

Wednesday, April 22, 2020

## WHAT PUT OIL PRICES ON A SLIPPERY SLOPE?<sup>1</sup>

1. **What happened?** The fall of the West Texas Intermediate (WTI) crude oil price deep into negative territory on April 20, 2020 was an unprecedented event in oil markets. WTI crude prices for contracts expiring April 21, 2020 (May delivery) plunged to −\$38 per barrel, before recovering to +\$9 per barrel just before expiring (Figure 1).
2. **Why WTI not Brent?** Typically, Brent and WTI prices move in lockstep but it was not the case on April 20 (Figure 2). Speculative net long positions in WTI have been rising since mid-March (Figure 3). The May delivery WTI contract cannot trade after expiry and those holding long positions would need to physically collect the oil at Cushing, Oklahoma (Bhuttra, 2020). The absence of demand, lack of storage space in Cushing (Figure 4),<sup>2</sup> and difficulty in transporting the oil away from the delivery location left speculators scrambling to unwind their long positions, triggering the collapse in prices. In contrast, Brent contracts provide the option of cash settlement, and hence delivery and storage are not a concern. Overall, the move in the WTI was technical but the underlying structural issues will continue to affect oil markets in the coming months (see below).
3. **Falling demand.** The WTI delivery at Cushing is usually collected by major oil consumers, such as refineries, airlines and others (Quinn, 2020). However, the fall in activity due to the COVID-19 pandemic took away a large part of this demand. Indeed, the Organisation of Petroleum Exporting Countries (OPEC) estimates that total US demand may fall by as much as 20 percent in Q2 2020. The impact on global demand has also been significant—corresponding Q2 demand forecasts by the US Energy Information Administration (EIA), the International Energy Agency (IEA), and OPEC, as of April 2020, are lower by between 13–24 percent compared to those in January (EIA, 2020; IEA, 2020; OPEC, 2020) (Figure 5).
4. **OPEC+.** The failure of OPEC+ on March 6, 2020 to agree on deepening and/or extending existing production cuts amid weak global demand was a major setback for oil prices. Supply increased before OPEC+ finally agreed on April 12 to cut production, as Saudi Arabia, the United Arab Emirates (UAE) and Russia moved toward increasing production in April by 2.6 million barrels per day (mb/d), 1 mb/d and 0.2–0.3 mb/d, respectively (Reuters, 2020), after world supply rose by 0.6 mb/d in March (Figure 6).
5. **Supply glut.** In addition to the sizeable supply surplus in Q1, inventories appear set to rise further in April. Supply and demand dynamics point to a surplus in supply of around 6–7 mb/d in Q1 2020. April demand may be even weaker as more countries around the world went into lockdown to prevent further spread of the COVID-19 pandemic, while the OPEC+ production cut of 9.7 mb/d will only be implemented in May and even then, may not be sufficient to offset the sharp drop in global demand (Table 1).

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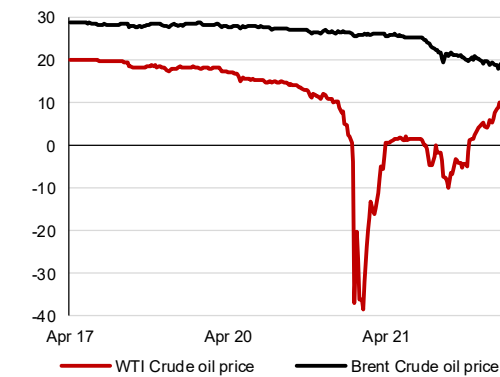
<sup>2</sup> The storage at Cushing is estimated to be 76 million barrels, of which 55 million barrels in capacity were used up as of April 10, 2020. Inventory built up last week and any remaining storage capacity had reportedly already been leased out, which made it unavailable to additional demand (Kumar and Hiller, 2020). Any used storage is estimated to be exhausted by May (Reed and Kraus, 2020).

6. **Storage shortage.** Storage was the key factor in pushing WTI into negative territory. There is also a lack of storage capacity outside the United States. The steepness of the oil forward curve (defined as the forward versus spot prices) sets the floor for storage costs—the cost of buying and storing oil should be higher than the forward price to prevent arbitrage. The fall in oil prices since March was also accompanied by the sharp steepening of the forward curve heralding a rise in storage costs as inventory built up (Figure 7). Some countries are reportedly taking the opportunity to increase their strategic reserves (Hickin, 2020; Kern 2020; Yep, 2020), which places further pressure on storage.

7. **Expensive transportation.** With storage facilities on land running out, oil stored at sea has also reached record levels (Figure 4). The storage at sea utilizes tankers, which raises the cost of transportation for oil—tanker rates have reached their highest levels in almost 12 years (Figure 7).

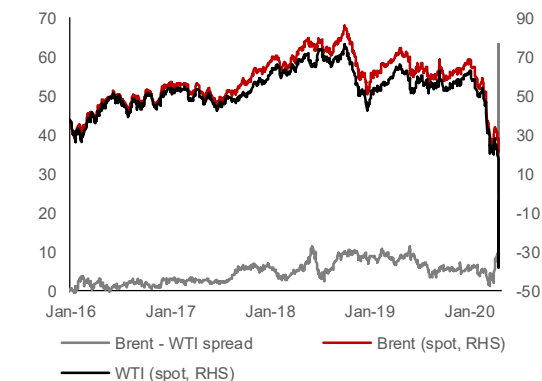
8. **Bleak outlook.** Demand and supply forecasts indicate that the supply surplus will remain until at least the end of Q2 2020 (Figure 8). Some recovery in demand after that may support oil prices but the excessive build up in inventory would put a ceiling on prices.

**Figure 1. WTI and Brent: Intraday Prices**  
(US dollars per barrel)



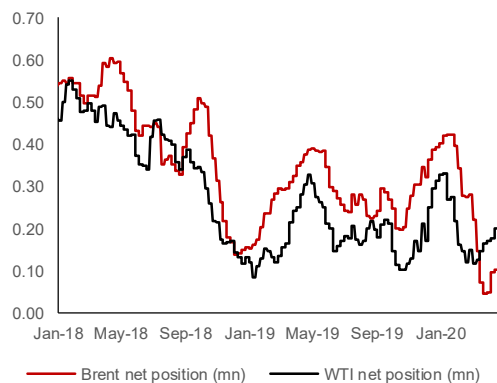
Sources: Bloomberg Finance L.P.; and AMRO staff calculations.

**Figure 2. Brent and WTI: Price Spread**  
(US dollars per barrel)



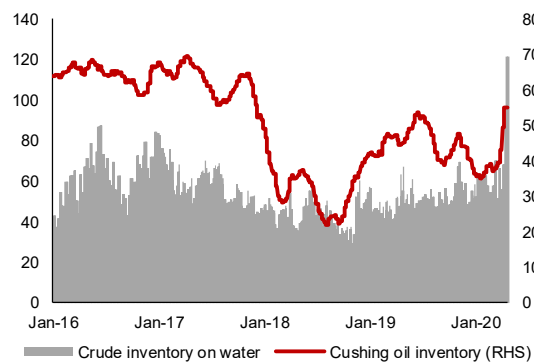
Sources: Haver Analytics; and AMRO staff calculations.

**Figure 3. Brent and WTI: Net Speculative Long Positions**  
(Open interest in millions of contracts)



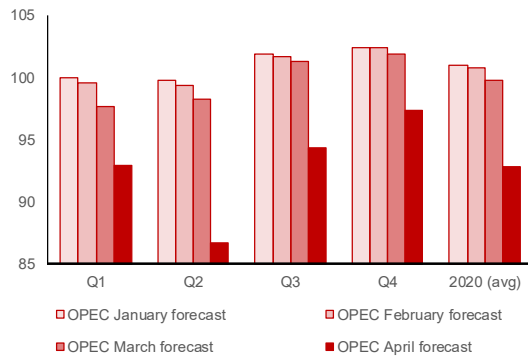
Sources: Bloomberg Finance L.P.; and AMRO staff calculations.

**Figure 4. Crude Oil: Inventory Levels**  
(Millions of barrels)



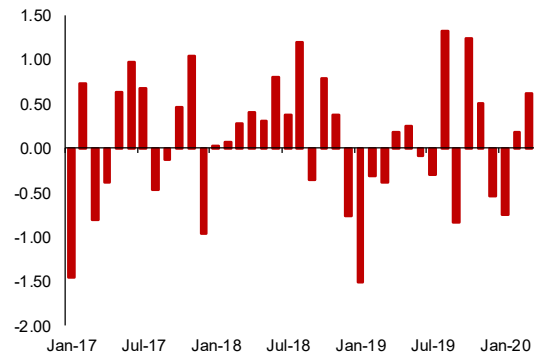
Sources: Bloomberg Finance L.P.; and AMRO staff calculations.

**Figure 5. Crude Oil: Demand Forecast**  
(Million barrels per day)



Sources: OPEC; and AMRO staff calculations.

**Figure 6. Crude Oil: Monthly Change in World Supply**  
(Million barrels per day)



Sources: Bloomberg Finance L.P.; and AMRO staff calculations.

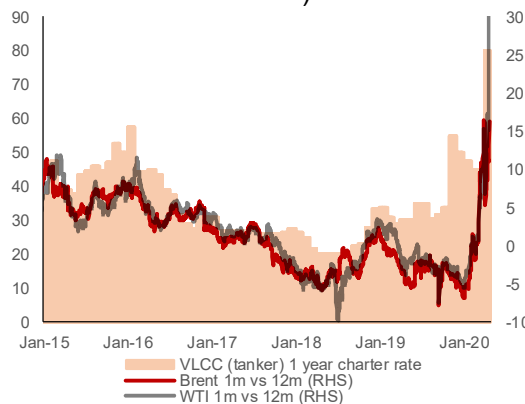
**Table 1. Crude Oil: Demand-Supply Forecasts**  
(Million barrels per day)

(mb/d)	Supply	Demand	Excess Supply	Supply	Demand	Excess Supply
	OPEC (April 16 2020)			EIA* (April 07 2020)		
Q1	99.8	92.9	6.9	100.1	94.4	5.7
Q2	90.3	86.7	3.6	99.4	88.0	11.4
Q3	90.2	94.3	-4.1	98.7	98.6	0.1
Q4	90.0	97.3	-7.3	99.3	100.9	-1.6
2020 (avg)	92.6	92.8	-0.3	99.4	95.5	3.9
Change since previous report						
Q1	0.2	-4.7	4.9	-0.4	-4.7	4.2
Q2	-9.4	-11.5	2.1	-2.8	-12.3	9.5
Q3	-9.8	-7.0	-2.8	-4.2	-3.7	-0.5
Q4	-10.5	-4.6	-6.0	-3.4	-1.8	-1.6
2020 (avg)	-7.4	-6.9	-0.5	-2.7	-5.6	2.9
Change since January forecasts						
Q1	-0.4	-7.0	6.7	-1.0	-6.8	5.8
Q2	-10.3	-13.0	2.7	-2.1	-14.4	12.3
Q3	-10.9	-7.6	-3.3	-4.0	-4.3	0.3
Q4	-12.0	-5.1	-6.9	-3.8	-1.9	-1.8
2020	-8.4	-8.2	-0.2	-2.7	-6.9	4.1

Sources: EIA; IEA; OPEC; various news sources; AMRO staff calculations.

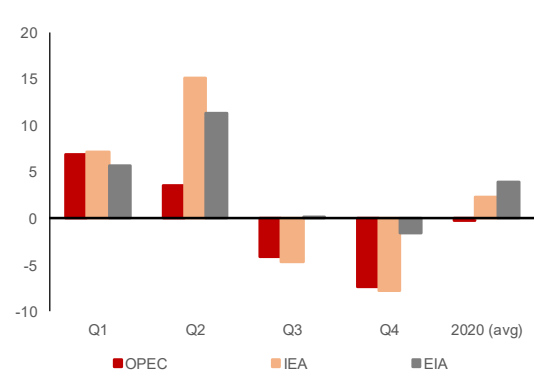
Note: IEA's April forecasts (not included in the table) for Q2 2020 demand are lower by ~24.8mb/d from its January forecasts. \* EIA forecasts were released before the OPEC+ agreed on production cuts

**Figure 7. Tanker Rates and the Crude Oil Forward Curve**  
(‘000 US dollars per day; US dollars per barrel)



Sources: Bloomberg, AMRO staff calculations and estimates.

**Figure 8. Crude Oil: Surplus Supply Estimates**  
(Million barrels per day)



Sources: OPEC, IEA, EIA, AMRO staff calculations and estimates.

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