

Oil Price Benchmarks in International Trade

JORGE MONTEPEQUE traces Brent's leap as a core world energy benchmark

Dated Brent emerged last year as the clear leader among global crude oil benchmarks amid a background of challenges and shifts in the world crude markets. As a benchmark, Dated Brent experienced a global sweep in industry use in 2011 from Australasia to South America, following a dramatic and damaging period of price disconnect by US West Texas Intermediate and similar issues with the Asia Pacific Price Index (APPI), a secondary pricing system.

Physical Brent matured as the core world indicator of value, stemming from its strong underlying North Sea base and its ability to reflect the power of arbitrage from Russia and Central Asia to Asia and the Americas. Dated Brent also ratified its position as the global marker of crude due to its response to geopolitics. The price of Dated Brent rises in times of crude shortness, or perceived constraints, due to political issues and falls when those supply issues have dissipated.

While challenges and evolution in crude pricing systems will continue as the flows of oil and the logistics change, Dated Brent is better positioned than its competitors as its price formation is in an open market environment and free of logistical, legal or political constraints.

The global crude pricing system has largely consolidated into three key core benchmarks, namely Dated Brent, WTI and Dubai. Each of the three is trans-regional in nature, but historically, the breakdown is as follows – Dubai for the Middle East for sales into Asia, WTI for North and South American sales and Dated Brent's core regions of Europe, Mediterranean, Africa and Russia, although expanding as far as Australia.

There have been other pockets of pricing, chiefly Asia Pacific Price Index, which shifted into disuse in Malaysia, Indonesia and other Asia Pacific countries following a period of disconnect. The multi-year effort by the Dubai Mercantile Exchange to broaden the appeal of its Oman futures contract beyond the Dubai and Oman grades has found little support, and less than 1 million b/d of physical crude prices against the contract. By comparison the global oil market is roughly 87 mb/d.

If pricing were physical edifice, both Dubai and WTI would be two supporting blocks playing junior roles to a mature and senior world pricing system linked to physical Brent.

While Brent sits at the summit among commodities benchmarks, Dubai, the crude benchmark for the Middle East and Asia, also grew in use in 2011, notably with its adoption for Russia's sale of ESPO crude out of the port of Kozmino. ESPO is primarily priced using Dubai as the base, but a handful of cargoes have been sold linked to Dated Brent. Dubai's core territory is the Middle East and the ESPO pricing has demonstrated that any crude competing directly against Middle Eastern supplies will gravitate towards the same pricing base. Dubai physical partials trading grew by roughly 50 percent in 2011 versus 2010 as a reflection of more direct hedging by participants. Figure 1 shows the number of partials on a yearly basis. Each partial is for 25,000 bbls and each buyer or seller acquires the obligation of taking delivery or delivering a physical cargo after completing trading of 19 partials with the same counterparty.

While both Brent and Dubai grew in acceptance, the situation was very different in the Americas. In the tripartite price system, the US light sweet crude benchmark, known as 'WTI' by the oil trading industry, has emerged from an *annus horribilis*, playing a much diminished but still important role in futures pricing

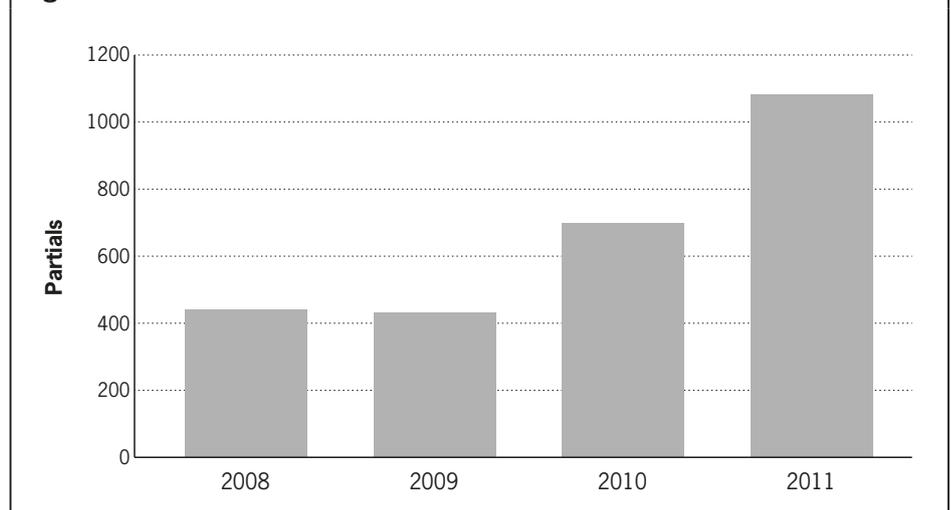
as logistics played havoc on its reliability as a representation of market value – not just as a world indicator but also as a barometer of value on its home turf.

Crude oil market participants are continuously reviewing pricing systems, with producers typically taking the lead in changing the pricing basis if they feel the results are not matching expectations. Saudi Arabia, for instance, switched away from WTI as the US benchmark narrowly reflected market conditions in the Cushing area and failed to move in line with conditions in the US Gulf, the largest concentrated refining centre in the world.

With the USA as the world's leading crude importer, benchmark WTI prices were historically a reflection of international prices plus freight costs, but the disconnect between Dated Brent and WTI has become increasingly unpredictable and thus has undermined WTI's value as a reliable indicator. In 2011, WTI traded nearly \$5 below Brent at the start of the year and then fell to more than \$25 under Brent. This variability impacts hedges and the overall usefulness of WTI as a benchmark for pricing physical crude.

The land-locked delivery point of Cushing, Oklahoma meant WTI was a reflection of localised fundamentals which have seen huge changes in the USA, with extra production from Canada and the Midcontinent area. This led to significant oversupply of crude at

Figure 1: Dubai Partial's Annual Volumes



Cushing, while the existing infrastructure has only limited capacity to ship oil out of Cushing to locations where it is needed. The disconnect between WTI and Brent in futures or between WTI and physical Brent or other physical indicators sparked a debate on the relevance and accuracy of crude oil benchmarks. While both crude oils reflect a value based on the conditions where price is set, Dated Brent pricing is set under conditions where if the price is too high it attracts competing crudes. Conversely, if the price of Dated Brent is too low, it is shipped elsewhere. As an example, witness the December sales of North Sea crude oil to South Korea as the country lowered its import tax rate and Forties made sense as a crude input.

WTI, on the other hand, can fall significantly below the prices refiners pay in the Gulf as one of the pipelines connecting Cushing and the USGC is pointing in the wrong direction and other projects like TransCanada's Keystone XL pipeline are subject to extensive and almost dilatory regulatory scrutiny, as witnessed by the US State Department's rejection of TransCanada's cross-border permit in January 2012. This has also resulted in an obvious disconnect between WTI and Louisiana Light Sweet crude oil, another benchmark of value in the US Gulf Coast. Figure 2 shows the price disconnect between the two crudes where LLS has been trading on average at \$17/b (during 2011) over WTI and at some points near \$30/b over. The two crude oils are seen as fairly similar even though

WTI reflects a quality of 38–40 degrees API, and Light Louisiana Sweet a quality of 34–41 degrees, meaning that there is more uncertainty with the LLS delivered quality.

The discount of WTI to Brent and LLS has been narrowing in recent months, reflecting Conoco's sale of its 50 percent interest in the 410,000 b/d Seaway pipeline, which connects the US Gulf Coast to Cushing, OK, to Enterprise. Enterprise intends to reverse the line by the second quarter of 2012 with 150,000 b/d initially available, and finished capacity of the reversed line at 400,000 b/d by early 2013. The company announced in January that it had set June as the month for the pipeline reversal. This is seen as theoretically narrowing the spread or even returning it to 'normal' territory. The initial market reaction to the definitive announcement on the reversal has been somewhat disappointing as on the same date the spread between Brent and WTI actually widened. Other projects to relieve the oversupply situation for WTI at Cushing have also been proposed, including the now 'on-hold' Keystone XL project (Cushing Marketlink – 500,000 b/d to the US Gulf Coast) and Enterprise/Enbridge's 800,000 b/d proposed Wrangler project. The disconnect of WTI has been exceptionally volatile and therefore users of the index in crude sales have increasingly found it less useful as both a benchmark to price crude oils or as a tool to hedge the exposure.

Another factor undermining WTI's

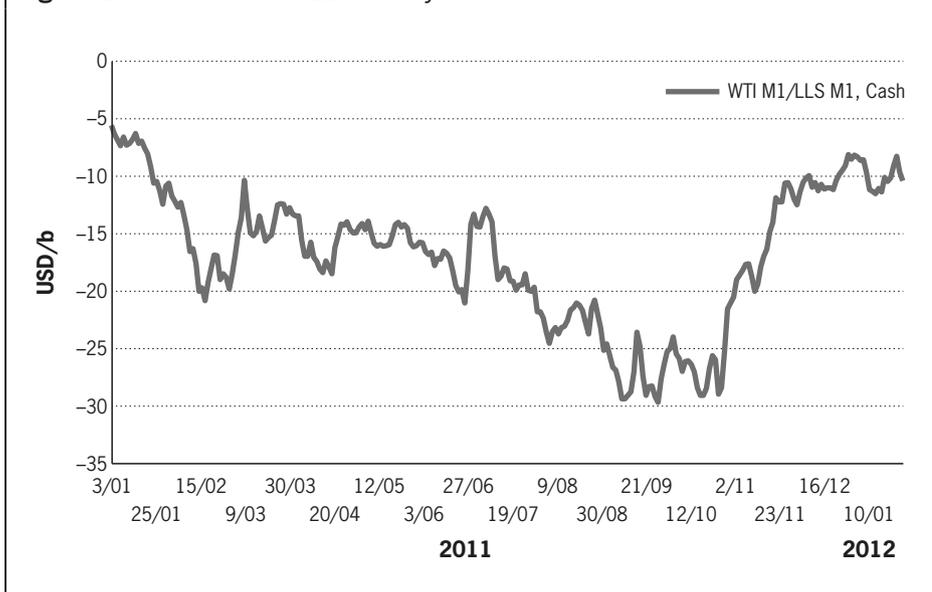
relevance is its steep contango structure relative to Brent. Contango is defined as a forward curve structure where prompt prices are at a discount to forward prices. This makes the US benchmark less attractive as an investment tool than Brent as the monthly roll of investment vehicles (such as the GSCI) lead to a consumption of the capital, as the fund would sell maturing positions at a discount to those positions it would need to buy for the next month to roll the position forward.

The main problem is that a similar position in Brent would lead to a lower consumption of the capital in the roll due to the statistical occurrence of a larger contango in WTI than in Brent. As an observation, the average value of NYMEX WTI M1/M2 spread in the past three years was minus \$1.00/b, while that in ICE Brent was minus \$0.28/b.

In the past few months, two large indexes, the GSCI and the UBS/DJ index both announced a reduction in the weighting of WTI in their indices and a growth in the weight of Brent as follows: On 11 October 2011, UBS/DJ announced the rebalancing of the index with WTI's weight going down from 14.7 to 9.68 percent and Brent entering the index for the first time, with a weighting of 5.31 percent. Previously, the WTI contract accounted for the entire crude oil component of the Dow Jones-UBS Commodity Index. Brent now accounts for one-third of the index's crude-oil component, while WTI accounts for the rest, Dow Jones Indexes said. And on 4 November 2011, GSCI announced the rebalancing of its index, with WTI sliding from 32.53 to 30.25 percent, and Brent moving up to 17.35 percent from 15.93 percent. The weights in the index are based on trading volume, and Brent, through its futures contract on the IntercontinentalExchange, saw a surge last year relative to NYMEX WTI.

Several companies have also announced rather publicly their displeasure with WTI as a hedging tool because they felt the impact on their bottom line as WTI ceased to work as a proxy for the commodities they were hedging. Some of the world's largest airlines including Delta and Southwest moved their jet fuel hedges away from the US crude benchmark and were quoted by the Financial Times early in 2011 as saying: 'WTI, which is the instrument that many of us hedge in

Figure 2: WTI Minus Cash LLS Nearby Month



this market, has dislocated from Brent in terms of pricing,' Southwest Airlines said it was paring back its hedging process due to the non-correlation and was quoted by the FT saying: 'Like other North American carriers hedged with WTI, [we] are presently concerned with the current disconnect between WTI and Brent.'

In a typical hedge, an entity would buy or 'price in' a position on outright price, and sell an equal but opposite position on a flat price basis against the price intake. The hedge works perfectly if there is no basis risk, and the commodities rise and fall in unison or are very closely aligned.

WTI has a great advantage in its enormous liquidity as the senior futures contract, but its general connectivity with refined products has been under question since 2010. Hedgers expect a correlation in market prices and if WTI fails to keep pace with global trends the usefulness declines. This lack of synchronicity became grave as global crude prices diverged at the start of the Arab Spring in 2011. The Libyan uprising reduced global oil production, with roughly 1.5 mb/d of light sweet crude oil production left in the ground. Crude oil prices naturally rose and markets moved into backwardation, with light products such as gasoline and heating oil rising.

However the behaviour was altogether different on the other side of the Atlantic as WTI failed to respond. Through a natural process of arbitrage, a price rise in one area of the world is rapidly transferred to another, as either exports cease from the area that is facing an initial rise in price and thereby affect prices elsewhere, or the high-price region attracts imports from elsewhere. The price of US crude fell relative to Brent or any other major crude oil. So, anyone who hedged against a potentially adverse price movement by buying WTI hedges bought an insurance that turned out to be ineffectual and often exaggerated losses. This situation was exacerbated by the natural practice of hedgers of looking for markets with deep liquidity such as WTI futures.

The core problem in the WTI oversupply situation has been the bottleneck at the Cushing, Oklahoma area due to the lack of pipelines to carry the crude to other markets. The aforementioned reversal of the 410,000 b/d Seaway pipeline is seen as providing a boost to the long-term viability of the benchmark, but the line

is not expected to reach its pre-reversal capacity level until sometime in 2013.

As previously mentioned, President Obama and the US State Department have sent TransCanada's Keystone XL pipeline effort back to the drawing board. The economic pressure and the potential for arbitrage is so large at present – bottled-up crude is trading roughly at a \$10 discount to where it would trade if a Cushing-to-USGC pipeline were operating. One would expect a new and improved proposal to come back on Keystone XL fairly soon, if not right after the November elections. But in the meantime, the market must move on, and the market will efficiently find alternative solutions. North Dakota's Bakken crude oil is moving by train to markets in the US east coast at a cost of \$10–12/b, due to the lack of infrastructure. Trains are notoriously slow and less efficient than movements by pipeline.

For those wishing to trade crude futures or hedge pricing exposure in crude oil, the market offers other alternatives such as swaps or the relatively liquid Intercontinental Exchange. But ICE Brent futures is still junior to WTI futures in volume terms, although the gap is closing in at times. The liquidity in both exchanges has been expanding very rapidly in recent years. Daily volumes have reached over 1.5 billion barrels of trade in both exchanges. While volume on both exchanges has been on a general uptrend – with the occasional concerns that growth will be affected by either regulation or trade financing issues – it has been growing at different rates on both sides of the Atlantic with Brent closing in on the heels of WTI. On several occasions, the Intercontinental Exchange has noted, the volume actually inverted as Brent futures traded more than WTI. Figure 3 shows the spread between the two crude futures contracts' trading volumes on a monthly average basis. The narrowing of the volume is particularly evident from the second half of 2011. And at the end of January 2012, open interest in Brent futures reached 1.0 billion barrels.

The change in the futures volume trend has several explanations, with the recent change in the weighting of the major commodity indices expected potentially to narrow the spread further in 2012, although sources say one of the core reasons so far has been the rising

popularity of Dated Brent as a physical benchmark globally.

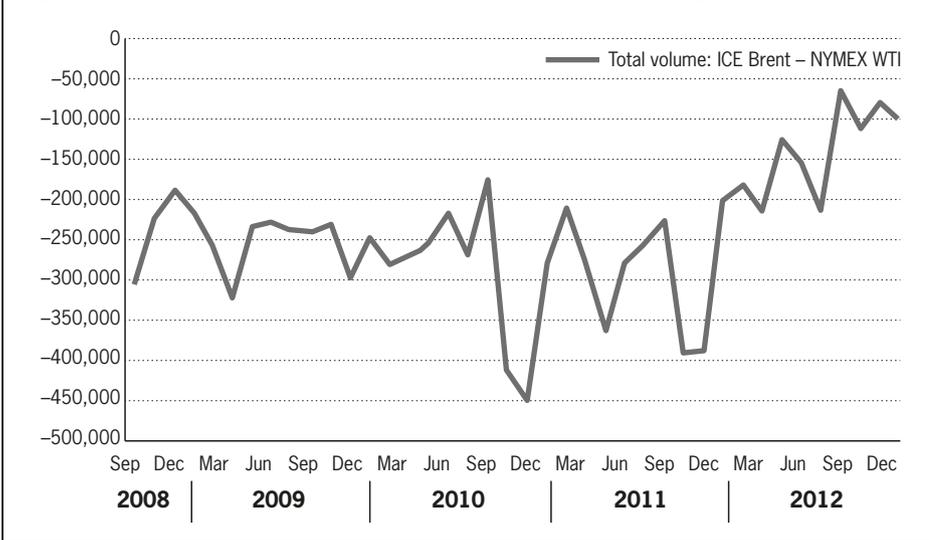
In the past year, Malaysia adopted Dated Brent as its core benchmark for all of its crude production, including its flagship Tapis Blend. This was significant as Tapis itself has previously filled the role of regional light sweet benchmark, powering the APPI index system that was widely used in Indonesia, Australia and Vietnam among others.

Petronas, Malaysia's state oil company, also had experience of pricing its crude for spot sales using a variety of other benchmarks, including Dated Brent and WTI. After careful study, Petronas decided to adopt Dated Brent as its sole benchmark for pricing in 2011. This adoption of Dated Brent was seen as a ringing endorsement by many regional market players as the change was implemented following extensive consultation with its numerous customers and trading partners across Asia.

Prior to the headline event by Petronas last year, other producers had already made the shift, with several Australian producers switching from APPI to Dated Brent as they had quantified deviations in the APPI benchmark that were unpalatable. By the start of 2012, virtually all Australian crude and condensate was pricing against Dated Brent. The switch continued to gather speed with Papua New Guinea, Philippines and Vietnam also shifting more streams to a Dated Brent-related pricing basis.

At the core, the switch to Dated Brent in Asia is easily understood. These producers analysed market behaviour and concluded that Dated Brent typically reflected global market fundamentals and reacted to wider price-moving events such as production losses or geopolitical upheaval. Other benchmarks, such as WTI, would react to supply and demand on a more micro-regional basis and as a result would lose their correlation to world events.

The impact of Dated Brent has been felt in the natural home territory of WTI, the Americas, with crude oil market participants pricing more cargoes related to Brent when offered or sold into US markets. Marketers offering crudes in the USA would acquire imported cargoes on a Dated Brent basis, and if offered on a WTI basis, the basis differentials for the transaction would be governed by

Figure 3: Total Volume: NYMEX WTI-ICE Brent, Monthly Averages, Contracts/day

the Brent/WTI spread rather than just against WTI, as was the case in prior years. For instance, North Dakota's sales of Bakken crude into the US Northeast have been done against Brent rather than WTI in some cases.

South American crude sales to the USA, which were previously tied in to WTI, started to stray with Colombia and Ecuador offering cargoes on a Dated Brent related basis. Brazil, the ever-expanding production giant, has also moved more crude on a Brent related basis.

The lesson is clear – pricing benchmarks may be challenged by logistical, regulatory, geopolitical or geological conditions, but if they fail to adapt quickly, their usefulness ebbs away. While the market offers numerous sophisticated instruments, the core stakeholders of the commodity depend on the physical production and a convergence between

the price of the physical and the general world market. If the price is believed to be disconnected from global market conditions, the usefulness of the benchmark diminishes. Another required element in any pricing benchmark is the convergence between the financial instruments, such as futures, and the physical market.

Dated Brent has found success as a global crude oil benchmark. Pressure continues to build on some producers using mechanisms such as Bwave (a weighted average derived from Brent futures) to switch, with refiners concluding that it is easier to hedge exposure against Dated Brent due to the fact that the assessments reflect a rolling forward period rather than a particular one-month period. This difference may appear insignificant from afar – in the world of crude oil benchmarks, only Dated Brent reflects a forward time period with specific dates

that moves forward one day at a time. This process ensures that a rise or fall in prices is a function of supply and demand, and not a function of a monthly roll.

The Dated Brent market is not without its challenges, and the need to evolve and adapt to changing market conditions is ever present. Platts has worked closely with the industry to implement a change in the forward dates reflected in its assessment process, expanding the assessment window to 10–25 days forward rather than the previous 10–21 days. The adjustment to the date range was in recognition of prevailing market practice, as the industry typically buys and sells cargoes further in the future as a response to declining production and the need for the refiners to schedule their crude oil intake in advance.

The change was full of technicalities as it required a change in the contractual practice, changes in the industry's General Terms & Conditions, and also led to both ICE and the CME launching futures contracts reflecting the new 25-day pricing system.

The change was formally proposed in June 2011 with an implementation date of 6 January 2012. All the technicalities, contractual and trading practices prevailing in the physical Brent market fully incorporated the change, with plans currently underway to further reset the dated period to a full month ahead rather than the current 25-day end point by January 2015. The driver for these market practice changes continues to be a desire in the industry to buy and sell crude cargoes further in advance and the pricing systems will adapt to these changes. ■