

Crude Oil Inventories: Stop Counting!

Here's a little mind game to get things going. How long should a 90-day strategic reserve last? The answer – and thanks for participating in today's quiz – is anything but 90 days. The most likely course of action is the reserve will be valued at its replacement cost, almost assuredly higher than the current price, and therefore be rationed rather restrictively, either by the market or by government intervention.

This is why statements such as "...63 days of consumption..." are so useful in identifying financial interlopers into the world of commodities. The same people who persist in treating stocks and bonds as GDP futures appear hell-bent on treating commodity futures as inventory scorecards.

Even worse, many of these same newbies have brought their bad habits of instantly capitalizing to the extreme every single economic datum with them. How else can we explain the waving of hands, ululations, and firing of machine guns into the air with the weekly release of petroleum and natural gas storage data? Adults should act like adults, not like bond traders.

There are times when the structure of a market demands inventories be built or reduced. The higher or lower inventories are financial assets acquired and shed in response to the forward curve of crude oil. To assume out of context rising inventories must mean an overhang of supply that necessitates lower prices for the market to clear may be quite wrong. Let's see what is going on here and why.

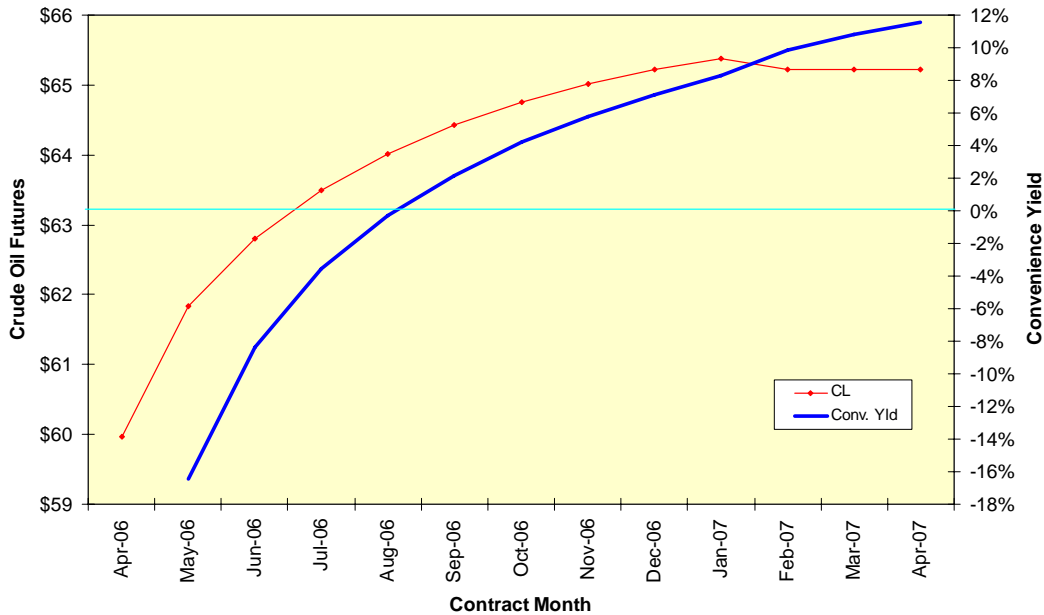
Contango And Inventories

Futures markets are priced on the principle of equivalence. In a perfectly balanced market, you should be indifferent between buying a physical commodity now and storing it yourself for later consumption and buying it for future delivery and letting someone else pay for the storage costs. This idyllic situation, also known as full carry, seldom applies in practice. The world's stackers of wheat and butchers of hogs, not to mention its smelters of copper and refiners of crude oil, cannot afford to run out of inventories and therefore pay for the "convenience" of having excess supplies available.

This number, dubbed "convenience yield," can be viewed as the commodity buyer's insurance payment for supplies. It also represents the producer's cost of hedging by selling forward in the futures market. For commodities such as crude oil and copper where the cheapest place of storage is with the producer, the convenience yield measure could be quite high.

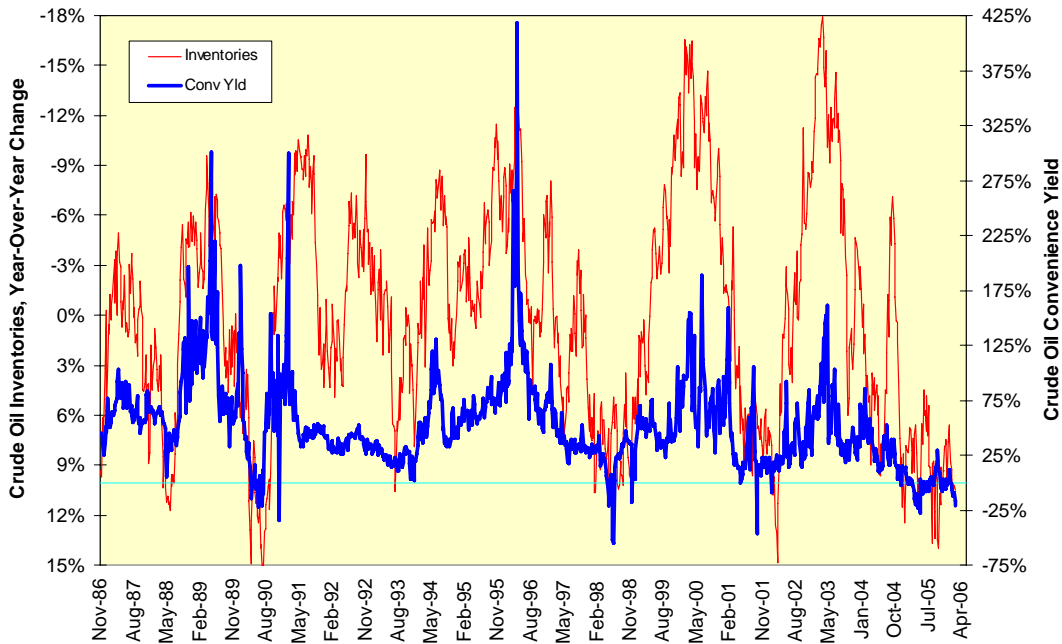
At present, the crude oil market's forward curve is in contango, a situation characterized by negative convenience yield. Negative convenience yield means *negative insurance costs* for refiners, which in turn means they can buy crude oil, pay for all of its storage costs and hedge it by selling the next month's future. Even better, they can make a profit on the transaction and in a topic I will mention and drop quickly, realize an embedded call option on their hedged commodity in storage. Not bad for a day's work, is it?

NYMEX Forward Curve And Convenience Yield
March 10, 2006



The chart above gives us a snapshot of crude oil convenience yield at the close of business on Friday, March 10. Let's calculate historic convenience yields and see whether inventory builds respond to them as expected. As convenience yields rise, as they did during 1989, the Persian Gulf War, 1996, 2000 and 2003, inventories plunged relative to year-ago levels. When convenience yields turned negative, as they did in 1990, 1998, 2001 and recently, inventories grew. It is simply a case of refiners responding rationally to the forward curve of the crude oil futures market.

Convenience Yield And Inventory Changes



We could push the scales even further toward the inventory-builders by noting they can hedge both their purchase price of crude oil and the refinery's economics simultaneously by selling "crack spreads," the slate of refined product futures instead of crude oil futures. As refining capacity is scarce worldwide, these spreads have been high.

Why The High Prices?

The question then arises if there is plenty of crude oil available and sooner or later storage capacity will be exhausted, then why are prices still hovering in the \$60-65 range? Let's turn to our old friends, the [long-only commodity index funds](#). As discussed here last [April](#), the forward curve of crude oil has been distorted by the willingness and ability of these funds to hold and roll long positions regardless of market fundamentals.

How does this work? Let's say the Bombastic Bowtie Fund has a long position of 5,000 May 2006 crude oil futures; this means other players have to have a sum total of 5,000 short positions in May as an offset. They hedge themselves by buying long positions in another month, say June. They know Bombastic Bowtie will be selling their May positions on the 5th-9th business days of April and buying June, so they have plenty of time to front-run the BB Fund by selling June and buying July.

The end of the game is the BB Fund, which encouraged its investors to believe they would be able to harvest endless streams of positive convenience yield by selling May at a premium to June, *ad infinitum*, now has to sell May at a discount to June. These hot commodities impresarios are now losing more than \$1.00 per barrel per month in what they were laughing was supposed to be an easy fleecing of the rubes.

Never play poker with a guy named Doc.

The long-only funds thus have pulled off the neat little trifecta of pushing back month prices higher, distorting crude oil's normal backwardation into contango and virtually mandating the building of crude oil inventories in a capacity-constrained refining system. To paraphrase Churchill, never before have so few ruined so much for so many.

Does this mean you should go out and sell crude oil? No, not at all: Prices reflect replacement costs, and one of the least pleasant ways to spend a morning is wondering how you are going to cover a short position in a news market filled with buyers. It just means watch the price and the forward curves carefully, and turn the TV off when they start talking about crude oil inventories.