Weekly Chemistry and Economic Trends

ACC Economics & Statistics

7 May 2010

Macroeconomic Status

Our running tab of positive indicators remained steady at 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.

Payroll Employment ↑ 290,000 (highest in four years)
Unemployment Rate ↑ 0.2 points to 9.9%
Personal Income ↑ 0.3%; ↑ 1.4% Y/Y (real)
Consumer Spending ↑ 0.6%; ↑ 2.4% Y/Y (real)
ISM Manufacturing ↑ 0.8 points to 60.4
ISM Nonmanufacturing – steady – 55.4
JPMorgan Global Manufacturing PMI ↑ 1.0 points to 57.8
Construction Spending ↑ 0.2%; ↓ 12.3% Y/Y
Light Vehicle Sales ↓ to 11.2 million unit pace; ↑ 21.5% Y/Y
Semiconductor Sales ↑ 4.6%; ↑ 58.3% Y/Y
Factory Orders ↑ 1.3%; ↑ 15.5% Y/Y

Business of Chemistry Status

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

Oil ↓ $77.11 (Thursday)
Natural Gas ↓ $3.99 (Thursday)
Railcar Loadings ↓ 476 from a week ago; ↑ 13.3% Y/Y (13-week moving average)
Market Capitalization ↓ 7.6% this week; ↓ 5.0% YTD

The contagion from the Greek crisis continued to widen, presenting risks for the European outlook, and concerns over sovereign debt risks everywhere. The fear is that the contagion could spread "across the pond." Thursday's panic, fear, and drop in equity markets overshadowed the economic reports released this week. Looking beyond Thursday, the economic reports were generally good. Indeed, there are fairly good foundations for economic recovery in the United States.

The PMI rose more than expected to a near six-year high and factory orders continued to boom, as an export- and investment-led manufacturing recovery leads the economy. Other measures of manufacturing activity confirm the upward momentum and that manufacturing is strengthening worldwide.

The Federal Reserve's senior loan officer survey showed that credit is easing, particularly for commercial real estate loans and residential mortgage loans. Banks are also easing lending standards on commercial and industrial loans to large companies. Demand for business loans and consumer credit, however, weakened. Consumer incomes and spending continued to rise. All eyes were focused on today's employment report, and the results provided an upside surprise with the largest monthly gain in four years. Manufacturing payrolls posted the largest gain in 12 years.

Turning to the business of chemistry, there were no individual product reports, but the chemical industry was one of the industries reporting growth in April according to the manufacturing PMI. The railcar loadings data confirm this as did hours-worked by chemical industry production workers.

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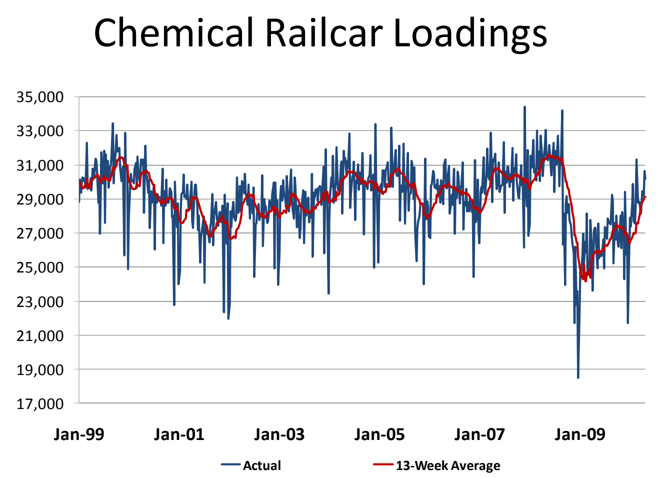
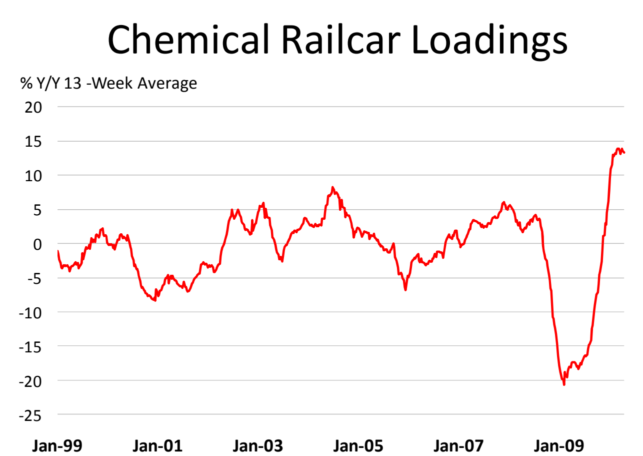
CHEMICAL RAILCAR LOADINGS

According to the Association of American Railroads (AAR), for the week ending 1 May (week 17), railcar loadings of polymers and basic chemicals (blue line) fell by 476 to 30,638 railcars. Compared to the same week last year, loadings were up 10.4% Y/Y and were up 13.6% YTD. Loadings have been on the rise for <u>seven</u> of the last 13 weeks.



Source: Association of American Railroads

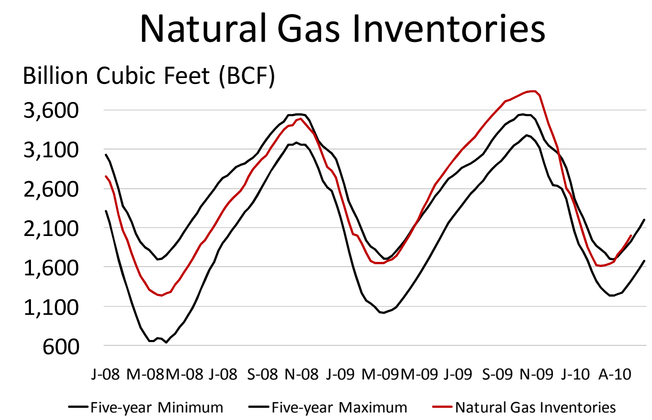
The railcar loadings data are the best 'real time' indicator of industry activity. This is especially the case for polymers and other basic chemicals. But the data are fairly erratic. This is one reason why we employ a 13-week moving average to smooth out many of the seasonal irregularities. The 13-week moving average of railcar loadings (red line) indicates continued improving activity and is now up 13.3% Y/Y.



Source: Association of American Railroads

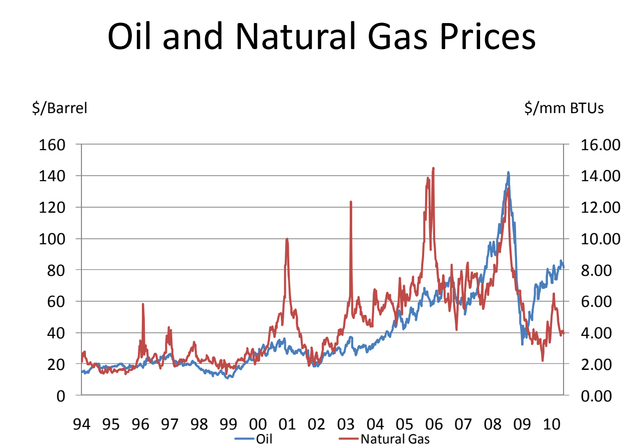
ENERGY

The Energy Information Administration (EIA) reported an 83 BCF build in **natural gas inventories** for the week ending 30 April. Natural gas inventories now stand at 1,995 BCF and are 5.1% (97 BCF) above last year's levels for the week, and 18.8% (315 BCF) above the five-year average. Natural gas inventories remain above the five-year maximum.



Source: Energy Information Administration

With a rising risk of sovereign defaults (especially in Europe) and large worldwide inventories, **oil prices** fell to $77.11 per barrel yesterday (Thursday). A year ago, oil was 56.71 per barrel. Thus, recent prices represent a 36.0% Y/Y increase. Paralleling oil and also reflecting abundant inventories, **natural gas prices** (the benchmark Henry Hub) closed at $3.99 per million BTUs on Thursday. This is down from $4.11 last Thursday. A year ago, the price was $3.97 per million BTUs. As a result, recent prices represent a 0.6% Y/Y gain.



Source: Energy Information Administration

The **ratio of oil prices to natural gas prices** deteriorated slightly to 19.4:1 from 20.7:1 last week. One year ago, the ratio was 14.3:1. 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.

According to Baker-Hughes, for the week ending 30 April the North American **natural gas rig count** rose by two to 958 rigs. One year ago the rig count was 741 rigs.

CHEMICALS MARKET CAPITALIZATION

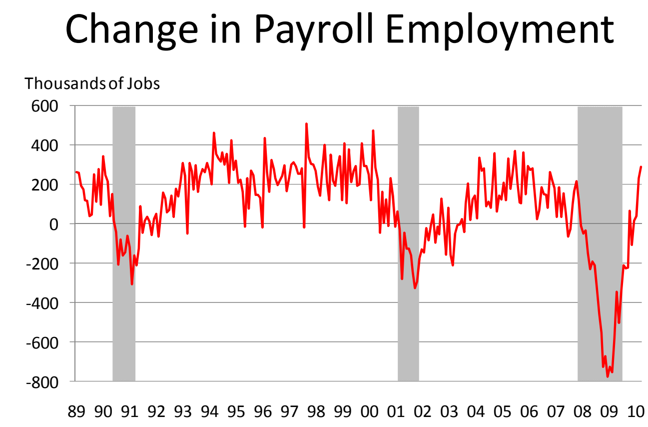
Amid fears of contagion from the Greek crisis and a selloff sparked by a trading typo, the S&P 500 index tumbled 6.5% during the week ending Thursday, 6 May. However, the ACC market capitalization of US basic chemical and specialty chemical companies fell by 7.6% from what it was last week to close at $516.9 billion on Thursday.

Equity prices are often a good indicator of future activity and represent one component of the leading economic indicators. The ACC market cap is off 5.0% from the beginning of the year. By comparison, the S&P 500 index is up by 1.1% YTD.

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 (3MMA) 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 **initial claims** for unemployment insurance fell for a third straight week by 7,000 to 444,000 during the week ending 1 May. The four-week moving average was 458,500, a decrease of 4,750 from the previous week's revised average of 463,250.



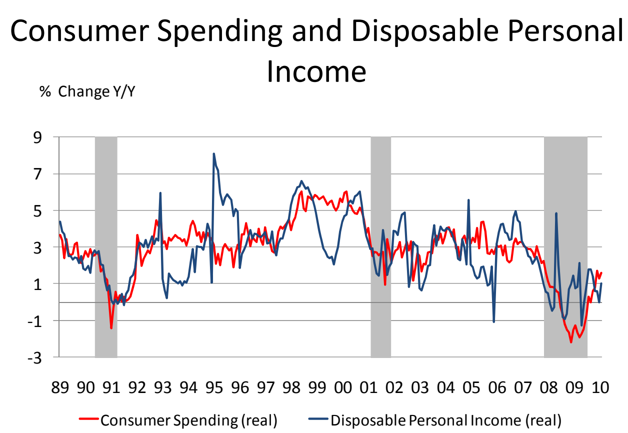
Source: Bureau of Labor Statistics

The Bureau of Labor Statistics reported that payroll employment jumped by 290,000 in April and that an upwardly revised 230,000 workers were added to payrolls in March. April's gain was above expectations and was the largest gain in more than four years. Positive revisions were also made to January and February estimates, and it now appears that employment bottomed out in December 2009, after falling for two consecutive years. Since the beginning of the year, the economy has gained nearly 600,000 jobs, a small dent in the 8.4 million jobs lost during the recession. Another measure of employment growth comes from the household survey. By this measure, employment grew 550,000 in April and was up 1.7 million over the past four months. Because the establishment survey often undercounts employment at new and small businesses during recoveries, most economists agree that the household survey can provide a more accurate measure of job growth at this point in the cycle. The number of workers who are working part-time but would like to be working full time also rose. And the long-term unemployed, those without work for more than 27 weeks continued to swell to more than 6.7 million.

Looking again at the establishment survey, employment gained in every sector except transportation and warehousing and information. Construction employment grew by 14,000 and manufacturing employment gained 44,000, the largest monthly gain since 1998! Employment in services rose 166,000 with strong gains in professional and business services (including 26,400 new temporary workers). The government increased its payroll by 59,000, though this includes 66,000 temporary workers hired to conduct the 2010 Census. Excluding those temporary jobs, government employment fell, likely in state and local governments where budget shortfalls have caused job losses. The **average workweek** of production and nonsupervisory workers rose by 0.1 hours to 33.4 and **average hourly wages** gained $0.05 to $18.96, up 2.3% Y/Y.

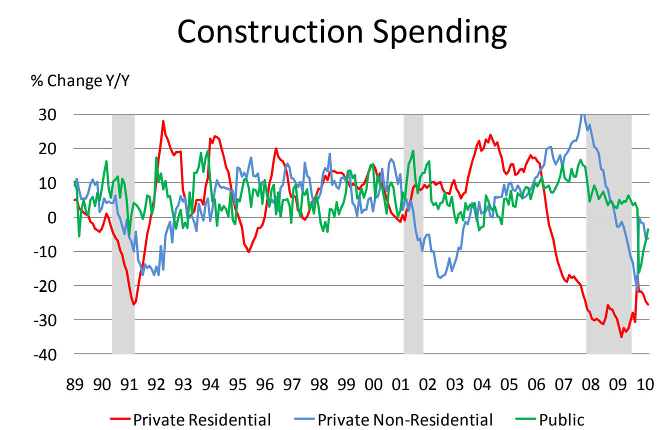
The nation's **unemployment rate** rose 0.2 points to 9.9% as the labor force swelled by 805,000. When a recession hits, many discouraged people stop looking for work (to go back to school, care for children or parents, make home improvements, etc.). As the job market improves, many of these people return to the official labor force (the pool of people actively looking for work). As a result, it is not uncommon that the unemployment rate edges up as the number of new entrants to the labor force exceeds the gain in employment.

Turning to the business of chemistry, payrolls fell by 1,300 (0.2%) to 782,000 in April. During the past 12 months, 27,300 jobs were lost in the industry, a 3.4% decline Y/Y. The number of production workers, also slipped by 1,900 (0.4%), and was down by 9,400 jobs (2.0%) compared to a year ago. The average workweek remained steady at 42.2 hours, however. As a result, hours worked slipped slightly, but given productivity gains, it implies that production expanded in April. Average hourly wages rose by $0.20 to $20.75, up 3.5% Y/Y.



Source: Bureau of Economic Analysis

The Bureau of Economic Analysis (BEA) reported that **personal income** (consumer's *ability* to spend) rose 0.3% in March, following a modest 0.1% gain in February. After tax *disposable* personal income also rose by 0.3%. Wages and salary, proprietors' and rental income all posted gains, but the lion's share of March's increase was in transfer receipts (including the extension of emergency unemployment benefits). Compared to a year ago, real (inflation adjusted) disposable personal income was up 1.4%. **Consumer spending** rose by 0.6% following a 0.5% gain in February. The gain in consumer spending was led by a 3.6% surge in purchases of durable goods, the strongest advance since last August which was influenced by the "cash for clunkers" program. Compared to March of last year, real (inflation adjusted) consumer spending was up 2.4%. The savings rate dipped to 2.7%, an 18-month low. The price index for personal consumption expenditures (PCE), also known as the **PCE deflator**, rose 0.1% and was up 2.0% Y/Y. Excluding the volatile food and energy components, the core PCE deflator rose 0.1% and was up 1.3% Y/Y. Thus, there continues to be little evidence of systemic inflation. The surge in spending likely reflects greater confidence in the recovery as consumers who have delayed purchases of big-ticket durable goods have come off the sidelines. The gains in personal income remain muted, however, and largely supported by government unemployment insurance. Until the millions of unemployed are put back on payrolls, growth in income excluding government assistance will be modest which will further constrain consumer spending. *This consumer spending indicator (actually personal consumption expenditures in stats-speak) is important to the business of chemistry in that some $183 billion in chemistry is directly associated with consumer spending. Included are 25+ billion pounds of plastic resins in packaging and 20+ billion pounds of resins used in other goods.*

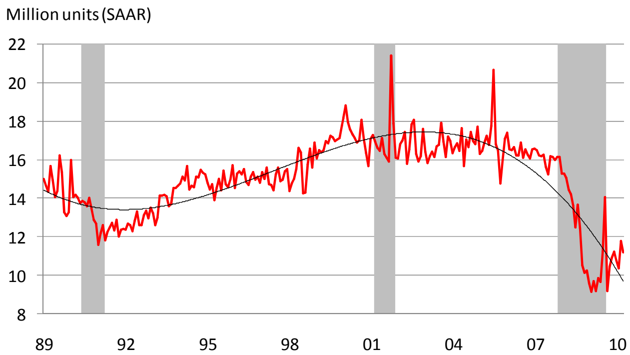


Source: Bureau of the Census

The Census Bureau reported that **construction spending** rose 0.2% to $847.3 in March, up from February's seven-year low. Private residential construction spending slipped 1.1%, but was up 1.2% Y/Y. Private nonresidential spending slipped 0.7% and was off 25.5% Y/Y. Gains in amusement and recreation, educational, health care, religious and manufacturing projects were offset by further declines in lodging, office and commercial construction. New residential construction remains constrained by the flood of distressed properties on the housing market. Nonresidential spending remains down sharply as financing is very tight and vacancy rates are high. Public construction rose 2.3%, but was off 6.3% Y/Y. Buoyed by Federal stimulus, gains were posted in most categories except commercial, educational, and amusement and recreation. The latter two, in particular, are strongly tied to state and local tax revenues which have been especially hard hit. *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, con-*

crete 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.

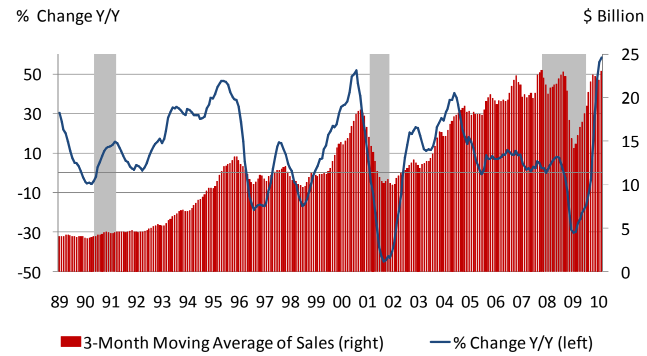
Light Vehicle Sales



Source: Bureau of Economic Analysis

The automobile companies reported that **light vehicle** sales weakened in April, falling from an 11.8 million unit pace in March to an 11.2 million unit pace in April. March had been led by Toyota's incentive-fueled surge and a pull-back was expected. Sales were up 21.5% Y/Y but spring 2009 represented a difficult period for the industry. Chrysler, Ford Motor, and Toyota all reported large gains but General Motors' growth was limited because it is phasing out four brands under its restructuring. The three-month moving average, however, has been trending higher since the fall, suggestive of a very slow improvement in this market. *This sector is important to the business of chemistry because a typical vehicle contains $2,973 of chemistry (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.*

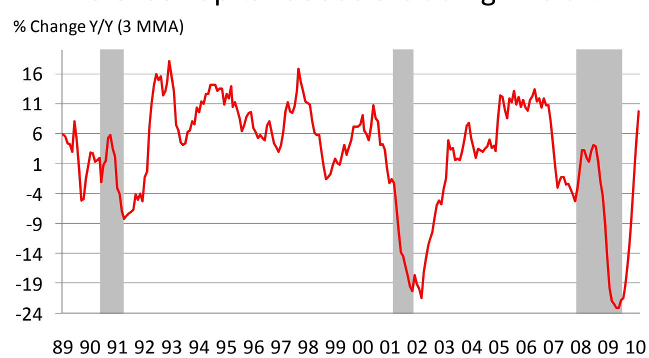
Worldwide Semiconductor Sales



Source: Semiconductor Industries Association

The Semiconductor Industry Association (SIA) reported that **worldwide semiconductor sales** in March rose 4.6% to $23.1 billion. Sales were up 58.3% Y/Y. Note that 1st quarter of 2009 marked the low point in semiconductor sales during the global economic recession. While 2010 sales will continue to be strong, year-earlier comparisons will moderate, reflecting the industry recovery that began in the second half of 2009. Global sales of semiconductors set a new high for the month of March and were second highest on record. Strong demand from major end-markets (especially PCs and cell phones) coupled with restocking to normal inventory levels fueled 1st quarter growth. Foundries and integrated device manufacturers are ramping-up production to align supply with strong current and expected demand levels. (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.*

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

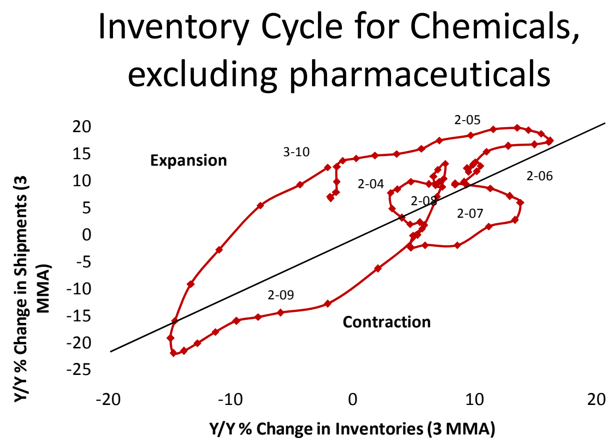


Source: Bureau of the Census

The Census Bureau reported that **factory orders** rose 1.3% to $391.5 billion in March. Compared to a year ago, factory orders were up 15.5%. Factory orders have increased eleven out of the past twelve months. Durable orders slipped 0.6% in March led by a sharp dip in orders for nondefense aircraft, but beyond that, orders rose in a broad set of industries. Nondurable orders were up 2.9%. Orders for nondefense capital equipment excluding aircraft, a proxy for business investment, rose 4.5%, led by strong orders for machinery, electrical equipment and computers. **Unfilled orders**, a measure of potential output in the pipeline, slipped 0.1% and were off 5.0% Y/Y. **Shipments** of manufactured goods rose 2.2% to $395.6 billion. Durable goods shipments rose 1.4% while nondurables rose 2.9%. Overall shipments were up 11.6% Y/Y. **Inventories** of manufactured goods rose for a third consecutive month by 0.3% to $500.7 billion. Inventories were off 5.0% Y/Y. The change in inventories was mixed among individual industries. Inventories of materials and supplies rose 0.2% (down 5.2% Y/Y) while inventories of work in progress rose by 0.4% (up 0.4% Y/Y). Finished goods inventories increased 0.2% (off 6.7% Y/Y). Clearly, restocking and business investment are well underway as the recovery gains traction.

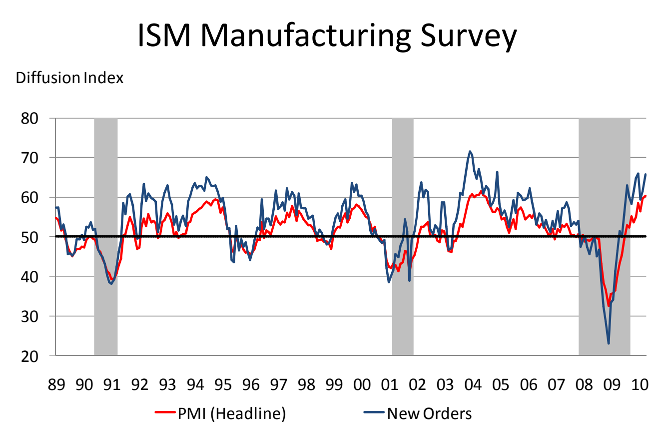
Turning to the business of chemistry, shipments of chemicals rose 2.1% in March and were up 10.5% Y/Y. Pharmaceutical shipments were up 0.4%, but off 3.6% Y/Y. As a result, shipments of chemicals, excluding pharmaceuticals were up 2.7% and up 16.2% Y/Y. Shipments of agricultural chemicals, coatings and adhesives, and other chemicals also rose. Inventories of chemicals rose 1.4% in March, but were off 3.9% Y/Y. Inventories of pharmaceuticals slipped 0.2% (down 10.1% Y/Y). Excluding pharmaceuticals, chemical inventories rose 2.3%, and were up a modest 0.1% Y/Y. Inventories of agricultural chemicals, coatings and adhesives, and other chemicals all rose. The chart below shows the relationship between shipments and inventories for chemicals, excluding pharmaceuticals, over time. It compares a Y/Y change using a 3 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 January 2003 through March 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.



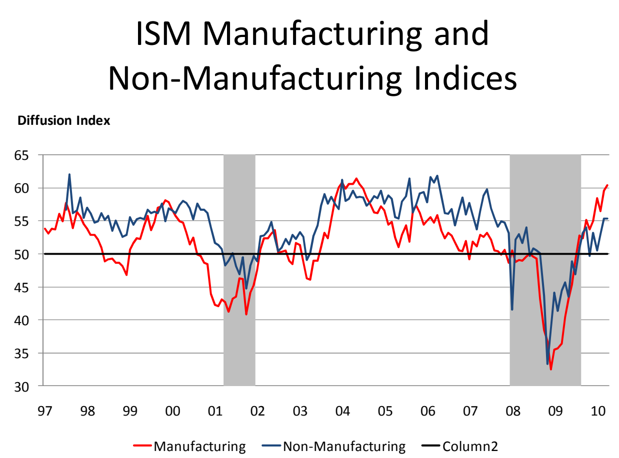
Source: Census Bureau, ACC analysis

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 inventories for the industry as a whole (excluding pharmaceuticals) as inventories (with a 2.0% Y/Y decline on a 3MMA basis) continued to lag shipments (with a 12.3% Y/Y <u>rise</u> on a 3MMA basis) in this comparison. The gap between the two, moreover, widened from 13.4 percentage points to a positive 14.3 percentage points. The gap is a significant improvement from its widest (at -11.1 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.



Source: Institute for Supply Management

The Institute for Supply Management (ISM) reported that the manufacturing sector grew for the ninth consecutive month during April, with the purchasing managers' index **(PMI)** rising a larger-than-expected 0.8 percentage points to 60.4. (With this type of diffusion index, a reading above 50 indicates expanding business activity, while a reading below 50 signals contraction.) This represents an acceleration of activity, pushing the PMI to a new cyclical high and its highest level since May 2004. Manufacturers continued to see substantial gains in new orders (which rose 4.2 points to 65.7), which bodes well for continued growth in manufacturing. Signs for employment continued to improve with the employment index registering its fifth consecutive month of growth. Seventeen of 18 industries reported growth in April. (See www.ism.ws for more details.) The report confirms strength in the regional surveys and is suggestive of strong underlying momentum in manufacturing, a sector benefitting strong overseas demand manifesting itself in exports. Momentum is expected to continue. *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 April. Export and other new orders rose as did production, imports, and order backlogs. Chemical company inventories trended lower and customer inventories were reported to be "too low". Employment was apparently stable during the month. 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*



Source: Institute for Supply Management

Separately, the ISM reported that its **nonmanufacturing PMI** held steady at 55.4% in April. The current business activity component rose, signaling an increasing rate of expansion. The new orders component, however, fell back from its cycle high in March, but continued to expand at a slower pace. Export orders continued to gain at the same rate in March and imports continued to grow. Employment continued to edge downward. Inventories advanced with survey respondents citing increasing demand. Customer inventories continued to be deemed slightly "too high."

The **JPMorgan Global Manufacturing PMI** rose 1.0 percentage points to 57.8 in April, its second highest reading on record, a 71-month high), and for the 10th month above 50. (As with the ISM index, a reading above 50 indicates expanding global activity, while a reading below 50 signals contraction.) The latest improvement in overall operating performance reflects accelerated growth of production and especially new orders from a broad base of nations but especially in the US and China. Improvements were also rapid in the Eurozone and Japan. Moreover, employment rose for the fourth consecutive month. The April manufacturing production gain extended the recovery and expansion that began last June. Order backlogs are rising and supplier delivery times are lengthening. This is resulting in a 20 month high in rising input prices. The global recovery looks to still have sizeable forward momentum with inventory accumulation suggesting production will rise to meet demand requirements in the months ahead.

NEXT WEEK

Economic reports released next week include consumer credit, wholesale trade, trade deficit, import prices, retail sales, industrial production, capacity utilization, and business inventories.

UPCOMING EVENTS OF INTEREST

"Joseph Priestley Society Symposium and Meeting: Battery Innovations as the Driving Force Creating Major Markets"
Chemical Heritage Foundation
13 May 2010
315 Chestnut Street
Philadelphia, PA
Contact: www.chemheritage.org

Joseph R. Skurla, President and CEO, DuPont Danicso Cellulosic Ethanol and Douglas W. Jamison, Chairman, CEO and Managing Director, Harris and Harris Group
"New Technologies: Biofuels and Nanotechnology"
Société de Chimie Industrielle
19 May 2010
The Yale Club at 50 Vanderbilt
New York, NY
Contact: www.societe.org

"From Recession to Recovery"
Chemical Week's 15th Annual CFO Conference
25 May 2010
Intercontinental The Barclay
New York, New York
Contact: www.chemweek.com/cfo10

“Opportunities for Chemicals and Materials: B&C 2020 -- Capitalizing on the Next Generation of Building and Construction”
Chemical Development and Marketing Association - A Special Interest Group of PDMA (Product Development and Management Association)
2-4 June 2010
The University of Pennsylvania
Philadelphia, Pennsylvania
Contact: www.pdma.org

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).