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The Dubai Benchmark and Its Role in the International Oil Pricing System

By Bassam Fattouh

INTRODUCTION

Dubai became the main price marker for the Gulf region by default in the mid 1980s, when it was one of the few Gulf crudes available for sale on the spot market. Also, until very recently, Dubai allowed oil companies to own equity in Dubai production – unlike other countries in the Gulf such as Iran, Kuwait, and Saudi Arabia. When the Dubai market first emerged, few trading companies participated in this market, with little volume of trading taking place. This, however, changed during the period 1985–7 when many Japanese trading houses and Wall Street refiners started entering the market. But the major impetus came in 1988 when key OPEC countries abandoned the administered pricing system and started pricing their crude export to Asia on the basis of Dubai crude. Over a short period of time, Dubai became responsible for pricing millions of barrels on a daily basis, and the Dubai market became known as the ‘Brent of the East’.¹

Despite the existence of other regional crudes with a much larger physical base, more than 25 years have now passed, and most cargoes from the Gulf destined for Asia are still priced against Dubai or Oman or a combination of these crudes. Nevertheless, the

¹ Horsnell, P. and R. Mabro (1993), *Oil Markets and Prices: The Brent Market and the Formation of World Oil Prices*, Oxford: Oxford University Press.

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nature of the Dubai benchmark has evolved and many of the institutional and pricing details have witnessed major transformations, driven in large part by the decline in Dubai's oil production and innovations in the pricing mechanisms introduced in the 2000s. Perhaps what remains from the 1980s pricing system is just the brand name 'Dubai'.

DECLINE IN PHYSICAL PRODUCTION AND THE PARTIALS SYSTEM

In the early stages of its development, the Dubai benchmark only included crude oil produced from Dubai's fields, but this was to change as Dubai's production started to decline rapidly. The volume of Dubai crude production has dropped from a peak of 400,000 b/d in the period 1990–95 to under 120,000 b/d in 2004, with production hovering around 90,000 b/d in 2009 – i.e. there are about six cargoes of Dubai available for trade in every month. The most recent available data indicate that Dubai's production may have fallen further to 60,000 b/d i.e. less than four cargoes a month. Thus, though Dubai cargoes may be offered sporadically for sale on the spot market, it rarely (if ever) does trade. The government's 2007 decision not to renew the oil concession to private oil companies also meant that Dubai no longer satisfied the ownership diversification criterion, which is considered by many analysts as a pre-condition for a successful benchmark. The low volumes of production and thin trading activity rendered the process of price discovery on the basis of physical transactions not feasible most of the time.

The decline in Dubai's oil output in the 1990s and 2000s has pushed Platts, the Price Reporting Agency (PRA), to search for alternatives to maintain the viability of Dubai as a global benchmark. In 2001, Platts allowed the delivery of Oman against Dubai contracts. In 2004, it introduced a mechanism known as the 'partials mechanism', which has the effect of slicing a Dubai or Oman cargo into small parcels that are traded on the Platts window. The smallest trading unit for the Dubai and Oman partial was set at 25,000 barrels. Since operators do not allow the sale of cargoes of that volume, it meant that a seller of a partial contract is not able to meet his contractual obligation. Thus, delivery only occurs if the buyer has been able to trade 19 partials



totaling 475,000 barrels with a single counterparty. Any traded amount less than 475,000 barrels is not deliverable and should be cash settled. Platts allows for the delivery of Omani crude oil or Upper Zakum against Dubai in the case of physical convergence of the contract. In a sense, Dubai has turned into a brand, or index, that represents a basket of mid-sour grades.

The bulk of cargoes from the Gulf destined for Asia are priced at the Platts assessment of Dubai–Oman. Assessment of the Dubai price is based on concluded deals of partials in the Platts window, failing that on bid and offers, and failing that on information from the swap markets surrounding Dubai. The Platts window can be thought of a structured system used for gathering information, on the basis of which Platts assesses the daily price of key physical benchmarks. The Dubai window is similar to an organized exchange or trading platform where traders make bids and offers and execute trade for partials, but with two major differences: (i) the parties behind the bids and offers are known, and (ii) Platts decides on the information to be considered in the assessment, i.e., the information passes through a Platts filter.

While the partials mechanism was introduced to alleviate the problem of declining liquidity, over time it revealed some drawbacks which raised key questions about the effectiveness of the price discovery process in Dubai. The following three features stand out:

Low Trading Liquidity. The shift to partials trading in 2004 initially produced encouraging results, increasing the volume of trading activity and hence improving the efficiency of price discovery, reducing the bid/offer spreads, and attracting new players to the market. However, in recent years, liquidity in the Platts Dubai window has declined to a point when only few deals are concluded during a month. In many days, there is no execution of partial Dubai. Since late 2008, in 50 per cent of trading days no Dubai partial trades were executed. For Oman partials, there are even fewer trades: For instance, between September 1, 2010 and December 31 2010, there was no trading on 93% of the days.²

² Leaver, T. (2011), 'DME and the Role of Oil Price Benchmarks', Presentation at the DIFC Oil Trade and Finance Conference, Dubai, 28th March 2011.



Trading activity is dominated by few players. Trading activity in the Platts partials is highly concentrated in the hands of few players, and in many days a small number of players dominates both sides of the trade or the bid/offer process. This has raised serious concerns that some traders, by investing in as little as a 25,000-barrel partial contract, can influence the pricing of millions of barrels traded every day. A counterargument is that market players monitor trading activity in the window very closely, and if these players believe that prices are being manipulated, they have the incentive to enter the window and exert their influence on the price. Critics, however, argue that barriers to entry can prevent such an adjustment mechanism from taking place.³

The Non-Participation of Key Oil Exporters. Despite Gulf exporters' massive physical base, which in principle should provide them with the power to play an influential role in signaling their price preference to the market, key oil exporters have avoided assuming this role and they currently do not participate in the Dubai window. Any signals to the market are often communicated through public announcements through OPEC or other forums. The transfer of the pricing discovery function to the Platts window helps oil exporters achieve a strategic objective: they do not want to be seen as setting or influencing oil prices directly. A common argument presented by key Gulf oil exporters is that it is the market that sets the oil price; oil exporters are simply passive players that use the PRAs' price assessments and plug these in their pricing formula. While convenient at times, this transfer of pricing power to few traders in the Platts window creates a sort of mistrust, especially at times when the Dubai price moves in unexpected and erratic ways, following heavy activity (sometimes by a single player) in the Dubai partials.

THE FINANCIAL LAYERS OF THE DUBAI BENCHMARK

Despite the relatively low physical base of Dubai and the thin trading activity in the Platts window, market players have retained confidence in such a system for a long

³ Binks, A. (2005), 'Middle East Crude Pricing: The Dubai Debate', Middle East Economic Survey, VOL. XLVIII, No 7, 14-February.



time. In my view, this can be attributed to two key factors: (i) the reluctance of key exporters to shift to an alternative pricing mechanism and (ii) the deep financial layers that have emerged around Dubai and which have linked Dubai to the highly liquid Brent complex. These financial layers compensate for the thin trading activity in the Platts window and provide the necessary information to identify the Dubai price.

Compared to Brent, fewer financial layers have emerged around Dubai. Attempts to launch Dubai futures contracts in London and Singapore were made in the early 1990s, but such attempts did not succeed. Instead, the informal forward Dubai market remained at the heart of the Dubai complex. Being a waterborne crude, Dubai shared many of the features of the forward Brent market, with some institutional differences such as the process of nomination, the announcement of the loading schedule, and the duration of the book-out process.

Currently the two most important financial layers surrounding the Dubai market are the highly active Brent/Dubai Exchange of Futures for Swaps (EFS) and the Dubai inter-month swaps markets. These instruments are traded over the counter (OTC). The Brent/Dubai EFS allows traders to convert their Dubai price exposure into a Brent price exposure, which is easier to manage given the high liquidity of the Brent complex. The Dubai inter-month swap reflects the price differential between two swaps and allows traders to hedge their position from one month to the next. Dubai inter-month swaps are actively traded in London and Singapore, and are central to the determination of the forward Dubai price. Unofficial sources indicate large trading volumes of total Dubai swaps (the swap leg of Brent/Dubai and the intermonth combined) reaching the range of 8000–10000 lots per day, of which around 55 per cent is cleared by ICE or CME. The participants in these markets are quite diverse. They include Asian refiners, banks (Merrill Lynch BoA, JP Morgan, Morgan Stanley, Société Generale), oil companies (BP, Shell), oil trading firms (Mercuria, Vitol), and Japanese firms (Mitsui, Sumitomo).

By linking the Dubai to the Brent complex, these markets have become central to identifying the Dubai price. This has raised some concerns as ‘calls to use swaps as pricing benchmarks for physicals are at best uninformed as swaps are derivatives of



the core physical instruments'.⁴ But this neglects the fact that liquidity in the Platts Dubai window is thin. In addition, the argument against using swaps is inconsistent with Platts' use of swaps (Contract for Differences, CFDs) in identifying the price of Dated Brent. It is also inconsistent with the fact that at times when no partials are trading, PRAs have no alternative but to use the financial layers to identify the Dubai price. Finally, the argument against swaps ignores the fact that the Platts window itself is some sort of a trading platform where financial instruments (i.e. partials) are traded and where physical delivery rarely takes place.

Therefore, in theory (and in practice to a large extent), the price of Dubai may be identified without resorting to any physical dimension or a window. It can be derived from the financial layers that have emerged around Dubai and Brent (for instance, Argus identifies the Dubai price on the basis of the EFS market). The Brent complex sets the oil price level while the EFS and the inter-month Dubai spread market set the price differentials against Brent. These differentials are in turn used to calculate a flat price for Dubai. In practice, this is how trades are often reported. For instance, strong Asian demand relative to Europe reduces Brent's premium to Dubai, causing the Brent/Dubai EFS to fall and encouraging traders to send crude from the Atlantic Basin to Asia. The adjustment in the price differential is reflected in a higher Dubai price level. In other words, the Dubai market is just an extension, or another layer, of the Brent complex. The Dubai partials window tries to give Dubai a sense of distinctiveness. In reality, it fails to do so, as the high liquidity of the OTC market dominates other sources of price discovery. At times when partials trading activity is thin, one should question whether Dubai's Platts window provides a more effective mechanism for price discovery than the OTC layers.

In addition to the OTC markets, another financial layer has recently emerged around Oman. In June 2007, the Dubai Mercantile Exchange (DME) launched the Oman Crude Oil Futures Contract to serve as a pricing benchmark for the Gulf region. Both Oman and Dubai use the DME futures contract for pricing their crude oil exports to Asia. However, these have been the exceptions so far. None of the big Gulf producers

⁴ Montepeque, J. (2005), 'Sour Crude Pricing: A Pressing Global Issue', Middle East Economic Survey, XLVIII(14), April.



such as Saudi Arabia, Abu Dhabi, Kuwait, Qatar, and Iran have yet made the shift. This raises the question of why other Middle Eastern producers have not been enthusiastic in shifting to the DME contract for pricing crude oil. It is certainly not because they are apprehensive about using futures prices in their pricing formula; many of these exporters already price their crude oil exports to Europe on the basis of BWAVE, an index calculated on the basis of prices obtained in the Brent futures market.

The DME management emphasizes the large volume of physical oil delivered against the Oman Crude Oil Futures Contract as a unique attribute and one which gives the contract a prominent role in price discovery in the East of Suez oil markets as it reflects a strong link of the futures market with the underlying physical market. In 2010 and 2011, volumes physically delivered averaged more than 12 million barrels per month. Based on Oman production figure of 860,000 b/d in 2010, this represents more than 46% of Oman's monthly production. This is in sharp contrast to other physically settled contracts such as the Light Sweet Crude Oil Contract: in 2010, less than 1% of traded futures contracts were delivered. Also in contrast with other benchmark contracts, the open interest on the DME contract increases as contract expiry approaches. This represents an important anomaly and indicates that the DME contract is mainly used as a means to access physical Oman crude oil: 'DME is more of a clearing agent for Omani crude rather than a viable price discovery platform'. While an efficient process of physical delivery is necessary for the success of a physically settled futures contract, it is not a sufficient condition. In fact, physical deliverability can reduce the chances of the success of a futures contract if market participants have doubts about the likely performance of the delivery mechanism or if physical bottlenecks around delivery points result in some serious dislocations.⁵ Furthermore, the dominance of key players in the production of the underlying crude and their control of the delivery mechanism can increase the risk of squeezes and manipulation and raise concerns about the possibility that some players could exercise 'pricing power'. Finally, low volumes of trading may reduce the attractiveness of a

⁵ So far, however, the extensive use of the DME's physical delivery mechanism demonstrates strong confidence in the delivery mechanism.



futures contract, as the risk facing traders to physically settle their contracts increases, especially for those financial players who are not interested in physical delivery.

Despite enjoying a strong growth in 2011, the liquidity of the DME contract remains relatively thin. In 2011, daily volumes averaged at 3505 contracts only. This volume is low compared to the more established crude oil futures contracts traded on the ICE and the CME group as well as compared to the derivatives markets surrounding Dubai. Recently, the CME launched new crude oil swap futures and option contracts in the hope of attracting more liquidity and a larger set of players into the DME. However, trading activity in these new instruments has not yet not picked up, which indicates that traders have no interest in shifting their trading activities from the OTC derivatives markets to a regulated exchange.

Low liquidity undermines the two key functions of the futures market, namely price discovery and risk transfer. This discourages traders, refineries, banks and other players from participating actively in the market, which is essential to improve liquidity. In other words, low liquidity breeds low liquidity. There is a strong consensus among analysts that this vicious circle could be broken if Saudi Arabia decides to use the Oman futures prices in pricing its exports to Asia. So far, there is no indication that Saudi Arabia has plans to change its pricing formula to include Oman futures price. Even if it does, this move would not necessarily increase liquidity: It is possible for the DME Oman contract to become a benchmark, but without necessarily increasing trading volumes.

THE DUBAI BENCHMARK AND SOME WIDER LESSONS FOR THE PRICING SYSTEM

The above discussion reveals some wider observations regarding the current international oil pricing system:

1. The financial layers that have emerged around crude oil benchmarks have become central, not only for market participants to hedge their risk and to bet on oil price movements, but also to determining the oil price. At early stages of the current pricing system, linking prices to benchmarks in formula pricing, provided producers and



consumers with a sense of comfort that the price was grounded in the physical dimension of the market. This implicitly assumes that the process of identifying the price of benchmarks can be isolated from the financial layers. However, this is far from the reality. In the case of Dubai, the price identification process reveals that the different layers of the oil market form a complex web of links, all of which play a role in the price discovery process. The information derived from financial layers is essential for identifying the Dubai price and may surpass the importance of information gathered through other ‘constructed’ platforms.

2. Since physical benchmarks constitute the pricing basis of the large majority of physical transactions, some observers claim that derivatives instruments such as futures, forwards, options, and swaps derive their value from the price of these physical benchmarks, i.e., that the prices of these physical benchmarks drive the prices in paper markets. However, this is a gross over-simplification and does not accurately reflect the process of crude oil price formation, at least in the case of Dubai. The issue of whether the paper market drives the physical market or the other way around is difficult to construct theoretically and test empirically, and requires further research.

3. The level of the crude oil price, which is what consumers, producers, and their governments are most concerned with, is not the most relevant feature in the current pricing system. Instead, the identification of price differentials, and the adjustments in these differentials in the various layers, underpin the basis of the current crude oil pricing system.

CONCLUSION

In 2000, Paul Horsnell argued that ‘Dubai has ceased to be a meaningful market, and has become increasingly distorted’.⁶ A decade has now passed and Dubai still constitutes the main benchmark for pricing oil cargoes destined for Asia. Through a series of innovations – stronger links with the Brent complex, and transformation of

⁶ Horsnell, P. (2000), ‘Oil Pricing Systems’, Oxford Energy Comment, Oxford Institute for Energy Studies, May.



Dubai into a brand name – market players have overcome some of the problems associated with the decline in physical production. However, these ‘solutions’ have created their own serious shortcomings, which raise doubts about whether Dubai really remains a meaningful market. This shows that as long as key market participants have an interest in maintaining the system, it will prevail. So far, the main market players – such as oil companies, refineries, oil exporters, physical traders, and financial players – have no interest in rocking the boat. But history has shown that players’ interests could diverge and that structural transformations could occur, and if this happens, Dubai is likely to be the least immune to radical changes in the international pricing system.