Bob Levin considers the relative value of crude oil between North America and Europe

An average spread between the nearest common month to delivery contracts for Brent futures prices and West Texas Intermediate (WTI) futures of $10.77 per barrel during Q1 2010 has impacted how some analyse the market. It has also impacted how some characterise the market, including various *ex cathedra* pronouncements about *benchmarks*. During Q1 2010, however, the *market* asserted its indifference to pronouncements, as it has previously done. We can learn from this indifference or, at least try.

Changing Relative Values

Since 2005 (and even starting before that), there have been significant changes that have impacted the relative value of crude oil between North America and Europe. North Sea oil production has declined significantly while production has increased in

the USA and Canada. From 2005 to 2010, US and Canadian net imports decreased by 3.35 million barrels per day while European (non-Eurasia) imports increased by 300,000 barrels per day. All other things equal, the relative value between oil priced in the USA decreased versus oil priced in the North Sea; and the price of WTI and Brent futures have reflected these relative changes.

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But when prices started to reflect these changes, not everyone embraced the change as natural; some came up with other explanations that, when examined further, were shown groundless. For instance, in spring 2007, the US oil market suffered an exogenous shock from unplanned refinery outages; storage of oil at Cushing, Oklahoma reached a record level. WTI temporarily priced below Brent. Some commentators responded to this by claiming that storage tanks in the Midcontinent were full and this was causing a price disconnection between Brent and WTI. This was wrong on three important counts. First, storage tanks were not full (including in Cushing); second, the Midcontinent market was (and is) much bigger than Cushing – more than 3.2 million barrels per day refined during this period. And third, during this period, crude oil flows from the US Gulf to the US Midwest were above 1.6 million barrels per day, a tangible indication of the connectedness of the US Midcontinent and waterborne markets.

During Q1 2009, storage levels at Cushing reached new highs (capacity had increased), the WTI-Brent spread widened and WTI's first and second nearby contracts reflected an especially large contango. Once again, there were allegations of WTI 'disconnecting'. The release of 'final' stock levels for the remainder of the Organisation for Economic Co-operation and Development (OECD) countries three months later revealed that European petroleum stock levels during Q1 2009, relative to consumption, may have been the highest ever. During this period, prompt (*Dated*) Brent versus *Forward* (as published by *Platts*) was backwardated about one-third of the time, an unintuitive response to record-breaking stocks; to disconnect from that was a sign of health. (Meanwhile, crude oil flows from the US Gulf to the US Midwest were slightly less than 1.2 million barrels per day.)[1]

With the expanded spread during Q1 2011, allegations have returned; but what has happened in the oil market?

- Crude oil production in the US Midwest increased by more than 150,000 barrels per day in January from a year earlier.
- During January, 1 million barrels of crude oil per day flowed from the US Gulf to the Midwest.
- Midwest refinery utilisation was down and stocks have steadily grown since mid-February (more so than Cushing). Gulf Coast stocks increased but notably less than the previous two years. Refinery utilisation has been increasing since mid-February.[2]
- Rest of OECD: come back mid-May for preliminary; mid-July for final.[3]

What has happened with the use of 'benchmarks?'

- Average open-interest in NYMEX WTI futures increased by 171,529 from December 2010 to March 2011. (Open-interest is the measure of positions committed to a particular contract)
- Average open-interest in NYMEX WTI options increased by 766,975 from December 2010 to March 2011.
- Comparable open-interest for Brent futures decreased from December 2010 to March 2011; options increased by over 180,000.[4]

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Inferences About Oil Market and Benchmarks

1. Be careful in making inferences.
2. *Some* important evidence supports that increased oil production from onshore US and Canada has displaced US Gulf oil in the Midcontinent but there are some additional questions. There was a documented reduction of 600,000 barrels per day of crude oil between Q2 2007 and January 2011; but 1 million remained. It seems more could be displaced. Can onshore producers be expected to knowingly continue to commit production to an average discount versus the US Gulf of $10.77 per barrel?
3. Market participants are sophisticated at adapting to volatile differentials in crude oil prices. Throughout March 2011, more than 10 billion barrels of oil denominated in 'benchmarks' were subject to hedging or diversification on organised exchanges every day. For some market participants, the risks being managed are linear and relatively straightforward. But, for many of the thousands of

1 All of the production, consumption, refining, stocks and crude oil flow data in this section are from the U.S. Energy Information Administration (EIA).
2 All of these US data are from the EIA.
3 In fairness to IEA, their preliminary national production data significantly trail US national data but are released at about the same time as US regional data. They do not seem to release anything comparable to the data for crude oil flows between regions. Their inventory and refinery data are not available on a weekly basis and trail the release of U.S. data by months.
4 NYMEX open-interest from www.cmegroup.com; Brent open-interest from www.theice.com.

professionals who manage these commitments, the profiles of their risks and opportunities are heavily non-linear and asymmetric. It is no surprise that the events of Q1 2011 resulted in an increased commitment overall of over 900 million barrels in NYMEX WTI alone.

4. Even in the midst of the tumultuous Q1 2011 world oil market, the relationship between WTI and Brent futures prices holds surprises regarding its strength. Many are accustomed to the historical correlation between daily price-changes for these instruments that is above 90 percent. During Q1 2011 it fell to 72.44 percent. But that is still higher than the relationship between Brent futures and Dated Brent, which was under 71 percent, only a little lower than historically. For those of the mindset to label, should this render Dated Brent 'disconnected'?
5. The US government provides significant fundamental market information within three business days (and extensive other market information two months after the fact) at both the national and regional level, including the Midwest and US Gulf Coast regions. Armed with this level of detailed information, traders of US oil are the best informed in the world and US oil prices embody the most robust reflection of fundamental market content of any in the world.

Conclusion

The US oil market continues to undergo significant investment and development both for increased production and improved and enhanced infrastructure. As changes in supply unfold, changes in distribution and the distribution system follow. These are an integral part of the fundamentals that seasoned market participants take for granted. Related to the topic at hand, this means two likely things. One, the change in relative values between US prices and North Sea prices will continue its long-term trend as the USA displaces more imports. And two, additional outlets for Midcontinent oil will emerge and relieve pressure on the spread between the US Gulf and Midwest.

As for the relationship with the Brents, Futures and Dated, that is and will continue to be influenced by the structural differences in the 'benchmarks'. WTI is firmly rooted in physical delivery and physical fundamentals and it benefits from the reliable stream of fundamental data, weekly and otherwise, issued publicly by the US government. The Brents are structured such that, in practice, they need not be strongly tethered to physical supply and demand – and typically are not tethered. And there is no public dissemination of any fundamental data corresponding to either. Accordingly, even after Midcontinent oil begins to displace US foreign imports by directly flowing to the US Gulf, these 'benchmarks' may continue to disagree.