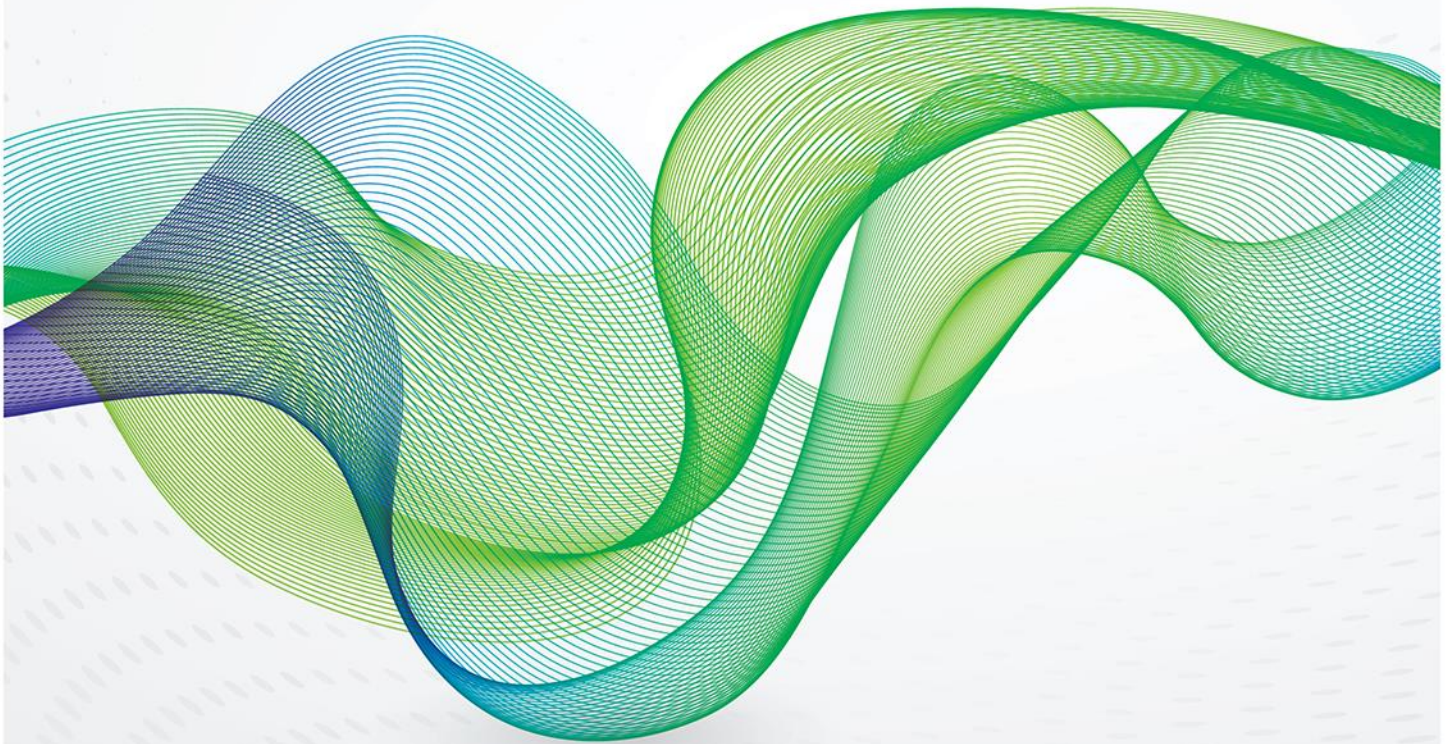




THE OXFORD
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Contracts for Difference and the Evolution of the Brent Complex



1. Introduction

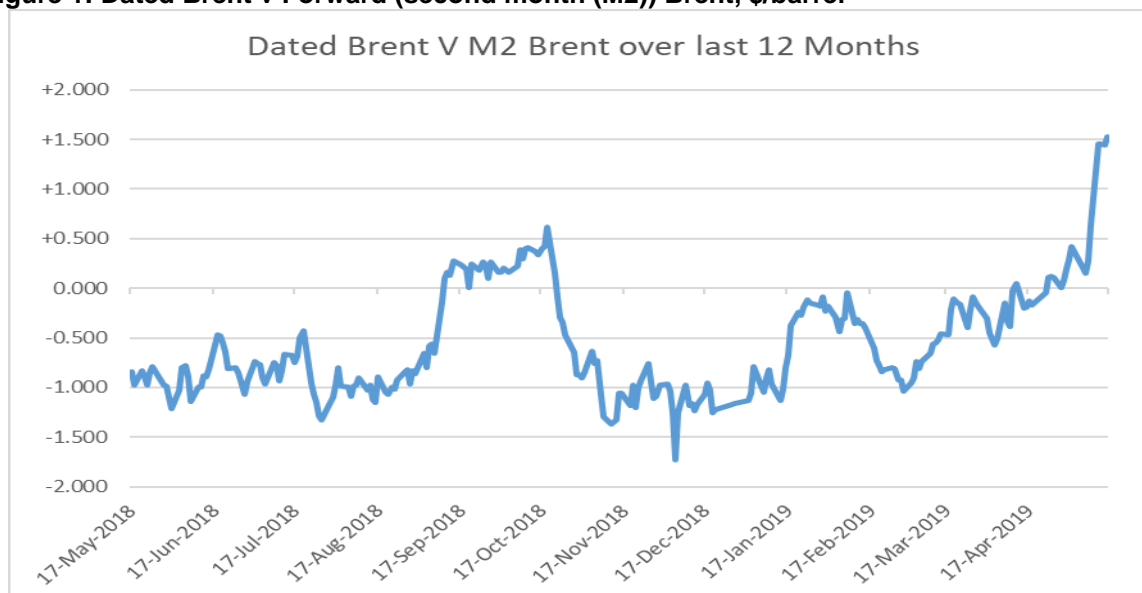
The sharp increase in US shale production since 2011 has resulted in structural shifts in regional and global oil trade flows. In turn, these are having a major impact on oil benchmarks inside and outside the US. Brent, the major benchmark for international oil trade, is likely to be impacted the most.¹ While the volume of US crude delivered to Europe has been rising since the US lifted the ban on crude exports in 2016, production of North Sea oil grades deliverable into the Brent basket has been falling for some time. The Brent complex must adapt to these transformations or risk its position being undermined, but changing an established benchmark with manifold layers is not a straightforward process and would require changes to the various layers in the Brent complex and their interrelationships.

This comment examines a key layer of the Brent system: Contracts for Difference or CFD. CFDs have been trading since the early 1990s. They have not only survived the test of time but have become an essential component of the Brent complex.² Nowadays, CFDs provide the vital link between Forward Brent and Dated Brent. They play a key role in the price discovery process and the assessment of Dated Brent, a key reference price used in term contracts. CFDs are also an essential tool for hedging and speculation and are commonly used by market participants to manage risk.

2. CFDs at the Heart of the Brent System

A CFD is essentially a bet that the spread between two Brent prices, the Dated Brent and the Forward Brent, will be greater or smaller than some agreed amount over an agreed period. Dated Brent (which reflects crude oil to be delivered in the short term, over the period 10 days to one month ahead)³ and Forward Brent (which reflects crude oil to be delivered further forward in time, up to four months ahead) are two key components of the Brent complex. This spread is highly volatile as can be seen in Figure 1 and can easily swing by more than a couple of dollars per barrel in a relatively short period of time. Therefore, it is important to hedge it.

Figure 1: Dated Brent v Forward (second month (M2)) Brent, \$/barrel



Source: Authors using Argus data

¹ This paper is an extension of the recent OIES paper, Imsirovic, A. (2019), Changes to the 'Dated Brent' benchmark: More to come', March, Oxford: OIES.

² B. Fattouh (2010) 'An Anatomy of the Crude Oil Pricing System', OIES Paper WPM 40.

³ The delivery period starts at 10 days after the day of assessment and ends on the same day the following month. For instance, if today is August 3, the assessment will be over the period 13 August and 13 September.

The key attributes of a CFD Brent swap are: the price differential between the two swaps, the volume, and the pricing period.⁴ The price differential between the two legs of the swap reflects the time structure of the market. When Dated Brent is above the forward price, the market is in backwardation. When Dated Brent is below the forward price, the market is in contango. Therefore, a CFD is essentially a bet on the time structure of 'physical' Brent. The bet is normally settled ten days after the last day of pricing of the swaps. Originally, the swaps were traded primarily using Stasco GT&Cs.⁵ Nowadays, virtually all CFD trades are cleared on one of the two major exchanges, CME and ICE. The CFD contract is generally priced using Platts assessments for Dated and Forward Brent, such as those presented in Table 1 below.

Market participants make bets on the spread depending on their expectations and the level of risk arising from their physical activity. For instance, if the market is in contango (Dated Brent is trading below Forward Brent) and the trader believes that Dated Brent will fall further relative to Forward Brent i.e. the contango will widen, a CFD could be sold. If the bet turns out to be correct and the contango does widen, the trader would have made a profit. For instance, in Table 1 below, on August 3, the CFD for 3–7 September was \$-1.07 below November Forward Brent. If a trader sells a CFD on 3 August and, if during the week 3–7 September, the CFD averages \$-2.00 (i.e. the market has gone into deeper contango), the CFD seller will make a profit of \$0.97/barrel. If, instead, the market has gone into a weaker contango say \$-0.57, the CFD seller makes a loss of \$0.50/barrel. Generally, a seller of the CFD makes profits when the spread becomes more negative (i.e. the market goes into deeper contango) or if the spread becomes less positive (i.e. if the market becomes less backwardated).

Table 1: Platts Assessed Prices as of August 3, 2018, \$/Barrel

Dated Brent	72.44	
Brent (October)	73.42	
Brent (November)	73.72	
Brent (December)	73.84	
CFD (Week 1) Nov	Aug 6-10	-1.5
CFD (Week 2) Nov	Aug 13-17	-1.28
CFD (Week 3) Nov	Aug 20-24	-1.07
CFD (Week 4) Nov	Aug 27-31	-1.07
CFD (Week 5) Nov	Sep 3-7	-1.07
CFD (Week 6) Nov	Sep 10-14	-1.01
CFD (Week 7) Nov	Sep 17-21	-0.96
CFD (Week 8) Nov	Sep 24-28	-0.92

Source: S&P Global Platts, Crude Oil Market Wire, Vol. 39, Issue 152, August 3, 2018

CFDs have become highly standardised and generally trade over a five-day working week (there is more liquidity for such pricing) in volumes of 100 lots or 100,000 barrels. But CFDs do not have to price over an exact working week, and if done over-the-counter (OTC) any period (calendar month trades are not unusual) and any volume (market-makers can offer exact volume to match a physical cargo) can be agreed.

CFDs and Price Discovery

By establishing the link between the *Forward Brent* and *Forward Dated Brent*, CFDs provide key information to buyers, sellers and Price Reporting Agencies (PRAs). Perhaps this is better clarified using an example. For instance, on 3 August 2018, Forward Brent was assessed for the months of October (often referred to as Front Month, or M1), November (Second Month, or M2) and December

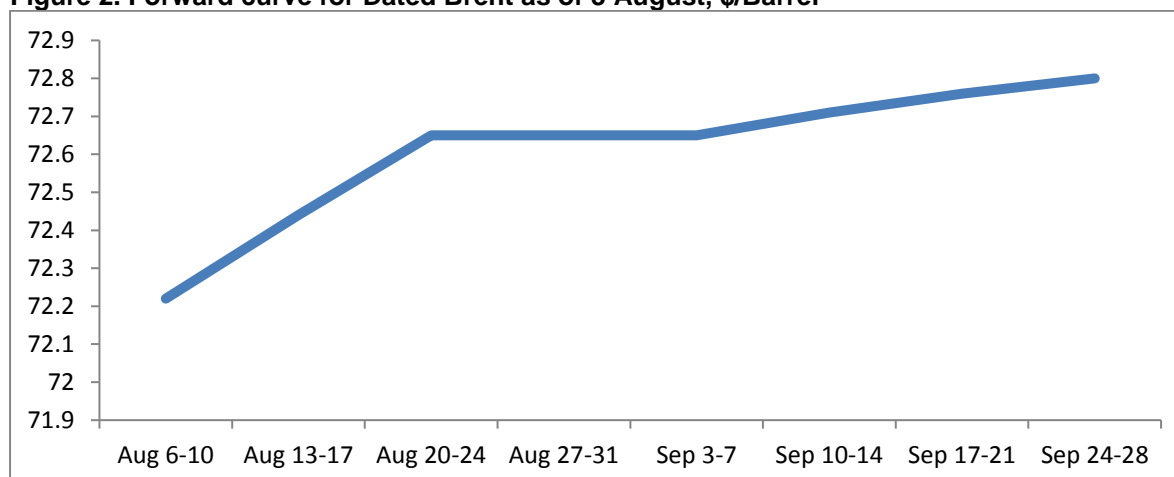
⁴ There are other terms such as credit etc. but these are not included.

⁵ Shell Trading and Supply Company General Terms and Conditions.

(Third Month, or M3) - CFDs are assessed over 8 weeks ahead⁶ - and in this example, this spans the months of August and September. CFDs are often assessed in relation to the second month (i.e. November in our example), especially when the front Forward Brent month approaches expiry.⁷ Using the information from Table 1, Dated Brent price was assessed at \$72.44, at a discount of \$0.98 relative to October Brent (\$73.42) and at a discount of \$1.28 relative to November Brent (\$73.84).⁸ Platts usually assesses the value of Forward Brent and CFDs based on the activity (bids, offers, concluded deals) in the Platts Market on Close assessment process, also known as the 'MOC', or 'window'. For Forward Brent, this could be done on the basis of full cargoes (600,000 barrels) or partials (100,000 barrels), which could be converted to a physical cargo if one party accumulates enough partials with the same counterparty.

For physical players, the information in Table 1 is vital. For instance, let's assume a North Sea producer knows that a cargo will become available in September. The producer does not know the exact loading date, which can be any 3 day window in the month of September (1–3 September or 28–30 September) or any 3 day range in between. On 3 August, the Brent producer or a physical trader would like to establish the value of the cargo to be loaded in September but also in relation to what is being traded in August. To do so, they could derive that information from CFDs and Forward Brent. Using the information from the CFDs in Table 1 and the November Forward Brent, the trader can calculate the value of the cargo for the months of August and September. For instance, the value of the cargo delivered between 27–31 August is \$72.65, which is the sum of November Brent (\$73.72) and the value of CFD in that week (\$-1.07) and that between 7–21 September is \$72.76 (\$73.72-\$0.96) and so on. Based on this information, on 3 August, it is possible to calculate the **Forward Dated Brent** curve for the 8 weeks ahead as seen in Figure 2.

Figure 2. Forward curve for Dated Brent as of 3 August, \$/Barrel



Source: Authors' calculations based on the data in Table 1.

CFDs and Benchmarking

The Forward Dated Brent curve allows for a wide range of crudes to be priced off this single benchmark. PRAs such as Platts report a wide variety of price differentials (for instance, Urals, West African crudes, North Sea crudes) vis-à-vis the Forward Dated Brent (Argus refers to this as Anticipated North Sea Dated). This allows the refineries to compare the relative value of the different crudes and assess which crudes are being valued competitively relative to a single benchmark. In fact, it could be argued that CFDs developed from a need to convert an outright Forward⁹ Brent price

⁶ The CFD curve rolls every Thursday as the CFD is no longer deemed sufficiently liquid. For instance, 3 August 2018 was a Friday so the first CFD week assessed was 6–10 August. On 9 August 2018 (which was a Thursday), the first CFD week assessed was 13–17 August and so on.

⁷ On the last day of the month

⁸ Swaps are usually calculated to three decimal points, then rounded to two decimal places.

⁹ Brent forward trading started as a tax optimisation tool for oil producers in 1980s. Standard reference is R. Mabro and P. Horsnell: Oil Markets and Prices, The Brent market and the Formation of World Oil Prices, OUP/OIES 1993. See also, B. Fattouh (2010) 'An Anatomy of the Crude Oil Pricing System', OIES Paper WPM 40.

into a Dated Brent price plus a differential (and vice versa). In the 1980s, most of the Forward Brent contracts were traded on an outright price basis. As alternative grades of oil used Dated Brent pricing around the Bill of Lading¹⁰ as a reference price (normally a five-day period taken two days before loading date and two days after the loading date), there was a need to value them using a common denominator.

CFDs and the Assessment Dated Brent

In the 1990s, as CFDs took off, so did the popularity of pricing crudes off Dated Brent. This created a major problem for the PRAs. If Brent itself is trading based on PRAs assessment of Brent, how do they assess it?¹¹ It was obvious that there was only one way left for PRAs to do it - using the Forward Dated Brent curve. If two cargoes trade at Dated Brent price, one loading 27–31 August and the other 3–7 September, the former cargo is worth less per barrel (November- \$1.07 versus November-\$1.01). The PRA would then assess the Dated value at the average of the two.

More specifically, the Forward Dated Brent allows PRAs such as Platts and Argus to calculate the price of Dated Brent (Platts) or North Sea Dated (Argus) on any given day. Without the CFD market, there would be no Dated Brent assessment as we currently know it. The assessment process involves four key elements:

- The fixed price of the forward physical 'Brent' contract.
- A forward curve based on the CFD market.
- Quality differentials on crudes other than Brent or Forties.
- Physical assessment of Brent, Forties, Oseberg, Ekofisk and Troll (BFOET) grades.

The assessment of the outright price starts in the forward market, through the trade of Brent 'cash partials'. Then, based on the values of CFDs, Platts calculates the Forward Dated Brent (as explained above). Using this curve, the value of oil with different loading dates is brought back to a common denominator (against forward Brent). Platts then assesses the differentials of a wide variety of crudes relative to the Forward Dated Brent. Based on these assessed differentials, Platts then calculates the fixed price of these crudes, based on which it derives Dated Brent.¹² The Brent benchmark has evolved over the years to become a basket of crudes, which currently consists of Brent, Forties, Oseberg, Ekofisk and Troll (known as BFOET) and it is the most competitive crude on the day that sets the price for the entire basket. This is often Forties (which has higher levels of sulfur than the rest of the crudes in the basket) and therefore the Forward Dated Brent reflects the value of forward Forties on most days. All the crudes in the basket, including Forties, are traded as differentials to the Forward Dated Brent.

Using CFDs for Hedging Purposes

The CFD is a key instrument for producers and refineries to hedge their risk. To show how, we will use a simple example. Assume that today is 19 March and the Brent producer¹³ has been given a loading date of 19–23 April.¹⁴ For simplicity, we assume that the producer has agreed to sell the cargo on the basis of Dated Brent, pricing five days average, around the loading date.¹⁵ On 19 March, the Brent producer can calculate the value of the cargo to be delivered 21–23 April by looking at the forward market (June Brent or June BFOET) and the value of the CFD for the week 21–23 April. On

¹⁰ Document confirming the completion of loading given by the ship master to the consignee of the cargo which includes all the relevant loading details.

¹¹ PRAs are often blamed for many difficulties involved with assessing the benchmark. In this case, it is the industry that forced the PRAs to find indirect routes to assessing Brent. If the industry participants traded it on 'fixed price' or forward Brent basis, this type of assessment would not have existed.

¹² Forties de-escalator may be applied, and quality premiums are applied.

¹³ The seller of the above Brent cargo may not be a producer. It could be a trader, simply buying it fixed price from a producer and then selling it to a refiner on Dated basis. The trader would do the same calculation (and hedging), likely adding a bit of profit to it to account for the work and risk involved.

¹⁴ In reality, the seller is usually offered a 3-day window to load their cargo, but for simplicity we assume here that the seller is given the entire 5-day window.

¹⁵ The example does not account for the costs resulting from the bid/ offer spread, brokerage fees, cost of capital etc.

19 March, June Brent was trading at \$79.53/barrel and the value of the CFD for the week 19–23 April was June-\$0.57/barrel. Therefore, the value of Dated Brent on 19 March for delivery 19–23 April was \$78.96 (\$79.53-\$0.57). Now the seller would like to hedge the risk and fix the price at that point in time. The Brent producer can fix the price of the cargo by:

1. Selling the June Brent contract (or June BFOET) at **\$79.53**
2. Selling a CFD at the quoted value of June-**\$0.57**.¹⁶ By selling a CFD, the trader is ‘betting’ that Dated will be -\$0.57 or lower relative to June Brent in April. If it turns out to be lower, the difference will be collected. If it does not, a payment must be made to the buyer of the CFD. By doing so, the differential of ‘-\$0.57 is ‘locked’ in.

To show that this hedge is effective, let’s move forward to April. In April, the CFDs and Brent have realized the values in Table 2 below. To unwind (1) i.e. the sale of June Brent, the trader buys June Brent.¹⁷ The average price of a Brent contract in 19–23 April was **\$84.84** i.e. the seller made a loss on their position of \$5.31 (sold contract at the cheaper price of \$79.53 and bought it at the more expensive price of \$84.84). To unwind (2), payments need to be exchanged. The seller did bet that Dated in relation to forward would be -\$0.57 or lower but in April the contango narrowed to -\$0.14 and the difference has to be paid (\$0.43). So, although the seller has obtained more for selling the cargo in the physical market (the average of Dated Brent between 19 April and 23 April was \$84.71), they lost on their CFD and Forward position (\$5.31+\$0.43) and thus got \$78.97 i.e. the price fixed on the cargo on 19 March 19.¹⁸

Table 2: A Fictional Example of a CFD Valuation, \$/Barrel

Date	June Brent	CFD	Dated Brent
19-Apr	83.53	-0.34	83.19
20-Apr	84.86	-0.12	84.74
21-Apr	84.62	-0.15	84.47
22-Apr	84.78	-0.14	84.64
23-Apr	86.43	0.06	86.49
Average	84.84	-0.14	84.71

Source: Authors’ calculations

The ‘Price Makers’

Most markets consist of price ‘makers’ and price ‘takers’. Oil markets are no different. We used a Platts database of all the CFDs and Brent ‘partials’¹⁹ deals, done in their price assessment ‘window’²⁰ between the beginning of 2016 and 16 May 2019. The Argus database examined was roughly consistent with this. Forward Brent trades represent the second leg of the CFD swaps. CFDs trade

¹⁶ Since CFDs are a differential between two Brent swaps, when traded on their own, they do not offer protection against flat price movements. When used in hedging, they offer protection for the differential between a flat price hedge (forward Brent) and Dated Brent, which can still be substantial.

¹⁷ This is done ratably (1/5th of the volume of the cargo, each day, at the same time at which CFD is pricing, i.e. 4.30 London time) during the week.

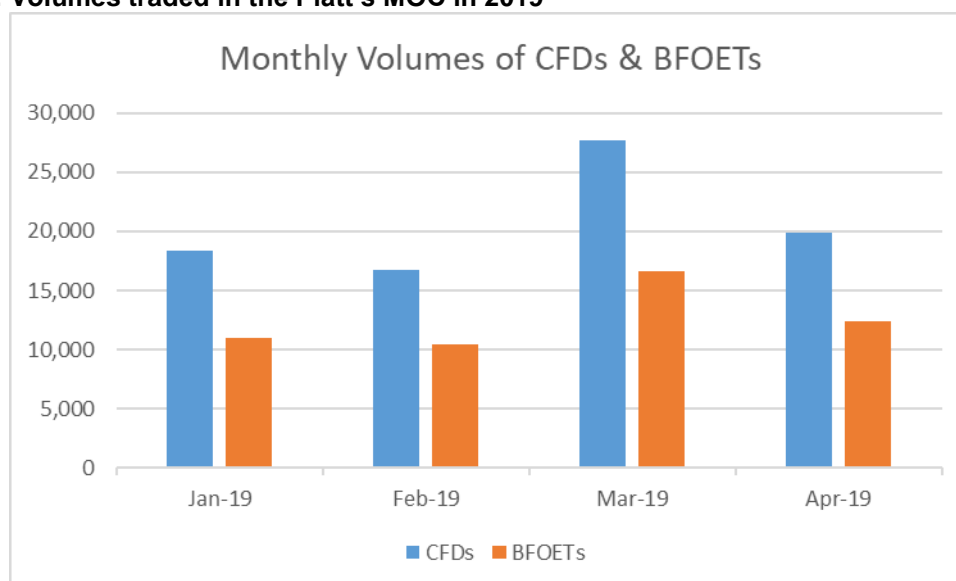
¹⁸ Note that all the transactions must cancel out: purchase and sale of physical oil, purchase and sale of hedge (August Brent in this case) and actual Dated (floating) pricing and CFD. Net volumetric and profit/ loss positions are zero.

¹⁹ In the Platts and Argus assessment process (‘window’), Both CFDs and BFOET ‘partials’ (partial cargoes of oil deliverable into the Brent contract) trade in 100,000-barrel lots or 1/6 of the full physical cargo.

²⁰ Between 16.00 and 16.30 hours London time.

roughly twice as much as Brent ‘partials’ (see Figure 3 below). In 2019, CFD trades have averaged about 20 million barrels, compared to about 12 million barrels of Brent partials.

Figure 3: Volumes traded in the Platt’s MOC in 2019



Source: Authors calculations using Platts database.

The trades are concentrated in the hands of only a few major players. As can be seen from Table 3 below, the top five players account for over 50 per cent of all CFD trades. In Brent ‘partials’ trades, the number is closer to 60 per cent. Vitol and Gunvor are consistently the top players overall for both instruments. BP is far more active in CFD trades while Shell is by far the biggest player in Brent partials. Mercuria is a sizeable trader in both instruments. CFDs are traded by a wider range of players, with the ‘other’ players accounting for over 30 per cent of all trades. The data seem to indicate that there is a group of ‘price makers’ in both CFDs and Brent ‘partial’ instruments. While CFDs trade in large volume outside the pricing ‘window’, it is these ‘window’ trades that are used for assessing the value of Dated Brent.

Table 3. Trading activity in the Platt’s ‘window’ by participant

RANK	BFOET		RANK	CFDs	
1	Shell International Trading and Shipping Com	16.47%	1	Vitol SA	11.83%
2	Vitol SA	11.62%	2	Gunvor SA	11.04%
3	Glencore Commodities Ltd.	10.01%	3	BP Oil International	9.99%
4	Gunvor SA	10.57%	4	Mercuria Energy Trading SA	9.86%
5	Hartree Partners, LP	9.80%	5	Shell International Trading and Shipping C	8.19%
6	Mercuria Energy Trading SA	9.37%	6	China Oil & Petroineos	8.59%
7	SOCAR Trading UK Limited	8.94%	7	Statoil ASA	7.67%
	ther	23.24%		other	32.84%
	Total	100.00%		Total	100.00%

Source: Authors calculations using Platts database.

Linking Directly to Futures

The above table shows that there are a limited number of players involved in trading forward Brent. Most ‘price takers’ would like to avoid the risk of large physical deliveries and prefer to use futures markets such as Brent futures instead. This leaves them exposed to the risk between the futures and forward prices, which is known as the ‘Exchange of Futures for Physicals’ or EFPs. While EFPs trade regularly and their value is a known quantity, their value does not always converge in the pricing

window and could be higher or lower. This ‘basis risk’ is a very important issue when discussing the efficiency of the Brent pricing complex. In other words, the companies that are not involved in trading Forward Brent do not trade EFPs. Therefore, they cannot hedge this risk. They are forced to ‘take’ whatever price has been established by the ‘price makers’, which may be different from the Brent futures price.

One option is to trade a different sort of CFD. It could be a differential between Dated Brent and a futures marker²¹ such as the Brent futures. The industry has developed one such instrument the ‘Dated to Front Line’ or DFL spread. This is a differential between a monthly Dated Brent swap and the first month²² futures settlements. Originally, the instrument was developed by Morgan Stanley, a bank, to provide refineries with hedges for their margins without getting involved in the Forward Brent market.²³ DFLs are widely traded and provide a tool for establishing and trading a forward curve far into the future.

A similar product exists for weekly pricing and is referred to as a ‘weekly DFL’.²⁴ They are priced in the same way as DFLs, but on a weekly basis. The important aspect of both instruments is that the Dated Brent leg is assessed by a PRA (usually Platts) at 16.30 London time and the futures leg at 19.30 London time. So, there is a flat price exposure aspect involved in trading them. The reason for this discrepancy goes back to our earlier point that CFDs usually cover only one (Dated Brent) aspect of hedging and the flat price is normally done in forwards or futures markets. Hedging in futures markets is very easily done by trading at settlement’ or TAS.²⁵

Despite establishing direct links from Dated Brent to the futures markets, CFDs and their link to forward markets remain key to the Brent system. This is because price ‘makers’ trade them and provide the bulk of the liquidity. In a casual survey of several brokers,²⁶ it appears that CFDs trade at least 20–30 times more than ‘weekly’ DFLs.

3. Possible Changes to the Benchmark and their Consequences

One of the potential consequences of the rise in US shale production, and the lifting of the export ban, is that increasing volumes of US crude are reaching Europe. This new dynamic along with the decline in North Sea production is forcing the industry to think of new ways to incorporate these transformations into the existing pricing system.

North Sea is primarily a FOB (Free on Board) market but a significant proportion of cargoes are sold on a CIF (Cost, Insurance and Freight) or delivered basis. Rather than simply widening the basket to include new grades, which has been one of the key remedies to declining physical production in recent years, PRAs have announced that they will include delivered cargoes to Rotterdam in their assessments. Earlier this year Platts announced it will include delivered Rotterdam offers of North Sea cargoes into its Dated Brent benchmark from 1st October 2019. Argus is already publishing its ‘New North Sea Dated’ assessment and is likely to adopt it as the official methodology behind its ‘North Sea Dated’ index pending market feedback.

The inclusion of delivered or CIF cargoes represents a fundamental change in the assessment process, but one which the industry seems to be willing to adopt without much resistance. Platts already accepts offers of oil based on Ship-to-Ship (STS) transfers at Scapa Flow in Scotland.²⁷ Platts also publishes a CIF Forward Dated Brent and North Sea crudes differentials vis-à-vis the CIF Forward Dated Brent and hence is able to derive the CIF Dated Brent. The fundamentals of the

²¹ Intercontinental Exchange have various markers including Brent close (or settlement) and a ‘1 minute’ Brent marker.

²² Except on the last day of the month and expiry of the contract when the second futures month is used.

²³ Product specifications can be found at: <https://www.theice.com/products/61989091/Crude-Diff-Daily-Dated-Brent-Platts-vs-Brent-2nd-Line-Future>

²⁴ The spread can be traded over any time frame. However, weekly and monthly deals are the norm.

²⁵ The daily settlement or ‘close’ of a futures contract. A TAS trade is facilitated by a very large liquidity and done with little or no basis risk on one of the exchanges. Brent TAS normally trades all day, well before the settlement and usually within \$0.01 range so there is virtually no hedging basis risk.

²⁶ Brokers asked to be anonymous. Estimates they provided ranged between 20:1 to 50:1 in favour of CFDs.

²⁷ <https://www.spglobal.com/platts/plattscontent/assets/files/en/our-methodology/methodology-specifications/emea-crude-methodology.pdf> page 5.

assessment process are the same: Based on the Forward Brent and CFDs, PRAs derive the CIF Forward Dated Brent curve. Then they apply the assessed physical differentials to the CIF Forward Dated Brent to calculate the price of the various grades in the basket and the most competitive crude in the basket determines the CIF Dated Brent. Converting CIF values to FOB values should be straightforward (basically PRAs need to adjust for the cost of transportation and align the assessment periods).

The more fundamental issue in our view is the potential impact of widening the basket to include non-North Sea grades delivered to Rotterdam for the assessment process. As discussed in a recent OIES study,²⁸ a key candidate from outside the North Sea is WTI delivered to Rotterdam. In fact, recent data from Argus, which has already adopted non-North Sea grades into its New North Sea dated basket, shows that on several days it is delivered WTI, rather than Forties, and that is the most competitive crude in the new basket and thus it is WTI that sets the value of New North Sea Dated.

If the 'Brent basket' were to expand to include non-North-Sea delivered grades such as WTI, would these grades have to be accepted in the Forward Brent contract? From a price assessment process, the answer is perhaps not. Non-North Sea grades can be assessed and the most competitive crude would set the price for the basket, though assessing the US crude WTI against Forward Dated Brent may seem odd as delivered WTI prices could be assessed more efficiently vis-à-vis established benchmarks such as WTI Houston. But from a hedging perspective, this change does create a fundamental problem. After all, a buyer or a seller of Forward Brent may well receive or deliver a cargo of WTI. As discussed in the hedging example above, in order for a trader to be able fix the price of their cargo and hedge their risk, they would need to sell Forward Brent and CFDs. However, if WTI cargoes could be delivered against the contract and there is no possibility to sell a forward contract on WTI, then it is not possible to hedge that risk on the days that WTI sets the price.

There is also a technical problem. While BFOET grades have established loading programmes, issued well before the loading window and including names of equity producers, laycan and cargo numbers, there is no such procedure available in WTI and especially not delivered WTI. Without it, the construction of 'Brent chains' is not possible.

The obvious choices are either not to include non-North Sea grades into the basket or change the forward market to include some sort of Forward WTI contract. To make such an arrangement work, the 'price makers' would need to accept the change.

Alternatively, refiners and producers ('price takers') could use the futures instead of forward Brent contracts to hedge their Dated Brent exposure. Essentially, they would be trading 'weekly' DFLs instead of CFDs. This is perfectly doable and would reduce their basis risk.²⁹ There are two problems however. Firstly, 'price makers' would need to provide liquidity. As explained, thus far, there is little liquidity in these instruments. More important is the issue of convergence of the physical and futures markets on the expiry of each Brent contract.³⁰ Currently, this convergence is done through the ICE Brent Index which:

*'... represents the average price of trading in the BFOE (Brent-Forties-Oseberg-Ekofisk) 'cash' or forward ('BFOE Cash') market in the relevant delivery month as reported and confirmed by industry media. Only published full cargo size (600,000 barrels) trades and assessments are taken into consideration in the calculation. The ICE Brent Index is published ... and used by the Exchange as the final cash settlement price.'*³¹

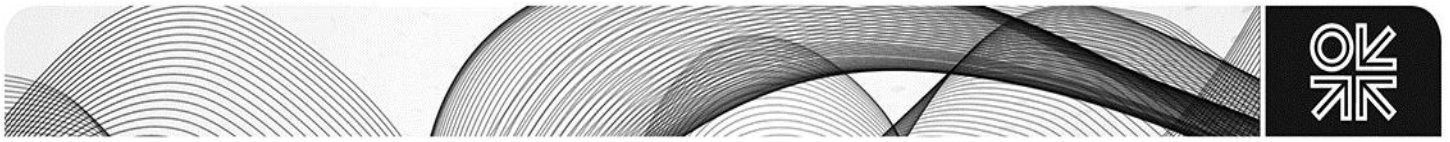
This index links the Brent futures and the physical market. It ensures that the fundamentals governing the physical market are translated into the futures contract. If a market participant is left with a long or short futures position, the index ensures that positions expire at the value at which physical oil is

²⁸ Imsirovic, A. (2019) 'Dated Brent' benchmark: More to come', OIES Energy Comment, Oxford: OIES.

²⁹ Some WTI exports are offered on ICE Brent pricing basis already. In the long run however, the problem remains unresolved as growing US exports would price against a shrinking Brent output.

³⁰ SUKO 1990 contract. For discussion and insight into this problem, we are grateful to Kurt Chapman.

³¹ <https://www.theice.com/futures-europe/brent> and https://www.theice.com/publicdocs/futures/ICE_Futures_Europe_Brent_Index.pdf



trading. In other words, without forward Brent, the futures markets may not serve their function properly.

It is possible that an alternative to Brent in the North Sea will eventually evolve and some sort of a FOB WTI benchmark will be established due to the sheer volumes of expected US oil exports to Europe and Asia. This could be based on WTI Houston, in which case there is no need to derive the outright price from the Forward Brent market.

However, it is hard to imagine this will happen anytime soon. In the short run, it is most likely that the impact of the delivered barrels will be on values of Dated Brent, and not Forward Brent. This may result in a wider divergence between Dated and Forward Brent which means that the role of CFDs is going to become even more important, if not critical, in linking the two markets and in assessing the value of Dated Brent.³²

4. Conclusion

This paper has re-visited the Brent CFD market and its workings. The Brent benchmark is perhaps the most complex and important commodity price in the world; CFDs are at the heart of it.

With falling North Sea production and increasing volumes of imported barrels into Europe, especially from the United States, there is a danger the contract may lose its relevance. The Brent benchmark is a great survivor and has evolved over time beyond recognition. New changes to the benchmark will be needed very soon. They are likely to involve new grades, some of them perhaps on a delivered basis.

Such changes will have a profound impact on the benchmark. They will affect the assessment of Dated Brent and therefore, CFD markets. The interconnected web referred to as the 'Brent complex' is likely to be affected. While it may be hard for the Brent 'price makers' to accept major changes to the forward Brent contract, some compromise may be needed to maintain the dominance of Brent as a global benchmark. Whatever the changes, the immediate impact is likely to be on CFDs. Their role in the Brent complex may be more important than ever.

³² For discussion and insights on this aspect, the authors are grateful to Kurt Chapman.