

Economic Trends

March 2007

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The Economy in Perspective

03.09.07

by Mark S. Sniderman

Liquidity¹...Lately, I've been hearing people say that the world is awash in liquidity. What they mean is that just about anyone can raise money on the cheap to buy nearly anything they want—from a house to a portfolio of commercial office buildings, or, if you prefer, from a cell phone to a cellular network. You want it? Someone will lend you the money to buy it. Is this an apt description of financial markets?

Financial conditions in the housing market no longer quite fit this description, although they did until recently. During the 1990s, housing prices increased at annual rates very near the overall inflation rate, about 3 percent per year. With the recession and weak recovery came lower short-term interest rates that stayed low for a long time. The federal funds rate sojourned in the range of 1 percent–1-1/2 percent from 2002 to mid-2004. When the FOMC finally did move to raise its funds rate target in 2004, it did so at a measured pace. Short-term interest rates rose, but longer-term rates did not increase proportionately; as a result, the yield curve flattened out. Interest rates in many other developed economies were relatively low as well.

The root cause of the low-rate environment may well be the global savings glut that is still being driven by developing economies and oil-producing nations. Simply put, some nations cannot absorb all of their domestic savings domestically, and therefore look for investment opportunities elsewhere. The global savings glut depresses the real rate of interest and leads central banks to lower their interest rates lest their monetary policies become too restrictive.

Low interest rates made housing more affordable, but several other circumstances undoubtedly helped. Financial institutions have become more adept at marketing home equity lines of credit, and consumers have become more willing to tap into these lines to meet their needs. Even if the house itself is not necessarily more liquid, the equity in it is. The transaction costs of taking out these lines have fallen steeply over time, making the house a more attractive asset.

Another financial innovation that has made houses more attractive to investors is financial institutions' ability to price credit and duration risk more discretely. They can package mortgage loans in pools with specified risk profiles and match them with lenders who have similar risk profiles. Tailoring mortgage pools by risk profile creates a more efficient mortgage market for homebuyers and investors, reducing funding costs and minimizing the outright rationing of credit to risky borrowers. Other things equal, more credit will be extended, more housing demand will be satisfied in the marketplace, and houses will command a higher price.

As measured by the OFHEO Index, house prices started increasing at a rate of about 5 percent in 2000, accelerated into the 6 percent–8 percent range for the next several years, and then really took off. House prices soared into the 10 percent–15 percent range in 2004, 2005, and early 2006. And these national averages mask exceedingly large price increases in the hottest housing markets in the country.

As with the stock market's boom and bust in the second half of the 1990s, many people recognize that an asset's price can keep rising only as long as it keeps generating more income or more potential future income. At some point, the asset's ability to satisfy this condition becomes so doubtful that lenders pull back. When this happens, a liquid market can become illiquid seemingly overnight, exposing highly leveraged market participants to loan repayments and limiting their ability to sell the asset without sustaining a loss. The more people rush to the exits, the more prices would have to fall to clear the market, thus exacerbating the situation.

We are in the midst of a substantial housing market correction, with no telling how long it will take for the sup-

ply of available houses—which swelled much faster than usual during the past few years—to become more closely aligned with the diminished demand for them. It is not clear how much price adjustment will be required to restore balance to the market. Nor is it clear which investors stand to lose, and how much. Most of the highest-risk mortgage credit advanced in the last few years originated outside the commercial banking system, so it is difficult to know where the defaults will occur.

The still-unfinished saga of the mortgage credit industry should give us pause about investments outside of the housing sector. Investors are paying increasingly handsome sums for commercial and industrial companies, but many of these deals make economic sense only if the new owner can significantly enhance the property’s value or if the asset’s value appreciates greatly over time. These are risky propositions.

We are witnessing the deployment of global capital, intermediated through new forms of financial institutions using new kinds of financial instruments. Capital markets may be increasingly able to match risk-taking investors with equally risky ventures, and the inevitable failures may prove to be isolated and immaterial for the financial system as a whole. At the same time, the most recent declines in global equity markets and preferences for higher-quality investments may signal a recognition that from time to time, too much liquidity can transform assets into liabilities.

1. As I completed this “Economy in Perspective,” Federal Reserve Board Governor Kevin M. Warsh delivered remarks on liquidity at a conference in Washington, D.C. You can find his thoughtful remarks here. [Back to article]

Inflation and Prices

January Price Statistics

January Price Statistics

3.08.07

by Michael Bryan and Linsey Molloy

Retail prices seemed to have spiked in January following three months of moderate monthly increases. While the Consumer Price Index rose 2.1 percent (annualized), the CPI excluding food and energy and the 16% trimmed-mean each rose 3.1 percent (annualized). Both the CPI excluding food and energy and the 16% trimmed-mean increased at rates exceeding their 12-month trends, which were between 2-1/2 and 2-3/4 percent.

The January price report revealed that the cost of medical care posted its largest increase in 16 years—up 10.1 percent (annualized). According to the Bureau of Labor Statistics, this component alone accounted for about 60 percent of the acceleration in the core CPI in January, which followed a string of very favorable reports. The surge in medical care reflected a jump in prescription drugs and medical supplies, as well as a 15.1 percent climb in physicians’ services. Medical care is generally a

	Percent change, last					2006 avg.
	1mo. ^a	3mo. ^a	6mo. ^a	12mo.	5yr. ^a	
Consumer Price Index						
All items	2.1	2.7	0.0	2.1	2.7	2.6
Less food and energy	3.1	2.0	2.2	2.7	2.0	2.6
Median ^b	2.4	3.0	3.4	3.6	2.7	3.6
16% trimmed mean ^b	3.1	6.2	2.3	2.6	2.3	2.7
Producer Price Index						
Finished goods	-7.2	8.7	-0.9	0.2	3.1	1.8
Less food and energy	2.3	2.4	2.8	1.8	1.3	2.2
Personal Consumption Expenditure Price Index						
All items	2.5	2.3	0.6	2.0	2.4	2.3
Less food and energy	3.1	1.8	2.2	2.3	1.9	2.2
Trimmed mean ^c	3.0	2.2	2.1	2.5	2.2	2.5

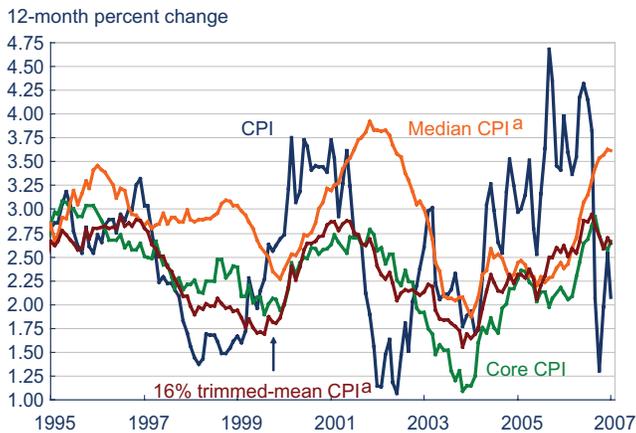
a. Annualized.

b. Calculated by the Federal Reserve Bank of Cleveland.

c. Calculated by the Federal Reserve Bank of Dallas.

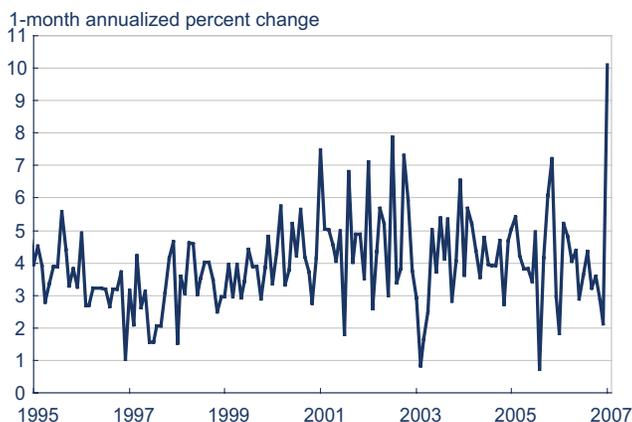
Sources: U.S. Department of Labor, Bureau of Labor Statistics; the Federal Reserve Bank of Dallas; and Federal Reserve Bank of Cleveland.

CPI, Core CPI, and Trimmed-Mean CPI Measures



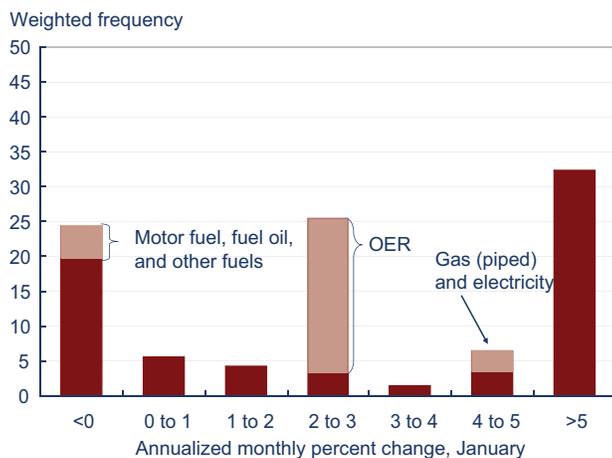
a. Calculated by the Federal Reserve Bank of Cleveland.
 SOURCES: U.S. Department of Labor, Bureau of Labor Statistics, and Federal Reserve Bank of Cleveland.

Medical Care Prices



SOURCES: U.S. Department of Labor, Bureau of Labor Statistics.

CPI Component Price Change Distribution



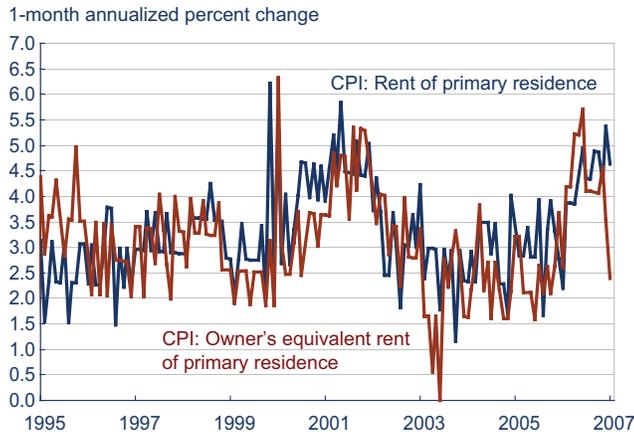
SOURCES: U.S. Department of Labor, Bureau of Labor Statistics.

more stable component of the CPI, so its sudden surge is justifiably viewed with a little skepticism.

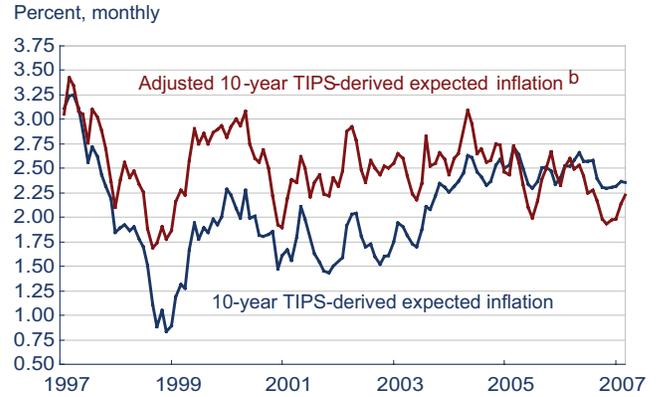
Medical care, which accounts for a bit over 6 percent of the overall weighted index, was not the only component that grew at a rate exceeding the overall inflation trend: About two-fifths of the index's components grew at rates exceeding 3 percent. On the other hand, owner's equivalent rent of primary residence (OER), which is the index's single-largest component, grew at its slowest monthly rate since October 2005, rising 2.4 percent during the month. Some moderation in the OER component has been expected by analysts, as the softening of U.S. home sales (and prices) encourages greater interest in home ownership and, as a result, typically puts downward pressure on rents (which are reweighted to measure OER). However, what's curious about the moderation in OER growth is that it has happened despite a rather stubborn increase in rents. Could it be that a softer housing market is affecting only the rents of homes that are most similar to the homes people own and not the general rental market? It could, but we think that it is equally likely that the moderation of OER growth in January may be overstating the degree to which the implied cost of home ownership is actually waning.

Meanwhile, market-based expectations for inflation over the next 10 years continue to lie in the modest range in which they have fluctuated over the past several years. Market participants anticipate that prices will generally grow between 2 and 2-3/4 percent over the next decade.

Housing Prices



Market-Based Inflation Expectations*



*Derived from the yield spread between the 10-year Treasury note and Treasury inflation-protected securities.
a. Ten-year TIPS-derived expected inflation, adjusted for the liquidity premium on the market for the 10-year Treasury note.
SOURCES: Federal Reserve Bank of Cleveland; and Bloomberg Financial Information Services.

Inflation and Prices

The Cost of Labor as an Inflation Indicator

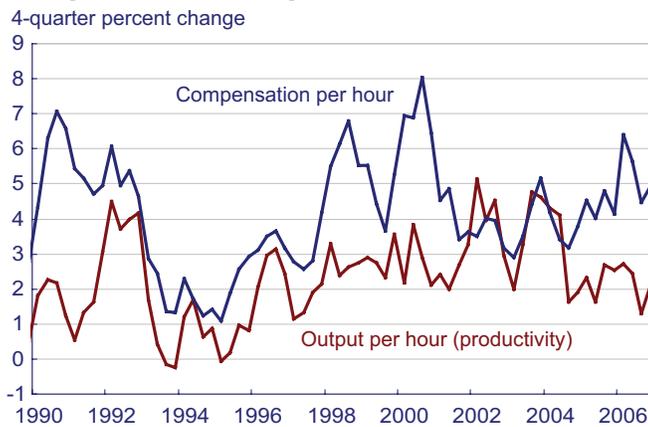
02.15.07

by Michael F. Bryan and Linsey Molloy

Economists consider a broad range of economic indicators to gauge inflationary pressures in the economy. One indicator of potential inflation pressure is the cost of labor. Higher labor costs, the theory suggests, means that firms may boost prices. In the Federal Reserve's semiannual Monetary Report to the Congress, Chairman Ben Bernanke noted that "[u]pward pressure on inflation could materialize if final demand were to exceed the underlying productive capacity of the economy for a sustained period" and that "[m]easures of labor compensation, though still growing at a moderate pace, have shown some signs of acceleration over the past year, likely in part the result of tight labor market conditions."

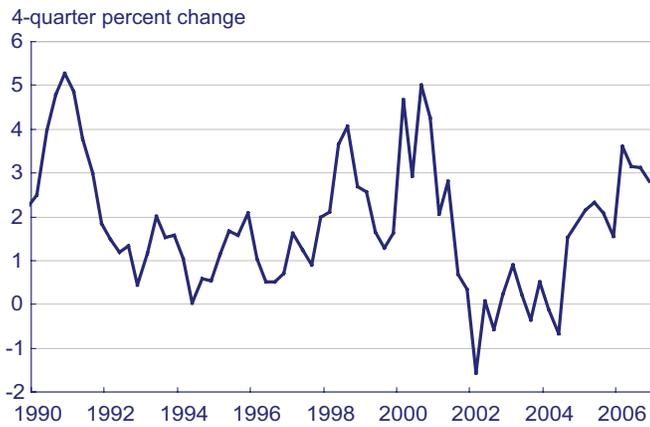
Turning to the data, labor compensation growth has risen over the past couple years from about 3 percent in mid-2004 to nearly 5 percent at the end of 2006. Moreover, labor productivity growth has moderated significantly from highs in 2002-2004 to roughly 2 percent. These two trends have pushed up unit labor cost growth substantially over the past couple of years, from about a 1-1/2 percent decline to about a 3 percent rise by the end of 2006.

Output and Compensation



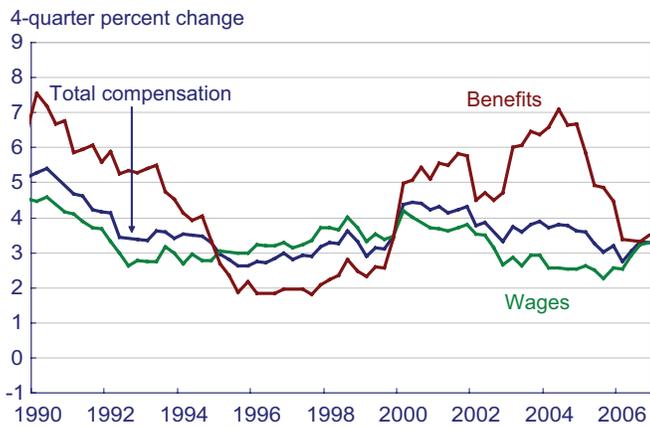
Source: U.S. Department of Labor, Bureau of Labor Statistics.

Unit Labor Costs



Source: U.S. Department of Labor, Bureau of Labor Statistics.

Employment Cost Index*



*Employment Cost Index for all civilian workers.

Source: U.S. Department of Labor, Bureau of Labor Statistics.

However, Chairman Bernanke also noted that such “increases in compensation might be offset by higher labor productivity or absorbed by a narrowing of firms’ profit margins rather than passed on to consumers in the form of higher prices.”

It could be argued that the rising unit labor cost growth measure may exaggerate the potential inflationary pressure in the economy: Some question the labor compensation measure used to calculate unit labor costs because it does not control for shifts in industry and occupation structure, and it can be heavily influenced by variable and infrequent factors such as large bonus payments. Another labor cost measure, the Employment Cost Index (ECI), computes total compensation based on a fixed mixture of industries and occupations in order to distinguish labor cost growth from growth caused by shifts in industrial and occupational structure over time. It also includes many important elements of labor compensation, including benefits such as paid leave, bonuses, insurance, payroll taxes paid by employers, and retirement and savings benefits, which when combined, account for nearly 30 percent of total compensation. The ECI reveals a more sanguine labor compensation trend than the compensation measure used to calculate unit labor costs. It suggests that while compensation growth has inched up a bit over the past year, it has moderated since 2000.

Is Inflation Changing Its Ways?

03.07.07

by Charles T. Carlstrom and Bethany Tinlin

Output Gap Coefficient*



*The output gap is defined as the natural log of real gross domestic product less the natural log of potential gross domestic product, taken from the Congressional Budget Office. The output gap coefficients are calculated using 10-year rolling regressions of inflation on the output gap and 4-quarter lags of inflation. Sources: U.S. Department of Commerce, Bureau of Economic Analysis; the Congressional Budget Office; and authors' calculations.

Inflation Persistence Coefficient*



* Inflation is based on core PCE. The coefficients are calculated using 10-year rolling regressions of inflation on the output gap and 4-quarter lags of inflation. Inflation persistence is defined as the sum of the 4-quarter lag coefficients. Sources: U.S. Department of Commerce, Bureau of Economic Analysis; and authors' calculations.

Policymakers and academics have noticed that the inflation process in the United States and other countries has changed markedly since 2000. Two formerly characteristic features of the process have been deviating from their historical norms. First, inflation persistence—the degree to which current inflation depends on past inflations—has declined dramatically. Second, an equally dramatic decline has occurred in the degree to which the output gap affects inflation. The output gap is the percent by which actual output deviates from its potential.

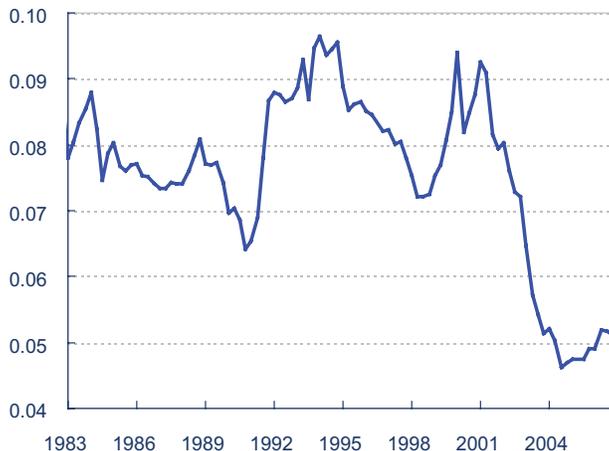
Historically, for every one percentage point increase in output above its potential, inflation increased 0.15 percent. Since 2000, the point estimate is actually negative. Although one should not necessarily conclude that the output gap and inflation are negatively related, the decline is puzzling and has important policy ramifications. It implies that a larger output gap has to be opened up to lower inflation.

The policy implications of the decline in inflation persistence are mixed. When the value of inflation persistence is 1.0, as it nearly was at the beginning of 2000, it implies that all shocks to inflation are permanent. If inflation shocks are permanent, it suggests that the only way to offset them is to widen the output gap. But now that inflation persistence has fallen to 0.4, it would appear that shocks to inflation are temporary and policymakers can potentially wait for inflation to return to normal.

Less inflation persistence, however, has another side. If one wants to permanently lower inflation from its current level, less persistence implies that an output gap has to be opened for an even longer period of time than if persistence were higher. Consider the extreme case, where changes in inflation are nearly permanent (persistence is close to 1.0).

Output Gap Standard Error*

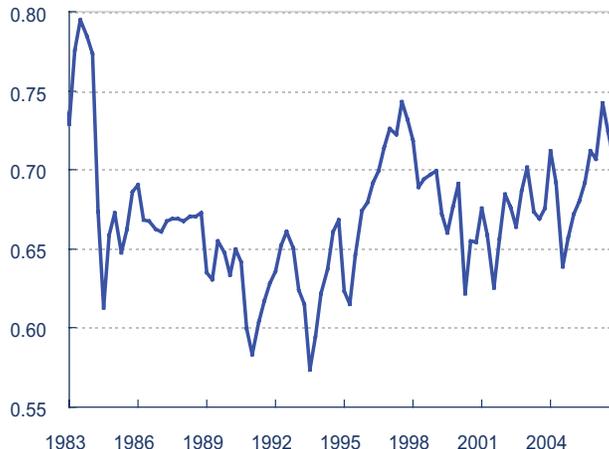
Standard error



*The output gap is defined as the natural log of real Gross Domestic Product less the natural log of potential Gross Domestic Product, taken from the Congressional Budget Office. The standard errors of the output gap coefficients are calculated using 10-year rolling regressions of inflation on the output gap and 4-quarter lags of inflation. Sources: U.S. Department of Commerce, Bureau of Economic Analysis; the Congressional Budget Office; and authors' calculations.

Inflation Persistence Standard Error

Standard error



*Inflation is based on core PCE. The standard errors of inflation persistence are calculated using 10-year rolling regressions of inflation on the output gap and 4-quarter lags of inflation. Sources: U.S. Department of Commerce, Bureau of Economic Analysis; and authors' calculations.

In this case, an output gap need only be opened for a short period of time because a gap today implies less inflation both today and in the future. Less inflation persistence works the other way.

Some argue that we should not read too much into these declines because they are not statistically significant, which implies that they could be the result of pure chance. But policymakers may not have the luxury of waiting to see if a change in the inflation process is statistically significant before reacting. A researcher's trigger point for starting to seriously contemplate a possible change in the inflation process is not necessarily the same as a policymaker's.

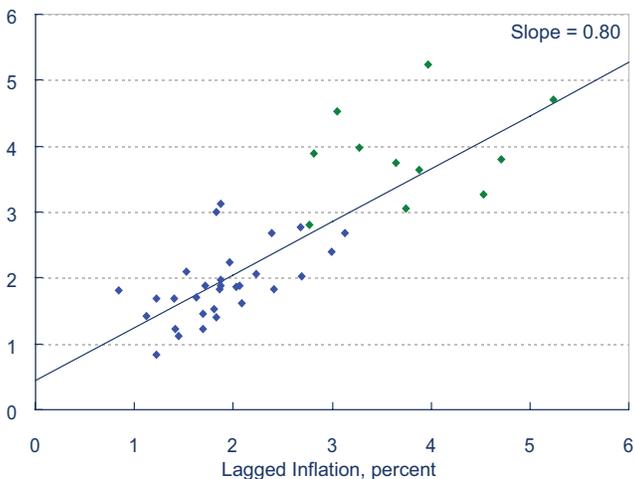
Others argue that the output gap is poorly measured, so we can't be certain about how much output is deviating from potential. If we can't accurately measure the output gap, we can't ascertain the impact of the gap on inflation or know whether it's declining. While the recent declines in inflation persistence and the impact of the output gap on inflation are not necessarily statistically significant, it is worth noting that the effects of lagged inflation and the output gap on current inflation are being estimated with more precision than before the declines. This suggests that the decline in the output gap's effect on inflation is not because potential output is being poorly measured.

To determine why inflation persistence is declining, it might help to examine the relationship between inflation and past inflations during the period over which persistence changed most dramatically--from the first quarter of 2000 to the third quarter of 2002. (For this exercise, we ignore the impact of the gap on inflation.) At the beginning of 2000, every percentage point in the previous quarter's inflation was associated with an 0.8 percentage point increase in current inflation. Six quarters later, that number had fallen to 0.4.

Just 10 years earlier, beginning in the first quarter of 1990, some economists believe that the long-term inflation target began to decrease. Such a decrease could artificially add in inflation persistence. After 2000, long-term inflation was probably fairly constant. If this explanation is correct, then inflation persistence will probably continue to stay low.

Inflation vs. Lagged Inflation: 1990:Q1 – 2000:Q1*

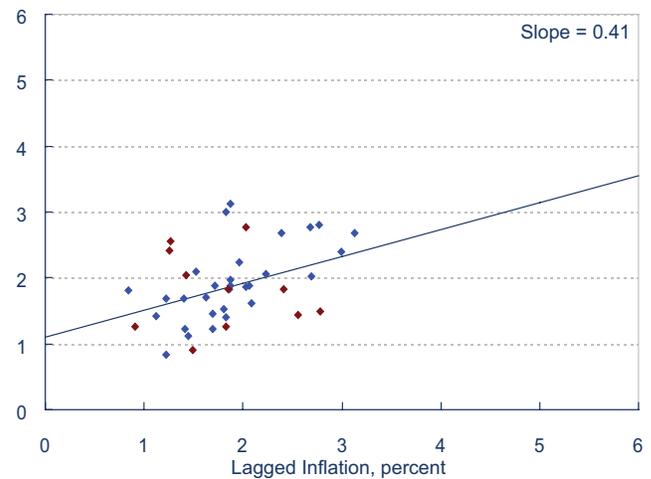
Inflation, percent



*Inflation represents Personal Consumption Expenditures less food and energy (core PCE) in the previous quarter. Green dots represent observations that are not included in the following chart.
Sources U.S. Department of Commerce, Bureau of Economic Analysis.

Inflation vs. Lagged Inflation: 1992:Q3–2002:Q3*

Inflation, percent



*Inflation represents Personal Consumption Expenditures less food and energy (core PCE) in the previous quarter. Red dots represent observations that are not included in the previous chart.
Source: U.S. Department of Commerce, Bureau of Economic Analysis.

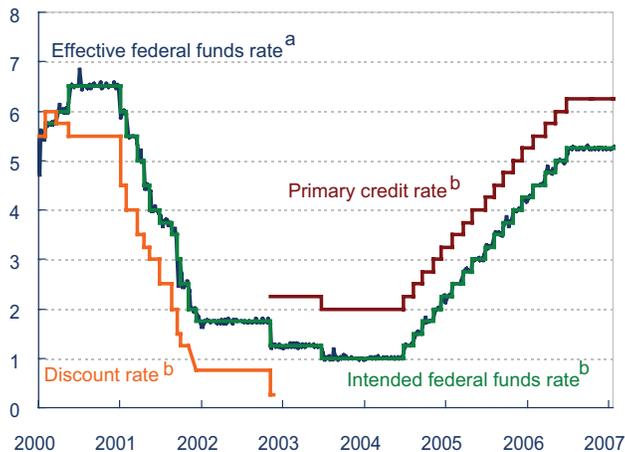
Money, Financial Markets, and Monetary Policy The January 31 FOMC Meeting

02.22.07

by Charles T. Carlstrom and Bethany Tinlin

Reserve Market Rates

Percent



a. Weekly average of daily figures.

b. Daily observations.

Source: Board of Governors of the Federal Reserve System, "Selected Interest Rates," *Federal Reserve Statistical Releases*, H.15.

On January 31, 2006, the Federal Open Market Committee voted to leave the federal funds target rate at 5.25 percent for the fifth consecutive time. The primary credit rate has also been maintained at 6.25 percent. In its press release, the Committee explained that its decision was based on the fact that "readings on core inflation have improved modestly in recent months, and inflation pressures seem likely to moderate over time." But it also noted that "some inflation risks remain" due to a "high level of resource utilization." Because of these inflationary pressures, the committee's statement continues to suggest that the next move might be up ("the extent and timing of any additional firming"). The next meeting is scheduled for March 21.

The monetary authorities' decision to leave their key interest rate unchanged did not surprise market participants. At the close of business on the day before the January 31 announcement, the Chicago Board of Trade's federal funds rate futures revealed that investors judged that there was a 98 percent probability that the Committee would leave the target rate unchanged, and a mere 2 percent that

Implied Probabilities of Alternative Target Federal Funds Rates January Meeting Outcome*



*Probabilities are calculated using trading-day closing prices from options on January 2007 federal funds futures that trade on the Chicago Board of Trade.
Sources: Chicago Board of Trade and Bloomberg Financial Services.

Implied Yields on Federal Funds Futures*



*All yields are from the constant-maturity series.
a. Friday after FOMC meeting.
Source: Bloomberg Financial Information Services.

the Committee would decrease the rate by 25 basis points, from 5-1/4 percent to 5 percent.

Although the committee's language suggests future rate hikes, market participants have, if anything, been predicting that the next move would be a rate cut. In December, they expected the funds rate to be just above 5 percent by midyear, a decrease of nearly 25 basis points. Since then, however, their expectations of the fed funds rate path have risen, and they now anticipate a near-constant funds rate going forward.

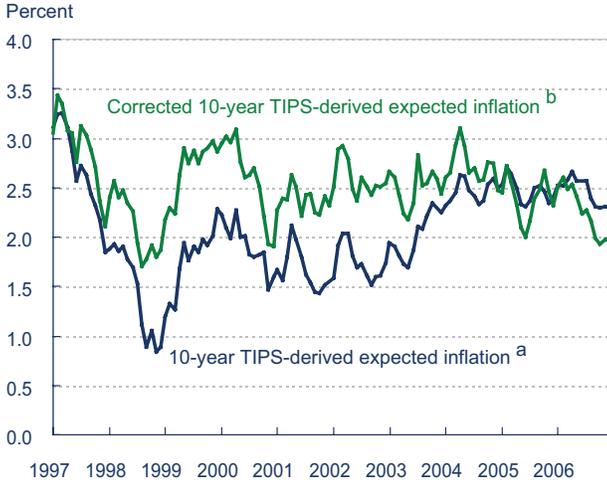
Although the committee continues to assert that "some inflation risks may remain," there is no evidence that long-term inflation expectations have crept up over the past several months. In fact, anticipated inflation, as derived from the liquidity-adjusted, 10-year Treasury inflation-protected securities (TIPS), has fallen from around 2.3 percent at the beginning of the year to just under 2 percent today. It appears that the Federal Reserve has the credibility to keep long-term inflation at bay despite short-term inflationary pressures.

This is undoubtedly why participants' anticipation of a rate cut has lessened. News on economic activity has generally been stronger than expected since the beginning of the year. With a rate cut, this may not be consistent with stable inflation; therefore, market participants no longer feel that the committee will cut rates going forward.

Certainly, one reason that participants expected the next move to be a cut was underlying uneasiness about the real economy. The fact that the yield curve has been sloping downward over many maturities makes some people uneasy about the future of the real economy; the reason is that yield-curve inversions frequently portend a recession. Currently, the closely watched 10-year, 90-day spread stands at -38 basis points.

The stance of monetary policy is shown not by the funds rate and the future path of the funds rate but by the real funds rate and its future path. The real federal funds rate (defined as the effective federal funds rate less core inflation in personal consumption expenditures) remains nearly steady at 3.0 percent. Since its trough in 2004, however, it has gained more than 4 percentage points.

10-Year Real Interest Rate and TIPS-Based Inflation Expectations



a. Treasury inflation-protected securities (TIPS).
 b. Ten-year TIPS-derived expected inflation adjusted for the liquidity premium on the market for the 10-year Treasury note.
 Sources: Bloomberg Financial Information Services; and Board of Governors of the Federal Reserve System, "Selected Interest Rates," *Federal Reserve Statistical Releases*, H.15.

Real Federal Funds Rate*



*Defined as the effective federal funds rate deflated by the core PCE. Shaded bars represent periods of recession.
 Sources: U.S. Department of Commerce, Bureau of Economic Analysis; Bloomberg Financial Information Services; Board of Governors of the Federal Reserve System, "Selected Interest Rates," *Federal Reserve Statistical Releases*, H.15; and Federal Reserve Bank of Philadelphia.

10-year minus 90-day Yield Spread*



*Quarterly observations. Shaded bars represent recessions.
 Source: The National Bureau of Economic Research (NBER); and Board of Governors of the Federal Reserve System.

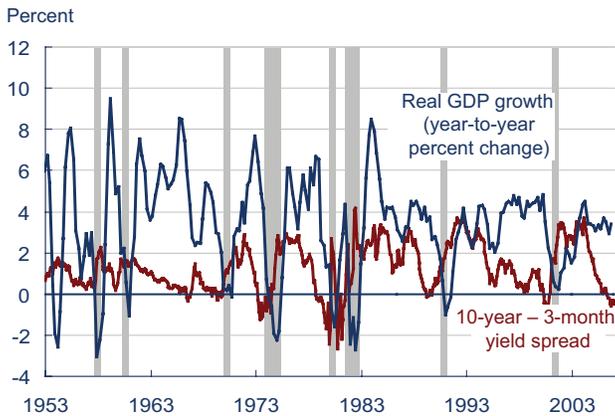
10-year minus 90-day Yield Spread*



*Weekly observations. The last data point is for February 20, 2007.
 Sources: National Bureau of Economic Research (NBER); and Board of Governors of the Federal Reserve System.

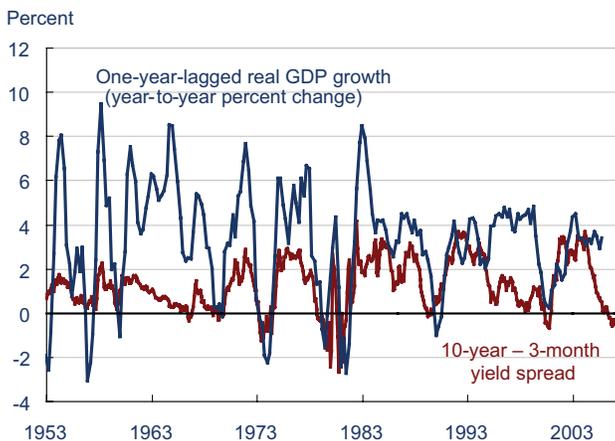
What Is the Yield Curve Telling Us?

Yield Spread versus Real GDP Growth*



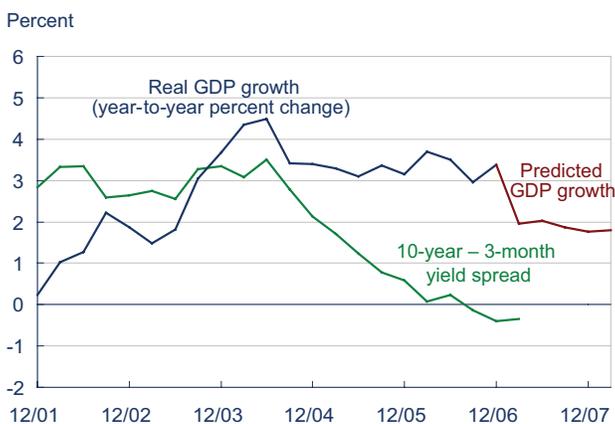
*Shaded bars represent recessions.
Sources: U.S. Department of Commerce, Bureau of Economic Analysis; Federal Reserve Board

Yield Spread versus One-Year-Lagged Real GDP Growth



Sources: U.S. Department of Commerce, Bureau of Economic Analysis; and Federal Reserve Board.

Yield Spread versus Predicted GDP Growth



Sources: U.S. Department of Commerce, Bureau of Economic Analysis; and Federal Reserve Board.

02.22.07

by Joseph G. Haubrich and Brent Meyer

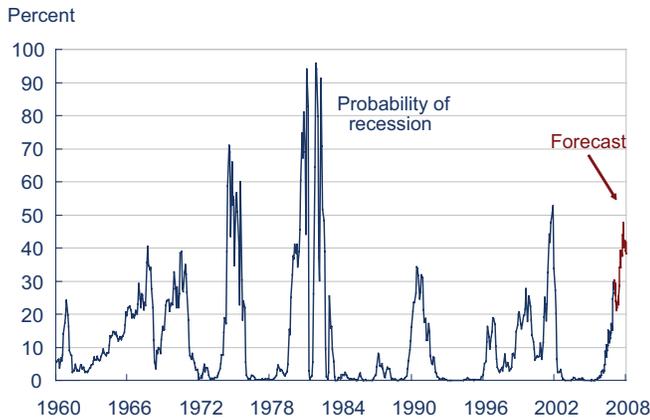
The slope of the yield curve has achieved some notoriety as a simple forecaster of economic growth. The rule of thumb is that an inverted yield curve (short rates above long rates) indicates a recession in about a year, and yield curve inversions have preceded each of the last six recessions (as defined by the NBER). Very flat yield curves preceded the previous two, and there have been two notable false positives: an inversion in late 1966 and a very flat curve in late 1998. More generally, though, a flat curve indicates weak growth, and conversely, a steep curve indicates strong growth. One measure of slope, the spread between 10-year bonds and 3-month T-bills, bears out this relation, particularly when real GDP growth is lagged a year to line up growth with the spread that predicts it.

Lately, the yield curve has some forecasters worried. One reason for concern is that the spread is currently negative: with 10-year rate at 4.75 percent and the 3-month rate at 5.17 percent (both for the week ending February 16), the spread stands at a negative 42 basis points, and indeed has been in the negative range since August. Projecting forward using past values of the spread and GDP growth suggests that real GDP will grow at about a 1.8 percent rate over the next year.

While such an approach predicts when growth is above or below average, it does not do so well in predicting the actual number, especially in the case of recessions. Thus, it is sometimes preferable to focus on using the yield curve to predict a discrete event: whether or not the economy is in recession. Looking at that relationship, the expected chance of a recession in the next year is 42 percent, barely down from last month's value of 43 percent.

Of course, it might not be advisable to take this number 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

Probability of Recession Based On the Yield Spread*



*Estimated using probit model.

Sources: U.S. Department of Commerce, Bureau of Economic Analysis; Federal Reserve Board; and authors' calculations.

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 *Economic Commentary* “Does the Yield Curve Signal Recession?”

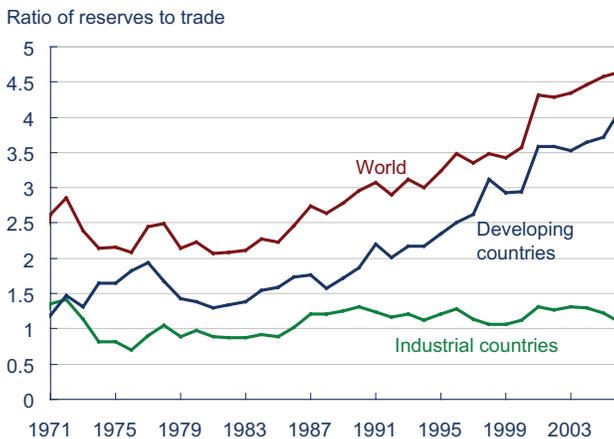
International Markets

Will the Euro Supplant the Dollar?

02.28.07

by Owen F. Humpage and Michael Shenk

Foreign Exchange Reserves



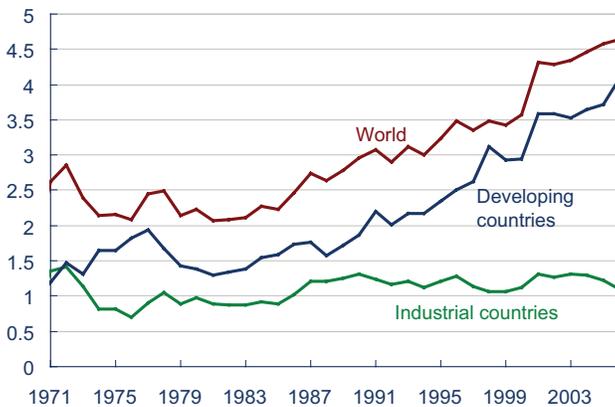
Source: International Monetary Fund, *International Financial Statistics*.

Although the U.S. dollar has been the world’s key international currency since at least the end of World War II, some commentators believe that the era of the dollar’s dominance is coming to an end. Such claims are not new. We heard them in the late 1970s and again in the 1980s when the dollar depreciated broadly in foreign-exchange markets. What makes these claims particularly interesting today is that for the first time, the dollar has a viable competitor for the role of key international currency—the euro.

The dollar plays a number of closely related, private and public international roles. The recent controversy, however, focuses on the dollar’s official reserve currency role among developing countries. The world witnessed a sharp run up in developing countries’ official foreign-exchange reserves beginning in the very late 1980s. The accumulation has outpaced the growth in international trade, suggesting that these countries are building an insurance fund against cross-boarder financial flows. Recently, while still adding to their portfolios, these countries also seem to be diversifying away from dollars.

Foreign Exchange Reserves

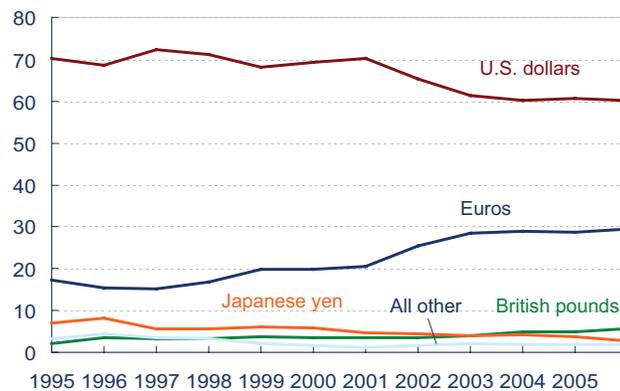
Ratio of reserves to trade



Source: International Monetary Fund, *International Financial Statistics*.

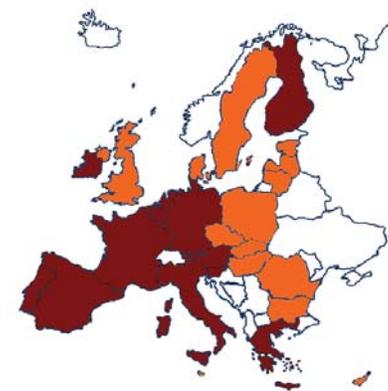
Foreign Exchange Reserves Developing Countries

Percent of allocated reserves



Source: International Monetary Fund, COFER data.

The European Union



■ Countries using the euro
■ Countries not using the euro

IMF estimates suggest that since 2001 developing countries have reduced the share of dollar-denominated assets in their foreign-exchange reserves from 70 percent to 60 percent, and that they have increased the share of euro-denominated assets in their portfolio by nearly an equal amount. The developing countries in the IMF survey, however, are not dumping dollars. They continued to add dollars to their portfolios, but they have acquired euros and British pounds at a faster rate. Euros now account for slightly less than 30 percent of developing countries' portfolios, making the euro the second most important official reserve currency. The British pound and the Japanese yen remain a distant third and fourth.

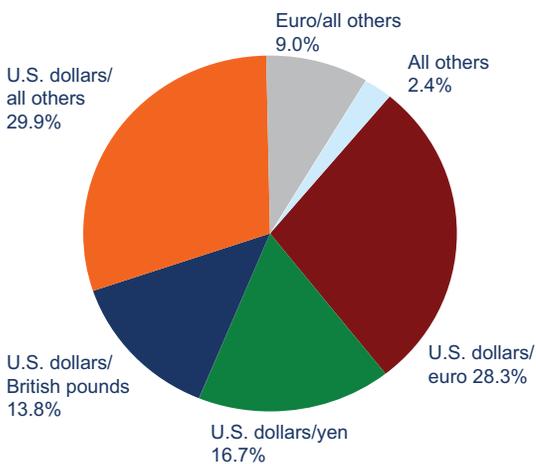
We need to be careful about how we characterize this declining share. The dollar seems to have accounted for roughly 60 percent, or slightly more, of official foreign-exchange reserves on average over the past 25 years or so, and the dollar's share has fluctuated between 50 percent and 70 percent over that interval.¹ A 60 percent share does not seem abnormally low, but what is changing are the growing network benefits of holding euros.

Money reduces the costs of engaging in economic exchange. The more widespread a single currency's use, the bigger are the gains from employing it and the more valuable it becomes to any individual or government holding it. If a currency is to serve as an international currency, it must start with a large domestic base.

On that score, the euro area certainly has potential to match the dollar. The United States has a population of 301 million and produces a GDP of slightly more than \$13 trillion. The European Union currently consists of 27 countries encompassing 490 million individuals and producing approximately the same amount of output. Of the EU member countries, 14 have adopted the euro. The remaining countries—except for the United Kingdom and Denmark—must eventually adopt the euro.

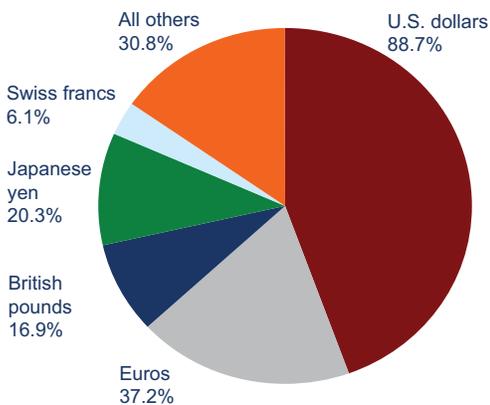
As the domestic use of the euro broadens, so will its international use. With the expansion of the European Union, for example, more European countries are denominating a greater share of their

Exchange Rate Pairs



Source: Bank for International Settlements, *Triennial Central Bank Survey, Foreign Exchange and Derivatives Market Activity in 2004*. March 2005.

Foreign Exchange Turnover



Source: Bank for International Settlements, *Triennial Central Bank Survey, Foreign Exchange and Derivatives Market Activity in 2004*. March 2005.

trade in euros. This makes the euro more attractive as a currency against which to peg and in which to keep reserves to manage that peg. Similarly, euro financial markets are becoming broader and deeper, and this trend will continue as more European Union countries adopt the euro. As it does, foreign companies and governments will denominate more of their securities in euros, and foreign banks will make more loans and extend more deposits in euros. Developing countries will denominate more of their debt securities in euros and hold euros in reserve to service that debt. A recent study by economists Menzie Chinn and Jeffrey Frankel suggests that, all else constant, if the European Union countries not currently using the euro—most critically the United Kingdom—adopt the euro, the dollar would lose its dominance by 2020.2

The euro certainly has potential, but it still has a long way to go before it surpasses the dollar's predominance as an international currency. Almost 90 percent of all foreign-exchange transactions currently involve the U.S. dollar. The euro, with 37 percent of all transactions, ranks a distant second, but well ahead of the Japanese yen and the British pound. The most commonly traded foreign-currency pair—making up 28 percent of the transactions—is between dollars and euros. Very few trades involve euros for other currencies.

While countries that adopt the euro reap considerable advantages, doing so has some potential drawbacks that might slow the process. A common currency prevents exchange-rate changes from helping a country adjust to economic shocks specific to that country. Such adjustments are especially useful in small, undiversified economies where domestic wages and prices are inflexible or where the cross-border movement of goods, labor, and financing is limited. The single-market initiatives within the European Union should improve the mobility of goods, labor, and financial flows within the union and may even encourage price and wage flexibility, but the process will take time.

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ternational Settlements, Working Paper No. 218 (October 2006); and Malcolm D. Knight, “International Reserve Diversification and Disclosure,” speech to the Swiss National Bank/Institute for International Economics Conference, Zurich, Switzerland (September 8, 2006).

2. Menzie Chinn and Jeffrey Frankel. “Will the Euro Eventually Surpass the Dollar as Leading International Reserve Currency?” paper presented at the NBER conference on G7 Current Account Imbalances: Sustainability and Adjustment, Newport RI, (June 1-2, 2005).

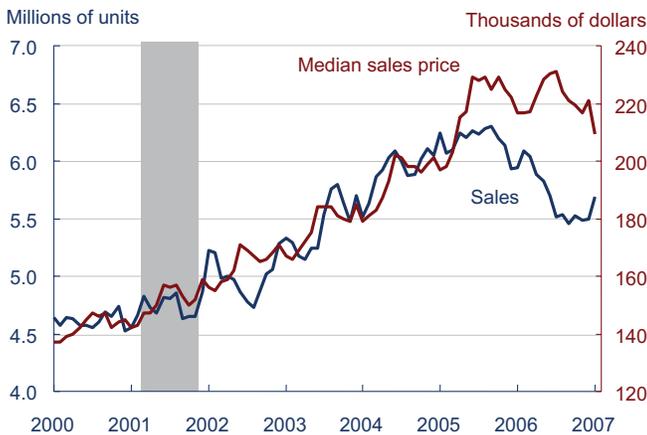
Economic Activity

A Tale of Two Houses

03.05.07

by Ed Nosal and Michael Shenk

Existing Single-Family Homes



The shaded bar indicates a recession.
Source: National Association of Realtors.

New Single-Family Homes



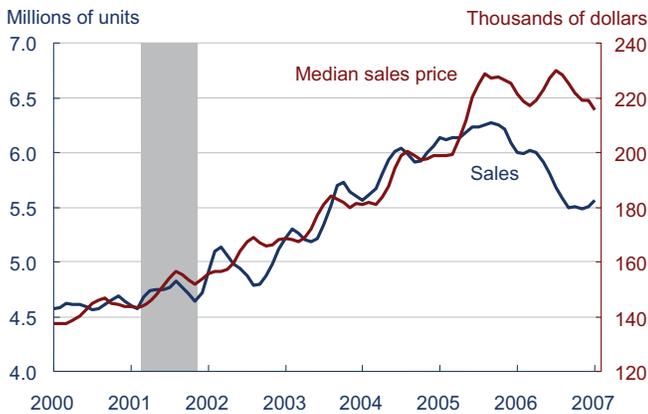
The shaded bar indicates a recession.
Source: U.S. Department of Commerce, Bureau of the Census.

For those of us waiting patiently to see what is going on in the housing market, January’s numbers offer more of a headache than a relief. First, existing single-family home sales increased 3.5 percent in January, bringing some hope that perhaps the worst is behind us. Then a day later, we learned that new single-family home sales fell a whopping 16.6 percent during the same period. What does this imply for the housing market? A look at some medium-term trends may help us get a better grasp on what’s going on.

Even though the housing numbers are seasonally adjusted, they still tend to be fairly volatile and are often affected by the weather. This can make it difficult to pick up an underlying trend by looking at just a few months’ data. By looking at a three-month moving average of the data, we are able to reduce the volatility somewhat without greatly disturbing the medium-term trend.

When adjusting new and existing single-family home sales and prices this way, we get very similar patterns. From the end of the last recession to midway through 2006, we see a fairly rapid increase in the median price of both types of homes. From there, prices have fluctuated some but overall have remained relatively flat. At the same time, sales, which previously had been increasing along with

Existing Single-Family Homes 3-Month Moving Average



The shaded bar indicates a recession.
Source: National Association of Realtors.

New Single-Family Homes 3-Month Moving Average



The shaded bar indicates a recession.
Source: U.S. Department of Commerce, Bureau of the Census.

prices, began to decline. In recent months, the sales series seem to have bottomed out, and maybe even have increased a little.

The good news is that new-home builders have been able to sell off inventory in the last six months, well up through December at least. But January's abysmal sales number significantly increased inventory. Even though inventory levels remain high when compared to the current sales pace, they should be more in line with demand going forward.

Inventory of New Homes

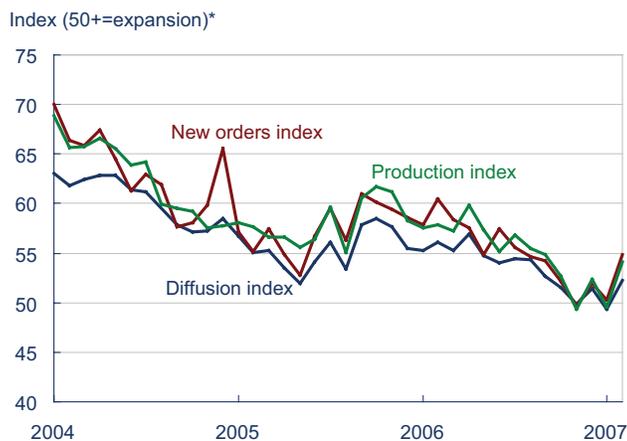


Source: U.S. Department of Commerce, Bureau of the Census.

Economic Activity

A Mixed Message on Manufacturing

ISM: Manufacturing



*Seasonally adjusted.
Source: Institute for Supply Management.

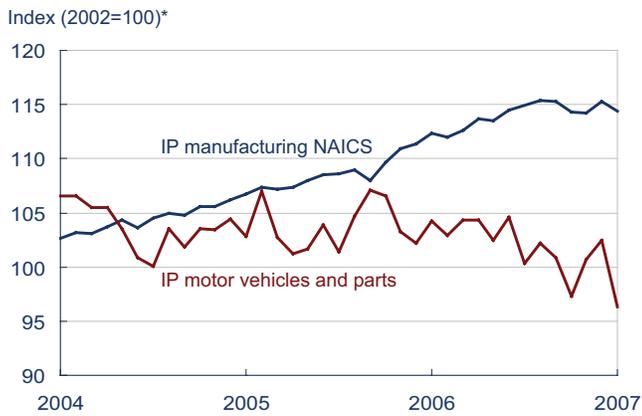
03.05.07

by Tim Dunne and Brent Meyer

The recent data on manufacturing paint a mixed picture of the health of the sector. The industrial production index for manufacturing in January fell by 0.7 percent, reflecting weakness across a broad range of industries but with a particularly steep drop in the motor vehicle sector (-6.0 percent). On a year-over-year basis, industrial production in manufacturing expanded by 1.8 percent, whereas the motor vehicle sector declined by 7.6 percent.

The advanced report on durable goods showed a marked decline in new orders in January (-7.8

Industrial Production: Manufacturing



*Seasonally adjusted.
Source: Federal Reserve Board.

Durable Goods



*Seasonally adjusted.
Source: U.S. Department of Commerce, Bureau of the Census.

percent), but shipments held steady. Two-thirds of the decline in new orders is accounted for by a steep drop in nondefense aircraft orders (-60.3 percent)—a particularly volatile component of the new orders series. These data also show a relatively weak performance in the motor vehicle sector, with declines in shipments and orders in January of 4.4 percent and 5.1 percent, respectively.

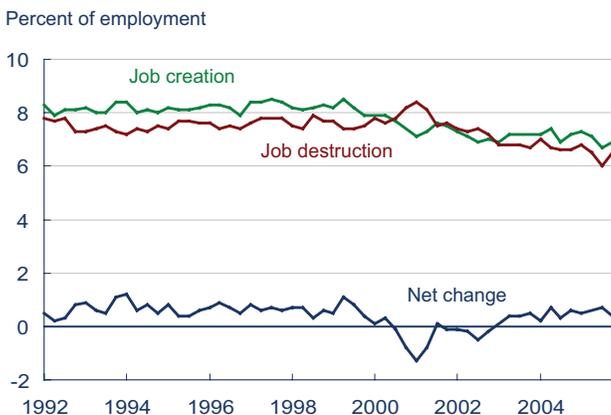
On the positive side, the ISM report on February manufacturing activity offers some encouragement. The ISM composite index for manufacturing registered a rebound in February to 52.3, indicating an improvement from January's reading of 49.3. The ISM uses a diffusion index, and a level above 50 indicates that the sector is expanding, while a value below 50 indicates contraction. Both the new orders and production components of the index increased as well in February.

The bottom line is that manufacturing activity was clearly soft in January, and there is conflicting information regarding the future path of manufacturing—the ISM report offers some positive news, but the new orders information from the durable goods report suggests some weakness going forward.

Economic Activity

Job Creation and Job Destruction

Business Employment Dynamics: Private Sector



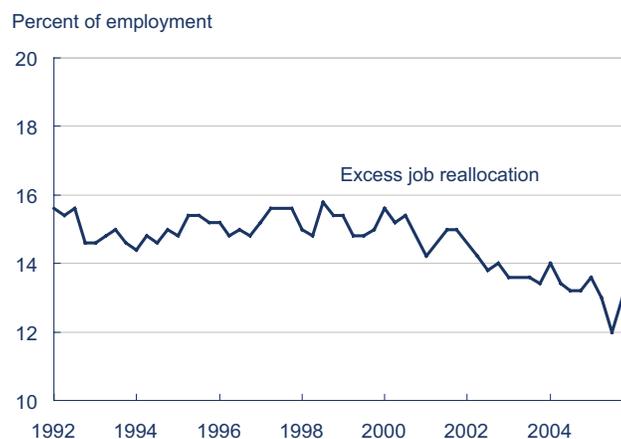
Source: U.S. Department of Labor, Bureau of Labor Statistics.

02.26.07

by Tim Dunne and Brent Meyer

The BLS recently reported that job gains in the second quarter of 2006 totaled 6.9 percent of private sector employment, and job losses came in at 6.5 percent of employment. This represents 7.8 million jobs created and 7.3 million jobs destroyed in the quarter. Job creation is measured as the net employment change of establishments that are expanding employment plus the employment at newly opened establishments. Job destruction is measured as the net employment change at establishments that are reducing employment plus the employment loss due to establishment closings. The difference between job creation and job destruction reflects the net change in the number of jobs.

Excess Reallocation



Source: U.S. Department of Labor, Bureau of Labor Statistics.

The 2001 recession shows both a dip in job creation and a jump in job destruction, resulting in a net job loss for the private sector. But the net change in jobs isn't the only interesting feature of the BLS employment dynamics series. The degree of job churning is reflected there as well, in the rates of job creation and job destruction themselves, and in recent years both of those rates have declined noticeably. This drop in job creation and destruction rates is part of an ongoing trend documented in a recent paper on job flows by Steven J. Davis, R. Jason Faberman, and John Haltiwanger.

To summarize the amount of job churning present in an economy, economists sometimes use a measure called excess job reallocation, which measures the amount of job creation and job destruction that occurs above and beyond the adjustment necessary to account for the net change in jobs. (That is, the number of net jobs that were added or destroyed is subtracted from the total number of jobs created and destroyed.) Excess reallocation in the private sector held steady through 1990s but has declined in more recent years.

The recent decline in excess reallocation occurs across almost all industry groups and reflects an overall decline in both job creation and job destruction rates. Job reallocation rates vary markedly across industries, though. The natural resources and construction industries experience job reallocation rates three to four times as high as those in the manufacturing or education and health services industries.

Job reallocation has declined, in part, due to a disproportionately large fall in job creation and job destruction in opening and closing establishments. Although job creation and destruction by opening and closing establishments typically make up about 21 percent of overall job creation and destruction, they account for 35 percent of the decline in excess reallocation that has occurred since 2000.

Share of Job Creation and Destruction in Opening and Closing Establishments



Source: U.S. Department of Labor, Bureau of Labor Statistics.

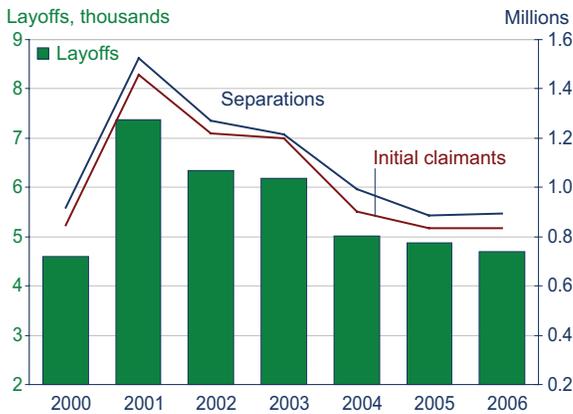
Excess Reallocation by Industry

Industry	Average excess reallocation 1992:IIIQ-1999:IVQ	Average excess reallocation 2000:IQ-2006:IIQ	Change in excess reallocation
Natural resources and mining	39.1	34.3	-4.8
Construction	27.0	22.9	-4.1
Manufacturing	9.6	8.2	-1.5
Wholesale trade	12.8	11.5	-1.3
Retail trade	15.4	13.8	-1.5
Transportation and warehousing	12.9	11.8	-1.1
Utilities	5.4	5.7	0.2
Information	12.1	11.0	-1.2
Financial activities	12.4	11.7	-0.7
Professional and business services	17.4	16.9	-0.5
Education and health services	9.9	8.9	-1.0
Other services	16.8	15.8	-1.0

Source: Department of Labor, Bureau of Labor Statistics.

Extended Mass Layoffs

Mass Layoff Activity in the United States*



*Data for third and fourth quarters of 2006 are preliminary. Source: Department of Labor, Bureau of Labor Statistics.

Top Reasons for Layoffs and Separations



*Data for third and fourth quarters of 2006 are preliminary. Source: Department of Labor, Bureau of Labor Statistics.

Layoff Activity by Size of Layoff

Regional Shares of Extended Mass Layoffs

	Annual average 2000-2006 (percent)		
	Total layoffs	Separations	Initial claims
Northeast	19.8	18.0	21.1
South	24.3	23.1	23.6
Midwest	31.8	31.6	32.0
West	24.1	27.2	23.3

*Data for third and fourth quarters of 2006 are preliminary. Source: Department of Labor, Bureau of Labor Statistics.

02.23.07

by Murat Tasci and Cara Stepanczuk

When 50 or more new claims for unemployment benefits are received from one establishment in a given month, government statisticians call it a mass layoff. If the layoff lasts more than 31 days, it is designated an extended mass layoff. There were 1,444 such layoffs in the fourth quarter of 2006, according to preliminary estimates from the Department of Labor's Bureau of Labor Statistics, and they caused the separation of 255,886 workers from their jobs. These numbers indicate a slight increase over the fourth quarter of 2005. Among those employers who reported extended layoffs, 57 percent indicated that they were expecting to recall some of the workers. This was the lowest proportion for any fourth quarter since 2002.

The distribution of extended layoffs by the size of the layoff shows an interesting picture, too. A mere 1.8 percent of the layoffs caused almost 20 percent of the separations that occurred in the fourth quarter of 2006; such layoffs were of course large, each involving more than 1000 separations. On the other hand, many more mass layoffs (42.5 percent) involved fewer workers (50-99); however, these smaller mass layoffs accounted for only 16.8 percent of the total number of worker separations occurring during the quarter.

Extended mass layoffs constitute a major source of job separations, especially during recessions, when the need for major employment adjustment is widespread. For instance, both extended mass layoffs and resulting separations peaked in 2001, in the midst of the most recent recession.

However, extended layoffs are not an atypical feature of a healthy economy. The completion of seasonal work caused 42 percent of the extended layoffs in the fourth quarter of 2006, generating 45 percent of separations. Contract completion follows seasonal work as a major reason for extended mass layoffs. These two factors, on average, have accounted for 44 percent of extended mass layoffs and 43 percent of separations annually since 2000.

Layoff Activity by Size of Layoff

Size of layoff	(October-December 2006)			
	Layoffs		Separations	
	Number	Percent	Number	Percent
50-99	614	42.5	43,022	16.8
100-149	340	23.5	39,961	15.6
150-199	158	10.9	26,022	10.2
200-299	193	13.4	44,162	17.3
300-499	80	5.5	28,872	11.3
500-999	33	2.3	22,826	8.9
1000 or more	26	1.8	51,021	19.9
Total	1444	100	255,886	100

*Data for the third and fourth quarters of 2006 are preliminary.
Source: Department of Labor, Bureau of Labor Statistics.

Deviations from this pattern do occur, as in 2001, when poor economic conditions forced businesses to initiate mass layoffs, and the fraction of extended mass layoffs accounted for by the completion of seasonal work and contracts declined to 27 percent.

The geographical distribution of extended mass layoffs shows that nearly a third (31.8 percent) have occurred in the Midwest since 2000, causing 31.6 percent of the separations that have resulted from such events. The Midwest separations were also responsible for 32 percent of all the U.S. unemployment claims that have been initiated on account of extended mass layoffs. (Initiating a claim has a very specific meaning at the Bureau of Labor Statistics: A person who files any notice of unemployment to initiate a request either for a determination of entitlement to and eligibility for compensation, or for a subsequent period of unemployment within a benefit year or period of eligibility is defined as Initial claimant.)

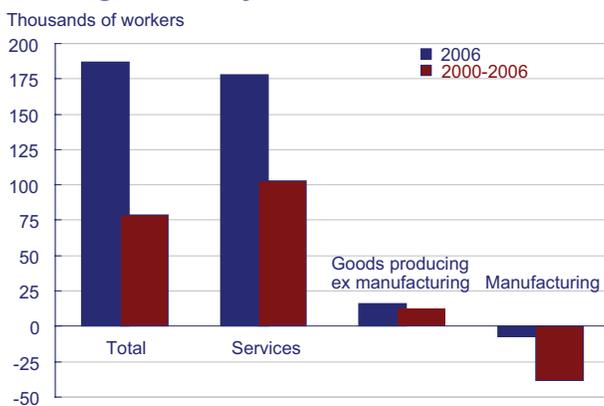
Economic Activity

Is Manufacturing Going the Way of Agriculture?

02.15.07

by Ed Nosal and Michael Shenk

Average Monthly Job Growth



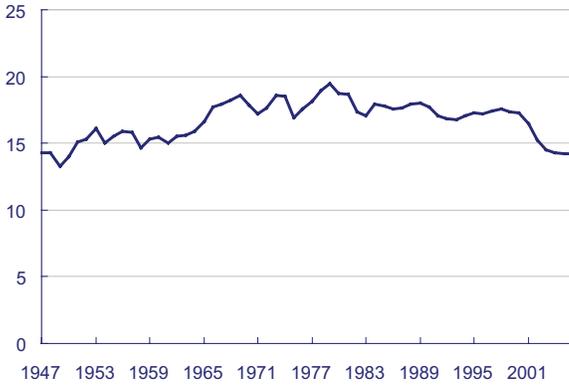
Source: U.S. Department of Labor, Bureau of Labor Statistics.

On average, employment increased by 186,917 workers each month in 2006. The vast majority of this employment growth came from the service sector; manufacturing registered a small monthly decline, while the remainder of the goods-producing sector experienced a small increase. The total employment numbers for 2006 seem to dwarf the average monthly job growth seen since the start of this century. The average numbers for the 2000-2006 period are “small” owing to the March 2001-November 2001 recession and the so-called jobless recovery which followed, where employment growth actually remained negative for nine of the first ten months after the recession’s official end. Since the beginning of 2000, the loss in manufacturing jobs has been significant, averaging 37,524 per month.

The sluggish growth in manufacturing employment, however, is not a recent phenomenon. The level of employment in manufacturing today is

Manufacturing Employment

Millions of workers



Source: U.S. Department of Labor, Bureau of Labor Statistics.

Agriculture Industry Employment and Output

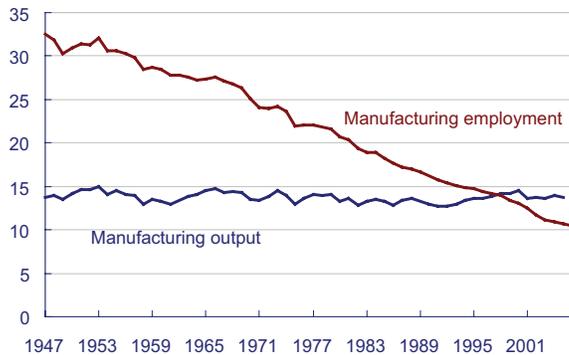
Percent



*Percent of the labor force in agriculture as reported in the census.
Sources: U.S. Department of Commerce, Bureau of the Census Bureau;
Bureau of Economic Analysis; University of Minnesota, Minnesota Population
Center, Integrated Public Use Microdata Series (IPUMS-US).

Real Manufacturing Output and Employment

Percent



Source: Bureau of Economic Analysis; Bureau of Labor Statistics.

about the same as it was in 1947, while the U.S. population has more than doubled over the same period. Employment in manufacturing did experience growth during the 1960s; after that, employment growth was essentially zero until 2000, after which it became negative.

Because the population and, hence, the labor force has grown, the share of manufacturing employment (to total employment) has been steadily falling since the Korean War. Approximately one in every three workers was employed in manufacturing after the Second World War; today, that number is about one in ten. Although the share of manufacturing employment has steadily fallen over time, the share of manufacturing output (to total output) has been remarkably stable over the same period. Labor productivity growth in manufacturing over this period can explain the falling employment share and the constant output share.

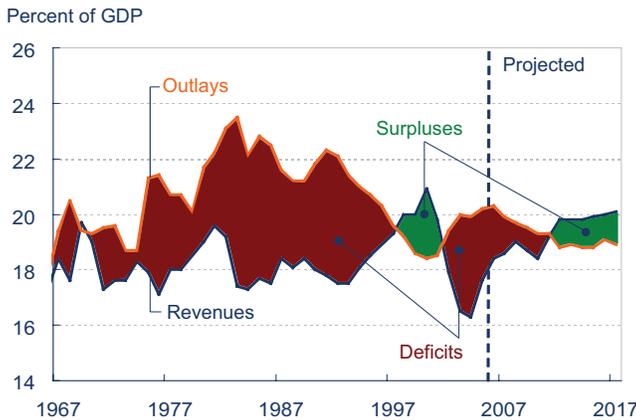
Changes in manufacturing employment during that last half of the twentieth century are remarkably similar to those in agriculture during the first half of the twentieth century. About a third of U.S. workers were employed in agriculture at the beginning of the century, but by 1950 that number was only a tenth. As with manufacturing, agriculture's share of employment consistently fell from 1947 into the 1980s, at which point it leveled off, but its share of output remained relatively constant.

The Budget and Economic Outlook

02.09.07

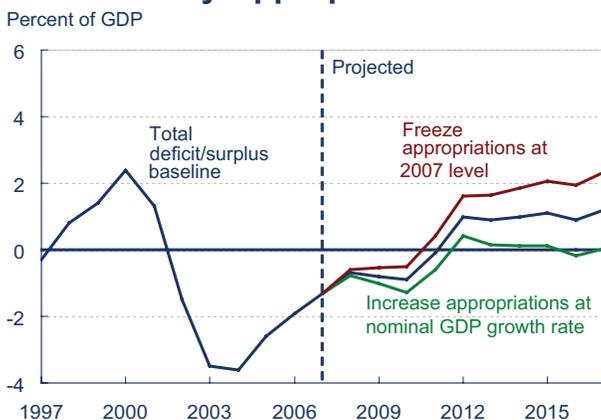
by David E. Altig and Brent Meyer

Total Revenues and Outlays 1967–2017



Source: Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2008 to 2017*.

Alternative Policy Assumptions: Discretionary Appropriations



Source: Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2008 to 2017*.

This week President Bush released his proposal for government spending, taxation, and borrowing for fiscal years 2008-2017. Congress will now have its say, and the final fate of those proposals awaits the outcome of the political push and pull that defines our democracy. As part of that process, the Congressional Budget Office (CBO) will eventually provide projections of the budgetary impact of the president’s proposals, as well as the budget resolutions that eventually clear Congress. But we can get some preliminary hints by looking at some of the CBO’s baseline estimates, released on January 24, of what things look like under current law.

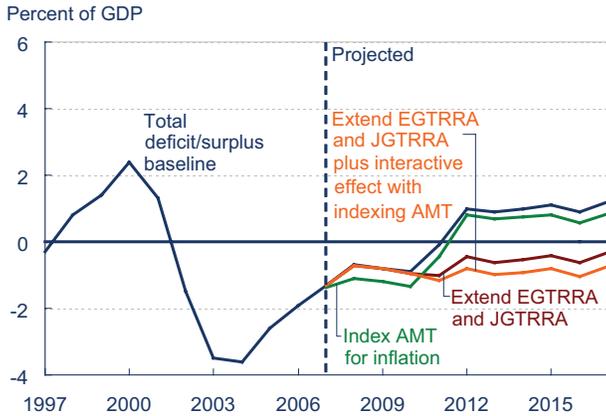
“Current law,” of course, is not a completely unambiguous concept. Certain expenditures—classified as “discretionary,” and accounting for roughly 40 percent of all federal spending—must be approved annually, so the CBO has to make some assumption about how spending in that category will grow. Because discretionary spending includes defense and security-related outlays, this is particularly difficult in the current environment. Following past practice (which was previously mandated by law), the CBO’s baseline projections assume that discretionary spending grows at the rate of inflation after the current fiscal year (2007):

In fact, the president’s budget proposal calls for an average annual growth rate in total discretionary spending of just over 3 percent from 2007 through 2012, versus the 1.8 percent annual inflation rate assumed by the CBO (measured by the chain-weighted gross domestic product price index).

To get an idea of what difference this makes, we can look to the CBO’s projections of the government’s surplus under the alternative assumptions that discretionary spending is frozen at 2007 levels or that discretionary spending grows at the rate of nominal gross domestic product (GDP):

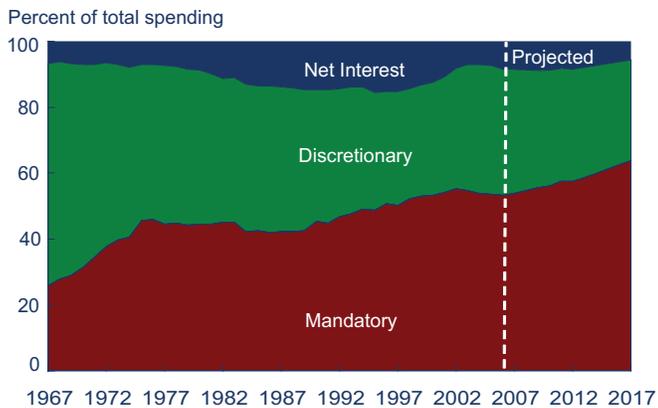
Mandatory spending—which includes Social Security, Medicare, and Medicaid expenditures—is, of

Alternative Policy Assumptions: Tax Code Policy Changes



Source: Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2008 to 2017*.

Federal Outlays by Category 1967-2017



Source: Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2008 to 2017*.

course, the bigger part of the spending picture. And it is getting bigger:

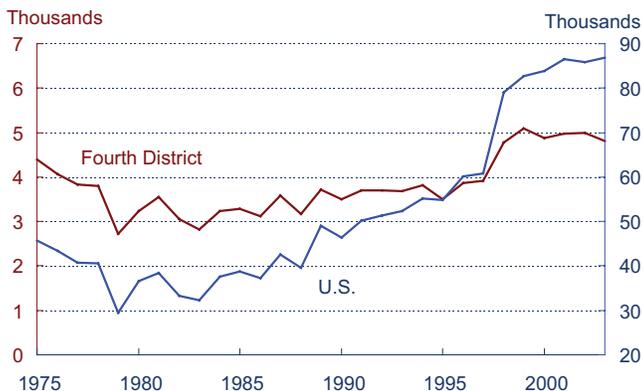
The president’s budget proposal includes several suggested reforms to mandatory spending programs, but they are designed to have most of their impact beyond the ten-year horizon of the CBO analysis: According to the Office of Management and Budget (OMB), outlays on entitlement programs will be, under baseline assumptions, about 12 percent of GDP if the president’s proposals are enacted, and 12.3 percent if they are not. The effects are, of course, much bigger in later decades, when imbalances between expenditures and funding for these programs become more pronounced. (See, for example, part II of the OMB’s Analytical Perspectives, Budget of the United States Government, Fiscal Year 2008.)

The final piece of the puzzle is on the revenue side, and here the story gets a little trickier. The CBO’s “current law” assumption includes the expiration of tax cuts that were enacted in the Economic Growth and Tax Relief Reconciliation Act of 2001 (EGTRRA) and the Jobs Growth Tax Relief Reconciliation Act of 2003 (JGTRRA). In addition, it does not assume relief for the increasing number of taxpayers that are affected by the Alternative Minimum Tax (AMT). There is fairly broad support for reforming the AMT provisions, and the president’s proposals would extend the major provisions of his major earlier tax legislation. How much difference does that make? Again, the CBO provides a glimpse:

These changes in the baseline tax assumptions would, according to the CBO’s analysis, eventually convert a surplus of about 1.2 percent of GDP to a deficit of about 0.8 percent of GDP. We will leave it to you to decide whether that is a big deal, or not.

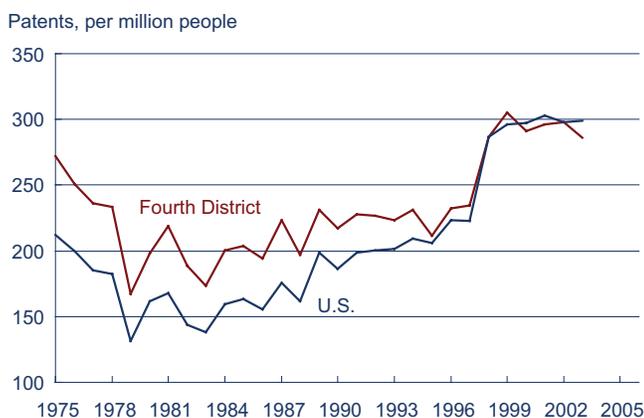
Regional Patenting Activity

Utility Patents



Sources: U.S. Department of Commerce, U. S. Patent and Trademark Office; Cleveland State University, Center for Economic Development; and authors' calculations.

Patents per Capita



Sources: U.S. Department of Commerce, U. S. Patent and Trademark Office; Cleveland State University, Center for Economic Development; and authors' calculations.

Top Patenting Industries, 1999-2003

Description	Total district patents
Professional and scientific instruments (38, except 3825)	3,813
Rubber and miscellaneous plastics products (30)	3,104
Fabricated metal products (34, except 3461, 3463, and 348)	3,041
General industrial machinery and equipment (356)	2,337
Electronic components and accessories and communications equipment (366, 367)	2,016

Note: Numbers in parentheses are SIC codes for the industry.
Sources: U.S. Department of Commerce, U. S. Patent and Trademark Office; Cleveland State University, Center for Economic Development; and authors' calculations.

03.08.07

by Brian Rudick and Mark Schweitzer

In our Annual Report of last year, we reported evidence that innovation is extremely important for state economic development and that patenting activity can help explain differences in state per capita incomes. Undoubtedly, patenting activity is important for the economic development of smaller areas as well. Here we examine patenting activity in the Fourth District and its metropolitan areas. (Note that a patent's origin is based on the inventor's residence, not the company's location.)

Patenting in the Fourth District

Over the past 30 years, patenting activity in the Fourth District has remained fairly steady; only 9 percent more patents were issued in 2003 than in 1975. By contrast, in the United States as a whole, 90 percent more utility patents were issued in 2003 than in 1975.

The greater growth in U.S. patenting activity is partly explained, however, by higher population growth. If we look at the number of patents issued on a per capita basis, we see that the District no longer maintains the edge in per capita patent production that it had in 1975, but that the region still produces about as many patents per million people as the United States as a whole. From 1975 to 2003, per capita patents in the region grew 5 percent, to 286 patents per million people, compared to 299 patents per million people for the nation.

In the last five years, the District has produced over 3,000 patents, which can be used in three industries: professional and scientific instruments, rubber and miscellaneous plastics products, and fabricated metal products. The District also produces a large number of patents that have applications in industrial machinery and electronic components.

The industries for which the District produces the most patents are not necessarily those in which the District specializes. Over the past five years, the District has produced over one-fifth of all U.S.

District Industry's Share of Patents, 1999-2003

Description	Percent of U.S. patents
Railroad equipment (374)	21.1
Soaps, detergents, cleaners, perfumes, cosmetics, and toiletries (284)	19.2
Primary ferrous products (331, 332, 3399, 3462)	18.4
Paints, varnishes, lacquers, enamels, and allied products (285)	18.4
Primary and secondary nonferrous metals (333-336, 3463, 339, except 3399)	17.2

Note: Numbers in parentheses are SIC codes for the industry.

Sources: U.S. Department of Commerce, U. S. Patent and Trademark Office; Cleveland State University, Center for Economic Development; and authors' calculations.

Top Patenting Organizations by MSA, 1999-2003

MSA rank	Cleveland	Cincinnati	Columbus	Pittsburgh
1	General Electric (172)	Proctor and Gamble (1,640)	Owens-Corning Fiberglass (186)	PPG Industries Ohio (338)
2	Lubrizol (149)	General Electric (879)	Abbott Laboratories (109)	Eaton (234)
3	Goodyear (100)	Ethicon Endo-Surgery (170)	Arthrocare (69)	Alcoa (160)

Note: Number in parentheses is total utility patents for time period.

Sources: U.S. Department of Commerce, U. S. Patent and Trademark Office; and authors' calculations.

Top Patenting Industries by MSA, 1999-2003

MSA rank	Cleveland	Cincinnati	Columbus	Pittsburgh
1	Professional and scientific instruments (11.1)	Professional and scientific instruments (12.2)	Professional and scientific instruments (11.7)	Professional and scientific instruments (11.3)
2	Fabricated metal products (8.6)	Fabricated metal products (7.6)	Rubber and miscellaneous plastics products (8.7)	Electronic components and accessories and communications equipment (7.8)
3	Rubber and miscellaneous plastics products (8.6)	General industrial machinery and equipment (6.9)	Fabricated metal products (7.7)	Rubber and miscellaneous plastics products (7.7)

Note: Number in parentheses is percent of total MSA patents during the time period.

Sources: U.S. Department of Commerce, U. S. Patent and Trademark Office; Cleveland State University, Center for Economic Development; and authors' calculations.

patents relating to railroad equipment, with Delphi, Westinghouse Air Brake, and General Electric leading the charge. The District also produces a high concentration of patents that can be used for household products (Proctor and Gamble, Steris), paints and allied products (Goodyear, Bridgestone) and metals (GE, Alcoa).

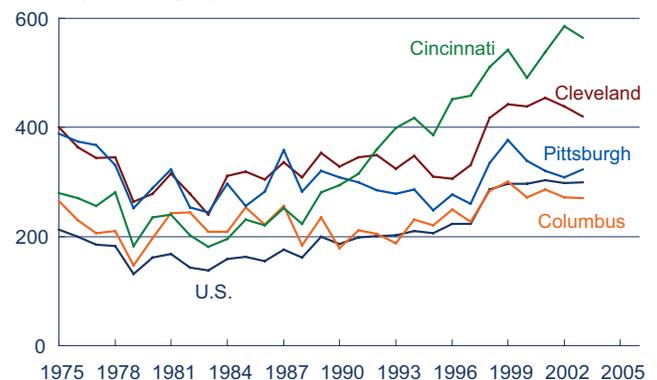
Patenting in District MSAs

Patenting activity at the metropolitan level varied considerably. Columbus produces fewer patents per million people than does the United States as a whole. However, Cincinnati produces almost twice as many patents per million people than the United States. In general, per capita patenting activity has been trending upward in the four District MSAs since the early 1980s.

Similar to the District, the four largest MSAs all have a large share of patents that can be used in the professional and scientific instruments industry. Many patents are also produced for use in the fabricated metals and rubber products industries. Pittsburgh produces a considerable share (7.8 percent) of its patents for use in the electronics and communications equipment industry.

Patents per Capita by MSA

Patents, per million people



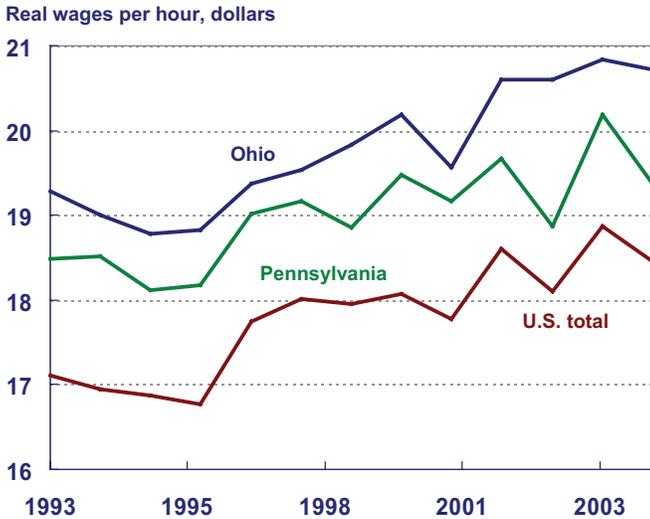
Sources: U.S. Department of Commerce, U. S. Patent and Trademark Office; Cleveland State University, Center for Economic Development; and authors' calculations.

The Metal Working Industry

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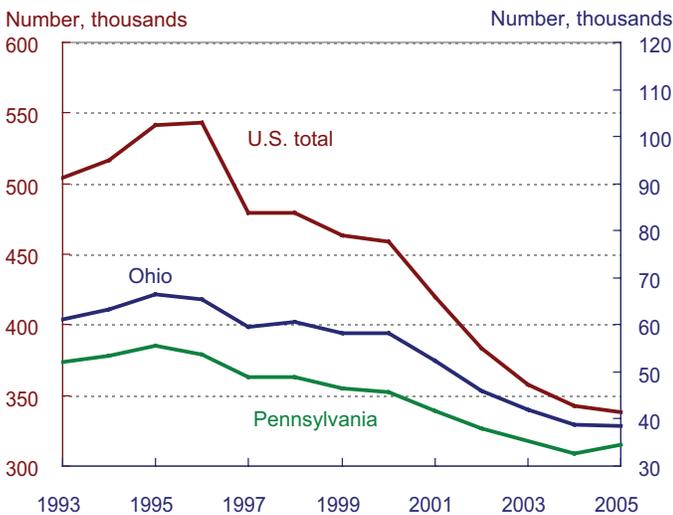
by Paul Bauer and Bethany Tinlin

Real Wages in the Metal Industries



*Prior to 1997, data represent SIC Primary Metal Industries. After 1997, data represent NAICS Primary Metal Manufacturing.
Source: U.S. Department of Commerce, Bureau of Economic Analysis, Survey of Manufactures; and GDP price deflator.

Production Workers in Metal Industries



*Prior to 1997, data represent SIC Primary Metal Industries. After 1997, data represent NAICS Primary Metal Manufacturing.
Source: U.S. Department of Commerce, Bureau of Economic Analysis, Survey of Manufactures.

Metal working has long been an important industry in the Fourth District. The first blast furnace west of the Allegheny Mountains opened in 1802 near Youngstown, and by 1880, 28 percent of Cleveland's workforce found employment in its steel mills. Although the industry has undergone substantial restructuring and lost some of its importance over the years, it maintains a significant economic presence in the District.

Most of the District's primary metals industry is located in Ohio and Pennsylvania. As recently as 1995, the industry employed 66,600 in Ohio, but according to the most recent Census of Manufacturing, employment had fallen to 38,483 by 2005, a drop of over 42 percent. Pennsylvania's employment in the industry fared slightly better, dropping from 55,600 in 1995 to 34,522 in 2005, a little less than a 38 percent drop.

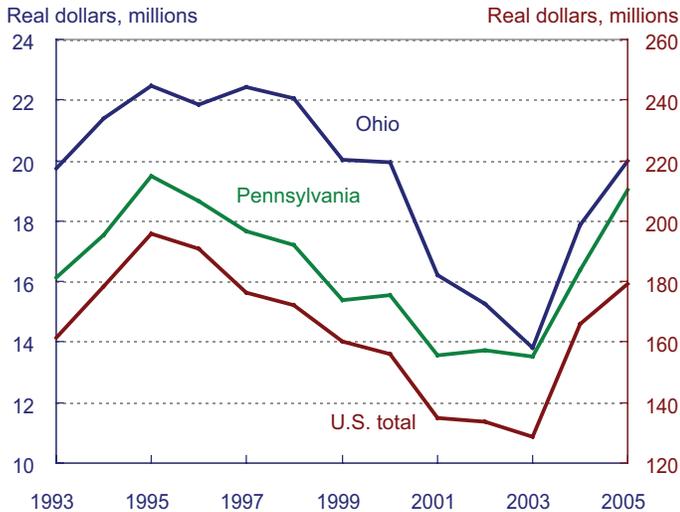
Despite plunging employment, the value of shipments has held up better, thanks to productivity gains and a sharp rise in prices that began at the outset of 2004. Output from 1995 to 2005 declined only 2.5 percent in Pennsylvania and 11.1 percent in Ohio. Nationally, shipment values fell 8.5 percent.

The surging international demand for steel, led in part by China and India's booming economies, has changed the pricing dynamics of the industry. From 1980 to 2004, the real price of steel mill products fluctuated in a relatively narrow range, but from the end of 2003 to the end of 2006 the real price of those products rose about 59.8 percent. Not surprisingly, the financial health of U.S. steel producers, as measured by their share prices, increased dramatically.

Workers in the industry have shared in some of these gains. Real wages increased 10.3 percent and 7.0 percent in Ohio and Pennsylvania, respectively, from 1995 to 2005. However, because fewer people

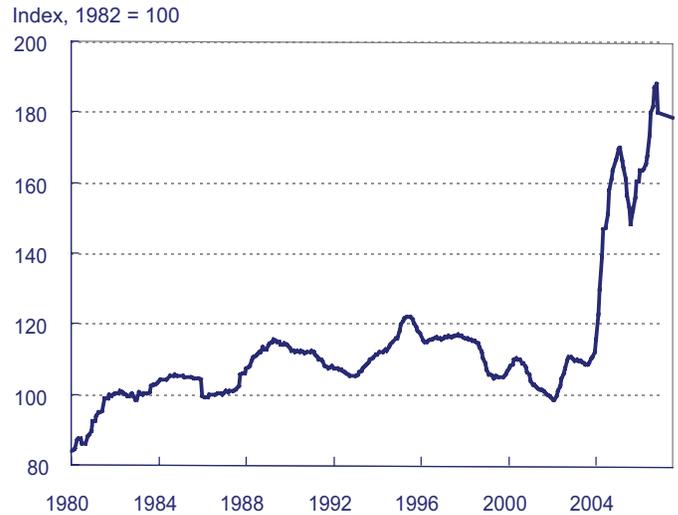
are employed in the industry, overall earnings are still down in Ohio. In contrast, earnings in Pennsylvania have nearly reached their 2000 peak.

Value of Shipments



*Prior to 1997, data represent SIC Primary Metal Industries. After 1997, data represent NAICS Primary Metal Manufacturing.
Source: U.S. Department of Commerce, Bureau of Economic Analysis, Survey of Manufactures.

Producer Price Index: Steel Mill Products

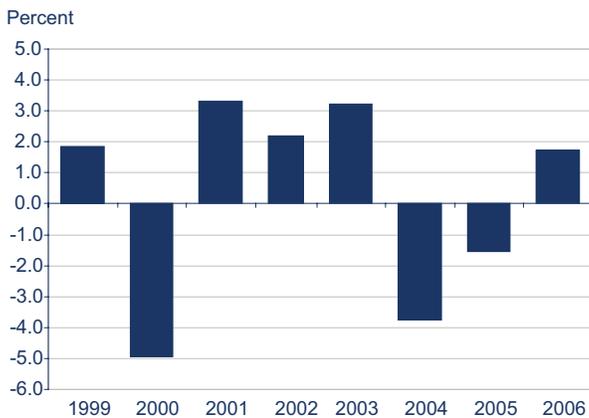


Source: U.S. Department of Labor, Bureau of Labor Statistics.

Banking and Financial Institutions

A Close Look at Fourth District Community Banks

Annual Asset Growth



Source: Authors' calculation from Federal Financial Institutions Examination Council, Quarterly Banking Reports of Condition and Income, Fourth Quarter 2006.

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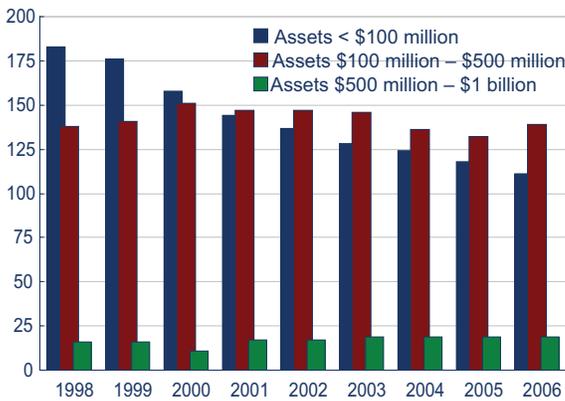
by O. Emre Ergungor and Cara Stepanczuk

Most of the 293 banks headquartered in the Fourth District as of December 31, 2006, are community banks—commercial banks with less than \$1 billion in total assets. There are 269 such banks headquartered in the District today, a number that, as a result of bank mergers, has declined since 1998, when there were 337.

Community banking assets declined most severely in 2000 and 2004, which does not necessarily mean that any banks closed shop or left the district. A bank may disappear from our radar because it is acquired by an out-of-state bank holding company (which could change which Federal Reserve district the bank and branch offices belong to) or because it merges with another Fourth District bank and the total assets of the merged institution push it above the \$1 billion cutoff.

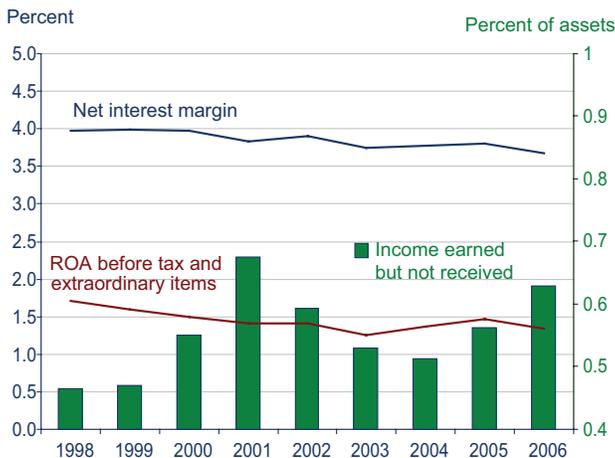
Fourth District Community Banks by Asset Size

Number of community banks



Source: Authors' calculation from Federal Financial Institutions Examination Council, Quarterly Banking Reports of Condition and Income, Fourth Quarter 2006.

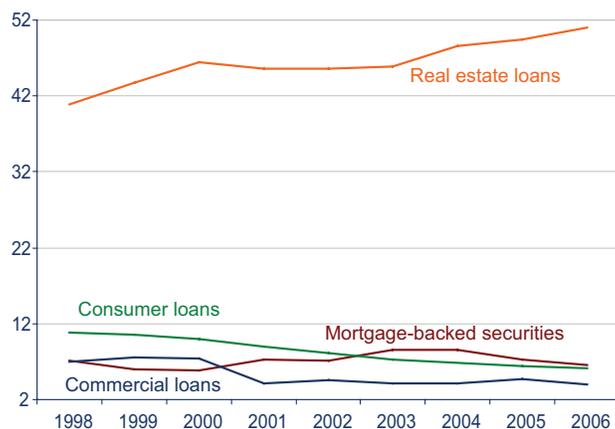
Income Stream



Source: Authors' calculation from Federal Financial Institutions Examination Council, Quarterly Banking Reports of Condition and Income, Fourth Quarter 2006.

Balance Sheet Composition

Percent of assets



Source: Authors' calculation from Federal Financial Institutions Examination Council, Quarterly Banking Reports of Condition and Income, Fourth Quarter 2006.

The structure of the market with respect to asset size has also changed since 2000. Before then, most Fourth District community banks had less than \$100 million in total assets, but since then, banks in the \$100 million to \$500 million category have constituted the majority.

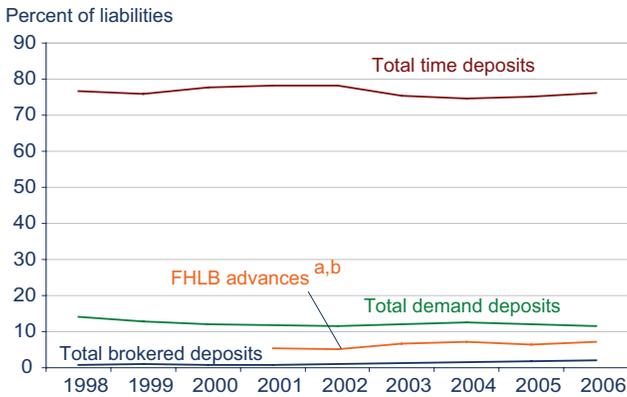
The income streams of Fourth District community banks have shown some slight deterioration in recent years. Return on assets (ROA) deteriorated from 1.7 percent in 1998 to 1.3 percent in 2006. (ROA is measured by income before tax and extraordinary items, because one bank's extraordinary items distort the averages in some years.) The decline in ROA is due in part to weakening net interest margins (interest income minus interest expense divided by earning assets). Currently at 3.68 percent, the net interest margin is at its lowest level in eight years.

One issue which may become a cause for concern in the future is the elevated level of income earned but not received; at 0.63 percent in 2006, this measure was at its highest since 2001. If a loan agreement allows a borrower to pay an amount that does not cover the interest accrued on the loan, the uncollected interest is booked as income even though there is no cash inflow. The assumption is that the unpaid interest will eventually be paid before the loan matures. However, if an economic slowdown forces an unusually large number of borrowers to default on their loans, the bank's capital may be impaired unexpectedly.

Fourth District community banks are heavily engaged in real-estate-related lending. At the end of 2006, 51 percent of their assets were in loans secured by real estate. Including mortgage-backed securities, the share of real-estate-related assets on their balance sheets was 57.6 percent.

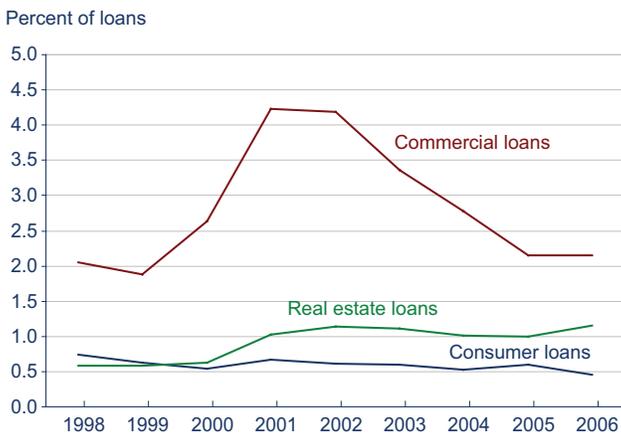
Fourth District community banks finance their assets primarily through time deposits (76 percent of total liabilities). Brokered deposits—a riskier type of deposit for banks because it chases higher yields and is not a dependable source of funding—are seldom used. Federal Home Loan Bank (FHLB) advances are loans from the FHLBs, which are collateralized by banks' small business loans and home mortgages. Although they have gained some

Liabilities



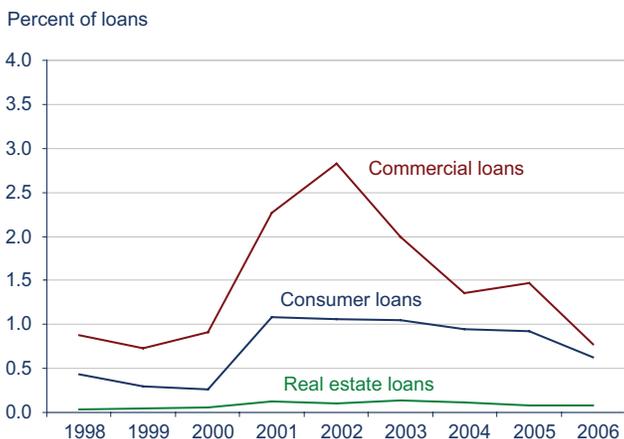
a. Federal Home Loan Bank advances.
 b. Data start in 2001.
 Source: Authors' calculation from Federal Financial Institutions Examination Council, Quarterly Banking Reports of Condition and Income, Fourth Quarter 2006.

Problem Loans



Source: Authors' calculation from Federal Financial Institutions Examination Council, Quarterly Banking Reports of Condition and Income, Fourth Quarter 2006.

Net Charge-offs



Source: Authors' calculation from Federal Financial Institutions Examination Council, Quarterly Banking Reports of Condition and Income, Fourth Quarter 2006.

popularity in recent years, FHLB advances are still a small fraction of community banks' liabilities (7.1 percent of total liabilities).

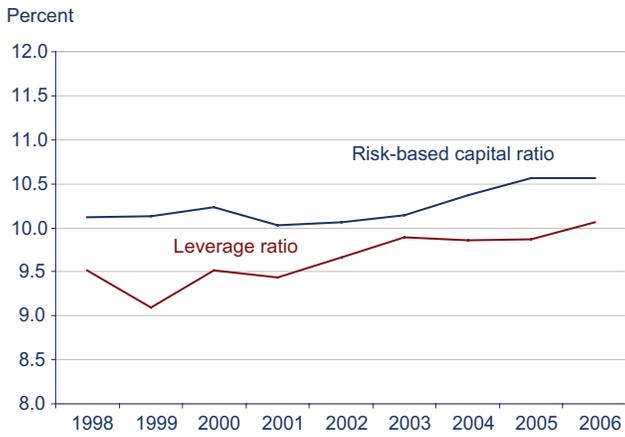
Problem loans include loans that are past due for more than 90 days but are still receiving interest payments as well as loans that are no longer accruing interest. Problem commercial loans rose sharply in 2001 but returned to 1998-2000 levels in recent years, thanks to the strong economy. Currently, 2.15 percent of all commercial loans are problem loans. Problem real estate loans are only 1.16 percent of all outstanding real-estate-related loans but are at their highest level since 1998. Problem consumer loans continued their decline in 2006. Currently, 0.45 percent of all outstanding consumer loans (credit cards, installment loans, etc.) are problem loans.

Net charge-offs are loans that are removed from the balance sheet because they are deemed unrecoverable minus the loans that were deemed unrecoverable in the past but are recovered in the current year. As with problem loans, net charge-offs of commercial loans increased sharply in 2001 and 2002. A similar but less pronounced trend is visible in consumer loans. Fortunately, charge-off levels have returned to their prerecession levels in recent years. Net charge-offs in 2006:IVQ were limited to 0.78 percent of outstanding commercial loans, 0.63 percent of outstanding consumer loans, and 0.08 percent of outstanding real estate loans.

Capital is a bank's cushion against unexpected losses. Recent trends in capital ratios indicate that Fourth District community banks are protected by a large cushion. The leverage ratio (balance sheet capital over total assets) was above 10 percent, and the risk-based capital ratio (a ratio determined by assigning a larger capital charge on riskier assets) was above 10.5 percent at the end of 2006. The growing ratios are signs of strength for community banks.

An alternative measure of balance sheet strength is the coverage ratio. The coverage ratio measures the size of a bank's capital and loan loss reserves relative to its problem assets. As of 2006:IVQ, Fourth District community banks had \$15 in capital and reserves for each dollar of problem assets. While the

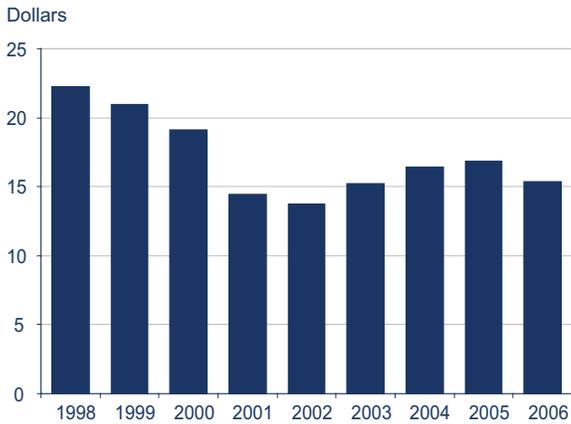
Capitalization



Source: Authors' calculation from Federal Financial Institutions Examination Council, Quarterly Banking Reports of Condition and Income, Fourth Quarter 2006.

coverage ratio declined considerably following the high charge-off periods of the early 2000s, balance sheets are still strong.

Coverage Ratio*



*Ratio of capital and loan loss reserves to problem assets.
 Source: Authors' calculation from Federal Financial Institutions Examination Council, Quarterly Banking Reports of Condition and Income, Fourth Quarter 2006.