More evidence of tightening oil fundamentals

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Crude oil prices retraced modestly in recent days from record-high nominal levels reached last week as more weak housing data and negative earnings surprises that resulted in a sharp equity market sell-off reignited concerns over economic growth and, in turn, oil demand growth.

Exacerbating these concerns has been a recent substantial weakening in refinery margins as petroleum product prices have underperformed crude oil prices.

Upon that backdrop, Goldman Sachs said it its Energy Weekly report that "Although this underperformance has generated concerns about end-user demand for oil, it is important to emphasize that the decline in refinery margins has been in large part seasonal and the extent to which weakness has exceeded seasonal norms has resulted from exceptional tightness in crude oil fundamentals rather than softness in product fundamentals. In other words, the market has shifted into a “crude-driven” environment from a “product-driven” environment of recent years."

Recent data releases that provide more evidence of tightening crude fundamentals underscore this shift.

“On net, we believe that crude oil prices remain consistent with current supportive fundamentals, but vulnerable to the downside in the near term as weaker refinery margins potentially motivate refiners to reduce their demand for crude,” Goldman Sachs said, adding “However, downward price pressure on crude oil prices will likely prove temporary as the relatively low level of product inventories suggest sustained refinery run cuts are unlikely and as crude oil fundamentals remain tight. Further, it is important to note that the concentration of call options at $90/bbl and $100/bbl suggest the potential for a “negative gamma” effect to push prices sharply and rapidly higher should these key thresholds be reached.”

More evidence of tightening oil fundamentals

Goldman Sachs once again noted that a large 33 million barrel counter- seasonal draw in OECD total oil inventories during 3Q2007 versus a seasonal 25 million barrel build indicates a very strong seasonally-adjusted market deficit of over 600 thousand b/d.

Further, the inventory decline accelerated in August and September, underscoring the risk of a continued seasonal acceleration of the market deficit in 4Q2007). “As we have long emphasized, the current sustained market deficit is the result of a decline in global production against relatively stable demand. During 3Q2007, total global supply was 400 thousand b/d below the same period last year,” said Goldman Sachs.

In September, crude oil production was 680 thousand b/d below year-ago levels. Only the expansion of NGL production has prevented total supply from falling and explains the modest 140 thousand b/d year-over-year increase.

According to Goldman Sachs, it should be emphasized that while the NGL supply expansion is typically used to meet increasing demand from the petrochemical industry, its use is very limited to meet the bulk of the oil demand for transportation fuels.

As global inventories decline at a sustained pace and approach critically low levels, it is not surprising that price volatility increases and that the upside price swings tend to be much stronger. In every commodity, low levels of inventories typically create a “spikeprone” environment where the upward price movements can be particularly violent and the level of backwardation potentially extreme.

“This dynamic is typically more extreme to the upside with low inventories than to the downside with high inventories since timespreads have no theoretical upper bound, while in a contango they have a lower bound in the cost of carry,” Goldman Sachs said.

According to Golman Sachs, the impact of the strengthening timespreads on spot prices, as a result of the continued global inventory decline is now particularly strong as long-dated oil prices continue their rally in response to escalating industry costs, with WTI for delivery 5-years ahead now trading above a record $76/bbl.

“Crude-driven” market puts pressure on refinery margins

While crude oil prices have increased, refinery margins have continued to decrease sharply in recent weeks, raising concerns about a general weakness in the demand for petroleum products.

“However, it is important to emphasize that the decline in refining margins has been in part seasonal. Further, the extent that weakness has exceeded seasonal norms has resulted not from weakening product fundamentals and prices, which have remained remarkably stable since May of this year, but from extreme crude price strength, largely consistent with tightening crude oil fundamentals,” said Goldman Sachs. “As we have emphasized in the past, this is the result of a shift to a “crude-driven market” where crude oil supply shortages are the main drivers of the oil price rally as the system bottlenecks shifts to the wellhead and crude oil backwardation becomes the predominant term structure.”

In a “crude-driven” environment, weak refinery margins typically motivate refinery runs cuts with the consequent decline in crude demand and product output causing a pull-back in crude prices and a rise in product prices.

“As a result, we believe that crude oil prices remain vulnerable to further downward correction from current price levels, which would also be consistent with high price volatility that typically characterizes this time of year. However, we believe that downward pressure on oil prices resulting from refinery runs cuts will likely prove temporary. This is because the resulting improvement in refinery margins will likely once again motivate increased refinery runs, quickly tightening crudefundamentals and in turn creating another rally in crude oil prices. In addition, in the current environment, we believe that the impact of lower refinery runs will likely be higher to the upside on product prices, than to the downside on crude prices. This is because refinery runs were already very low throughout 2Q2007 and 3Q2007, especially in the Unites States, as a consequence of the extreme refinery outages that plagued the refining system since March. As a consequence, US and OECD product inventories are already at very low levels," said Goldman Sachs.

The oil price has moved into "negative gamma" territory

Goldman Sachs said that although the market has moved rapidly to its year-end forecast and refining margin weakness presents some downside risk to crude oil prices from current levels, it is important to note that the general rise in prices to the high-$80/bbl range has left prices near "negative gamma" territory, which presents substantial upside to prices should key price thresholds be reached.

The trading dynamic that characterizes this territory is the same that we documented at the beginning of this year, which exacerbated the weather related sell-off in January, but that now may work in the opposite direction.

According to Goldman Sachs, "In January 2007, sustained downward price movements triggered in part by exceptionally warm weather pushed prices to levels where a large concentration of puts, typically sold by financial houses to producers looking to hedge their exposure to declining prices, had been struck. This in turn triggered substantial selling by financial houses which typically hedge their exposure by selling a number of contracts equal to the "delta" of the option, i.e., the change of the option value given a change in the price of the crude oil. As the delta of a short put option increases as prices decline toward the strike price, the number of crude oil futures sold by financial traders to "delta hedge" their positions increased, exacerbating the price correction. We called this effect "negative gamma".

This time around, Goldman Sachs said it believes we are at the doorstep of a similar situation with call options.

The oil price rally to new all-time-highs has the potential to trigger another "negative gamma" effect. As price levels approach critical values close to the strike price of a large mass of call options bought by investors and by consumers to hedge their exposure to increasing oil costs, the financial traders that sold those options need to buy additional crude oil futures to "delta hedge" their positions.

Currently, a large mass of call options is concentrated at strike prices of $90/bbl and $100/bbl. The open interest in call options around these price levels is similar to the open interest in put options at or below $60/bbl at the beginning of the year and that we believe triggered the strong "negative gamma" effect.

According to Goldman Sachs, "While there is also a significant concentration of calls struck between $70/bbl and $80/bbl, we believe that the impact of the "negative gamma" effect was much lower as the oil price hit those strike levels because a great number of those calls were sold by producers in order to reduce their cost of hedging, with a so called "collar" transaction. Although some producers reportedly closed some of these positions that were deep in the money, likely providing some support to prices, the fact that producers do not typically "delta hedge" has arguably reduced the impact of the "positive delta" effect. We believe, however, that the largest impact may still loom ahead, as the calls at $90/bbl and $100/bbl were predominately sold by non-commercial traders that typically manage the risk incurred from consumer hedging programs via "delta hedging".

While it is difficult to find in the data conclusive evidence that that those calls struck between $70/bbl and $80/bbl were mainly sold by producers while those calls struck between $90/bbl and $100/bbl were sold by financial traders, leaving the traders increasingly net short calls as prices have approached these higher strike prices, an indication can be seen by comparing net speculative length in options with open interest.

Goldman Sachs said data suggests that the increase in option speculative length is not the result of new long positions opened by speculators but rather "delta" generated, i.e., linked to the way the Commodity Futures and Trading Commission (CFTC) reports the options position, namely, in the number of "futures equivalent" contracts. That is, the CFTC converts the number of put or call option contracts into the equivalent number of futures contracts based on the "delta" of the option. This accounting method allows the number of positions in options to change as the delta of the option changes, even if the number of underlying options contracts bought or sold is unchanged.

As a consequence, as oil prices increased from $70/bbl to $80/bbl, the number of speculative long options positions reported by the CFTC also increased, as these options become deeper in the money, pushing the delta on the option towards one.

"More importantly for our argument here, however, this "passive" increase in option speculative length in response to the oil price rally shows that non-commercial traders were "net long" calls as only such a position would be consistent with an increase in the delta of the option as prices increase and a rise in option speculative length. This also reinforces the likelihood that producers were predominantly selling those options," said Goldman Sachs.

The situation changed dramatically as the oil price reached $80/bbl and started to increase towards $90/bbl. This further price increase seemed to push the speculative length in options down, instead of up, while again, the open interest in call options remained largely unchanged. The open interest picture suggests that once again the option speculative length has continued to be driven by "delta" effects, and more importantly indicates that, at strike prices above $80/bbl, non-commercial traders started to become increasingly "net short" call options, as the proportion of calls sold by them to consumers increased.

"It should be noted that theoretically the decline in options speculative length after prices increased above $80/bbl could also be explained by an increase in long put positions by speculators," Goldman Sachs said, adding "However, we believe that during the strong price rally we observed last week it is highly unlikely that a large group of investors would buy crude oil puts, underscoring that the bulk of the speculative length decline was likely "delta-generated". On net, it is possible that even a small fundamental trigger could lead to a strong pricing response, which underscores that a further price spike into the mid-90s in the coming weeks cannot be ruled out."