Brent changes promise stability

The recent change in Platts' definition of Brent crude oil follows much debate about the price assessment of North Sea Brent crude. Software vendor Logical Information Machines takes a historic view in a search for the reasons behind the move

As of July 10, 2002, energy information provider Platts broadened its definition of Brent crude oil to include market activity in Forties (Norwegian) and Oseberg (UK North Sea) crude in its assessment of dated Brent. The firm says the new assessment will reflect broader fundamentals prevailing in the North Sea crude oil market. The physical Brent assessment date range will be amended from the current 7–15 days to 10–21 days from the publication date.

The changes are aimed at reducing instability in the Brent price market. Oseberg and Forties are a similar or slightly better quality than Brent and usually trade at a slight premium to the Brent benchmark. The most important benefit they bring is their production volume. Combining Brent, Forties and Oseberg in the price assessment increases the number of cargoes each month to nearly 100, quadrupling the amount of crude available. At a single stroke, this makes price squeezes far less likely, because it will be so much more difficult to 'corner' 100 cargoes from three different production streams, as we will discuss later.

And, because Forties and Oseberg are typically higher in price than Brent, their influence is also likely to place a 'cap' on rising Brent prices (see figure 1).

But what is the background to the decision to alter the definition?

North Sea Brent is probably the most widely traded physical market for crude oil in the world. Equity partners who own production barrels of Brent crude sell their allocations by the cargo – typically 500,000 barrels – to each other, to other refiners or to traders, for loading at the Sullom Voe terminal in Shetland in the UK, enroute to European refineries or possibly across the Atlantic, if arbitrage permits.

Over the past 20 years, a complex market structure has arisen around Brent sales. The most significant development for the oil industry is that nearly all physical oil sold outside the Americas is priced using North Sea Brent as a benchmark. Buyers and sellers of physical crude use the reference to Brent prices, specifically to so-called 'dated' Brent – cargoes with loading dates during the next 15 days allocated to them – to ensure the price of their transactions are fair and reflective of a transparent market.

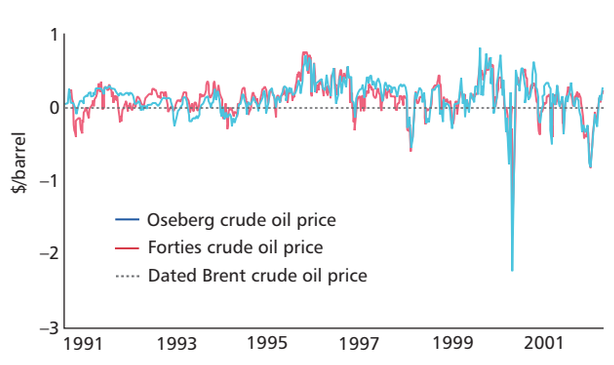
For example, most African and Middle East crude production destined for Europe is priced under the terms of a contract that refers to a formula price based on dated Brent published prices from Platts, during a period around the time of delivery of crude to the customer. The system keeps the buyer and seller content that prices are current at the time of delivery. Any differences in crude quality between the seller's crude and Brent are handled using an adjustment factor in the pricing formula. The table shows price correlations between dated Brent and other European crudes.

Increasing demand

In part because of the popularity of Brent pricing formulas and the perceived liquidity of the Brent market, demand for physical cargoes of Brent increased, and market reporters such as Platts reflected this by making daily assessments of transactions in dated Brent as well as forward or paper markets for up to three months into the future. In the forward markets, players trade possession of the paper rights to what become allocated cargoes of dated Brent.

In addition, since 1989, a Brent futures market developed on the International Petroleum Exchange (IPE) in London, based on the

Figure 1: **Oseberg and Forties crude v. dated Brent**



Source: Platts

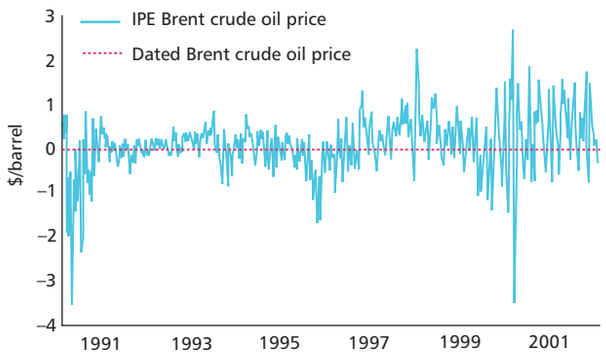
Forties and Oseberg crude are typically higher in price than Brent dated crude.

Correlations between dated Brent and European crude

Crude oil	Origin	Correlation
Es Sider	Libya	1.000
Suez	Egypt	0.995
Escravos	Nigeria	0.998
Ekofisk	North Sea	0.995
Ural Rotterdam	Khazakstan	0.997
Kirkuk	Iraq	0.995
Cabinda	Angola	0.996
Iran Light SK	Iran	0.986

Correlations between dated Brent prices and various European crude oil grades since 1990. The correlation calculations are based on one-day price movements, using data from Platts, and indicate how closely these crude prices track dated Brent.

Figure 2: **IPE Brent futures v. dated Brent price spread**



Source: Platts, IPE

The spread between the closest available futures contract on the IPE and the dated Brent price used in crude price formulas is very volatile.

underlying Brent physical price. The IPE trades Brent for delivery out to 2005 and offers a cash-settlement mechanism based on an index of reported assessments of the physical market. Various over-the-counter (OTC) markets have also developed to provide price risk management for Brent, loading as close as two weeks away and as far forward as 10 years.

Hence, the complex Brent market is a mixture of trading in physical barrels and trading in forward or futures contracts, which allows market participants to manage their exposure to the Brent price that ends up as the major component of the formula price they pay for crude oil.

Over the years, several factors have increased the complexity and risk associated with the Brent market and go some way towards explaining the recent Platts changes in pricing.

For one thing, the IPE Brent futures contract has never provided a very satisfactory hedging mechanism for traders or refiners who are long or short dated Brent. This is because of a mismatch between prices for the nearest available Brent futures contract – generally at least a month away – and the price of dated Brent, which loads in 7–15 days (see figure 2).

And the forward market for Brent paper cargoes does not provide hedgers with much relief, in part because of the likelihood of a market phenomena known as a squeeze. Squeezes make the spread between dated Brent and front-month Brent very volatile, as is shown in figure 3.

A squeeze refers to a situation where a trader goes net long in the forward market by an amount that exceeds the number of physical Brent cargoes that can be loaded in the targeted month. In other words, one trader buys up all available Brent cargoes for a particular forward month, hoping to take advantage of players with commitments to deliver who will pay a premium price when they can't find a cargo. A successful squeeze increases the price of the Brent forward month relative to dated Brent.

For example, analysis of Platts price data using Logical Information Machines' XMIM query language tells us that on 23 occasions since 1989, the price of front-month Brent rose more than a dollar against the price of dated Brent. Two weeks later, 82% of the time the price of front-month Brent had fallen back again by an average of 50 cents a barrel. With cargo sizes of 500,000 barrels, we are talking about the same commodity, loaded a few days later, costing half a million dollars more.

Why do squeezes occur in the Brent market? One reason is the temptation of speculative traders over the years to corner the market in a particular commodity. Relatively speaking, the Brent market represents an easy target, because of the limited physical supply of Brent cargoes that need to be accumulated to apply the squeeze.

When North Sea Brent crude production was at it height in the 1980s, more than 50 cargoes of Brent a month were being loaded at Sullom Voe. In recent months, that total has been reduced to less than 20 cargoes by the depletion of Brent system production. The fewer the number of cargoes, the easier it is to exert upward price pressure.

Contracts for differences

Ironically, one development that resulted directly from price uncertainty between dated Brent and the forward and future markets could well have encouraged speculative players. In the early 1990s, a new Brent trading instrument emerged in the OTC markets – the Brent contract for differences, (CFD). Brent CFDs are essentially swaps – financial contracts providing locked-in price differentials between dated Brent and forward Brent deliveries in return for payment of an insurance premium.

However, while CFDs provide reassurance for players exposed to the volatile Brent market, they also provide speculators with an ideal mechanism for hedging their exposure to dated and forward Brent while building up their positions. This makes the squeeze play less risky and potentially more attractive.

So Platt's aim of reducing volatility and squeezing through the proposed changes clearly has a firm historical basis.

Yet industry debate about the changes continues. The reactions of the major oil firms involved in Brent production has sparked a lively debate, with BP in favour of the new mechanism – partly because it has Forties production as well as Brent – while Royal Dutch/Shell Group and the IPE have been more cautious (see *EPRM* September 2002, page S4).

If the changes work out well, one thing is certain – a less volatile Brent forward market will make the lives of oil price risk managers more straightforward than it has been in the past by removing the shadow of speculative trading from the physical market. EPRM

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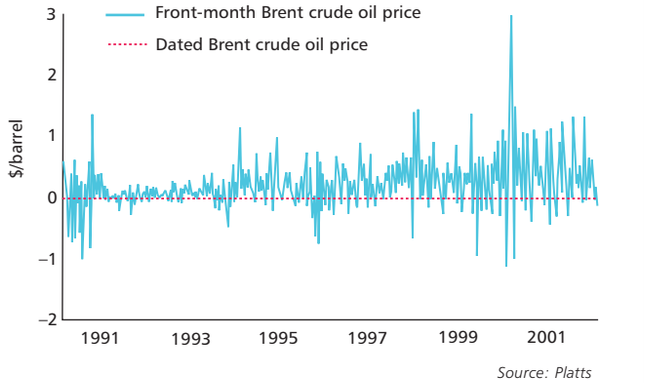
Figure 3: **Front-month Brent v. dated Brent price spread**



Source: Platts

The spread between prices for dated cargoes of Brent loading 7–15 days forward and cargoes loading one month forward is also volatile.