Weekly Chemistry and Economic Trends

ACC Economics & Statistics 28 August 2015

Macroeconomic Status

Our running tab of positive indicators for the macroeconomic status was 17 out of 20 this week. Thus, we continue to post a green banner.

CAB $\lor 0.3\%$; $\blacktriangle 1.8\%$ Y/Y Consumer Confidence $\blacklozenge 9.5$ points Personal Income (DPI) $\blacklozenge 0.5\%$; $\bigstar 3.3\%$ Y/Y (real) Consumer Spending $\bigstar 0.3\%$; $\bigstar 3.2\%$ Y/Y (real) GDP (2nd Q) revised \bigstar to 3.7% New Home Sales $\bigstar 5.4\%$; $\bigstar 25.8\%$ Y/Y Durable Goods Orders $\bigstar 2.0\%$; $\lor 0.9\%$ Y/Y

Business of Chemistry Status

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

Oil ▲\$47.56 (Thursday)
Natural Gas ▼ \$2.68 (Thursday)
Railcar Loadings ▲ 945 from a week ago; ▼ 0.3% Y/Y (13-week moving average)
Chemicals ▲ (Y/Y): chlorine, caustic soda
Global CPRI ▲ 0.1%; ▲ 3.2% Y/Y

The economic reports this week were few but positive. Consumer confidence rebounded sharply and with gains in personal income this is leading to rising consumer spending. The estimate of second quarter GDP was revised upwards and the durable goods report suggests a manufacturing sector on the rise. The **Chemical Activity Barometer (CAB)**, a leading economic indicator created by ACC, dropped 0.3% in August, a marked deceleration of activity from second quarter performance. The declined follows a 0.1% gain in July and 0.5% gain in both May and June. Data is measured on a three-month moving average (3MMA). Accounting for adjustments, the CAB remains up 1.8% Y/Y, also a deceleration of annual growth as compared to this time last year when the barometer logged a 4.2% Y/Y annual gain over 2013.

In global news, led by China's depreciation of the yuan last week and by signs of a slowdown (and possible slump) in China's economy, global equity markets were whipsawed this past week. The slowdown in activity and potential for further oversupply resulted in a drop in oil prices to lows not seen since the recession. The latest figures on global industrial production indicate that it rebounded with a strong gain in June. Trade volumes also rebounded strongly. In an effort to stabilize markets and stimulate its economy, China's central bank lowered its reserve requirements.

Turning to chemistry, global chemical production entered the 3rd quarter on a soft note, with headline volumes rising just barely. With comparable performance in June this marks the slowest pace this year. The chemical production index rose in North America, Western Europe, Central & Eastern Europe, Africa and the Middle East, and Asia-Pacific. Activity was off in Latin America.

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GLOBAL CPRI

ACC's Global Chemical Production Regional Index (Global CPRI) entered the 3rd quarter on a soft note, with the headline index rising just 0.1% on a three-month moving average (3MMA) basis in July. With comparable performance in June this marks the slowest pace this year. The chemical production index rose in North America, Western Europe, Central & Eastern Europe, Africa and the Middle East, and Asia-Pacific. Activity was off in Latin America. The Global CPRI was up 3.8% year-overyear (Y/Y) on a 3MMA basis and stood at 107.8% of its average 2012 levels in July. Note that the base year for the Global CPRI was changed to 2012.

Global Chemical Production Regional Index (Global CPRI)



Source: American Chemistry Council

During July, capacity utilization in the global business of chemistry slipped by 0.3 percentage points to 81.9%. This is off from 82.4% last July and is still below the long-term (1987-2014) average of 90.9%.



Global Chemical Capacity Utilization

Chemical production in North America has generally been on an upward trend since December 2008 but the pace of growth has been very slow. Regional production rose 0.3% in July. In the United States, production of basic chemicals rose with weakness in plastic resins, synthetic rubber and manufactured fibers offset by gains in inorganic chemicals and bulk petrochemicals and organic intermediates. Production of US specialty chemicals rose in July, with strength centered in coatings. Production rose for pharmaceuticals and agricultural chemicals but was stable in consumer products. During July, Canadian chemical production activity was off while that for Mexico improved. Overall, North American regional production of chemicals was up 3.5% Y/Y.

Chemical industry output in Latin America appeared to have been recovering in late-2014 but has since weakened. The region's production declined again in July leaving production off 2.5% Y/Y. Compared to last year, chemical production was off in Brazil as well as in Argentina, Peru and Venezuela but it was up in Chile, Columbia and Uruguay.

In Western Europe, production improved slightly in July. Activity was up 4.0% Y/Y. Year-over-year gains occurred in France, Germany, Italy and the United Kingdom as well as in Belgium, Ireland, The Netherlands, Spain and Switzerland and in Austria, Denmark, Greece, Norway and Portugal. Year-earlier comparisons were negative for Sweden. There continues to be uncertainty in the underlying data for chemical production in Ireland.

During July, chemical industry production rose again in Central and Eastern Europe. Growth was led by production gains in Russia. Compared to July last year, regional production was up 8.2%, the strongest regional showing. Year-over-year gains occurred in Russia, Bulgaria, the Czech Republic, Estonia, Hungary, Poland, and Romania while declines occurred in Latvia, Lithuania, and the Ukraine.

Chemical production in Africa and the Middle East grew 0.6% in July and was up 3.6% Y/Y. The region faces ongoing conflicts in some of the countries. Comparisons to last year were positive in the Gulf Region, Jordan, Israel, Tunisia, and Turkey but production was down in South Africa.

Chemical production in the Asia-Pacific region rose 0.1% during July with weakness centered in Japan, India, and a few other nations. Following several quarters marked by contraction, China's activity increased for the second month in a row. Considering Y/Y performance, overall regional production was up 2.6% with strong gains made in China, Malaysia, The Philippines, and Singapore, and more modest gains in Australia, India, and Taiwan. On a Y/Y basis, production in Japan, South Korea and Thailand has been weak.

Production Volumes (% Change Y/Y - 3MMA)	Apr 15	May 15	June 15	July 15
World Total – Chemistry	3.1	3.4	3.3	3.2
North America United States	<u>4.7</u> 4.6	<u>4.4</u> 4.3	<u>3.9</u> 4 0	<u>3.5</u> 3.8
Canada	11.8	9.6	6.5	3.8
Mexico	-1.0	-0.8	-0.5	-0.3
Latin America	<u>-3.3</u>	<u>-3.0</u>	<u>-2.8</u>	-2.5
Brazil	-4.3	-4.6	-4.0	-3.4
Other	-2.1	-1.4	-1.6	-1.8
Western Europe	<u>3.2</u>	<u>3.9</u>	<u>3.8</u>	4.0
France	3.6	4.2	4.8	5.3
Germany	-0.9	0.6	2.2	3.9
Italy	3.5	5.4	5.3	5.5
United Kingdom	2.3	2.4	2.0	1.5
Belgium	-2.1	-1.3	-2.2	0.1
Netherlands	-2.5	-0.3	1.4	2.4
Spain	4.2	4.0	4.2	3.9
Sweden	-4.8	-3.0	-3.7	-5.5
Switzerland	1.0	1.3	1.5	1.7
Other	0.7	1.9	2.1	2.4
Central & Eastern Europe	<u>3.1</u>	<u>5.5</u>	<u>6.7</u>	<u>8.2</u>
Russia	6.3	10.4	11.3	13.4
Other	0.5	1.4	2.8	3.7
Africa & Middle East	<u>3.1</u>	<u>3.4</u>	<u>3.4</u>	<u>3.6</u>
Asia-Pacific	<u>2.9</u>	<u>3.0</u>	<u>2.8</u>	<u>2.6</u>
Japan	-3.8	-2.9	-1.9	-0.2
Asia-Pacific ex. Japan	5.0	4.9	4.2	3.4
China	6.5	5.8	5.2	4.5
India	6.5	6.8	5.2	2.9
Australia	1.2	1.3	1.3	1.3
South Korea	0.3	-0.5	-1.1	-1.0
Singapore	1.5	3.2	3.9	3.7
Taiwan	-3.2	-1.3	0.0	0.8
Other Asia-Pacific	10.2	11.5	10.5	6.3

All segments of the business of chemistry have improved from the trough of the recession with the most pronounced recovery having occurred in the cyclical segments. During July, results were mixed, with production of inorganic chemicals, plastic resins, and coatings increasing while other segments declined or were flat. Considering year-over-year comparisons, chemical production increased in every category. Growth was strongest in other specialties followed by synthetic rubber, manufactured fibers, plastic resins, consumer products, and coatings. Other segments featured more modest year earlier comparisons.

ACC's Global CPRI measures the production volume of the business of chemistry for 33 key nations, subregions, and regions, all aggregated to the world total. The index is comparable to the Federal Reserve Board (FRB) production indices and features a similar base year where 2012=100. This index is developed from government industrial production indices for chemicals from over 65 nations accounting for about 98% of the total global business of chemistry. Because foreign data are often non-seasonally adjusted or at best working day adjusted, ACC attempts to present the data on a seasonally adjusted basis comparable to that of the United States and Canada. As a result, it will differ from (and hopefully improve upon) official government statistics of some nations. In many cases, ACC created indices of production based on actual production data (weighted according to industry structure) and other data. The Global CPRI measures production activity generally consistent with the overall industry nomenclature of NA-ICS 325, the EU NACE 20 and 21 (Rev. 2), and the UN's ISIC 351 and 352 industries. That is, the index measures production of pharmaceuticals, soaps and detergents, personal care products, fertilizers, and other downstream products in addition to measuring inorganic chemicals, organic chemicals, plastic resins, synthetic fibers, synthetic rubber, adhesives and sealants, coatings, and other specialty chemicals. Data, charts, and this monthly report are available for ACC members on MemberExchange or by email distribution [email your request to Emily Sanchez].

Production Volumes (% Change Y/Y - 3MMA)	Apr 15	May 15	June 15	July 15
World Total - Chemistry	3.1	3.4	3.3	3.2
Pharmaceuticals	3.5	3.1	2.6	2.8
Total Chemistry, ex Pharma	2.9	3.4	3.5	3.2
Agricultural Chemicals	1.3	1.9	2.1	1.9
Consumer Products	4.6	4.1	3.8	3.2
Basic Chemicals	1.9	2.5	2.7	2.7
Inorganic Chemicals	1.2	1.9	2.0	1.9
Petrochemicals & Organic Chemicals	-0.9	0.4	1.2	1.9
Plastic Resins	5.0	5.0	4.3	3.5
Synthetic Rubber	4.2	4.0	4.5	4.3
Manufactured Fibers	5.7	5.6	5.0	4.2
Specialty Chemicals	5.4	6.0	6.0	5.6
Coatings	0.7	1.9	2.8	3.2
Other Specialties	7.4	7.8	7.2	6.4

PLASTICS RESINS REPORT

The ACC also reported that U.S. production of major plastic resins totaled 6.9 billion pounds during July 2015, an increase of 7.0% Y/Y. Year-to-date (YTD) production was 45.7 billion pounds, a 3.8 increase as compared to the same period in 2014.

Sales and captive (internal) use of major plastic resins totaled 6.8 billion pounds during July 2015, a decrease of 0.1% from the same month one year earlier. YTD sales and captive use was 45.8 billion pounds, a 3.6% increase as compared to the same period in 2014.

The ACC Plastics Industry Producers' Statistics Group makes available detailed reports (including monthly

production and end-use sales figures for major thermoplastic and thermoset resins) to subscribers of its various services. For more information, about subscription options, please call ACC at 202-249-7000 or visit <u>www.americanchemistry.com/resin-reportsubscriptions</u>.



CHLOR-ALKALI REPORT

The Chlorine Institute (CI) reported that production of chlorine rose from 34,103 tons per day in June to 35,646 tons per day in July. This pushed the effective operating rate up to 90%. Production was up 4.3% Y/Y. Chlorine is widely used to manufacture PVC (polyvinyl chloride) resins, organic chemicals (propylene oxide, epichlorohydrin, solvents, etc.), and titanium dioxide, as well as for water treatment, disinfection, and other applications. Output of co-produced caustic soda rose from 35,310 tons per day in June to 36,931 tons per day in July, a level up 3.0% Y/Y. Caustic soda is used in the production and bleaching of wood pulp as well as other polycarbonates. (propylene oxide. organic etc.) inorganic chemicals. chemicals. cleaners. water treatment, oil refining, alumina production, and textiles.



Source: The Chlorine Institute

CHEMICAL RAILCAR LOADINGS

According to the Association of American Railroads (AAR), for the week ending 22 August (week 33), railcar loadings of polymers and basic chemicals (blue line) rose by 945 to 30,141 railcars. Compared to the same week last year, loadings were up 0.5% Y/Y and were up 1.4% YTD. Loadings have been on the rise for 7 of the last 13 weeks.



The railcar loadings data are the best 'real time' indicator of industry — especially basic chemicals and polymers — activity. Because the data are fairly erratic, we employ a moving average to smooth out seasonal irregularities. The 13-week moving average of railcar loadings is down 0.3% Y/Y, indicating improving activity.

ENERGY

Natural gas inventories <u>rose</u> 69 BCF during the week ending 21 August according to the Energy Information Administration (EIA). The <u>above-average build</u> brings inventories to 3,099 BCF, 18.3% above this time last year and 2.9% above the five-year average. Inventories are within the five-year historical range.



Oil and Natural Gas Prices

Source: Energy Information Administration

Oil prices rose to \$47.56 per barrel yesterday (Thursday). A year ago, oil was \$100.40 per barrel. Thus, recent prices represent a 52.6% Y/Y decline. With some relief from hot weather in the East, **natural gas prices** (the benchmark Henry Hub), closed at \$2.68 per million BTUs on Thursday, down from \$2.77 last Thursday. A year ago, the price was \$4.02 per million BTUs. Thus, recent prices represent a 33% Y/Y decline.

At 17.7, the ratio of oil prices to natural gas improved from 16.5:1 a week ago. One year ago, the ratio was 25.0:1. As a rough rule of thumb, when the ratio is above competitiveness of 7. the Gulf Coast-based petrochemicals and derivatives vis-à-vis other major producing regions is enhanced. We've been above 7 for several years. In the US, nearly 90% of ethylene, for example, is derived from natural gas liquids while in Western Europe, over 85% 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 in competitiveness as well. The current ratio is favorable for US competitiveness and exports of petrochemicals, plastics and other derivatives.



According to Baker-Hughes, for the week ending 21 August the North American **natural gas rig count** was stable at 211 rigs. One year ago the rig count was 330 rigs. During the same week, the **oil rig count** rose by two to 674 rigs. One year ago the rig count was 1,564 rigs.

INDICATORS IN DETAIL

Note that economic statistics tend to be somewhat erratic in nature. Seasonality often 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.

ACC's **Chemicals Activity Barometer (CAB**), a leading indicator of US business cycle activity, dropped 0.3% in

August, a marked deceleration of activity from second quarter performance. The decline follows a 0.1% gain in July and 0.5% gain in both May and June. Data is measured on a three-month moving average (3MMA). Accounting for adjustments, the CAB remains up 1.8% Y/Y, also a deceleration of annual growth as compared to this time last year when the barometer logged a 4.2% Y/Y gain over 2013. The Chemical Activity Barometer has four primary components, each consisting of a variety of indicators: 1) production; 2) equity prices; 3) product prices; and 4) inventories and other indicators. During July chemical equity prices were down, while product prices and production were flat, and inventories continued to improve.

The Chemicals Activity Barometer (CAB) and the Industrial Production Index



Year-over-Year Change in the CAB and the Industrial Production Index



In its second estimate, the BEA reported that US **GDP** increased at an annual rate of 3.7% in the second quarter. This is up from the initial estimate of 2.3% and follows 0.6% growth in the first quarter of this year. The pickup in growth in Q2 reflects positive contributions from: consumer spending, exports, state and local government spending, nonresidential fixed investment, residential fixed investment, and private inventory investment. The inventories built up in Q2 will work as a drag on this quarter's figures as they are worked down.

The Conference Board reported that consumer confidence, which had declined in July, rebounded in August, rising 9.5 points to 101.5 (1985=100). The Present Situation index increased by 11.1 points to 115.1 in August, while the Expectations Index rose (by 10.2 points) to 92.5. A more optimistic outlook for the labor market and last month's uncertainty appears to have been shaken off. In addition, they are now more optimistic about the near-term future. Consumers' plans for purchasing autos, appliances and homes eased this month. The events of the past week (including Monday's stock market meltdown) will likely weigh on the September reading of confidence. This report is important to the business of chemistry as an explanatory variable for both pharmaceuticals and consumer products (e.g., soaps, detergents, and toiletries). To the limited extent that it foreshadows consumer spending (and the chemistry associated with that) it is also an important indicator.



Source: Conference Board

Personal income grew for the fourth month in a row in July according to the BEA. Personal income (the ability to spend) increased 0.4% in July (the same pace as in April through June). Wages and salaries increased 0.5% in July, the biggest gain so far this year. Rental incomes and proprietors' incomes remained strong while receipts on personal assets went flat. Personal current taxes rose in July leaving disposable personal income (DPI) at a good 0.5% gain. At the same time, consumer spending (the willingness to spend) rose by 0.3% down - the same as in June but, down from the 0.7% gain in May. Spending was up for both goods and services. The headline price index tied to consumer spending rose 0.1% in July, and left prices up 0.3% Y/Y. Core prices -which exclude volatile food and fuel prices -rose 0.1% and were up 1.2% Y/Y. The Federal Reserve's goal has been to keep inflation limited to a 2.0% pace. After adjusting for inflation, consumer spending in real terms was up 0.2% in July. Personal savings increased and the savings rate was up 0.2 percentage points to 4.9%. Headline DPI excluding the effects of inflation (or real DPI) was up 3.3% Y/Y and real consumer spending was

also 3.2% Y/Y. 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.

Consumer Spending and Disposable Personal Income



The Census Bureau reported that new home sales rose 5.4% to a 507,000 annual pace in July. Gains were led by the Northeast with the South and West also experiencing gains. The only weakness was in the Midwest. The inventory of homes for sale increased slightly to 218,000 units at the end of July; a slightly lower 5.2 months' supply. This compares to 6.1 months' supply a year ago. New home sales were up 25.8% Y/Y and inventories were up 6.9% Y/Y. The median sales price rose to \$285,900, a level up 2.0% Y/Y. This report is important to the business of chemistry. New home sales, for example, generate sales of chemistry through purchases of paints & coatings, new furniture, carpet, resilient flooring, window treatments, appliances, and fixtures. In architectural coatings, about 20% of sales are tied to new home sales.



Source: US Census Bureau

According to the Census Bureau, durable goods orders increased by 2.0% (or \$4.6 billion) to \$241.1 billion in July. This is the second consecutive gain and was led by transportation orders, primarily non-defense aircraft and parts but also defense aircraft and parts. Orders for non-defense capital goods excluding aircraft -- a proxy for business investment -- rose 2.2% in July. This follows a 1.4% gain in June. Thus, the 3rd quarter is off to a good start. There was a gain in orders for machinery, communications equipment, motor vehicles, and electrical equipment, appliances and components but weakness in primary metals, fabricated metal products, and computers and related equipment. 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. This dynamic is at play. 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-overyear comparisons, or better yet, do both (year-over-year comparisons of three-month moving averages). Headline orders were off 0.9% Y/Y while orders for non-defense capital goods excluding aircraft were off 3.3% Y/Y. Unfilled orders represent the pipeline of future shipments and the backlog is thus a good forward-looking (or leading) indicator. Unfilled orders increased 0.2 % in July, suggesting a shallow pipeline, and the likelihood of slow industrial production.

NEXT WEEK

Economic reports released next week include the employment, construction spending, light vehicle sales, the ISM manufacturing PMI and non-manufacturing NMI, and the JP Morgan global manufacturing PMI.

UPCOMING EVENTS OF INTEREST

"Shaping the Future at Chemours" Mark P. Vergnano, President and CEO The Chemours Company 9 September 2015 ACS NY Section – Chemical Marketing & Economics New York, NY www.cmeacs.org

Platts 5th Annual NGLs Conference and 3rd Annual Petrochemical Seminar Houston, TX 9-11 September www.platts.com

8th ICIS World Chemical Purchasing Summit ICIS 10-11 September 2015 Hyatt Boston Harbor Boston, MA www.icisconference.com/worldchemicalpurchasing "Making Money Investing in Chemicals: a Private Equity Perspective" Eytan Tigay (Managing Director, Rhône Capital) Société de Chimie Industrielle Luncheon 16 September 2015 Yale Club of New York www.societe.org

2nd ICIS Oxo-Alcohols Americas Conference ICIS 22-23 September 2015 Houston, TX www.icisconference.com

2015 World Fertilizer Conference The Fertilizer Institute's (TFI 27-29 September 2015 Westin Copley Place/Fairmont Copley Plaza hotels Boston, MA www.tfi.org

57th NABE Annual Meeting 10-13 October 2015 Grand Hyatt Washington Washington, DC www.nabe.com

24th Annual FlexPO Conference "Chemical Industry Game-Changers: What's Next?" Chemical Market Resources, Inc. 20-22 October 2015 The Woodlands Waterway Marriott Houston, TX www.cmrhoutex.com/pages/conferences/flexpo.php

2015 Petrochemical Seminar Polyolefins Consulting, L.L.C. 6 November 2015 www.polyolefinsconsulting.com

Petrochemical Supply Chain & Export Logistics 2015 3-4 December 2015 Petrochemical Update DoubleTree Greenway Plaza Houston, TX www.petchem-update.com/petrochemical-supplychain

3rd ICIS US Butadiene & Derivatives Conference ICIS 9 December 2015 Millennium Broadway New York, NY www.icisconference.com

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: <u>https://memberexchange.americanchemistry.com</u>, 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.

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Every effort has been made in the preparation of this weekly report to provide the best available information and analysis. However, neither the American Chemistry Council, nor any of its employees, agents or other assigns makes any warranty, expressed or implied, or assumes any liability or responsibility for any use, or the results of such use, of any information or data disclosed in this material. 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).

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