

# Economic Trends

September 2008

(Covering August 15, 2008 to September 11, 2008)

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# July Price Statistics

8.26.08

by Michael F. Bryan and Brent Meyer

## July Price Statistics

	Percent change, last					
	1mo. <sup>a</sup>	3mo. <sup>a</sup>	6mo. <sup>a</sup>	12mo.	5yr. <sup>a</sup>	2007 avg.
<b>Consumer Price Index</b>						
All items	13.4	10.6	6.4	5.6	3.6	4.2
Less food and energy	4.0	3.5	2.3	2.5	2.3	2.4
Median <sup>b</sup>	4.7	3.8	3.1	3.3	2.8	3.1
16% trimmed mean <sup>b</sup>	7.2	5.5	4.0	3.6	2.7	2.8
<b>Import Price Index</b>						
All commodities	22.7	34.3	30.9	21.7	8.9	3.6
Nonpetroleum imports	11.0	9.9	11.4	8.0	3.5	2.1
<b>Export Price Index</b>						
All commodities	18.5	11.7	12.3	10.2	5.2	21.

a. Annualized.

b. Calculated by the Federal Reserve Bank of Cleveland.

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

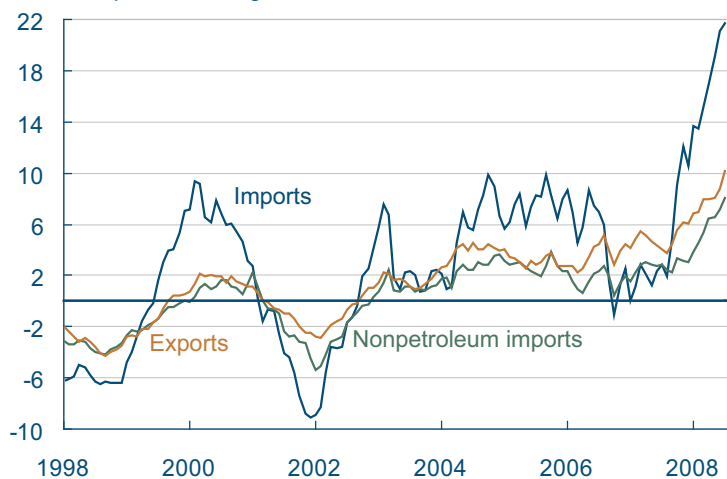
The CPI rose at an annualized rate of 10.3 percent in July, much higher than expected, as energy and commodity prices continued to surge. The energy components of the CPI jumped up 59.2 percent (annualized rate) and are up 29.2 percent over the past 12 months. Consequently, the 12-month growth rate in the CPI stands at 5.6 percent, its largest increase in 17 years. The core CPI was also elevated in July, rising 4.0 percent, its largest monthly jump since November 2001. This followed a 3.9 percent increase in June. Measures of underlying inflation trends computed by the Federal Reserve Bank of Cleveland—the median CPI and 16 percent trimmed-mean CPI—rose 4.7 percent and 7.2 percent, respectively. Over the past three months, the 16 percent trimmed-mean CPI is up 5.5 percent, while the median CPI has increased 3.8 percent.

Import prices, which have been surging since March, rose 22.7 percent in July. This is a slight improvement from the past four months, which have all seen import price increases in excess of 39 percent. Both petroleum and nonpetroleum prices contributed to the overall price gain in July, rising 60.4 percent and 11.0 percent, respectively. Export prices remain elevated as well, rising 18.5 percent in July after a 13.2 percent increase in June. Over the past 12 months, export prices are up 10.2 percent, while import prices have jumped up 21.7 percent. Nonpetroleum imports have increased 8.0 percent over that same time period.

An investigation into the distribution of price changes in the components of the CPI yields some information about the nature of the price increases. In July, 60 percent of the components of the CPI rose at rates exceeding 3.0 percent, while 47 percent rose at rates greater than 5.0 percent, more than double the 2007 average of 22.4 percent rising at rate greater than 5.0 percent. On the other side of the price-change distribution, only 9.2 percent of the index's components exhibited price decreases

## Import and Export Price Indexes

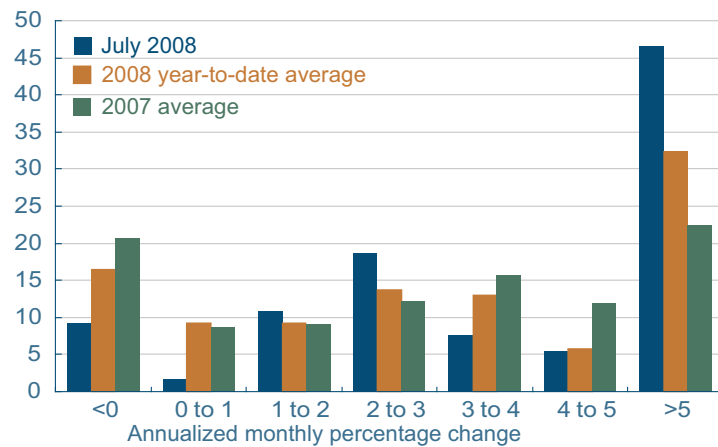
12-month percent change



Source: Bureau of Labor Statistics.

## CPI Component Price-Change Distributions

Weighted frequency



Source: Bureau of Labor Statistics.

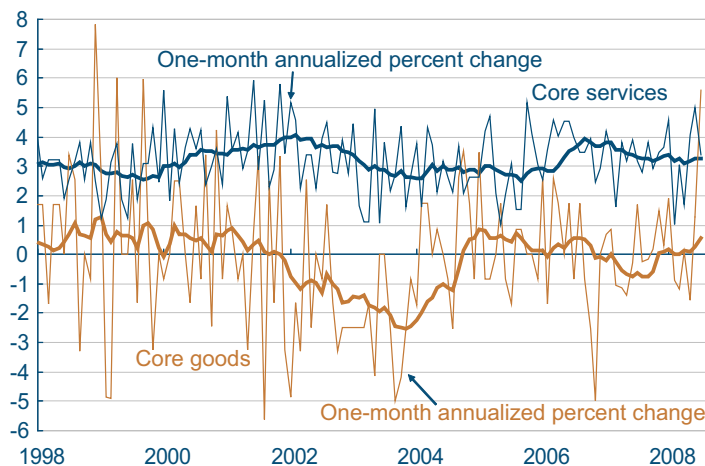
in July, compared with 16.5 percent year-to-date, and an average of 20.7 percent in 2007.

Core goods prices jumped up 5.6 percent in July (their largest monthly price spike since September 1999), which may indicate that energy and commodity prices are passing through into goods production. Core services prices—which are much more sensitive to wage pressures—were relatively well-behaved, rising 3.4 percent during the month.

One-year-ahead average inflation expectations, as measured by the University of Michigan's Survey of Consumers, fell 0.8 percentage point to 5.5 percent in August, likely reflecting the recent decline in energy and commodity prices from near-term peaks. Longer-term (5—10 year-ahead) average expectations ticked up to 3.8 percent in August from 3.5 percent in July, holding slightly above their recent trend.

## Core CPI Goods and Core CPI Services

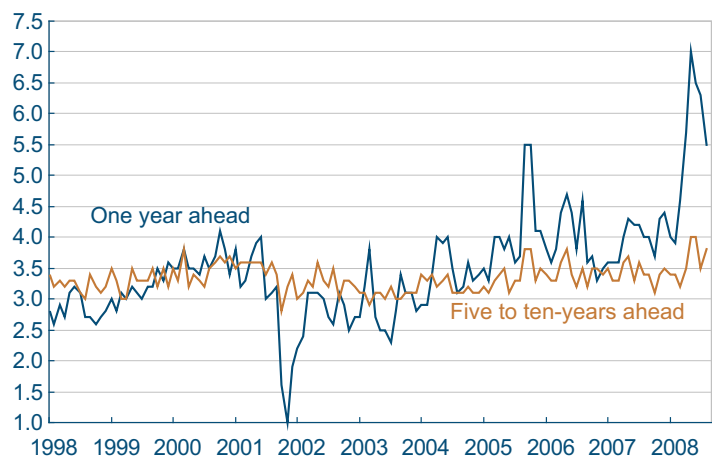
12-month percent change



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

## Household Inflation Expectations

12-month percent change



Note: Mean expected change as measured by the University of Michigan's Survey of Consumers.  
Source: University of Michigan.

## Money, Financial Markets, and Monetary Policy

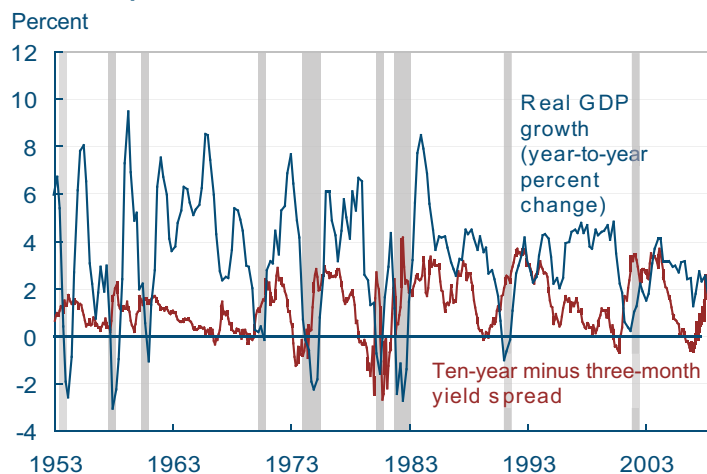
### What Is the Yield Curve Telling Us?

08.26.08

by Joseph G. Haubrich and Kent Cherny

Since last month, the yield curve has flattened modestly, with both short-term interest rates increasing and longer rates holding steady. One reason for noting this is that the slope of the yield curve has achieved some notoriety as a simple

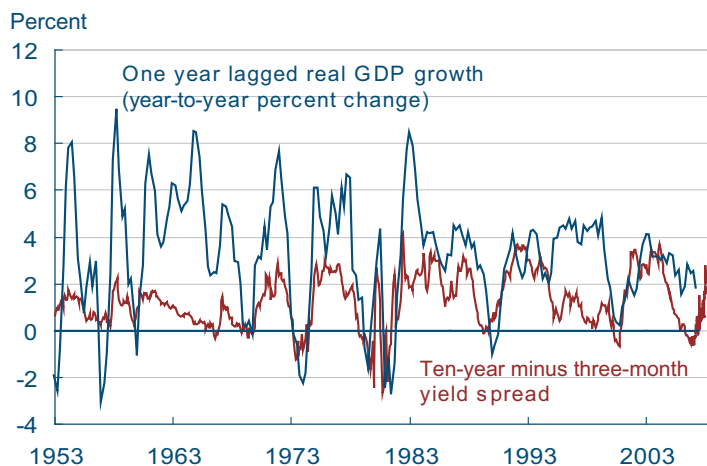
## Yield Spread and Real GDP Growth



Note: Shaded bars represent recessions

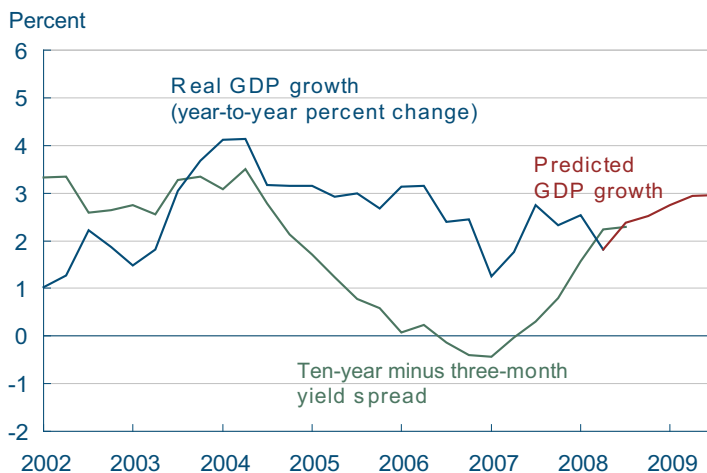
Sources: Bureau of Economic Analysis; Federal Reserve Board.

## Yield Spread and One-Year Lagged Real GDP Growth



Sources: Bureau of Economic Analysis; Federal Reserve Board.

## Yield Spread and Predicted GDP Growth



Sources: Bureau of Economic Analysis; Federal Reserve Board.

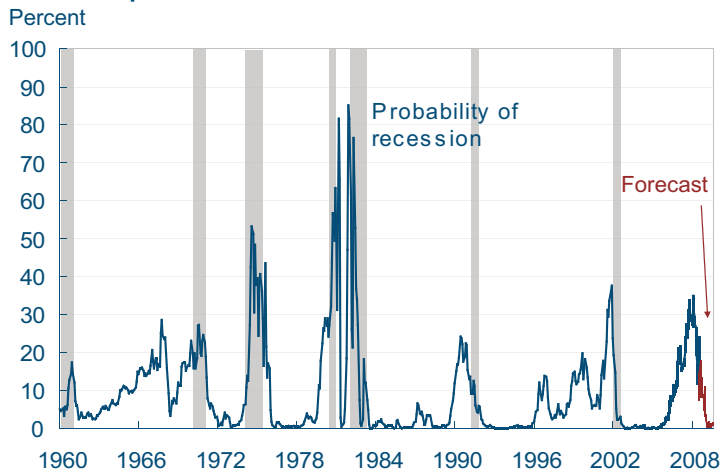
forecaster of economic growth. The rule of thumb is that an inverted yield curve (short rates above long rates) indicates a recession in about a year, and yield curve inversions have preceded each of the last six recessions (as defined by the NBER). Very flat yield curves preceded the previous two, and 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.

The yield curve slope became somewhat flatter, with short rates moving up. The spread remains positive, with the 10-year rate moving up 1 basis point to 3.91 percent and the 3-month rate moving up 9 basis points to 1.86 percent (both for the week ending August 15). Standing at 205 basis points, the spread is just below the 213 basis points seen in July and the 218 basis points of June. Projecting forward using past values of the spread and GDP growth suggests that real GDP will grow at about a 3.0 percent rate over the next year. This remains on the high side of other forecasts.

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 the economy being in a recession next August stands at 1.3 percent, just above June and July's 1.1 percent.

The probability of recession is below several recent estimates, and perhaps seems strange in the midst of recent financial concerns. But one aspect of those concerns has been a flight to quality, which lowers Treasury yields. Also working to steepen the yield curve are the reductions in both the federal funds target rate and the discount rate by the Federal Reserve. Furthermore, the forecast is for where the economy will be next August, not earlier in the

## Probability of Recession Based on the Yield Spread



Note: Estimated using probit model.

Sources: Bureau of Economic Analysis; Federal Reserve Board; author's calculations.

year.

To compare the 1.1 percent to some other probabilities, and learn more about different techniques of predicting recessions, head on over to the Econbrowser blog.

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 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?”

## International Markets

### Global Developments in the Economic Outlook

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09.09.08

by Owen Humpage and Michael Shenk

Sometimes globalization giveth, but sometimes it taketh away. The dollar's recent depreciation and exceptionally strong economic growth abroad have been a boon to U.S. economic growth, but that may now be changing. Preliminary estimates showed a surprisingly strong, 3.3 percent increase in GDP during the second quarter of 2008, with almost all of this increase attributable to a combined rise in U.S. exports and decline in imports. Real gross domestic purchases—spending less exports—continued to be very weak in the second quarter, so much so that their recent performance resembles that during the 2001 recession. U.S. exports have increased substantially faster than GDP since mid-2003 and have, therefore, been a significant, sustained source of growth. While imports are now a higher percentage of GDP than

in 2003, they have flattened out over the past three years. Consequently, our trade deficit has narrowed substantially.

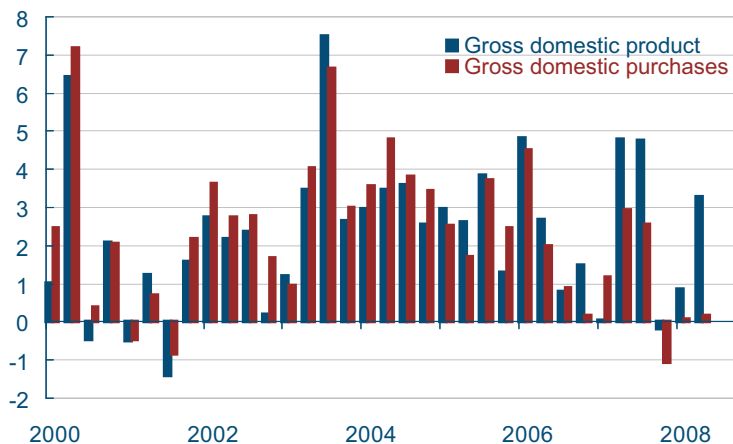
Explaining the causal relationship between trade deficits and dollar depreciations is always tricky because other economic events determine both variables. Since at least 2005, however, the passive reluctance of international investors to add dollars to their portfolios seems to have precipitated the dollar's depreciation. Since the end of 2005 through March of this year, the dollar depreciated 14 percent on a real, or inflation-adjusted, basis against a broad array of U.S. trading partners. Such a real depreciation raises the dollar price of foreign goods, lowers foreign-currency prices of U.S. goods, and shifts world demand toward U.S. products.

At roughly the same time as this exchange-rate-induced demand shift started, the world began to exhibit an exceptionally strong streak of economic growth. Between 2004 and 2007, world output expanded at a 4.8 percent average annual rate. While emerging markets, notably China and India, led the way, nearly every nation on earth shared in the expansion. Such rapid, widely shared economic growth seems unprecedented.

Now, however, some of these favorable international factors may be dissipating and signaling slower economic growth ahead. The dollar seems to have stabilized since March and, while it certainly could move lower, the dollar now seems a tad soft on a purchasing-power-parity basis. More importantly, however, global economic activity is likely to slow substantially in the second half of 2008 and return gradually to a more normal growth rate by late 2009. The International Monetary Fund, for example, expects global growth to slow from 5.0 percent in 2007 to 4.1 percent this year and 3.9 percent in 2009. Economic growth among the advanced economies is expected to drop from 2.7 percent in 2007 to only 1.7 percent this year and 1.4 percent in 2009, while economic growth among the emerging and developing economies is expected to slow from 8.0 percent in 2007 to 6.9 percent in 2008 and 6.7 percent in 2009. While many forecasters have recently revised their forecasts for foreign growth down, the IMF, which initially had a pessimistic

## Real Gross Domestic Product and Purchases

Percent change, annual rate



Source: Bureau of Economic Analysis.

## World GDP Growth

	Projections			
	2006	2007	2008	2009
World	5.1	5.0	4.1	3.9
Advanced economies	3.0	2.7	1.7	1.4
United States	2.9	2.2	1.3	0.8
Euro area	2.8	2.6	1.7	1.2
Japan	2.4	2.1	1.5	1.5
United Kingdom	2.9	3.1	1.8	1.7
Canada	3.1	2.7	1.0	1.9
Emerging and developing economies	7.9	8.0	6.9	6.7
China	11.6	11.9	9.7	9.8
India	9.8	9.3	8.0	8.0
ASEAN-5	5.7	6.3	5.6	5.9
Western Hemisphere	5.5	5.6	4.5	3.6

Note: GDP growth is measured as a year-over-year percent change.  
Source: International Monetary Fund, World Economic Outlook Update July 2008.



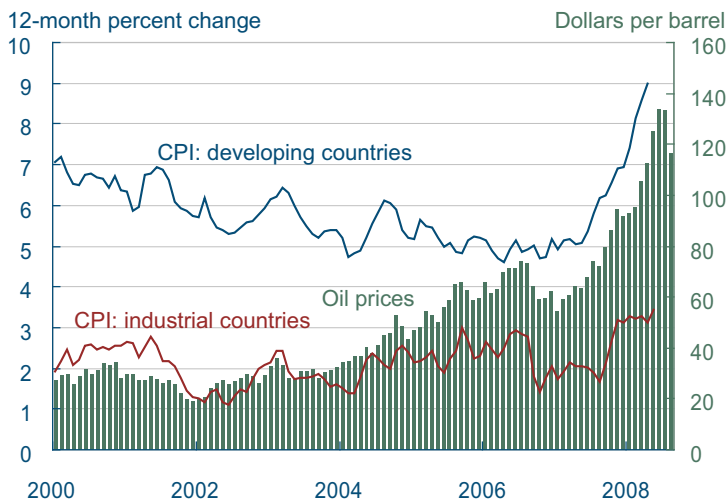
world outlook, has generally revised them up.

Financial turmoil, stemming from U.S. subprime real estate loans, initiated the global slowdown. Despite some improvements, financial strains remain a serious risk to the economic outlook. As banks continue to improve their balance sheets by writing down debts and raising new capital, they will increase the terms and limit the availability of credit. This will impair economic growth, which will, in turn, feed back into credit quality. Downturns in housing prices and construction seem to be spreading among advanced developed countries with little evidence of bottoming out. Many central banks have tempered their response to the downside risks associated with the financial turmoil for fear of igniting inflation.

The exceptionally strong economic growth between 2004 and 2007, particularly among emerging and developing countries, raised commodity prices in recent years. Although the upward pressures on commodity prices have recently eased as global economic activity has softened, higher commodity prices are unlikely to disappear in the near future. Spare oil capacity and inventories are limited, and expanding production and distribution capacity is costly and time consuming. Although agricultural production may be more responsive to higher prices than the oil supply, growing global demand and higher oil prices will keep pressure on food prices. Higher commodity prices mean consumers have less to spend on other goods and services.

In advanced countries, according to the IMF, core price measures have generally stayed below 2 percent, while upward pressure from oil and other commodity prices have pushed headline price measures substantially higher. Central banks in most developed countries have been reluctant to ease policy in the face of strong price pressures. Emerging and developing countries, however, have been more accommodative. They have allowed commodity-price pressures to exert a bigger effect on core prices, which are now rising around 4 percent year over year, according to the IMF. Inflation could remain a problem in these economies through next year.

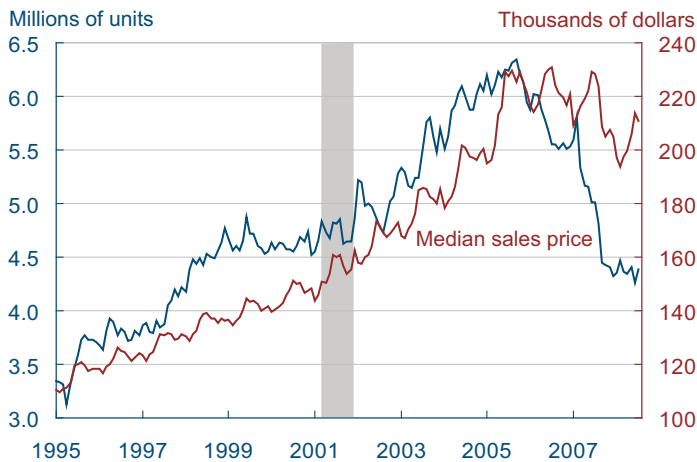
## Headline Inflation and Oil Prices



Source: International Monetary Fund, International Financial Statistics; and the Wall Street Journal

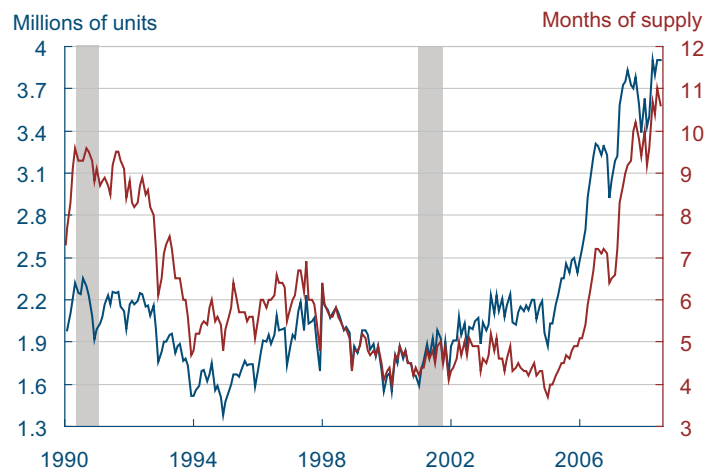
# Update of the Housing Market

## Existing Single-Family Home Sales



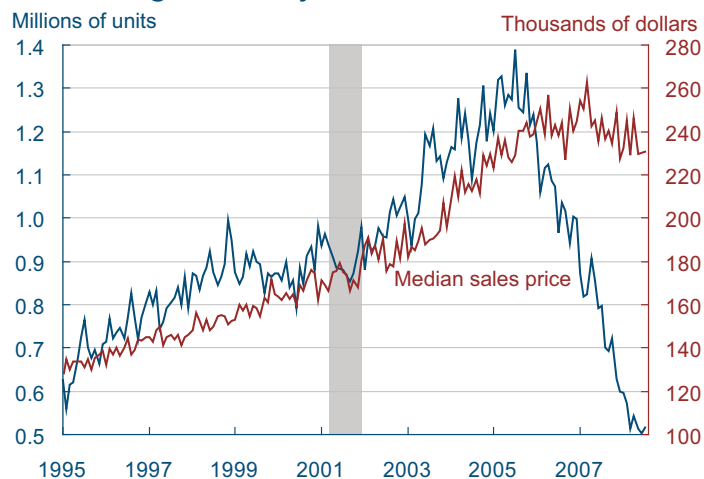
Source: National Association of Realtors.

## Inventories of Existing Single-Family Homes for Sale



Source: National Association of Realtors.

## New Single-Family Home Sales



Source: Census Bureau.

09.04.08

by Michael Shenk

Over the past two weeks, a lot of data on the housing market has been released, giving us a fairly comprehensive look at where the market stands through July. Here's a brief overview of that data and the picture it paints of the housing market.

Existing single-family home sales—which comprise the majority of home sales in the United States—rose 3.1 percent in July, after falling 3.4 percent in June. Over the past few months, existing single-family home sales have stabilized noticeably. They have increased in four of the first seven months of 2008, compared to a total of just three increases in 2006 and only two in 2007. In fact, so far this year, sales are up an annualized 2.8 percent.

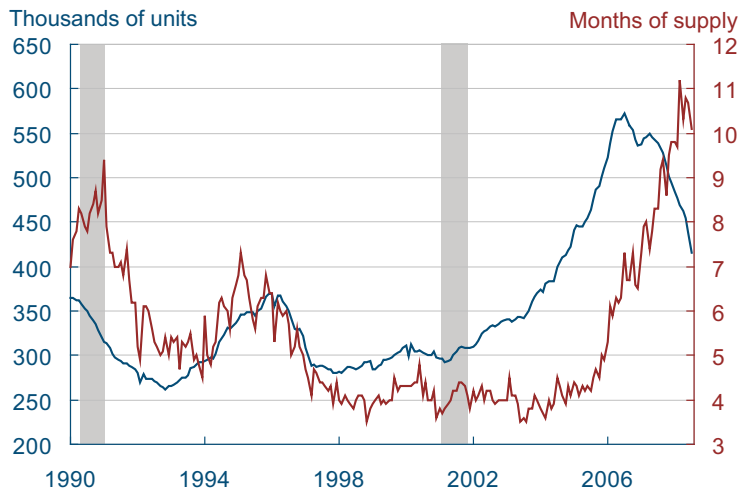
While these reports on existing single-family home sales have been refreshing, it's difficult to say with any certainty that the market has bottomed out. Remember, we saw a similar period of apparent stabilization from July 2006 to February 2007, but then sales began to decline again in March. Looking at inventories, it's clear that there is still an oversupply of homes for sale, which could continue to put downward pressure on prices and potentially further slow the pace of sales.

Sales of new single-family homes also increased in July, rising 2.4 percent following a 2.1 percent decline in June. Like the existing-homes market, the market for new single-family homes is showing some encouraging signs. However, those signs are a little more tenuous since the trend has not been as pronounced or as long in duration. Still, over the past five months, new single-family home sales have been essentially flat, a performance that represents the series' best five-month showing since late 2006. However, the growth rates for the series over longer periods—6, 9, and 12 months—all remain substantially negative and have shown limited improvement in recent months.

The inventories picture for new homes is a little more encouraging. New-home builders continued

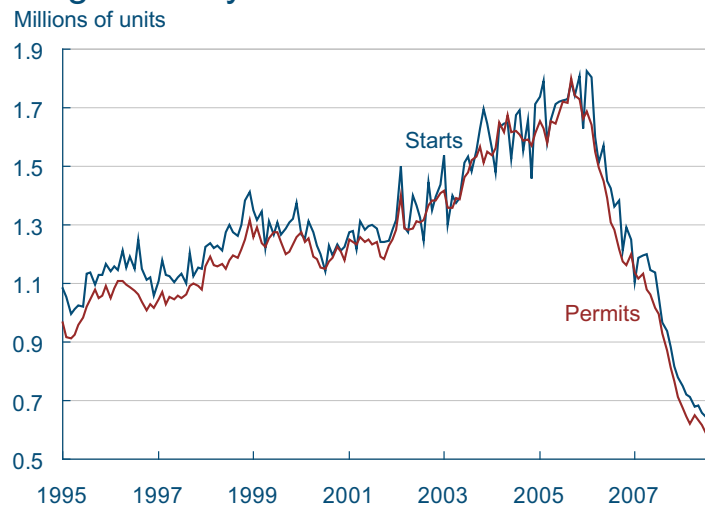


## New Single-Family Homes for Sale



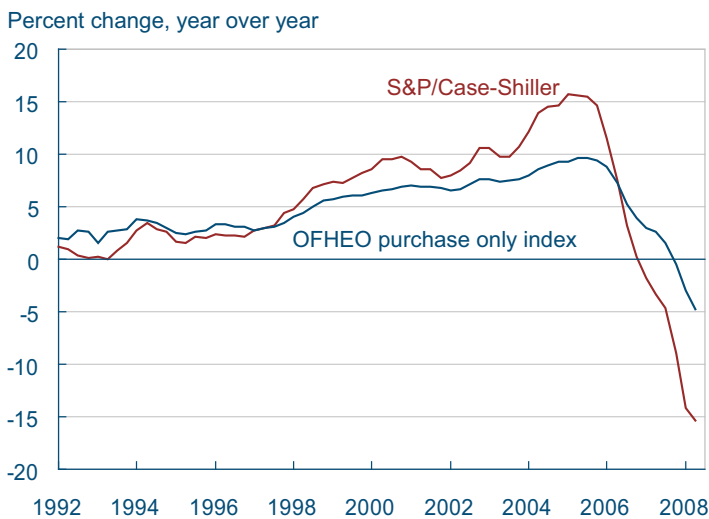
Source: Census Bureau.

## Single-Family Starts and Permits



Source: Census Bureau.

## Home Price Indexes



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

to work off inventory in July, as the number of homes on the market fell 5.2 percent, the largest monthly decline since 1963. However, given the slow pace of sales, inventories are still elevated, though they have backed off of their recent highs somewhat.

Given the level and direction of inventories, the data for housing starts shouldn't be a surprise. The decline in single-family housing starts has continued in recent months and shows little signs of bottoming out. The only positive sign is that the pace of the decline, while still rapid, appears to be slowing somewhat, as evidenced by improvements in the 3-, 6-, and 9-month growth rates. However, at -21.5 percent, -27.0 percent, and -34.9 percent (annualized rates), these rates make clear that single-family starts are far from turning a corner.

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All things considered, the housing market's troubles continued into July. But for those looking for a bright spot, some tenuous signs that the market is getting close to the bottom are emerging. Going forward, the downside risk is that high inventories and financial troubles will continue to put downward pressure on prices, which could result in further declines in sales and construction activity.

## Second-Quarter GDP Preliminary Revision: Onward and Upward?

09.05.08

by Brent Meyer

### Real GDP and Components 2008: Second-Quarter Preliminary Estimate

	Quarterly change (billions of 2000\$)	Annualized percent change, last:	
		Quarter	Four quarters
Real GDP	94.3	3.3	2.2
Personal consumption	36.1	1.7	1.4
Durables	-7.9	-2.5	-1.1
Nondurables	24.7	4.2	1.3
Services	15.6	1.3	1.9
Business fixed investment	7.9	2.2	4.2
Equipment	-8.9	-3.2	0.2
Structures	10.6	13.6	12.7
Residential investment	-16.1	-15.8	-22.2
Government spending	19.4	3.9	2.6
National defense	9.4	7.4	5.9
Net exports	85.4	—	—
Exports	47.3	13.2	11.2
Imports	-38.1	-7.5	-2.0
Private inventories	-49.4	—	—

Source: Bureau of Labor Statistics.

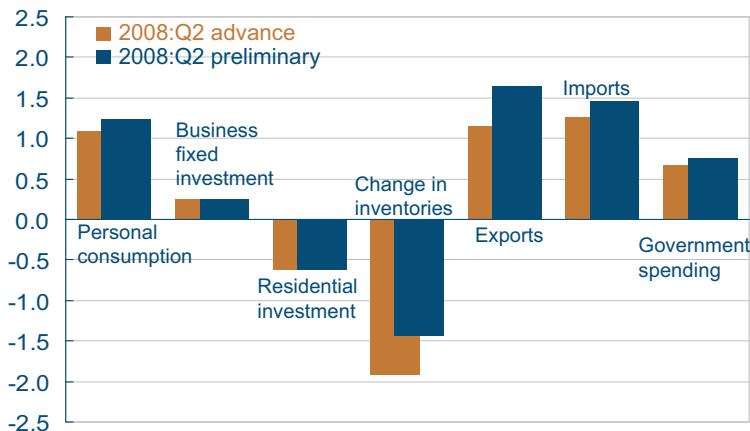
Real GDP advanced at an annualized rate of 3.3 percent in the second quarter, outpacing its growth over the past four quarters, according to the preliminary release from the BEA. This is an upward revision of 1.4 percentage points from the advance estimate, and an extremely large revision when compared to the average advance-to-preliminary revision over the past 20 years of 0.5 percentage point (this is the absolute average—the average without regard to sign). If this estimate holds, the economy will have grown in the second quarter at a rate in excess of its average over the past 20 years (not bad for a quarter that, not too long ago, was expected to post near-zero growth).

The upward revision was, in large part, due to favorable adjustments to net exports and private inventories. Exports increased 13.2 percent in the second quarter, revised up from 9.2 percent. At the same time, imports (which subtract from GDP growth) were revised down from a decrease of 6.6 percent to one of 7.5 percent. All told, the revision to net exports added 3.1 percentage points to real GDP growth in the second quarter, an additional 0.7 percentage point over the advance estimate. The sell-off in private inventories was not as dramatic as the advance release made it out to be, subtracting 1.4 percentage points from second-quarter growth, as opposed to a 1.9 percentage-point subtraction. Consumption growth was also revised up, increasing 1.7 percent in the second quarter (up from 1.5 percent in the first quarter), while the investment picture was largely unchanged from the advance release.

In contrast to the large contribution to real GDP growth from net exports in 2008:Q2 (3.1 percentage points), the average contribution to growth from net exports since 1980 has been -0.2 percentage point. In fact, the last time net exports added this much to growth was during the second quarter of 1980.

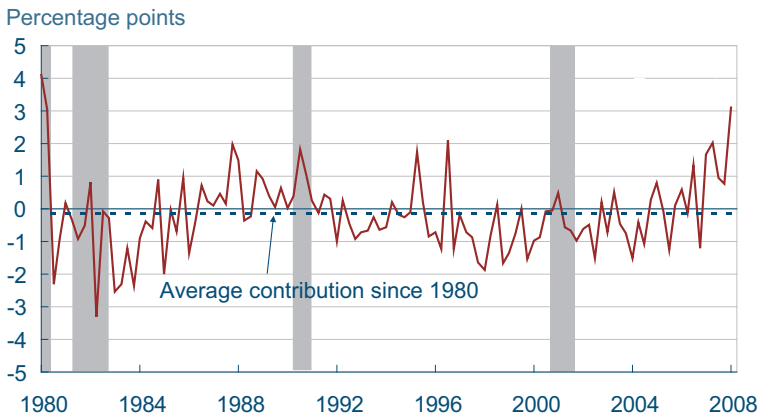
### Contribution to Percent Change in Real GDP

Percentage points



Source: Bureau of Economic Analysis

## Net Exports Contribution to Percent Change in Real GDP

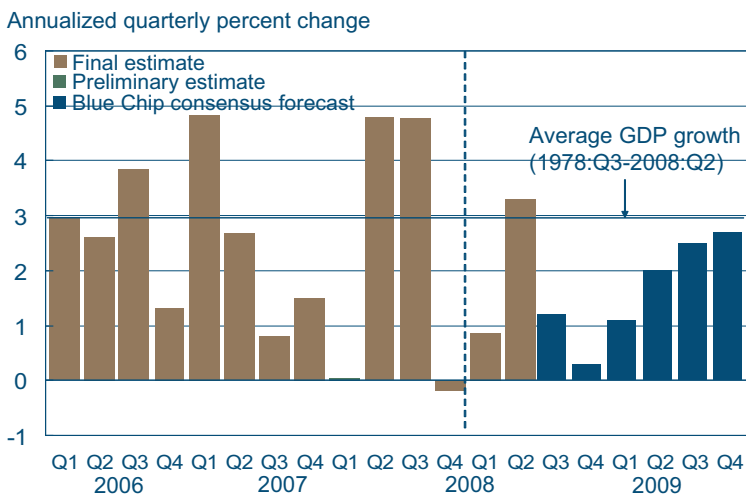


Source: Bureau of Economic Analysis.

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Looking forward, professional forecasters are expecting growth in the second half of the year to be weak, perhaps reflecting the drying up of the fiscal stimulus and the ongoing financial uneasiness. Although they still expect GDP growth to start to rebound toward its longer-term trend in 2009, 31 of the 50 forecasters on the Blue Chip panel revised their 2009 growth outlook down from their previous forecast.

## Real GDP Growth



Source: Blue Chip Economic Indicators, July 2008; Bureau of Economic Analysis.

## Economic Activity

### The Employment Situation

09.09.08

by Yoonsoo Lee and Beth Mowry

Nonfarm payrolls declined by 84,000 in August, and the unemployment rate rose to 6.1 percent, up from 5.7 percent in July. Downward revisions to June and July payroll numbers amounted to 58,000 additional losses for those months. This marks the eighth consecutive month of employment decline and the highest rate of unemployment since September 2003. The decline in payrolls and the rise in the unemployment rate were both larger than consensus expectations.

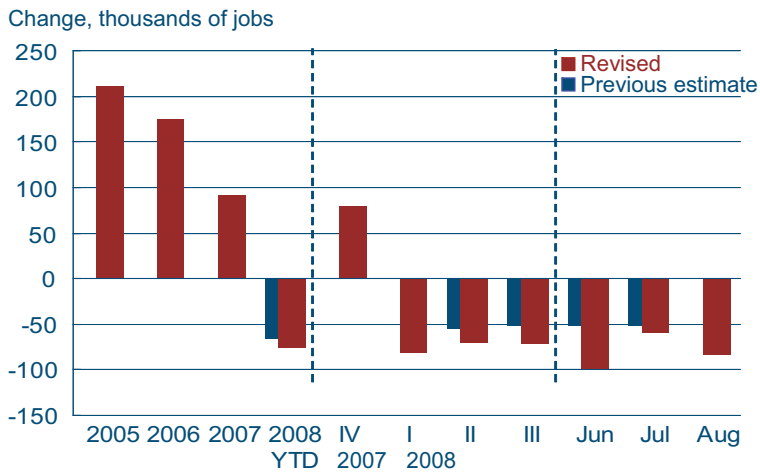
The diffusion index of employment change improved, moving up to 48.9 from 41.4 in July. However, given the overall weakness of the labor report, the rise in this index implies that employment losses are more concentrated in certain sectors. Furthermore, a reading below the threshold of 50 still indicates that more businesses are subtracting jobs than adding them.

The goods-producing sector shed 57,000 jobs in August, compared to July's slightly smaller loss of 48,000. These higher losses come entirely from manufacturing, as construction losses actually improved over the month, from 20,000 job losses to just 8,000. While residential construction continued to decline, nonresidential construction added 12,200 jobs in August.

The manufacturing sector shed 61,000 jobs last month, contributing a good portion of the 57,000 net jobs lost within goods-producing industries as a whole. Most of the sector's declines are explained by losses at durable goods firms, which totaled 55,000. In comparison, nondurable goods firms lost 6,000 jobs. The greatest losses in nondurables occurred in motor vehicles and parts, which dropped 39,000 jobs last month compared to July's loss of just 400. This is the biggest dip the auto industry has seen since July 1998. Excluding motor vehicles and parts, manufacturing lost 22,000 jobs last month, a smaller loss than July's loss of 37,700 or June's of 38,400.

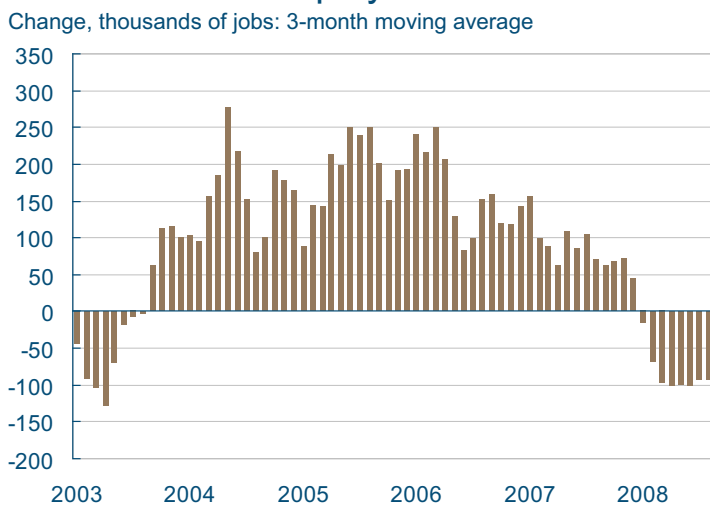
With a payroll decline of 27,000, service-providing industries lost more jobs in August than in July, despite the government sector's larger contribution this month of 17,000 jobs. Education and health services, with 55,000 new jobs, continued to provide the only strength to service-providing industries, which lost 27,000 jobs as a whole. Education added 16,300 jobs, and healthcare and social assistance tacked on an even more impressive 38,100. All other major service industries shrank in August, particularly professional and business services (-53,000) and trade, transportation and utilities (-35,000). Within trade, transportation and utilities, wholesale and retail trade suffered the heaviest losses at 38,400. Temporary help services, considered a leading indicator of overall employ-

## Average Nonfarm Employment Change



Source: Bureau of Labor Statistics.

## Private Sector Employment Growth



Source: Bureau of Labor Statistics.

ment conditions, had yet another tough month in August, dropping 36,900 jobs in its worst decline since November 2001.

## Labor Market Conditions

	Average monthly change (thousands of employees, NAICS)				
	2005	2006	2007	YTD 2008	August 2008
Payroll employment	211	175	91	-76	-84
Goods-producing	32	3	-38	-74	-57
Construction	35	13	-19	-37	-8
Heavy and civil engineering	4	3	-1	-5	-2.0
Residential <sup>a</sup>	23	-5	-20	-27	-18.6
Nonresidential <sup>b</sup>	8	14	1	-5	-12.2
Manufacturing	-7	-14	-22	-43	-61
Durable goods	2	-4	-16	31	-55
Nondurable goods	-8	-10	-6	-12	-6
Service-providing	179	172	130	-2	-27
Retail trade	19	5	6	-25	-19.9
Financial activities <sup>c</sup>	14	9	-9	-6	-3
PBS <sup>d</sup>	56	46	26	-34	-53
Temporary help services	17	1	-7	-28	-23.5
Education and health services	36	39	44	54	55
Leisure and hospitality	23	32	29	4	-5
Government	14	16	21	19	17
Local educational services	6	6	5	3	0
Civilian unemployment rate	5.1	4.6	4.6	5.3	6.1

a. Includes construction of residential buildings and residential specialty trade contractors.

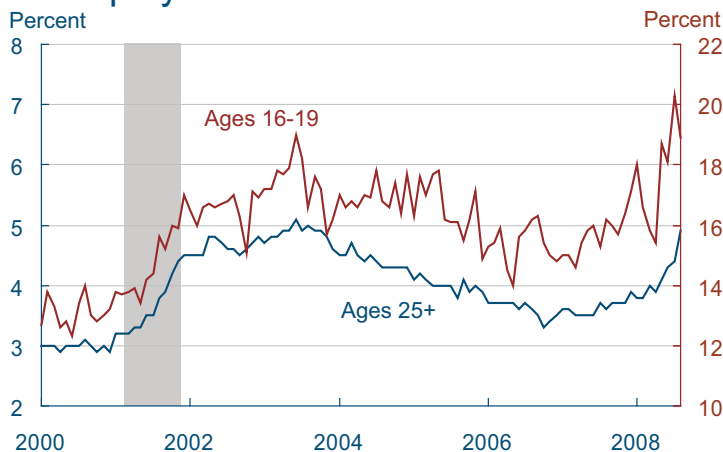
b. Includes construction of nonresidential buildings and nonresidential specialty trade contractors.

c. Financial activities include the finance, insurance, and real estate sector and the rental and leasing sector.

d. PBS is professional business services (professional, scientific, and technical services, management of companies and enterprises, administrative and support, and waste management and remediation services).

Source: Bureau of Labor Statistics.

## Unemployment Rate



Notes: Data are seasonally adjusted rates for the civilian population. The shaded bar indicates a recession.

Source: Bureau of Labor Statistics.

The three-month moving average of private sector employment growth remains in the negative territory it entered back in January, sitting roughly unchanged from the previous report at -92,000. These private sector declines, though, have not yet reached levels as severe as losses during typical recessions.

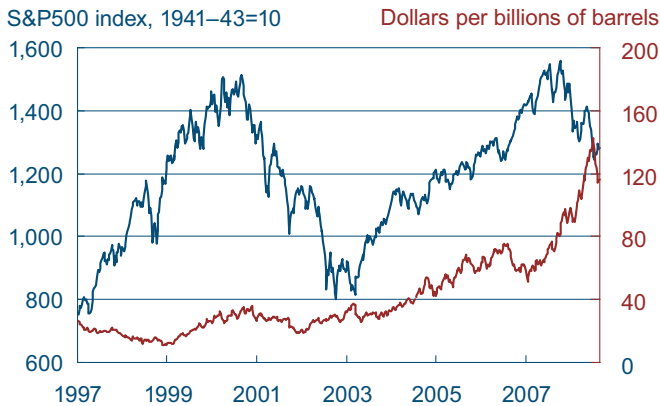
As noted earlier, the unemployment rate jumped 40 basis points to 6.1 percent, the highest level it has been since September 2003. The rate had also experienced large jumps in the spring, particularly April to May, owing much to teenagers (16 to 19), whose unemployment rate jumped from 15.4 percent to 18.7 percent. August's increase is more worrisome, though, because it is an increase in the adult

unemployment rate which accounts for it. The rate for people 25 years and older increased from 4.4 to 4.9 percent last month, while the rate for teenage workers fell.

## Economic Activity

# Do Oil Prices Directly Affect the Stock Market?

## Oil Prices and the S&P 500 Index



Notes: The oil price is the weekly average domestic spot price of light sweet crude oil (WTI). The S&P 500 index values are taken from the average weekly close.  
Sources: *The Wall Street Journal*; S&P.

09.12.08

by Andrea Pescatori and Beth Mowry

Market commentators and journalists like to draw direct lines between the behavior of crude oil prices and market behavior on a given day, with such headlines as “Oil Spike Pummels Stock Market” (*Wall Street Journal*) or “U.S. Stocks Rally as Oil Prices Fall” (*Financial Times*). But does a change in oil prices affect the overall stock market in any predictable, meaningful way? Might a hike in crude foretell a weak day on the Street?

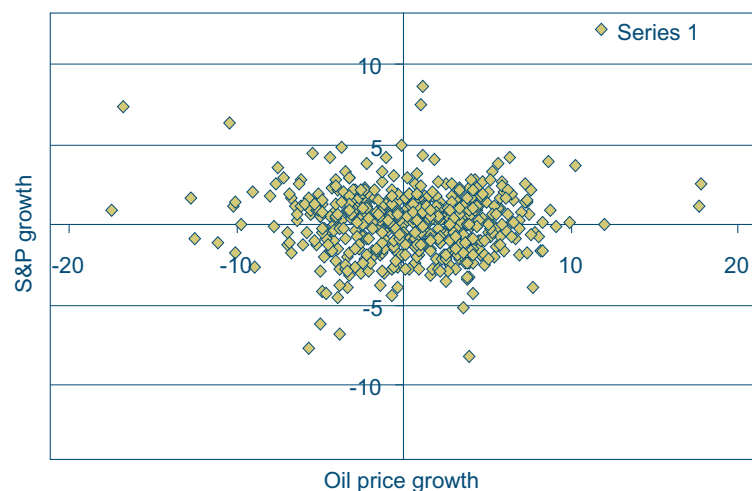
It seems logical to assume that oil prices and stock market performance might be negatively correlated. More expensive fuel translates into higher transportation, production, and heating costs, which can put a drag on corporate earnings. Rising fuel prices can also stir up concerns about inflation and curtail consumers’ discretionary spending. But it is also possible to associate expensive crude with a booming economy. Higher prices could reflect stronger business performance and increased demand for fuel.

Which is it? A look at oil prices and the S&P 500 index suggests neither. Both oil prices and the S&P 500 index have mostly climbed over the past 10 years, but they have frequently moved in opposite directions. Sometimes they rise and fall together, but the relationship between oil and stocks does not appear to be very strong.

The following scatterplot relates the weekly behavior of crude prices with S&P 500 performance since the beginning of 1998. If a clear negative relationship between oil prices and the S&P 500 index existed, we would expect to see the points aligned along somewhat of a downward-sloping line, indicating poorer stock performance when oil



## Oil Price and S&P Growth



Note: The sample period is January 1998–August 2008, and the data are weekly.  
Source: Financial Times.

prices pick up. No such relationship is evident, at least not in the time period sampled. Furthermore, the correlation between weekly averages of the spot oil price and the S&P 500 index is a weak and statistically insignificant  $-0.021$  for the past 10 years (with a confidence level of 95 percent).

It is possible that a stronger correlation might exist for data at different frequencies (daily, weekly, monthly) or with different stock indexes. The S&P 500 index is widely used as a broad market indicator because it contains the stocks of 500 leading U.S. companies that trade on the two largest U.S. stock markets, the New York Stock Exchange and the Nasdaq. We can expand the industries covered by including other indexes: S&P Financial, S&P Industrial, Dow Jones Industrial, Dow Jones Transportation, the Nasdaq Composite, and the NYSE Composite, and we can look at data at all three frequencies to see if either of these factors affect the correlation.

It is also possible that the relationship between oil and the stock market changes over time, say when oil prices are at a trough versus when they are at a peak. To investigate this possibility, we designate the 18-month period surrounding December 1998 as an oil price trough (from March 1998 to September 1999) and the most recent 18-month period beginning February 2007 as a price peak, and compare the correlations.

As it turns out, correlations between oil prices and all of these stock indexes at the daily, weekly, and monthly levels for the two time periods also reveal very few relationships of statistical significance. Calculations using daily data yielded the most statistically significant results, but as you can see from the table below, these were very small.

The majority of correlations we computed for the different indexes and frequencies of data are relatively small and, in the first sample, not significant, with the exception of the Dow Jones Transportation index. (A statistically insignificant correlation indicates that a relationship is likely nonexistent.)

## Correlation Between Oil and Stock Index Growth (daily)

	S&P 500	S&P Industrial Index	S&P Financial Index	NYSE Composite	Dow Jones 30 Industrial Average	NASDAQ	Dow Jones Transportation
1998-1999	13.4	10.6	6.4	5.6	3.6		4.2
2007-2008	4.0	3.5	2.3	2.5	2.3		2.4

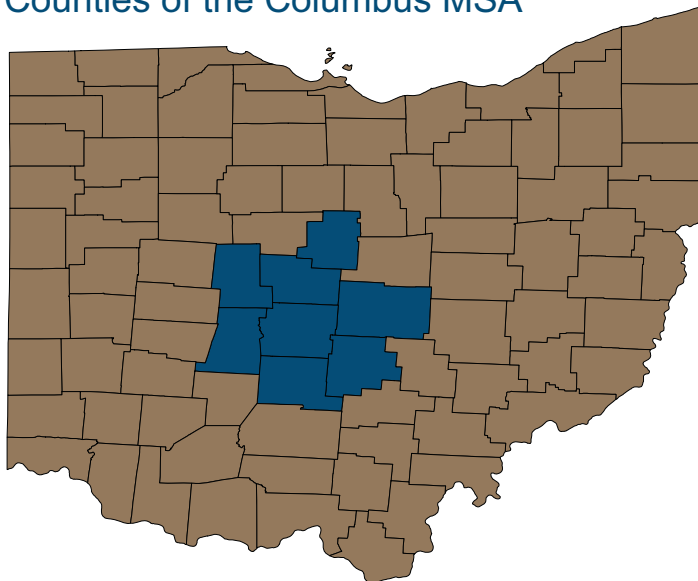
Note: Only the highlighted correlations are statistically significant at the 95% confidence level.  
Sources: The Wall Street Journal, S&P, Financial Times.

During the oil peak between February 2007 and August 2008, five correlations are significant at the 95 percent confidence level. Furthermore, all correlations for this period (whether statistically significant or not) are negative. Not surprisingly, the Dow Jones Transportation index is the only index with significant correlations in both samples. In this case, it seems fair to say that changes in oil prices have a direct effect on the share prices of transportation companies. On the other hand, the Financials index has the highest negative correlation in the 2007–2008 sample. In principle, the financial industry is not directly affected by energy costs, so this correlation may support the inverted causality argument claimed by some financial analysts: When financials are battered by bad news, liquidity flies to “the easier bet” markets like commodity markets. (This does not necessarily last.)

More generally, the fact that correlations for the first period in the table above change from being mainly insignificant to being generally significant (and negative) in the latter period suggests that the level of oil prices might matter. This is another reflection of the possibility that correlations are generally not stable over time. For example, the short-run share of the economy going toward oil is price elastic, which means that the share increases when the price of oil does. When oil takes up a higher share of the economy, like today with respect to the 1990s, it implies that a change in the price of oil could be more harmful than when oil’s share was smaller. So, for example, a 1 percent change in the price of oil today could do more damage than a 1 percent increase in 1999.

# The Columbus Metropolitan Statistical Area

## Counties of the Columbus MSA



09.03.08  
by Kyle Fee

The Columbus Metropolitan Statistical Area (MSA) is located in the geographic center of Ohio. The MSA is home to 1.75 million people dispersed across eight counties (Delaware, Fairfield, Franklin, Licking, Madison, Morrow, Pickaway, and Union).

Columbus differs from other large Fourth District MSAs in terms of population growth. Since 1970, Columbus's population has grown at a pace equivalent to the nation. In that same period, Cincinnati's population grew half as fast, while Pittsburgh's declined 15 percent and Cleveland's declined 10 percent.

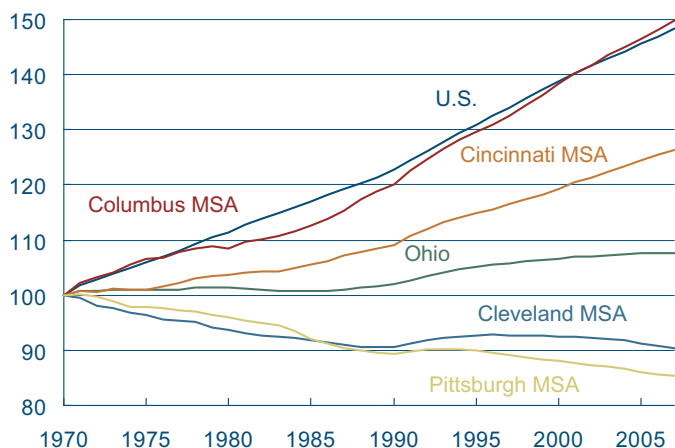
Columbus also differs from other Fourth District MSAs in that the proportion of its workforce employed in manufacturing is lower than the national average. This difference in labor allocation may have helped insulate the MSA from the job losses that have taken their toll on other Fourth District MSAs. Columbus's diverse economy is anchored by two high-skilled, high-wage service industries: financial activities and professional and business services. In 2007, the share of workers in each of these service industries was more than 20 percent greater in Columbus than in the nation as a whole.

From 2006 to 2007, the MSA's total nonfarm employment grew faster than the nation's (1.3 percent compared to 1.1 percent). Professional and business services have seen employment growth in excess of 4 percent, roughly doubling that of the nation's in that industry. Manufacturing was less of a drag on Columbus than on the nation with growth of -1.3 percent and -1.9 percent, respectively. On the downside, natural resources, mining, and construction lost employment in Columbus at a rate substantially above the national rate.

Since the last business cycle peak in March 2001, Columbus added 2.8 percent to its total nonfarm payroll employment, compared to Ohio's loss of 3.1 percent and the nation's gain of 3.9 percent. Columbus's employment numbers returned to

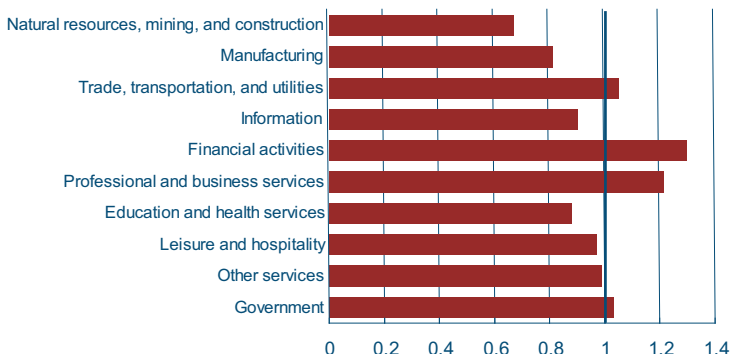
## Population Growth

Index, 1970 = 100



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

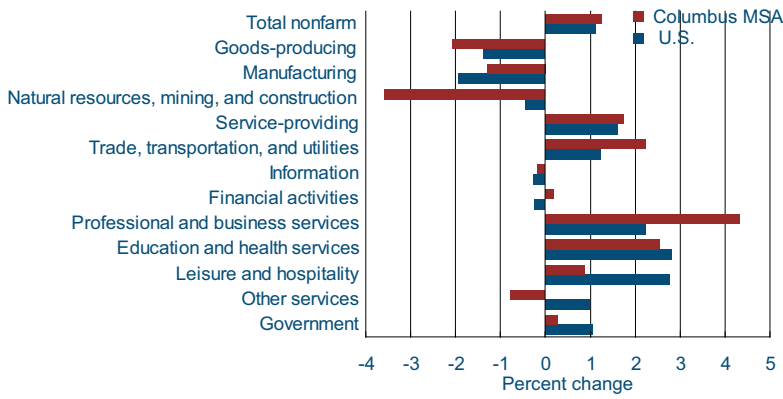
## Location Quotients for the Columbus MSA and the U.S., 2007



Note: A location quotient is used to measure the degree to which an industry is concentrated in a region relative to a reference economy. A quotient greater than 1.0 says that the region, here, the Columbus MSA, has a higher concentration of an industry's employment than the reference economy (U.S.).

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

## Payroll Employment Growth, 2006–2007



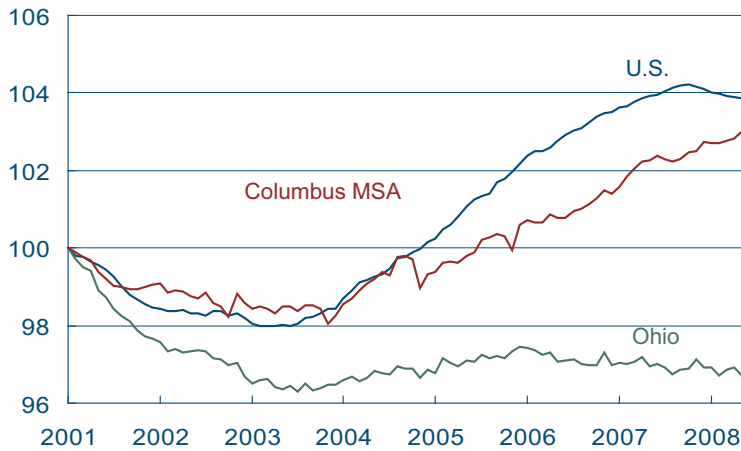
Source: U.S. Department of Labor, Bureau of Labor Statistics.

pre-recession levels in late 2005, while the nation's returned in early 2005.

The most consistent drivers of annual employment growth have been education, health, leisure, government and other services, followed by transportation, warehousing, and utilities. Financial, information, and business services rebounded in 2004 and have been providing a boost to employment growth in recent years. Not surprisingly, manufacturing has been a drag on Columbus's employment numbers; on the bright side, the size of manufacturing's negative impact has decreased each year since 2001.

## Payroll Employment since March 2001

Index, March 2001 = 100

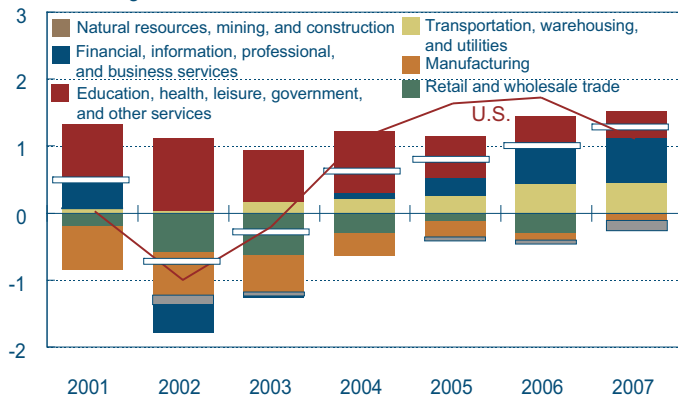


Source: U.S. Department of Labor, Bureau of Labor Statistics.

Until recently, the Columbus MSA had experienced lower levels of unemployment than the nation. From 1990 through late 2004, Columbus's unemployment rate was consistently below the national rate. In the late 1990s, Columbus even had an unemployment rate below 3 percent. However, coming out of the last recession, the MSA's unemployment rates have generally hovered around the national unemployment rate.

## Components of Employment Growth in the Columbus MSA

Percent change

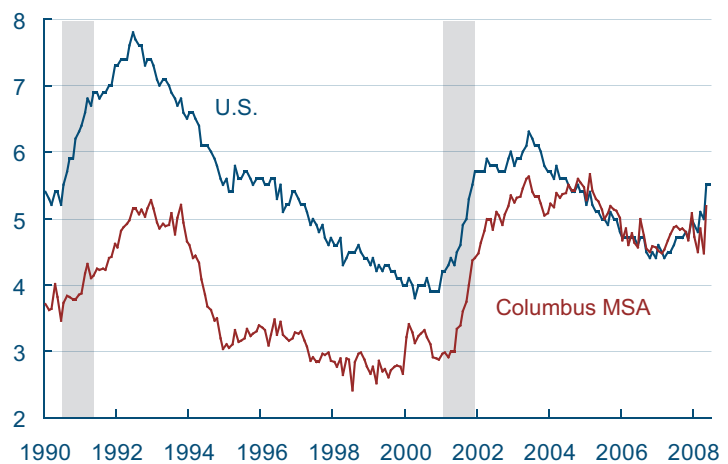


Note: The white bars represent total annual growth for the Columbus MSA. The brown line is U.S. growth.

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

## Unemployment

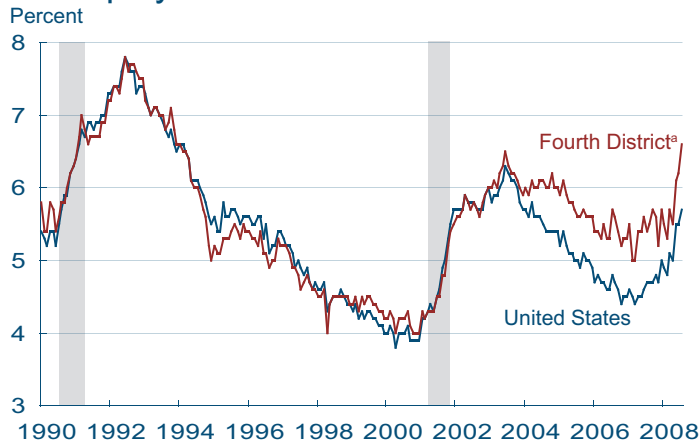
Percent



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

# Fourth District Employment Conditions

## Unemployment Rates



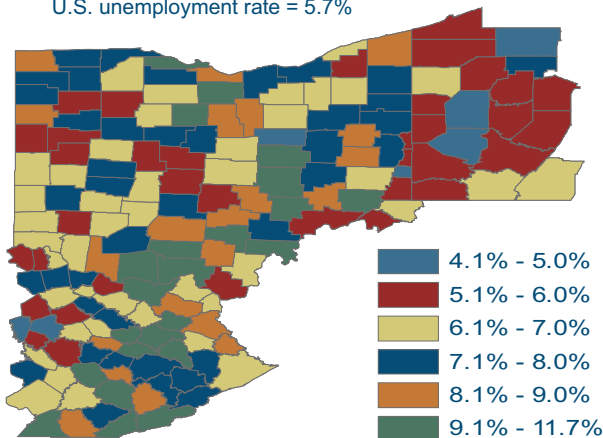
a. Seasonally adjusted using the Census Bureau's X-11 procedure.  
 Note: Shaded bars represent recessions. Some data reflect revised inputs, reestimation, and new statewide controls. For more information, see <http://www.bls.gov/lau/launews1.htm>.  
 Source: U.S. Department of Labor, Bureau of Labor Statistics.

09.11.08  
 by Kyle Fee

The district's unemployment rate jumped up 0.4 percent to 6.6 percent for the month of July. The increase in the unemployment rate is attributed to monthly increases in the number of people unemployed (5.9 percent) along with a decrease in the number of people employed (-0.5 percent). The District's rate was 0.9 percent higher than the nation's in July, and it has been consistently higher since early 2004. Since this time last year, the Fourth District's unemployment rate has increased 1.2 percentage points and the nation's has increased 1.0 percentage point.

## County Unemployment Rates

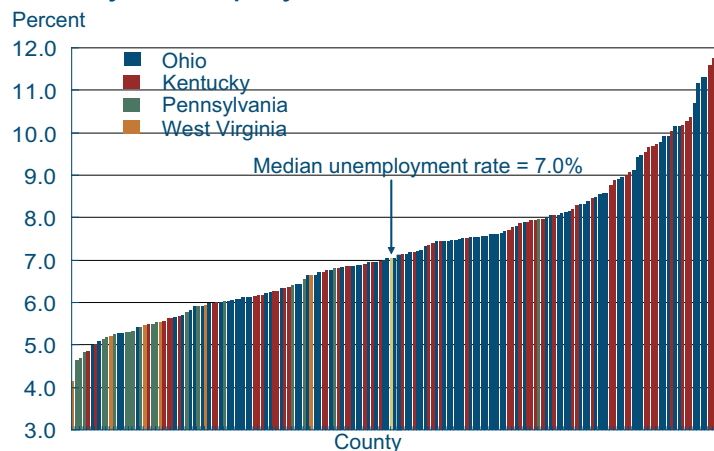
U.S. unemployment rate = 5.7%



Note: Data are seasonally adjusted using the Census Bureau's X-11 procedure.  
 Source: U.S. Department of Labor, Bureau of Labor Statistics.

Unemployment rates varied considerably across counties in the Fourth District. Of the 169 counties that make up the District, 29 had an unemployment rate below the national average in July and 140 had a higher rate. Twelve District counties reported double-digit unemployment rates, while 6 counties had an unemployment rate below 5.0 percent. Rural Appalachian counties continue to experience higher levels of unemployment, and counties along the Ohio-Michigan border have begun to see more elevated rates of unemployment.

## County Unemployment Rates



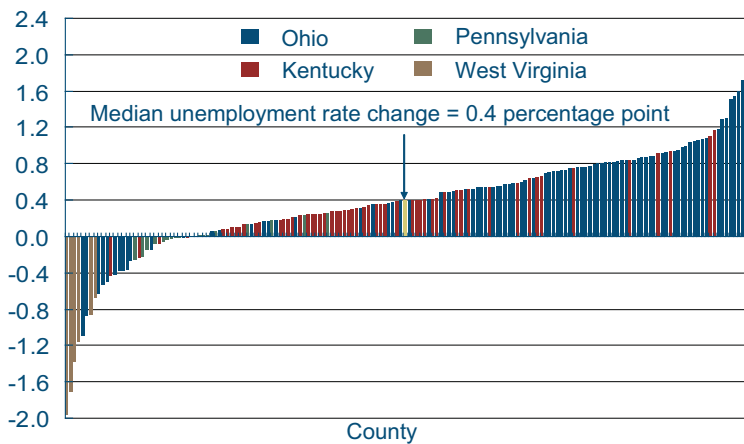
Note: Data are seasonally adjusted using the Census Bureau's X-11 procedure.  
 Source: U.S. Department of Labor, Bureau of Labor Statistics.

The distribution of unemployment rates among Fourth District counties ranges from 4.1 percent to 11.8 percent, with the median being 7.0 percent. Only one of Pennsylvania's Fourth District counties lies in the upper half of the distribution, whereas 59 percent of Ohio's counties and 57 percent of Kentucky's District counties are above 7.0 percent. These county-level statistics are reflected in state-wide unemployment rates: Ohio's is at 7.2 percent, Kentucky's is 6.7 percent, and Pennsylvania's is 5.4 percent.

The distribution of monthly changes in unemployment rates shows that the median county unemployment rate increased 0.4 percentage point from June to July. The rise in county-level unemployment rates was concentrated in Kentucky and Ohio during this period. In Kentucky, 93 percent of the

## Change in County Unemployment Rates, June 2008–July 2008

Percentage points



Note: Data are seasonally adjusted using the Census Bureau's X-11 procedure.

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

counties in the District experienced an increase in the unemployment rate, as did 86 percent of the counties in Ohio.

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