is seen in the national total of state revenue. To put the recent collection numbers in perspective, consider that Pennsylvania, Kentucky, and West Virginia collected about as much real revenue in the four quarters ending 2010:Q1 as they collected in 2004 or 2005. Ohio has been set back further, to 2003 levels. Although Ohio's decline from its peak is less than the national decline, Ohio experienced less growth in revenue during the prior expansion period.

Peak to Trough Declines in Total State Revenue

	Peak		Trough		Decline	Quarter level last seen in
	Ending	Total (billions of dollars)	Ending	Total (billions of dollars)		
Ohio	2008:Q2	27.9	2010:Q1	25.0	11.6	2003:Q4
Pennsylvania	2007:Q4	33.4	2010:Q1	29.6	12.9	2004:Q2
Kentucky	2007:Q1	10.6	2010:Q1	9.6	11.0	2005:Q1
West Virginia	2007:Q3	5.1	2010:Q1	4.7	10.6	2005:Q2
United States	2007:Q3	799.0	2010:Q1	698.5	12.6	2004:Q2

Notes: The figures are summed over four quarters to smooth the highly seasonal revenue flows. The four-quarter sums are labeled by the ending quarter. All figures are adjusted for inflation to 2010 dollars, using the Consumer Price Index.
Source: U.S. Census Bureau; Haver Analytics.

Average Quarterly Revenue by Source



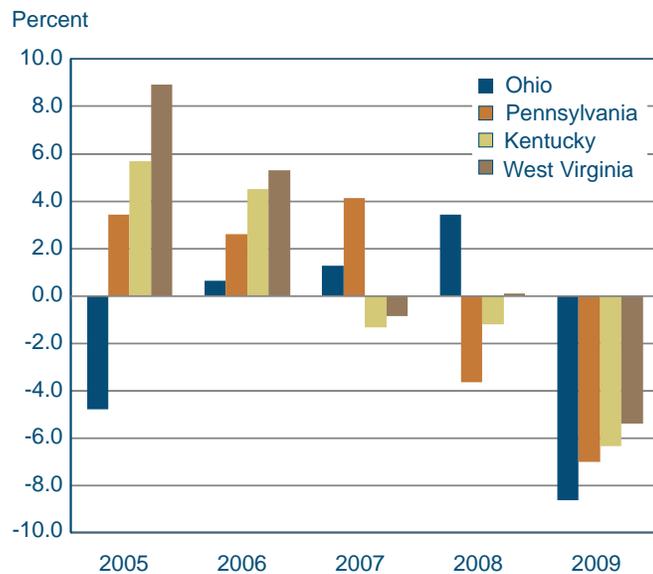
Notes: The scale for Ohio and Pennsylvania is on the left axis and the scale for Kentucky and West Virginia is on the right axis. Units are millions of 2010 dollars.

Source: US Census Bureau; Haver Analytics.

Breaking the state's revenue down into its major sources reveals how the revenue mix has changed from years before the recession (2006 and 2007) to the year containing the latter part of the recession (2009). The four states included in the Fourth District have similar revenue shares. Each collects the majority of its revenue through taxes on personal income and sales. Corporate income taxes and a variety of other taxes and fees provide the remainder of the revenue.

We can see that revenue was lower in each state in 2009. Corporate income taxes are down approximately 30 percent in Pennsylvania and West Virginia, and down 64 percent in Kentucky. Personal income taxes are down 12 percent in Ohio. This is partially offset by a 16 percent increase in Ohio's other taxes and fees. West Virginia collected 11 percent less sales tax, but 5 percent more personal income tax. Overall, the 2009 collections are still 90 percent or more relative to the 2006–2007 average collections.

Total State Revenue Year-over-Year Growth Rates



Notes: The data represent real growth, after adjusting for inflation using the Consumer Price Index.

Source: U.S. Census Bureau; Haver Analytics.

Looking over a slightly longer horizon, most states posted strong gains in total revenues in 2005 and 2006, but the growth in revenues was beginning to decelerate prior to the recession in three of the four states. Revenues shrank or grew modestly in 2007 and 2008. The precipitous drop in total state revenue is concentrated in 2009.

How do early revenue figures look for 2010? If we compare revenue for individual quarters, the growth rates of the 2010:Q1 figures over 2009:Q1 are still negative: Ohio revenues grew -5.5 percent, Pennsylvania -3.9 percent, Kentucky -2.1 percent, and West Virginia -6.4 percent. These declines are less steep than the 2009 annual declines except in West Virginia. However, it is too early to declare that state revenue collections have turned the corner.

Falling state revenues are a concern because balanced-budget requirements force state lawmakers to choose between cutting expenditures or raising tax rates. Either of these can have the opposite impact of a fiscal stimulus and slow economic activity. States have been cutting expenditures, although the cuts have been partially mitigated by federal transfers through the American Recovery and Reinvest-

ment Act and the use of the state's own rainy day funds. The states of the Fourth District will continue to face challenges in balancing revenue and expenditures until more robust economic growth returns.

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