ENERGYBRIEF

Upside Surprise in a Bearish Oil Market

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With light sweet crude futures hitting a six-month low last Friday, down nearly 20% from their August 7 peak, analysts that were speculating on the possibility of $100 oil a little over a month ago are now wondering aloud if $15 oil might be more likely. Concerns over a slowdown in economic growth in both the U.S. and Asia have taken steam out of red-hot commodity markets across the board with oil and gas leading the way. The bear case for oil was buoyed last week when both the IEA and OPEC revised their 2006 oil demand projections downward by 100,000 barrels per day (bpd), primarily on weakness in North American (Chart 1).

Whether this softening of oil markets is temporary or trend depends largely on China, which will account for at least 39% of global consumption growth this year and has a history of surprising on the upside. The IEA acknowledged in this month's Oil Market Report that one of the greatest challenges in their forecasting is the unpredictability of Chinese apparent demand. Uncertainty surrounding corporate inventory levels, the strategic petroleum reserve (SPR) and underlying demand growth means that Chinese oil consumption could be significantly higher in 2006 than current market expectations, easily offsetting demand weakness in other parts of the world.

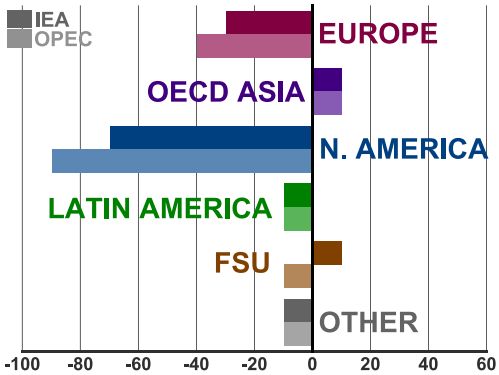
Specifically:

- **Forecasts of underlying demand growth range from 5%-9%, a difference of 250,000 bpd.**
- **Corporate inventory movements could raise or lower apparent demand by up to 200,000 bpd.**
- **If filling of the SPR has already begun, as rumored, apparent demand could be boosted by and additional 50,000 bpd.**

At the upper bound, these unknowns could translate into Chinese oil consumption that is 400,000 bpd higher than the IEA forecasts by year end. That's a margin of error equal to the total production capacity of Yemen, Sudan or Prudhoe Bay. Such a demand shock would certainly tighten up global supply and could reverse the slide in oil prices seen over the past month.

CHART 1: DEMAND REVISIONS

2006 demand revisions Sep/Aug, thousand bpd

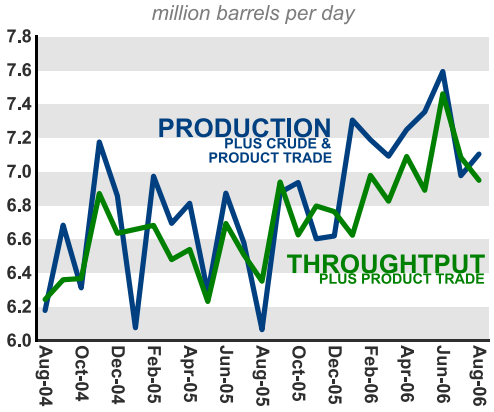


Source: IEA Oil Market Report and OPEC Monthly Oil Market Report from August and September.

The Chinese oil vortex

As China doesn't release inventory data, international observers can either measure apparent demand based on refinery throughput or crude oil production plus net imports. Both methods paint an incomplete picture. A throughput-based approach (used by the IEA) misses small refiners that don't report production numbers. A net import-based approach doesn't account for corporate or government inventories. While the two methods vary in their month-to-month demand estimates, the difference typically irons out over time as crude inventories get pushed through. During the first 8 months of this year, however, the net import approach shows apparent demand growth of 10.3% while the throughput approach shows only 7.3% growth (Chart 2). The difference is 450,000 bpd of crude oil. While some of that can certainly be attributed to refinery losses and poor throughput data, the same period last year experienced only a 200,000 bpd gap. This has left observers wondering where all the extra oil has gone.

CHART 2: CORPORATE OR SPR?

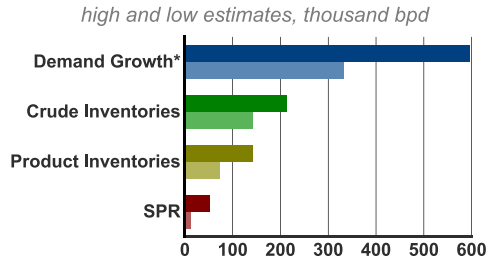


Source: CEIC and CSA estimates. Crude throughput is a adjusted to account for refinery losses.

Filling the SPR?

Though China completed construction of its first batch of SPR tanks in Zhenhai last month, government officials have repeatedly stated that they will not begin filling the tanks until the end of the year at the earliest. Beijing is concerned that a public move to begin filling the tanks will push up already high oil prices. Yet the discrepancy between crude imports and refinery throughput has generated a flurry of speculation that the tanks have been filled in secret. Indeed, over the past several months, reports have begun to emerge that a third of the Zhenhai tanks have already been filled covertly with Sudanese crude. As tantalizing as this story is, even if true its impact on overall Chinese oil demand would be nominal. The 52 Zhenhai tanks hold 33 million barrels of oil. Even if they were all filled by the end of the year, overall demand would only increase by 90,000 bpd. Commercial inventories and underlying consumption have a much larger impact on variability in apparent demand growth (Chart 3).

CHART 3: DEMAND FACTORS



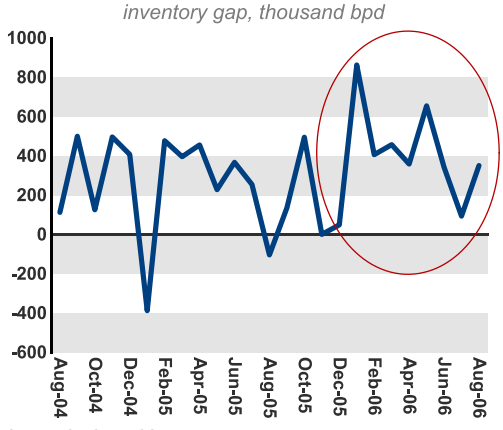
Source: CSA estimates based on internal calculations and conversations with industry officials. * Demand growth refers to the high and low estimates for 2006 marginal demand.

Not as significant as corporate reserves

While the Zhenhai tanks can hold 33 million barrels of oil (4-5 days of demand), Chinese analysts we surveyed estimate that China National Petroleum Corporation (parent of PetroChina) and Sinopec's corporate inventories have the capacity to provide 20-30 days of cover for crude oil and another 10-15 days cover for refined products. That's 200-300 million barrels of oil combined, a number which is set to expand. PetroChina is constructing a 50 million barrel commercial storage facility in Shanghai and Sinopec has begun filling newly constructed tanks in Guangdong.

In recent years inventory levels have been quite volatile, as shown in Chart 4 which graphs the disparity between crude production plus net imports and refinery throughput. One reason for this volatility is China's reliance on the spot market. At the end of 2005, oil prices eased slightly and Chinese traders

CHART 4: TAKING STOCK



Source: CEIC and CSA

bought large quantities of crude for January delivery, replenishing inventories that were drawn down in 2005 (the first big spike circled in Chart 4). Another reason is the domestic controls on gasoline and diesel prices. As the cost of imported oil climbed through the spring, Chinese refiners choked back on their crude runs to pressure the government to raise retail product prices. After an 11% price increase was passed in May, refiners emptied their crude inventories to supply the market. There is a great deal of speculation that another price increase will occur this month and loss-making refiners have again slowed throughput in anticipation.

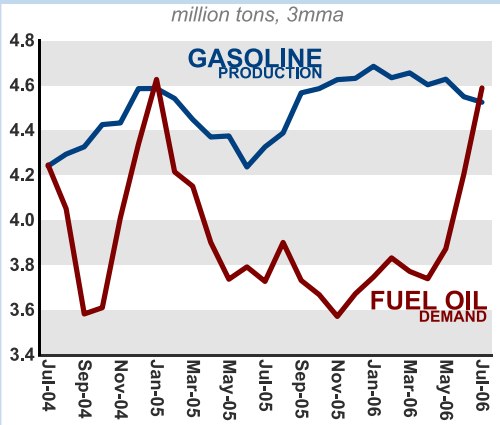
When the big refiners in China reduce their crude runs, small "tea kettle" refiners step in to fill the gap. Most do not have a license to import crude oil and instead refine heavy product, frequently a mixture from the Middle East that is 60% crude but passes through customs as fuel oil. While many analysts predicted that fuel oil use would decline in 2006 as more coal-fired power generation came online, demand is up 5% year-to-date due to the tea kettle refiners (Chart 5). This points to underlying product demand that is significantly stronger than the official refinery throughput data (and thus the IEA estimates) suggest.

Inventory uncertainty adds to demand question

With such wild swings in corporate inventories and the specter of SPR filling always on the horizon, predicting real oil demand growth is a challenging task. In 2004, markets were surprised when apparent demand grew 15%. They were surprised again when it fell to 3% in 2005. As a result, the estimates for 2006 demand range from 5% to 9%. Forecasts by government agencies in the west tend to fall at the low end of the spectrum (EIA at 6.7% and IEA at 6.5%) while Chinese industry analysts are at the high end (Chart 6). Our forecast is 9% growth based on a qualification of official refinery data and our analysis of the underlying drivers of product demand.

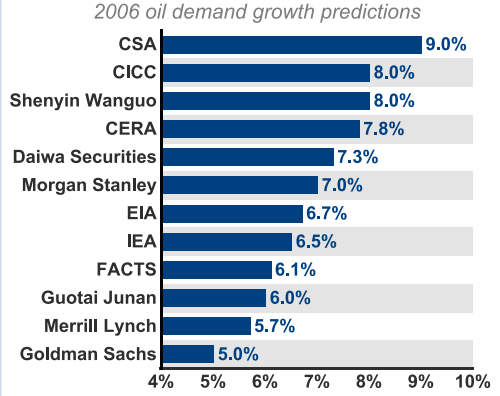
The difference between 6.5% growth and 9% growth alone is dramatic: 165,000 bpd on a 6.6 million bpd base. That's twice as much as the recent downward revision in North American demand estimates. Add in both corporate and government stockpile movements and Chinese marginal demand growth could be as much as 370,000 bpd above the IEA forecast, or 55% of 2006 marginal demand. Much will depend on what happens to oil prices over the next three months. If they continue to fall, refiners will increase throughput and the government will be more likely to aggressively fill the SPR. Corporate inventories, which ended 2005 extremely low, will be built back up and apparent demand will be much higher than expected. If prices go back up to $80 per barrel, SPR filling, if already started, will likely be scaled back or put on hold. Refiners will continue to cut runs to pressure the government on prices, resulting in spikes in fuel oil imports. Either way, there is plenty of room for the oil market bears to be surprised this year.

CHART 5: FUEL OIL FILLS THE GAP



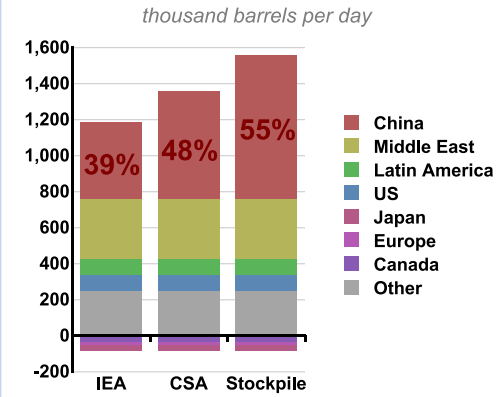
Source: CEIC and CSA estimates

CHART 6: GUESSING DEMAND



Source: FACTS, CERA, Daiwa, MS, EIA, Guotai Junan, ML and GS forecasts are from Aug. 21 Petroleum Intelligence Weekly. All others surveyed by CSA.

CHART 7: CHINA AT THE MARGIN



Source: IEA and CSA estimates. Stockpile scenario is based on CSA growth projections plus a substantial increase in corporate and government inventories.