

Valuing Middle East crude in volatile times

How do you ensure crude oil value accurately reflects market fundamentals? Sufficient volumes and a reflection of a variety of buyers and sellers are the keys to a robust benchmark, writes Daniel Colover

The crude oil market witnessed some of the highest volatility in living memory in the early months of this year, casting a spotlight on the evolving role of global crude benchmarks.

In the Middle East and key consuming regions such as Asia, it follows that the market is keen to understand what the tradable value of Middle Eastern crude is, amid recent demand and supply shocks.

Typically the value of a grade of crude oil is defined by the underlying value of the products that are produced when it is refined, although there are exceptions – for example, if a crude is used for direct burning in a power station, then its value might also be linked to its calorific value.

Therefore, the refinery yields of different crude grades and underlying refinery economics are critical in analyzing the competitiveness of crudes.

Crudes are not homogenous and there are hundreds of different types, each with their own qualities and characteristics, therefore the market has settled on using certain crude grades as benchmarks, against which the values of other crudes are measured.

For a crude benchmark to be robust and purposeful it must have a variety of often disparate characteristics. These include abundance in production volume, steady quality, diversity of buyers and sellers, geographic relevance and absence of interference, from political forces for example.

Many crudes around the world share some of these characteristics but only a handful fulfill all criteria. Only a marker price that consistently displays all the relevant characteristics can ultimately function as a proxy value for the broader market underpinning producer and consumer economics.

Within the Middle East, reference prices include Platts Dubai, Platts Oman and DME Oman, each having different characteristics.

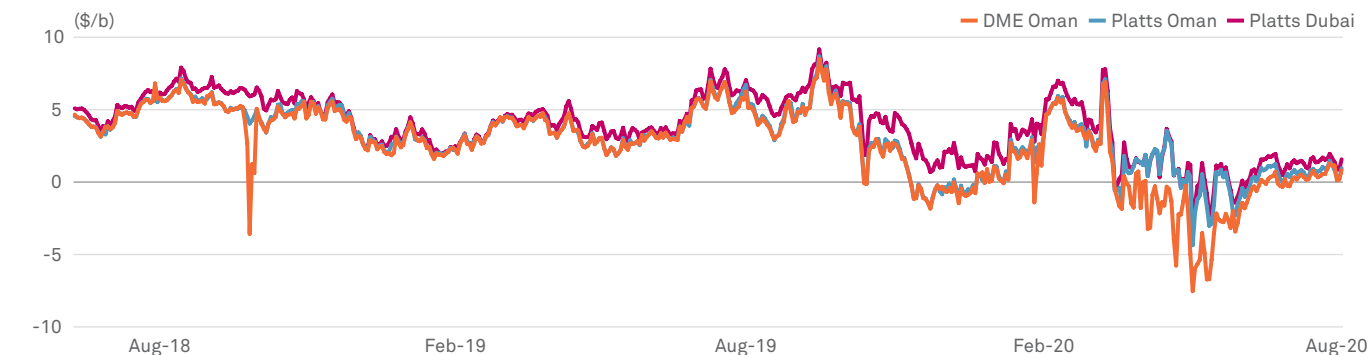
In the case of Platts Dubai and Platts Oman, their assessment methodology contains a feature that enhances their benchmark characteristics. Both have an alternative delivery mechanism, which means more than one crude grade can help form the daily value of the assessment. For Platts Dubai, this includes the alternative delivery of Oman, Upper Zakum, Al Shaheen and Murban, while for Platts Oman, Murban is also acceptable as an alternative deliverable grade.

Production volumes

Total deliverable crude on a daily basis for Platts Dubai can therefore be calculated as the daily production of the five streams of crude that go into the assessment. Dubai production is around 50,000 b/d, Oman around 950,000 b/d, Al Shaheen around 300,000 b/d, Upper Zakum 650,000 b/d and Murban production is around 1.6 million b/d.

However, not all of this volume will be freely available on the spot market on any given day as some will be diverted into domestic refineries while some cargoes may have destination restrictions. Therefore once

Middle East crude cracking margins



Source: S&P Global Platts, DME

these are accounted for, a conservative estimate of crude available for delivery into Platts Dubai would be 2.75 million b/d, and for Platts Oman, 1.75 million b/d.

By limiting itself to a single deliverable grade, the DME Oman futures contract is underpinned by Oman's 950,000 b/d production – and after allowing for domestic refinery consumption, around 800,000 b/d – slightly more than a cargo and a half of crude per day.

The alternative delivery mechanisms ensure there is enough available crude to adequately reflect the underlying value of the commodity, in this case Middle East crude. While crudes are not homogenous, those that come from similar regions or locations often trade in the same vein, despite quality differences that may be regionally more stark than if looking more broadly.

The grades that go into Platts Dubai are largely medium heavy, sour crudes with an API gravity of around 30 degrees and a sulfur content of around 2%, while Murban is lighter with an API of around 40 degrees and a sulfur content of around 0.8%.

There is wider variation in crude quality in the region, for example Iraq's Basrah Heavy has an API gravity of around 24 degrees and a sulfur content of 3.83% while

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at the other end of the spectrum Qatar Land is 40 API and 1.35% sulfur. However, all these crudes are still collectively known as Middle East sour crudes.

Grades from the Middle East are sought by complex refiners in Asia who typically blend different crudes to customize their preferred slate required for their processing units. As a result, the underlying value of these different grades is critical when a refiner is evaluating which to purchase as part of their monthly requirements.



The alternative delivery mechanism also ensures that the benchmark price reflects a stable and consistently broad consumer base that is not beholden to the buying pattern in one particular country only, such as China.

Changes in value of different crude grades can be linked to the value of the products that the crude makes, or it can be linked to other factors, including specific demand to fulfil a requirement which is less obvious.

Refining economics

Oil demand, particularly for transport fuels, saw an unprecedented contraction earlier this year, followed by a gradual recovery since May. The market, however, has responded with significant supply curtailments as well, led by the latest OPEC+ agreements on production curbs which led to record cuts in recent months.

Prior to the agreed cuts, the prompt supply of crude outstripped demand and traders looked to charter vessels for storage, tightening the shipping market and closing typically open arbitrages.

Gasoline has historically been king of the barrel as demand surged due to increased mobility and booming vehicle sales. So Murban, which has the highest yield of gasoline among all the crudes in the Platts Dubai

and Platts Oman alternative delivery mechanisms, has typically been valued the highest.

However, with gasoline demand decimated due to various COVID-19 related lockdowns, crack spreads slumped in the second quarter, making Murban more competitively valued versus the other grades.

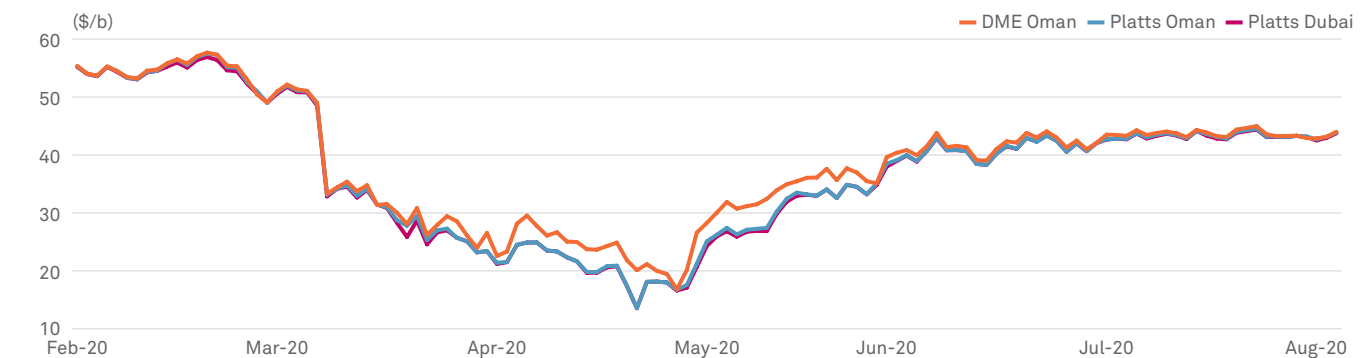
It is a strength of the benchmark that as yield values shift, the economics it reflects – in this case the value of Middle East sour crude – remain consistent. Different grades become more or less competitive, ensuring that there is enough crude to be regularly delivered to end users. Should a crude that is never competitive be included in a benchmark, then it would follow that its usefulness to the benchmark is ultimately limited.

Having alternative delivery in both Platts Oman and Platts Dubai ensures that both benchmarks reflect the value of Middle East crude on any given day. In contrast DME Oman only has a single grade for delivery and Oman crude is almost exclusively consumed in China. This means that DME Oman is a reference price that reflects the economics of a single crude grade into an almost exclusive consumer market.

China arguably has different refining economics to other end-users, particularly this year. Critically, Beijing regularly adjusts retail oil product prices in line with crude price movements, but suspends



Platts Middle East crude assessments and DME Oman



Source: S&P Global Platts, DME

these adjustments when crude prices fall below \$40/b. Refiners therefore typically reap a higher profit when international crude prices drop below \$40/b, as they can sell oil products domestically at higher retail prices.

The inclusion of alternative delivery ensures a persistent demonstration of value in the Middle East crude complex and in the wider regional refining base in Asia. It also prevents an injection of volatility during periods of exceptional demand from a single end-user country, which is driven not by market forces, but by price controls, as is the case for China.

Furthermore, Oman crude is one of the seven deliverable grades into the Shanghai International Energy Exchange's crude oil futures contract. The INE price in recent months has rallied due to recovering oil demand in China, and this in turn has supported the price of the grade.

The February front month INE contract settlement averaged around \$56.40/b, reflecting a \$1.88/b premium to Platts Oman. As flat prices fell, the premium of INE to Platts Oman increased. In March the front month INE contract settlement commanded a premium of \$5.54/b to Platts Oman and in April this spread rallied to \$14.65/b before subsequently narrowing again in May to \$4.50/b.

In this instance traditional refining economics, focusing on the yield value of a particular crude, may not be the only consideration when buying that crude, thus leading to Oman crude trading away from other grades in the region.

Also of note in the first half of 2020 was the divergence in the price of DME Oman, which moved higher relative to Platts Dubai and Platts Oman assessments. A widening spread between Platts Oman and DME Oman meant DME Oman moved from an average 11 cents/b above Platts Oman in February to 84 cents/b in March and then to \$3.17/b and \$3.20/b in April and May respectively. This increased spread likely impacted the economics for refiners processing grades that are priced against these different markers.

While often the broader discussion on benchmark prices focuses on outturn values, the more effective way to evaluate the robustness and stability of a particular benchmark is by using a traditional refining margin model, taking the aggregate value of the yield of the crudes, less the freight and cost of running the refinery.

The yield for the different crudes can then be considered against the price of the different markers to examine their relative competitiveness from a refinery's perspective.

Platts analysis shows that the DME Oman cracking margin in Singapore has been significantly lower during the COVID-19 pandemic than one based on Platts Oman or Platts Dubai, due to the higher feedstock cost. Over March to May, the average cracking margin based on Platts Oman was 90 cents/b, versus minus \$1.44/b for DME Oman.

It is clear that having alternate delivery mechanisms with multiple grades ensures tradable value and stable prices which are useful for all producers and buyers, and not just a single consumer of a single grade of oil. ■