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Has Peak Oil--As a Meme--"Tipped"? (Out of Futures Backwardation and into Contango)

Posted by jeffvail on May 19, 2008 - 10:00am
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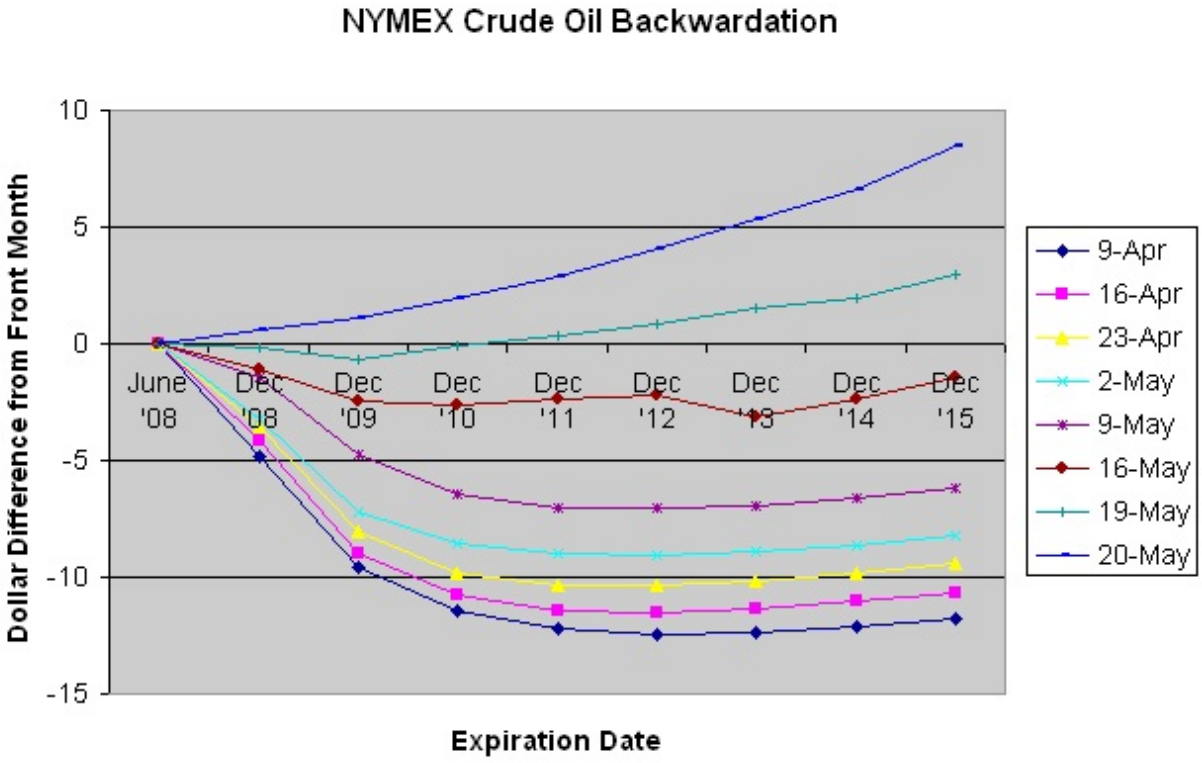
Has Peak Oil, as a meme, "tipped"? Our latest oil price poll suggests that well over 70% of the sample (N>3000 now) thinks that oil will at least stay above $114 a barrel for the next two months--and almost half think it will hit $140 a barrel in that timeframe. Search volume on Google for the term is up dramatically in the past month, as is traffic at The Oil Drum. One indicator of a "tipping point" for acceptance of Peak Oil may be the state of backwardation in oil futures. I first raised this idea over 2 years ago, but recent market movements, coinciding with attention in the press, may be validating it: when the markets accept Peak Oil, we will see the end of backwardation in crude oil markets, and possibly even Contango. Here's what has happened over the past 6 weeks:



UPDATE: Graph updated with data as of 10:00am EST on May 19th to show significant *contango*

A few quick definitions: Backwardation is when prices in the future are lower than in the present. Contago is the reverse, where future prices are higher than in the present.

Normally, oil markets are in backwardation. It is conventional wisdom that oil markets will always return to backwardation for several reasons:

- The Hotelling Rule, e.g. the expectation that improved technology will lead to ever lower extraction costs (which, of course, Peak Oil theory rejects, and in fact argues for the opposite)
- The vicious cycle theory (.pdf): when backwardation reaches zero, there is no incentive to hold inventory of oil, which then causes inventory to decrease, which then causes spot prices to rise, resulting in increased backwardation
- There is no incentive to fix current prices at today's price, because the time-value-of-money would actually result in you paying more than today's price for oil (which only makes sense if you accept that Peak Oil will likely lead to dramatically higher prices in the future)
- Arbitrage (discussed below)

Is contango even possible in oil markets? The conventional wisdom is no, at least not over a sustained period of time. The theory behind this is that if oil is selling for more two years in the future than it is today, then producers will use arbitrage. They'll buy a front-month oil future, sell a distant-month oil future, pocket the difference, take delivery of the front month oil and store it for delivery at the later date. This prevents oil in the future for selling for any more than the cost of storage of oil until that date, and when time-value-of-money is accounted for, that usually requires that future oil sell for less than spot oil.

Contango could exist if a few circumstances were met: present rate of oil production would need to be effectively fixed, there would need to be a consensus that future rate of production will be lower and that demand will remain highly inelastic, and there must be some impediment to storing today's oil to sell in the future. If all three of these came to pass, then the oil markets could be in significant contango and arbitrage would not be able to remedy the situation. Of course, it seems unlikely that these things (specifically the inability to store oil) will come to pass unless through some kind of political or regulatory move, but it is possible.

Because backwardation is the norm, and contango seems unlikely, I think it is highly significant that oil has gone from very large backwardation to nearly zero backwardation over just the last 6 weeks. It seems consistent to me with an emergence of Peak Oil awareness in the markets that led the market to the rejection of every reason for "normal backwardation" listed above except arbitrage (which can only maintain backwardation equal to the difference between storage cost and time-value-of-money).

It's common for backwardation to decrease rapidly in an environment of declining spot prices, but to my knowledge there has never been a decrease in backwardation as dramatic as we've seen in the past weeks in an environment of rising spot prices. I think it's something that requires explanation, and a growing acceptance of peak oil by the markets seems like the most valid explanation. And for that reason, I think the recent decrease in backwardation is, itself, an indicator of exactly that dawning awareness...