



Macroeconomic Status

Our running tab of positive indicators improved to 19 out of 20 this week. As a result, we continue to post a green banner. Please refer to the end of this report for an explanation of the color codes. See the *Indicators in Detail* section at the end of this report for more details on the change in the following indicators.

Non-Farm Payrolls ↑ 431,000 (mostly Census workers)

Unemployment ↓ 0.2 percentage points to 9.7%

Construction Spending ↑ 2.7%; ↓ 10.5% Y/Y

Semiconductor Sales ↑ 2.2%; ↑ 50.4% Y/Y

Light Vehicle Sales ↑ to 11.7 million units; ↑ 18.5% Y/Y

ISM Manufacturing ↓ 0.7 points to 59.7 (still good expansion)

ISM Non-Manufacturing – steady -- at 55.4

JP Morgan Global Manufacturing PMI ↓ 0.4 percentage points to 57.2

Factory Orders ↑ 1.2%; ↑ 12.5% Y/Y

The economic reports were fairly mixed this week. The employment report today was disappointing, with 95% of all net job creation arising from temporary government Census workers. This isn't sustainable and it is private sector job gains that will be fundamental to a self-reinforcing expansionary cycle. Beyond this report, the news was fairly good. The industry reports clearly indicate that manufacturing continues on a roll, led by exports, restocking, and a surge in business investment. Although lagging manufacturing, the rest of the economy is now enjoying moderate growth. The economy is at an important period of transition from an initial inventory and stimulus led-recovery towards a self-sustaining virtuous cycle led by the private sector. This new phase is starting to show up in the ISM non-manufacturing and consumer spending reports. Leading economic indicators suggest that the pace of economic growth will likely ease in the second half of the year.

Overseas, uncertainty cast a shadow as fears fueled by the European debt crisis continue. The unemployment rate in the Eurozone crept up to 10.1% in April, and the situation will get worse, with concerns about the contagion spreading beyond the PIGs to Hungary according to today's headlines. Looking

Business of Chemistry Status

For the business of chemistry, the indicators still bring to mind a green banner for basic and specialty chemicals.

Oil ↑ \$74.61 (Thursday)

Natural Gas ↑ \$4.46 (Thursday)

Railcar Loadings ↑ 939 from a week ago; ↑ 13.6% Y/Y (13-week moving average)

at industrial data, the recovery continues to proceed, with Brazil's industrial production, for example, up by 17.4% Y/Y in April. The JP Morgan global manufacturing survey is signaling continued expansion of activity in May.

Turning to the business of chemistry, the ISM report indicates that the chemical industry expanded again in May. This is confirmed by rising chemical railcar loadings and also by hours worked in the industry. The shipments report was positive indicating that inventories are low and lagging shipments. As a result, orders should translate quickly into production.

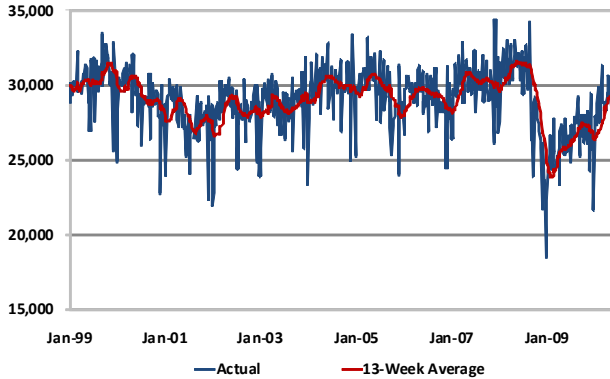
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CHEMICAL RAILCAR LOADINGS

According to the Association of American Railroads (AAR), for the week ending 29 May (week 21), railcar loadings of polymers and basic chemicals (blue line) rose by 939 to 29,786 railcars. Compared to the same week last year, loadings were up 16.0% Y/Y and were up 13.2% YTD. Loadings have been on the rise for six of the last 13 weeks.

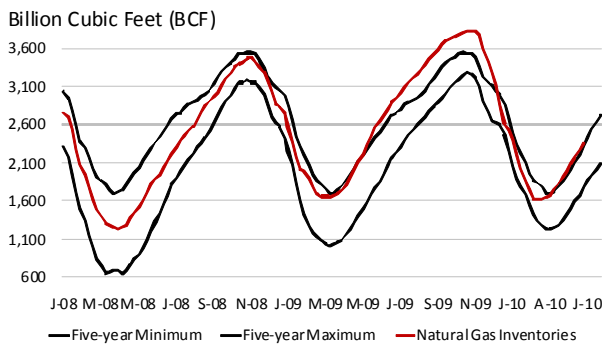
Chemical Railcar Loadings



Source: Association of American Railroads

The railcar loadings data are the best ‘real time’ indicator of industry activity. This is especially the case for polymers and other basic chemicals. But the data are fairly erratic. This is one reason why we employ a 13-week moving average to smooth out many of the seasonal irregularities. The 13-week moving average of railcar loadings (red line) indicates continued improving activity and is now up 13.6% Y/Y.

Natural Gas Inventories



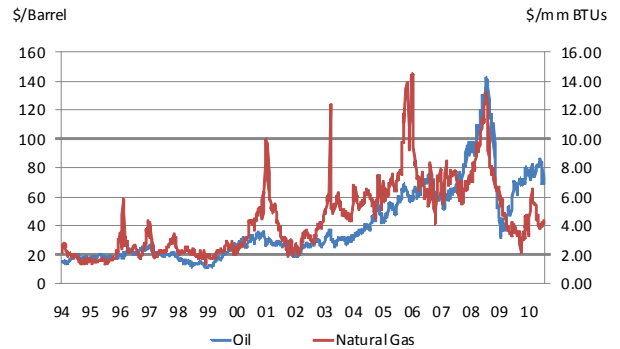
Source: Energy Information Administration

ENERGY

The Energy Information Administration (EIA) reported an 88 BCF build in **natural gas inventories** for the week ending 28 May. A typical build for this week is 93 BCF. Natural gas inventories now stand at 2,367 BCF and are 1.6% (38 BCF) above last year’s levels for the week, and 14.9% (306 BCF)

above the five-year average. As a result, natural gas inventories remain well above the five-year maximum.

Oil and Natural Gas Prices

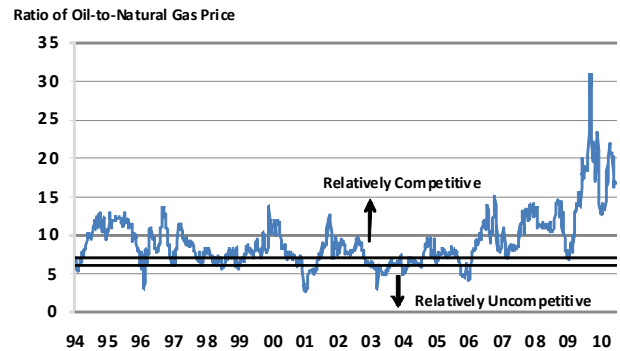


Source: Energy Information Administration

With concerns over a rumored Federal moratorium on shallow-water drilling and an unanticipated drop in crude inventories, **oil prices** rose to \$74.61 per barrel yesterday (Thursday). A year ago, oil was \$68.81 per barrel, thus, recent prices represent an 8.4% Y/Y rise. Paralleling oil, **natural gas prices** (the benchmark Henry Hub), closed at \$4.46 per million BTUs on Thursday, up from \$4.24 last Thursday. A year ago, the price was \$3.77 per million BTUs, thus, recent prices represent an 18.3% Y/Y increase.

Ratio of Oil and Natural Gas Prices

Proxy for Competitiveness for Gulf Coast Based Petrochemicals

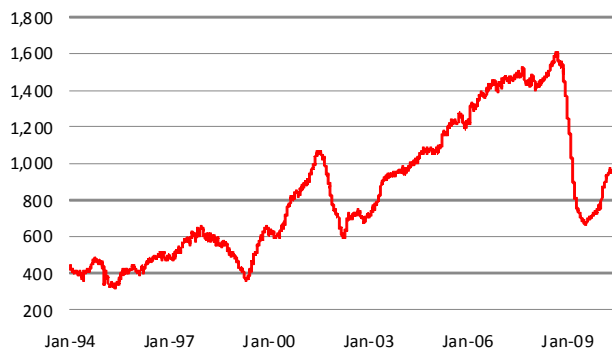


Source: based on data from the Energy Information Administration

At 16.7:1, the ratio of oil prices to natural gas prices deteriorated from 17.6:1 a week ago. One year ago, the ratio 18.3:1. As a rough rule of thumb, when the ratio is above a band between 6 and 7, the competitiveness of Gulf Coast-based petrochemicals and derivatives vis-à-vis other major producing regions is enhanced. In the US, 70% of ethylene, for example, is derived from natural gas liquids while in Western Europe, 70% is derived from naphtha, gas oil and other light distillate oil-based products. Historically, other

factors (co-product prices, exchange rates, capacity utilization, etc.) have played a role as well.

Natural Gas Rig Count



Source: Baker-Hughes

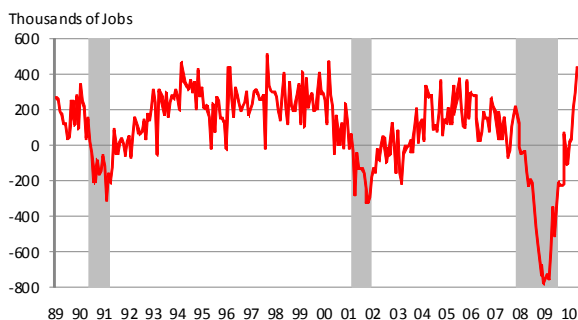
According to Baker-Hughes, for the week ending 28 May the North American **natural gas rig count** fell by two to 967 rigs. One year ago the rig count was 703 rigs.

INDICATORS IN DETAIL

Note that economic statistics tend to be somewhat erratic in nature. As seen with the disruptions from the 2005 hurricanes, seasonality plays a role and one must be careful in placing too much emphasis on a single month's figures. Analysts often use a three-month moving average or employ Y/Y comparisons to deal with the volatility. *Also note that chemistry-related items and commentary are reported in italics.*

The Department of Labor reported that in the week ending 29 May, **initial claims** decreased 10,000 to 453,000. The four-week moving average was 459,000, an increase of 1,750 from the previous week.

Change in Payroll Employment



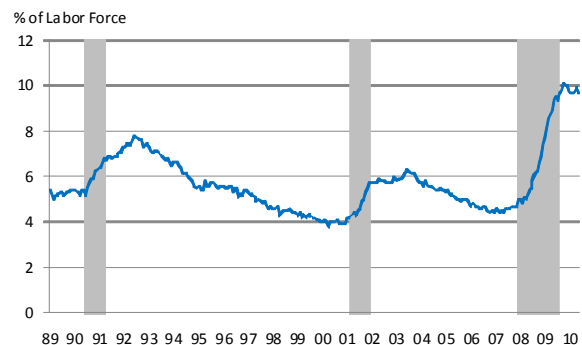
Source: Bureau of Labor Statistics

The Bureau of Labor Statistics (BLS) reported that **non-farm payrolls** increased by 431,000 in May, reflecting the addition

of 411,000 temporary workers for Census 2010, fully 95% of all net job creation. Total private employment, however, is what counts and this showed little change over the month (rising by only 41,000), following increases in March and April. This private sector gain was well below expectations. A gain of 200,000 private-sector jobs per month is needed to sustainably reduce unemployment. In May, manufacturing, temporary help services, and mining added jobs, while employment in construction declined. Average hourly earnings for private-sector, non-supervisory production workers increased by four cents to \$18.99 per hour, a level up only 2.5% Y/Y. On a good note, the average workweek in manufacturing expanded from 41.2 hours in April to 41.5 hours in May. This suggests strength in manufacturing production. Moreover, this time series is a good leading indicator and along with a good gain in temporary help services payrolls (also a good leading indicator) its puts a positive face in what was otherwise disappointing report.

In its separate household survey, the BLS reported that the **unemployment rate** slipped 0.2 percentage points to 9.7%. The number of unemployed slipped by 287,000 to 14.97 million in May and the number of long-term employed rose slightly to 6.76 million people, 46% of all unemployed. A slightly decline (35,000) in the number of people employed was offset by a larger decline in the labor force, hence the decline in the unemployment rate. All in all, the report was disappointing once one gets beyond the headline figures.

Unemployment Rate

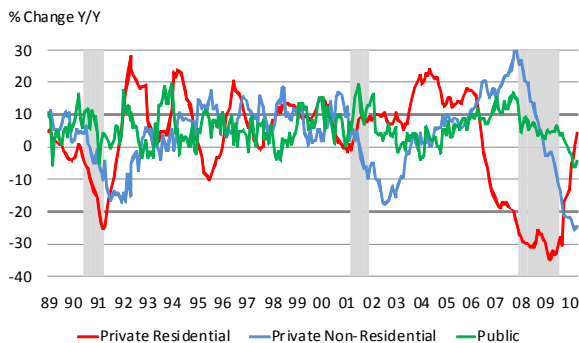


Source: Bureau of Labor Statistics

Turning to the business of chemistry, payrolls fell by 1,100 (or 0.1%) to 779,600 in May. This is off 25,700 (or 3.2% Y/Y) from a year before. Since the start of the recession, American chemistry has lost nearly 78,000 jobs, a 9.1% decline. The number of production workers fell by 500 to 469,400 in May, a level off 7,500 (or 1.6% Y/Y) from a year prior. On a positive note, the average workweek in the industry expanded from 42.2 hours in April to 42.5 hours in May. In May 2009 it averaged 41.1 hours. As a result, total hours worked expanded 0.6% in May, and assuming normal productivity gains, suggesting a strong increase in May production. Average hourly earnings expanded to \$21.08 per hour, a level up 4.4% Y/Y.

Separately, the BLS reported that **non-farm business productivity** rose at a 2.8% annual pace in the 1st quarter, a pace off from the last three quarters of 2009. Nonetheless, productivity was up 6.1% Y/Y, the largest gain since 2002 when the prior recovery was underway. Unit labor costs declined at a more moderate 1.3% annual pace but compared to a year prior, unit costs were down 4.2% Y/Y. The report continues to suggest that wage inflation is not present but that the strong improvements of last year are well behind us, and that productivity and costs are moving towards trend levels.

Construction Spending



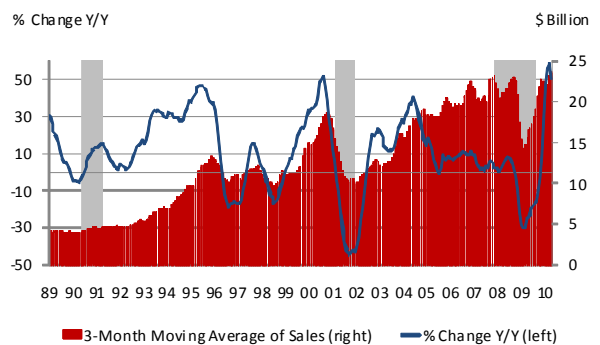
Source: Bureau of the Census

The Census Bureau reported that **construction spending** rose 2.7% to an \$869.1 billion annual pace in April. This follows a 0.4% gain in March and a partially weather-induced 2.4% drop in February. This is a tale of two sectors: residential and non-residential. Non-residential can be delineated even further, into private and public sector, each of which is significantly different. The private sector is dependent upon capacity utilization, job creation in services, profits, and business confidence. Here the news was positive, with nonresidential construction spending rising 1.7% to a \$302.7 billion annual pace in April, a level off 24.6% Y/Y. Strength was in lodging, health care, religious, amusement and recreation, but was particularly noted in communications, power, and manufacturing. The latter reflects the business-investment led recovery. The public sector includes state and local governments in addition to Federal, where budgetary considerations play a significant role. The news was positive here as well, with public construction spending rising 2.4% to a \$303.3 billion pace in April, a level off 4.4% Y/Y. There were strong gains in infrastructure spending – highway and street, sewage and waste disposal, amusement and recreation, water supply, and conservation and development – the result of last year’s stimulus bill. Private residential construction spending rose 4.4% to a \$263.0 billion pace in April a level up 4.1% Y/Y. The overall report was positive, suggesting the worst is over for this battered sector. *This report is of significance to the business of chemistry because on average, the construction sector directly purchases \$8 in chemistry for every \$1,000 worth of output. Indirectly, it purchases more than twice that as increasing*

construction spending generates sales of chemistry products through purchases of supplies such as plastics pipe, architectural coatings, vinyl siding and construction products, carpet, sealants, concrete additives, etc. More than \$32 billion in chemistry products goes into construction each year. Among plastic resins, PVC is most tied to building and construction. A useful indicator we use is the Y/Y change in real (i.e., inflation-adjusted) new orders for construction materials and supplies

The Semiconductor Industry Association (SIA) reported that **worldwide semiconductor sales** increased 2.2% to \$23.6 billion in April, a level surpassing the previous monthly record level of November 2007. Sales were up 50.4% Y/Y from April 2009, but that month reflected a very weak period of industry sales. Drivers of growth include the global adoption of 3G wireless communications and consequent investment in infrastructure, as well as recovery of demand from the automotive and industrial sectors. Future growth of the industry remains dependent on the continued global economic recovery, especially in emerging markets. The SIA will release its mid-year forecast on 10 June. (See www.sia-online.org for more details.) *In the United States, electronic chemicals represents a \$8.4 billion market for cleaners, developers, dopants, encapsulants, etchants, photoresists, specialty polymers, strippers, and other products. These chemicals are essential materials and enablers used in the manufacture of semiconductor. Globally, this is a \$43 billion market for chemistry.*

Worldwide Semiconductor Sales



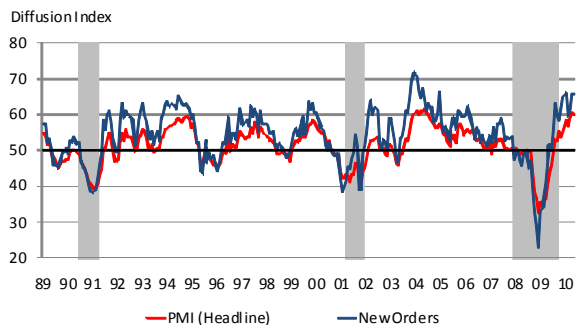
Source: Semiconductor Industries Association

The automobile companies reported that **light vehicle sales** rose to an annual pace of 11.7 million units, a level up 18.5% Y/Y. Keep in mind, however, that last year’s sales were at unusually low levels. Moreover, much of the advance came from relatively low-margin sales to car-rental operators and other fleet owners. That said, May sales were above the average for 2010. Consistent with other measures of consumer spending, light vehicle sales have been slowly recovering and are expected to continue this upward trend through year’s end. Sales of sports-utility vehicles and larger trucks gained share. The Detroit Three and most other manufacturers registered good gains. *This sector is important to the business of chemistry because a typical vehicle contains \$2,973 of chemi-*

stry (chemical products and chemical processing). Included, for example, are antifreeze and other fluids, catalysts, plastic dashboards and other components, rubber tires and hoses, upholstery fibers, coatings and adhesives. Virtually every component of a light vehicle, from the front bumper to the rear taillights features some chemistry. The latest data indicate that polymer slipped to 343 pounds per vehicle. More details are available in our annual Chemistry and Light Vehicle report.

The Institute for Supply Management (ISM) reported that the manufacturing sector grew for the 10th consecutive month during May, with the purchasing managers' index (PMI) slipping a-less-than-expected 0.7 percentage points to 59.7. With this type of diffusion index, a reading above 50 indicates expanding business activity, while a reading below 50 signals contraction. This represents a deceleration of activity but still at a very respectable pace that is off only slightly from the six-year high in April. A year ago, the PMI was just 43.2. Production remained strong, as did new orders and order backlogs, flagging ongoing strength in the months ahead. Despite a stronger dollar and the crisis in Europe, export orders rose to a 21-year high. The employment index hit a six-year peak. The recovery was broad, with 16 of 18 industries reporting growth. There were reports of shortages of components in the high-tech sector, the results of excessive inventory destocking in the recession. Indeed, inventories eased again in May and the pace of growth in supplier deliveries, imports and prices paid eased slightly. (See www.ism.ws for more details.)

ISM Manufacturing Survey

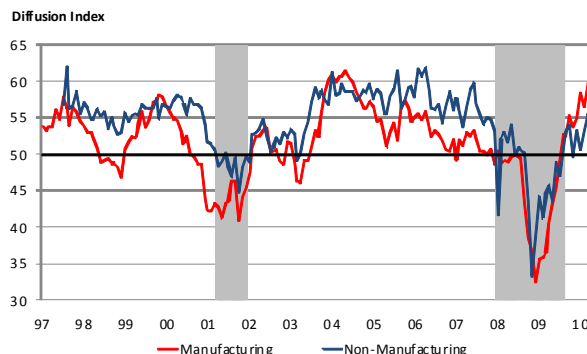


Source: Institute for Supply Management

Separately, the ISM reported that its **non-manufacturing PMI** held steady again, at 55.4 in May. The current business activity component rose, signaling an increasing rate of expansion. The new orders component, however, fell back again, but continued to expand at a slower pace. Exports slowed and imports continued to grow at the same pace. Employment edged upward into expansion territory. Inventories advanced strongly (by 8.0 point to 62.5), perhaps a little too strongly.

Order backlogs rose but the pace of price gains eased during May.

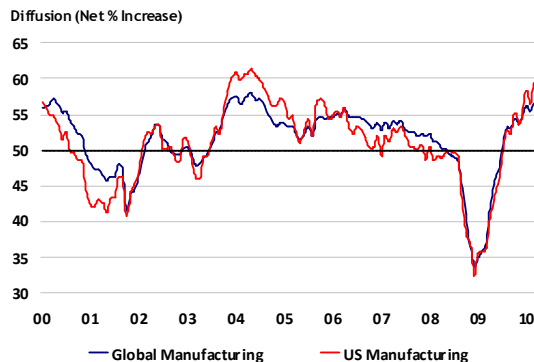
ISM Manufacturing and Non-Manufacturing Indices



Source: Institute for Supply Management

Turning to the business of chemistry, the details in the ISM manufacturing report indicate that the chemical industry was one of the manufacturing industries reporting growth in May. Chemical company inventories trended lower and the chemical industry did report an increase in export and other new orders as well as production, imports, and employment. The backlog of orders, however, fell during the month. Chemical companies experienced slower deliveries during May and customer inventories were deemed too low. This ISM report is of significance to the business of chemistry because on average, the goods sectors purchase \$43 worth of chemistry for every \$1,000 worth of output (or revenues). In contrast, the services sectors purchase only \$11 for every \$1,000 worth of output. As a result, production of basic industrial chemicals and specialties tends to track this PMI fairly well.

ISM Manufacturing PMI (USA) and JP Morgan Global Manufacturing PMI

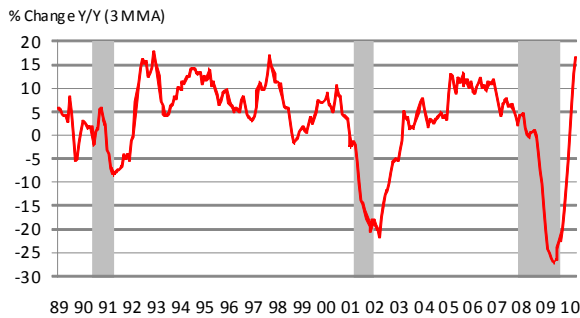


Sources: Institute for Supply Management, JP Morgan

The JPMorgan Global Manufacturing PMI fell 0.4 percentage points to 57.2, signaling continued expansion, just at an easier pace. Nonetheless, this is still the second-fastest pace of

growth during the past six years. Manufacturing output expanded for 12th consecutive month, and although the pace eased from April, it was amongst the fastest recorded in the survey history. Rates of expansion in manufacturing production held up well in the United States, Japan and the United Kingdom, staying close to recent highs in both the US and the UK and accelerating to a five-month peak in Japan. Growth, however, eased sharply in the Eurozone and in Asia outside of Japan. Of concern was a marked deceleration of activity in China. The May report featured a similar modest easing in growth of global manufacturing new orders although export orders continued to rise at a rapid pace. Supplier deliveries continued to lengthen and cost inflation remained elevated in global manufacturing. The global recovery looks to still have additional forward momentum.

Change in Manufacturers' New Orders of Non-Defense Capital Goods excluding Aircraft

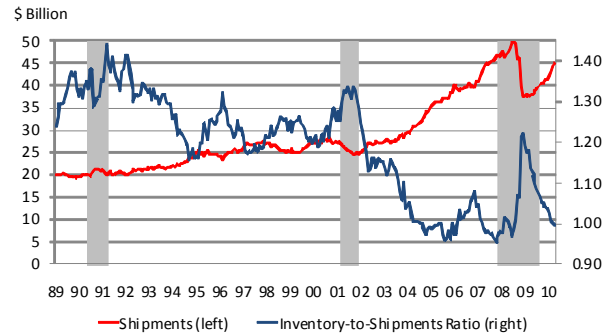


Source: Bureau of the Census

The Census Bureau reported that **factory orders** rose 1.2% to \$420.1 billion in April. Compared to a year ago, factory orders were up 12.5% Y/Y. After bottoming in March 2009, factory orders have increased 12 out of the past 13 months. Durable orders rose 2.8% in April led by a very strong gain in orders for non-defense aircraft. But beyond aircraft, orders rose in a broad set of industries with weakness centered in primary metals, machinery, and computers. Orders for non-defense capital equipment excluding aircraft -- a proxy for business investment -- fell 2.6%. Almost by definition, capital goods orders are lumpy. When a major airline places an order for new airplanes, it usually purchases a number of them. Most other businesses do the same when they upgrade computer and communications systems, or add industrial capacity. As a result, orders tend to be volatile. The best way to look at the orders data is to focus on longer term trends, use a three-month moving average, or look at year-over-year comparisons, or better yet, do both (year-over-year comparisons of three-month moving averages). The accompanying chart illustrates the recent strong gains in orders. The pace of these gains, however, will likely ease as the year progresses. **Unfilled orders**, a measure of potential output in the pipeline, rose 0.4% but were off 3.8% Y/Y. **Shipments** of manufactured goods rose 0.6% to \$422.3 billion and overall shipments were

up 13.2% Y/Y. **Inventories** of manufactured goods rose for a fourth consecutive month, rising by 0.5% to \$521.7 billion. Inventories were off 1.6% Y/Y, giving rise to an inventory-to-shipments ratio of 1.24. One year earlier the ratio was 1.42, suggesting that inventories are lean. The change in inventories was mixed among individual industries. Clearly, restocking and business investment are well underway as the recovery gains traction.

Chemical (excluding Pharmaceuticals) Shipments and Inventory-to-Shipments Ratio



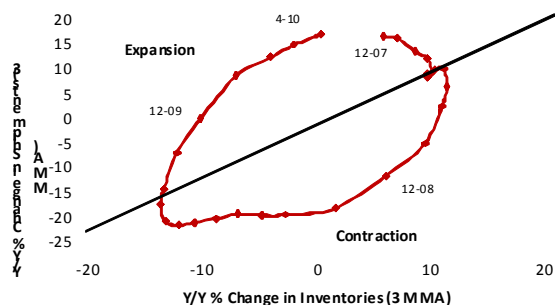
Source: Bureau of the Census

Turning to the business of chemistry, shipments of chemicals rose 0.9% in April and were up 12.0% Y/Y. Pharmaceutical shipments declined 0.3%, and were off 3.2% Y/Y. As a result, shipments of chemicals, excluding pharmaceuticals rose 1.3% in April (the eighth consecutive gain) and up 18.4% Y/Y. Shipments of agricultural chemicals, coatings and adhesives, and other chemicals rose during the month. Inventories of chemicals rose 0.3% in April, but were off 2.2% Y/Y. Inventories of pharmaceuticals fell 1.1% (down 11.7% Y/Y). Excluding pharmaceuticals, chemical inventories rose 1.0 in April, and were up 3.9% Y/Y. Inventories of agricultural chemicals, coatings and adhesives, and other chemicals all rose. The inventory-to-shipments ratio for chemicals excluding pharmaceuticals held steady at 1.00 for the third consecutive month. This is a near-record low. Inventories are thus very lean and orders should quickly translate into new production. The chart below shows the relationship between shipments and inventories for chemicals, excluding pharmaceuticals, over time. It compares a Y/Y change using a three-month moving average (3MMA) to smooth out volatility.

This type of chart is used to illustrate inventory cycles. In this case, it is used to compare the Y/Y growth in shipments and inventories for chemicals (excluding pharmaceuticals) for the December 2007 (Start of the recession) through April 2010 period. A 3MMA is used. In a perfect world where inventories and shipments are matched, the shape of the line would be fairly symmetric, a balance of centrifugal and centripetal forces. That is, growth in inventories would parallel that of growth in shipments. This is illustrated by the 45° blue line, which represents a balanced norm. In this perfect world,

growth or shrinkage of both would move in tandem, with sufficient inventories to meet rising demand and vice versa. Deviations or volatility represent another name for a mismatch of sales and inventories, with a subsequent and hopefully, very short cycle of correction. This is particularly the case should the line connecting Y/Y growth for both variables shift toward the right. This would indicate a build-up of inventories without the similar gain in shipments.

Inventory Cycle for Chemicals, excluding pharmaceuticals



Source: Census Bureau, ACC Analysis

The chart provides a fairly simple yet good visual aide for evaluating the stages of the inventory cycle. In this particular chart the data are presented on a monthly basis, using a 3MMA. This makes the chart easier to read and using monthly data instead of quarterly allows easier identification of turning points. It can also be adapted to actual chemical and polymer products. The most recent data indicate that for the industry as a whole (excluding pharmaceuticals) inventories (with a 0.4% Y/Y rise on a 3MMA basis, the first year-earlier positive comparison since January 2009) continued to lag shipments (with a 16.5% Y/Y rise on a 3MMA basis) in this comparison. The gap between the two narrowed from a positive 16.7 percentage points to a positive 16.5 percentage points. The gap is a significant improvement from its widest (at -19.8 percentage points) in January 2009. Shipments are outstripping inventories and the need to replenish the latter will bolster productive activity in the months to come.

NEXT WEEK

Economic reports released next week include consumer credit, wholesale trade, international trade, retail sales, and business inventories and sales. The EIA Short-Term Energy Outlook (STEO) will also be released.

FOR MORE INFORMATION

For ACC members, our section of the members-only extranet, MemberExchange, contains a plethora of data, economic analyses, presentations, outlooks, weekly economic updates, and much more. You can access frequently updated data files

(which provide the most recent and historical data for the business of chemistry - including trade data) as well as the economic data that enable you to track worldwide industry trends, follow developments as they unfold and gain insight into the long-term outlook. These include the indicators covered in this weekly report. To request access to the site, go to: <https://memberexchange.americanchemistry.com>, and select "Economics and Statistics," and complete the registration process.

In addition to this weekly newsletter, ACC offers monthly, semi-annual and annual economic data publications that enable users to track worldwide industry trends, follow developments as they unfold and gain insight into the long-term outlook. These products contain comprehensive statistics and analyses that cover worldwide production, trade, shipments, inventories, price indices, energy, employment, investment, R&D, EH&S, financial performance measures, macroeconomic data, plus MUCH more. To order, call 301-617-7824 or visit ACC online at <http://americanchemistry.com/thestore> and select Software.

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Note on the color codes: The banner colors represent observations about the current conditions in the overall economy and

the business of chemistry. For the overall economy we keep a running tab of 20 indicators. The banner color for the macroeconomic section is determined as follows:

Green – 13 or more positives

Yellow – between 8 and 12 positives

Red – 7 or fewer positives

For the chemical industry, there are fewer indicators available. As a result we rely upon judgment whether production in the industry (defined as chemicals excluding pharmaceuticals) has increased or decreased three consecutive months).