UNITED STATES

Analysts view 2007 with **GUARDED OPTIMISM** as some industry fundamentals weakened at year-end 2006

WILLIAM J. STORCK, C&EN NORTHEAST NEWS BUREAU

IF THERE IS AGREEMENT among chemical industry observers in the U.S., it is that the economic cycle is aging and that the highly cyclical chemical industry is in for slower growth in 2007.

There are a number of reasons for this tempered optimism. The U.S. chemical industry has suffered through hurricanes, a shaky geopolitical climate, and increasing feedstock and energy costs. It is now looking warily at the less-than-stellar performance in the housing and automotive sectors, both big users of chemicals.

Chemical results in 2006 show just how vulnerable and volatile the industry can be. In the first quarter, when companies were still feeling the effects of rising feedstock and energy costs and the 2005 Gulf Coast hurricanes, C&EN's survey of major chemical producers showed an aggregate earnings decline of 2.7% from the same period a year earlier; sales rose just 5.1%.

In the second quarter, earnings were up just 0.4% on a 6.6% increase in sales. And in the third quarter, when natural gas price hikes began to moderate, earnings jumped 23.0%, and sales increased 11.4%. In all three quarters, however, most companies scored earnings increases, often in the double-digit range, and any bad news tended to come from just a few major companies.

Despite overall low earnings growth in the first half of the year, industry fundamentals performed fairly well in all of 2006. Using data from the Federal Reserve Board through November, C&EN estimates that the 2006 production index for chemicals increased 2.4% over 2005, led by a 3.0% increase in the basic chemical segment. Drilling down further shows that basic organic chemical output rose 2.3%, and basic inorganic chemicals increased 4.2%.

The producer price index for all chemicals also performed well in 2006, improving 7.4% as producers successfully covered increases in their raw material and energy costs with price increases of their own. Again, the basic chemical sector was the growth leader, with its index appreciating 12.9%. Basic organic chemical prices rose 10.3%, less than half the 22.5% rise in inorganic chemical prices.

The value of U.S. chemical shipments for the full year was about $580 billion, a 5.3% increase over the prior year. Excluding the 11.8% increase in pharmaceutical shipments of about $155 billion, demand for the remainder of the U.S. chemical industry was up just over 3% to about $425 billion, C&EN estimates.

The increase in chemical shipments was helped by higher export values. C&EN projects that the value of all chemical exports in 2006 was about $134 billion, an increase of almost 12% over 2005. Chemical imports for all of 2006 totaled about $143 billion, an 11% gain. The chemical trade deficit was about $8.4 billion; it was $8.1 billion a year earlier.

TRADE

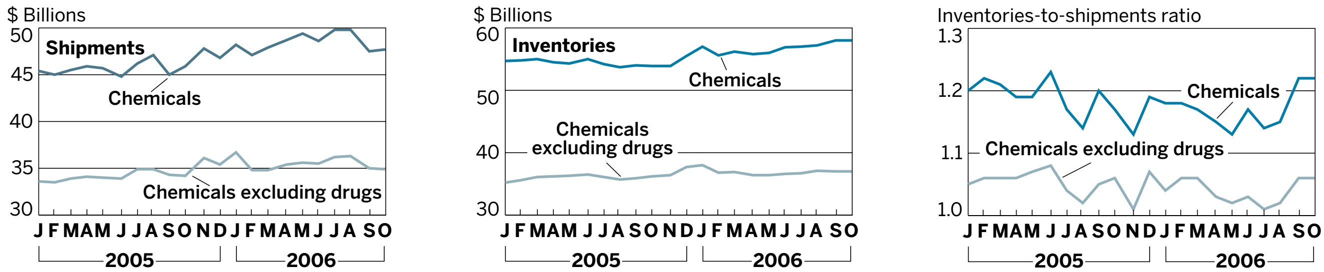
Chemical trade deficit increased slightly in 2006

	EXPORTS				IMPORTS				TRADE BALANCE			
$ MILLIONS	**2003**	**2004**	**2005**	**2006[a]**	**2003**	**2004**	**2005**	**2006[a]**	**2003**	**2004**	**2005**	**2006[a]**
Organic chemicals	$20,103	$25,852	$26,765	$29,470	$32,887	$35,447	$38,009	$42,676	-$12,784	-$9,595	-$11,244	-$13,206
Inorganic chemicals	5,576	6,196	7,698	8,980	7,420	8,276	10,165	10,960	-1,844	-2,080	-2,467	-1,980
Plastics	21,069	25,202	28,861	32,482	12,161	14,222	17,385	19,183	8,908	10,980	11,476	13,299
Fertilizers	2,342	2,595	2,990	3,000	2,129	2,636	3,701	3,460	213	-41	-711	-460
Pharmaceuticals	17,776	23,433	25,012	28,092	31,517	34,937	39,176	45,550	-13,741	-11,504	-14,164	-17,458
Cosmetics	6,558	7,441	8,059	9,120	5,611	6,948	7,922	8,300	947	493	137	820
Dyes & colorants	4,138	4,569	4,901	5,367	2,481	2,667	2,971	3,100	1,657	1,902	1,930	2,267
Other	12,987	14,563	15,846	17,865	6,858	7,982	8,939	9,546	6,129	6,581	6,907	8,319
TOTAL	**$91,549**	**$109,851**	**$120,132**	**$134,376**	**$101,054**	**$113,115**	**$128,268**	**$142,775**	**-$9,505**	**-$3,264**	**-$8,136**	**-$8,399**

a C&EN estimates. **SOURCE:** Bureau of the Census

DEMAND

Inventories-to-shipments ratio began to rise in August as shipments slipped



SOURCE: Department of Commerce

OUTPUT

All sectors, save pharmaceuticals, showed good production gains

PRODUCTION INDEX, 2002 = 100	2003	2004	2005	2006[a]	CHANGE 2005–06
Manufacturing	101.3	104.4	108.6	114.8	5.0%
Chemicals	101.4	105.7	108.0	110.6	2.4
Basic chemicals	102.8	111.7	111.8	115.1	3.0
Basic organics	105.1	121.0	120.5	123.2	2.3
Basic inorganics	99.8	99.7	98.7	102.9	4.2
Resins, synthetic rubber & fibers	98.4	103.1	107.0	108.9	1.8
Agricultural chemicals	104.5	109.7	115.0	118.6	2.6
Pharmaceuticals & medicines	103.4	104.0	106.0	105.3	-0.6
Paints, coatings & adhesives	100.5	105.0	106.3	109.5	3.0
Soaps, cleaning compounds & toilet preparations	96.2	107.8	116.7	125.5	9.1

a C&EN estimates. **SOURCE:** Federal Reserve Board

So, it looks like 2006 turned out to be a fairly good year, considering the problems that the chemical industry faced, primarily in the first six months. This year, however, may be more of a challenge, according to economists, consultants, and analysts.

In the last few months of 2006, economists lowered their forecasts for the economy in 2007. The National Association for Business Economics (NABE) surveyed 50 professional forecasters between late October and early November and found a consensus forecast for real gross domestic product (GDP) growth of 2.5% this year. This prediction is down from 2.7% in a survey taken just two months earlier.

"Despite the hindrance of the housing correction, the economy is expected to gain ground in 2007," says Carl R. Tannenbaum, president of NABE and chief economist at LaSalle Bank/ABN AMRO in Chicago. He adds, though, that the forecast panel suggests that "we'll need to pay close attention to energy prices, home sales, and inflation, which could threaten the expansion's durability."

The Livingston Survey, compiled by the Federal Reserve Bank of Philadelphia, predicts that real GDP will grow at an annual rate of 2.8% in the first half of 2007 and 3.1% in the second half. Although this is a more optimistic prediction than the NABE consensus, the Livingston forecasts are lower than they were six months earlier.

Still, the chemical industry in the U.S. is expected to perform well, and perhaps even better than in 2006. In its annual forecast, the American Chemistry Council predicts that overall, U.S. chemical industry growth in 2007 will improve to 3.2% after an estimated 2.1% increase last year. The growth leader this year, according to ACC's chief economist, T. Kevin Swift, will be pharmaceuticals, with a 5.0% increase in output. This follows a 0.6% decrease for the segment in 2006.

Excluding drugs, though, the remainder of the U.S. chemical industry will grow at just 1.9% this year, well down from the 4.5% growth estimated for 2006.

Swift warns that the industry faces some economic headwinds. A major risk continues to be volatile natural gas costs, although these costs are off from their posthurricane peaks and down relative to oil as a result of mild weather during the past year.

ACC projects that, in 2008, GDP will rise 3.3%, up from an estimated 2.6% growth in 2007; however, growth in chemical production will decline to 2.5% in 2008 from 3.2% in 2007. This apparent disconnect between overall GDP growth and chemical growth comes because the chemical industry is nearing the end of the commodity cycle. ACC expects the chemical economy to start declining before any overall decline sets in, as it has in the country's past two economic expansions.

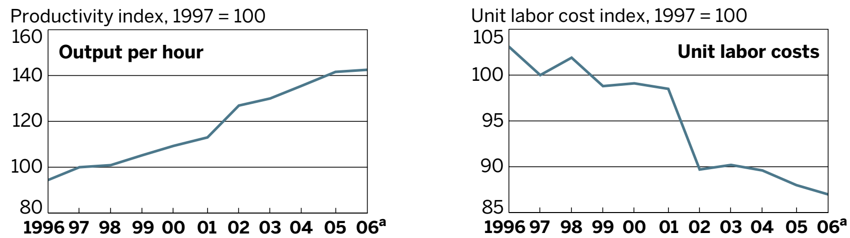
During 2006, the ACC survey says, high feedstock and energy costs and improving plant operating rates resulted in higher chemical product prices and contributed to higher shipment values. ACC forecasts shipments valued at $618 billion in 2007 and $636 billion in 2008 as a result of continued expansion in output.

TRADE WILL HELP increase demand for U.S. chemicals in 2007. ACC says there will be an improvement in the trade balance for agricultural chemicals, polymers, surfactants, and specialty chemicals including adhesives, catalysts, coatings, and plastic additives. Exports may provide "a pleasant surprise for U.S. producers," Swift says, if the dollar continues to weaken against foreign currencies.

Analysts at Fitch Ratings are also san-

EFFICIENCY

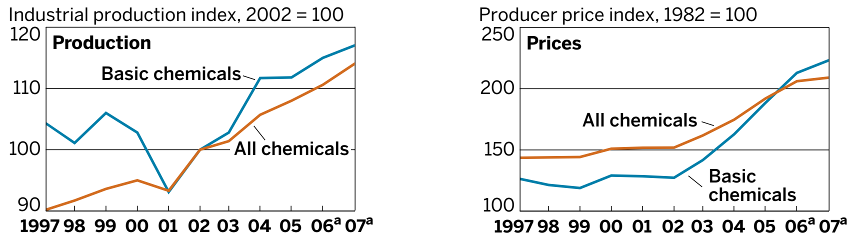
Slightly improved chemical productivity caused decline in unit labor costs



a C&EN estimates. **SOURCES:** Bureau of Labor Statistics, Federal Reserve Board

MARKET CONDITIONS

Production growth will slow in basic chemicals in 2007, while price increases will moderate



a C&EN estimates. **SOURCES:** Federal Reserve Board, Bureau of Labor Statistics guine about 2007. "Fitch believes fundamental market and economic conditions for the chemical industry continue to be good, despite the instability caused by energy markets," says Randy Biang, senior director at the ratings service.

The sharp drop in crude oil prices in third-quarter 2006 helped boost chemical operating margins, but it also quickly slowed demand as many purchasers stopped buying in anticipation of lower prices, Biang says. "Demand growth should return as end-users work off excess inventories and need to start buying product again."

On the other hand, Biang says, the recent slowdown in U.S. economic activity, falling real estate sales, inflation, and rising interest rates all put pressure on consumption and, consequently, on demand. All in all, 2007 may have lower prices and margins but will still be a profitable year for suppliers, he says.

In terms of individual products, Joy Guttschow, an associate director at Fitch, says 2007 may be the last good year of earnings for polyvinyl chloride producers before a slug of new capacity forces the market into a cyclical downturn. She says Fitch expects the U.S. PVC market to remain tight in 2007, most significantly through the seasonally strong second and third quarters, so long as the U.S. economy remains fairly robust.

PRICES

Basic chemical prices rose at double-digit rates again in 2006

PRODUCER PRICE INDEX, 1982 = 100	2003	2004	2005	2006[a]	CHANGE 2005–06
All commodities	138.1	146.7	157.3	164.6	4.6%
Chemicals	161.8	174.4	192.0	206.2	7.4
Basic chemicals	141.7	162.8	188.5	212.9	12.9
Basic inorganics	121.1	125.5	141.4	173.2	22.5
Basic organics	146.7	173.9	203.1	224.0	10.3
Paints	172.6	178.7	190.7	203.9	6.9
Pharmaceuticals	274.7	284.5	298.2	312.0	4.6
Fats & oils, inedible	123.6	153.6	146.9	148.8	1.3
Agricultural chemicals	135.2	143.9	153.0	158.0	3.3
Plastic resins	146.1	163.1	193.0	199.4	3.3
Other chemicals	141.2	143.8	159.3	157.9	-0.9

a C&EN estimates. **SOURCE:** Bureau of Labor Statistics

North American fertilizer producers, she says, should show stronger profitability, earnings, and cash flow in 2007 because of market conditions that may encourage increased planted corn acreage in the U.S. and strong fertilizer demand abroad.

And Guttschow notes that specialty chemical producers will likely see improving operating margins as raw material costs come down. Fitch expects specialty producers to continue to raise prices to mitigate the impact of the higher raw material, energy, and transportation costs they incurred in 2006. She notes, however, that most specialty producers don't price their products on the basis of availability, as commodity producers do, and therefore have less pricing flexibility.

The ethylene chain is receiving a good deal of attention from analysts. Fitch expects ethylene and polyethylene operating rates to remain high, but not at peak levels, in the first half of this year. Buyers are likely to replenish inventories in early 2007, improving operating rates from the drop seen in fourth-quarter 2006. Most petrochemical producers will see some degree of relief on the raw material side of the equation in 2007; however, Fitch expects natural gas and crude oil costs to continue to be volatile.

At Merrill Lynch, research analyst Don Carson says margins for U.S. producers of ethylene and its derivatives eroded sharply in the fourth quarter of 2006. Softening demand led to price declines that sharply outpaced falling raw material costs, he says. Effective ethylene operating rates, Carson estimates, likely averaged only 91% in the fourth quarter after hovering around a more robust 95% in the first three quarters of 2006.

Merrill Lynch also takes note of the housing slowdown. "PVC has the most housing-related exposure of any of the ethylene derivatives, with 20% of PVC demand represented by construction applications," Carson says. The North American PVC industry reduced production by 12% in October, following a 5% decrease in September. Producers trimmed output even further in November and December, he notes, weakening demand for ethylene and chlorine.

Thus, the U.S. chemical industry starts 2007 with its traditional concerns about volatile costs, foreign competition, and adverse geopolitical events. But it is adding some new worries: lower selling prices, slowing downstream markets such as housing and automobiles, and a concern that the end of the business cycle, at least for commodities, is approaching. ■