



# Offshore Energy Update:

*By Richard Brakenhoff (independent analyst)*

## Executive Summary

The Corona (COVID-19) pandemic has hit the global economy and oil market much more than market surveyors (including myself) had anticipated at the beginning of this year. The drop in oil demand worldwide in 2Q20 has been huge, but particularly compared to previous global crises, such as the financial crisis in 2008/09. Whereas in general the current pandemic hits the global economy and most of its sectors, tank storage operators and VLCC tanker companies are strongly benefiting from the oversupply of oil. Unfortunately, the Oil Services sector was – at last - recovering after the trough in 2018, but current market conditions are even worse compared to 2018.

Regarding the outlook for the remainder of 2020 and beyond, uncertainties are extremely high as it is hardly impossible to predict how long the pandemic will last. The Dutch CPB has presented four scenarios, whereby the range of GDP growth in the Netherlands in 2021 ranges between +3.5% and -2.7%, which illustrates the high level of uncertainty. IMF foresees a strong economic recovery worldwide in 2021 assuming that the pandemic fades away in 2H20. The latter I believe as well, but there is a risk that the effect of COVID-19 on governmental budget deficits (as we will show in this Update) and on personal finances (strong rise unemployment levels) could lead to a rather weak recovery in 2021 and beyond. Currently, I expect oil demand to exceed supply in 2021 thanks to the production cut by the OPEC and the allied non-OPEC countries (until the end of April 2022) and decreasing onshore oil production in North America. As a result, the Brent oil price in my view will recover to USD 50 p/b in 2022.

The recovery of the Oil Services market will be postponed by two years. This could lead to bankruptcies at mainly drilling and offshore shipping companies as they already suffered from extremely weak market conditions between 2015 and 2019. The least impacted sector will be the FPSO players thanks to their order backlog and lease portfolio.

**Table 1: Market conditions at different segments of Oil Services market between 2014 and 2024E**

	2014	2016	2018	2020E	2022E	2024E
Survey/seismic	+++	--	+	0	+	+
Drilling	++	0	--	--	-	0
Allround	+	--	-	-	0	0/+
Installation	+	+	0	-	0	0/+
FPSO	+	--	0/+	0	+	++
Shipping	+	--	--	--	-	0
Oil Services	+++	0	-	-/--	0	+

Source: R. Brakenhoff; Please note: ++ is booming market conditions, + is favourable, 0 is 'normal', - is negative, and -- is very depressed

**Table 2: Brent oil price forecasts (2020 - 2024)**

USD per barrel	2020E	2021E	2022E	2023E	2024E
Brent	37	50	47	45	45

Source: R. Brakenhoff

## First release of Offshore Energy Update

After publishing eighttteen Offshore Energy Quarterlies at the Rabobank, this is the first release of my Offshore Energy Update since I left Rabobank at the end of February 2020. At this Offshore Energy Update I will give my view on the current and expected developments at the global energy markets, including the offshore oil & gas market and Oil Services companies.

## Impact Corona pandemic clearly exceeds that of the global financial crisis of 2008/09

Being still in the middle of the Corona pandemic, it is difficult to estimate the full impact on the global economy and oil demand in 2020. However, forecasts issued by the IMF (global GDP growth: -3.0% in 2020 versus 2019), IEA (International Energy Agency) and U.S. Energy Information Administration clearly show that COVID-19 will hit the global economy and oil market substantially stronger compared to the global financial crisis in 2008/09 or other negative events (see table below). Uncertainty of the overall impact of COVID-19 is illustrated at the wide range in oil price forecasts for 2020 and beyond (as we will discuss later on), but also at oil demand and the timing of its recovery. Whereas the IEA expects global oil demand to plummet – on average – by 8.6m b/p/d in 2020, the U.S. Energy Information Administration is slightly less negative with a drop of 8.1m b/p/d. This is also illustrated by the expected drop in oil demand in 2Q20 compared to 2Q19. The IEA foresees a fall of 19.9m b/p/d (-20% YoY) compared to a drop of 18.8m b/p/d by the U.S. Energy Information Administration. The latter forecasts that global oil demand will recover by 7m b/p/d in 2021 compared to 2020.

**Table 3: Overview negative events and its impact on world GDP and oil demand growth**

Date	Event	Global oil demand m b/p/d	Change YoY	Global GDP Change YoY
1974	OPEC oil embargo	-0.8	-1.4%	+0.1%
1979-1982 *)	Iran revolution + 2e oil crisis	-6.3	-9.8%	+4.6%
1990-1991	First Gulf War	+0.1	+0.2%	+2.6%
1998	Asian Crisis	+0.4	+0.5%	+2.6%
2001	September 11 <sup>th</sup>	+0.9	+1.1%	+2.5%
2008/09	Global financial crisis	-1.4	-1.6%	-0.1%
2020-?	Corona pandemic	-8.6	-8.5%	-3.0%

Source: IEA, U.S. Energy Information Administration, IMF

\*) Cumulative figure for the period 1979-1982

The big differences in forecasts can be explained by the expected length of lockdowns in countries in the world in the coming months and the time necessary to return to 'back as normal'. Although the uncertainties are huge, the Dutch CPB has made four scenarios (see table 4). Using those scenarios, Dutch GDP growth ranges between -1.2% and -7.3% in 2020 and between +3.5% and -2.7% in 2021, clearly illustrating the height of uncertainty. Looking at IMF's Global Economic Outlook (April 2020), they forecast GDP growth for the Netherlands of -7.5% in 2020 and +3.0% in 2021 (looks mostly on scenario C). For the global economy, IMF foresees a decline of 3.0% in 2020 and a recovery of 5.8% in 2021, assuming that the COVID-19 pandemic will fade away in 2H20.

**Table 4: CPB's four different economic scenarios for the Netherlands**

Scenario	A	B	C	D
Duration contract restrictions (months)	3	6	6	12
Impact contract restrictions	Moderate	Severe	Very severe	Very severe
Direct recovery after lifting restrictions	Yes	Yes	No	No
Problems in financial sector	No	No	Yes	Yes
GDP growth NL in 2020E	-1.2%	-5.0%	-7.7%	-7.3%
GDP growth NL in 2021E	+3.5%	+3.8%	+2.0%	-2.7%

Source: CPB Scenarios economic consequences corona crisis (March 2020)

How realistic is a – quick – economic recovery in 2021? At the table below I have compared the financial situation of several countries and the EU before and after the financial crisis of 2009 as well as the situation before the outbreak of COVID-19. At the end of 2007 Italy's consolidated governmental debt expressed as a percentage of its GDP stood at 103.9%. At the time of the financial crisis (2009), the Italian government did spend more than it received (deficit expressed as % of GDP was 5.1%), leading to an increase in governmental debt to 119.2% at the end of 2010. Before the COVID-19 pandemic, this percentage climbed to 134.8% at year-end 2019, i.e. the financial position of the Italian government is considerably weaker compared to the year before the financial crisis of 2008/09 started. However, according to estimates by the IMF, the Italian government's deficit in 2020 will be substantial again, leading to a further deterioration of its ratio governmental debt as % of GDP. Except for Germany and to a lesser extent for the Netherlands, the development in Italy is applicable to most of the other large countries as well. As a result, financial uncertainties have increased significantly. Can governments continue to stimulate GDP growth in 2021 and beyond? In addition, are investors be willing to continue to finance governmental deficits in certain countries (or at much higher interest rates)? Could governments be forced to implement budget cuts, which could jeopardize the recovery of their economy? All told, I believe that a risk of a longer recession than only the year 2020 is considerably higher compared to previous recession.

**Table 5: Comparing impact Corona pandemic with global financial crisis**

Country	Governmental Debt as % GDP 2007	Governm. Lending as % GDP 2009	Governm. Debt as % GDP 2010	Governm. Debt as % GDP 2019	Governm. Lending as % GDP 2020E
EU	58.1%	-2.0%	79.6%	79.3%	-7.2%
Germany	64.0%	-3.2%	82.4%	59.8%	-5.5%
Netherlands	43.0%	-5.1%	59.2%	48.6%	-6.2%
France	64.5%	-7.2%	85.3%	98.1%	-9.2%
Italy	103.9%	-5.1%	119.2%	134.8%	-8.3%
UK	41.5%	-10.1%	74.6%	85.4%	-8.3%
USA *)	62.6%	-13.2%	91.2%	106.9%	-15.4%
China	29.0%	-1.8%	33.7%	50.5% **	-11.2%
Japan	175.4%	-10.2%	207.9%	238.0% **	-7.1%
Brazil	56.7%	-3.2%	51.8%	75.8%	-9.3%

Source: IMF World Economic Outlook April 2020  
GDP will be at least 30 percentage points higher

\*) USA only federal debt (including other governmental bodies, debt percentage as %  
\*\*) 2018 figure

## Global oil demand in 2021 could already more or less match the level seen in 2018

Regarding estimated global oil demand it is important to look at the major oil consuming sectors and countries. In 2018 the transportsector accounted for 56% of oil consumption worldwide (44% road haulage (cars & trucks), 8% aviation, 4% shipping) and the industry (including petrochemical industry) for 19%. The transportsector, especially aviation and road haulage (cars), has been hit by travel restrictions implemented by many governments in the world. I believe that these restrictions will be lifted gradually in the coming months, i.e. the transport sector should return to 'normal' market conditions. However, COVID-19 has caused spectacular growth in unemployment levels in the world. Increased uncertainty on personal finances will result in less travel (tourism) compared to the economic heydays of 2019, I believe. In addition, will the 1.5 metre distance rule be lifted or will it still apply to the transport sector? Flying aircraft with low utilisation levels will lead to sharply higher passenger ticket prices and there low oil/jet fuel demand by the aviation sector in the coming years.

Looking at the major oil consuming countries in the world, China (14% of total, see next table) is already recovering whereas the USA (21%) is still a the middle of the pandemic. At the EU (13%) there are the first signs that the Corona peak has been passed and that the economy can be 'restarted' again.

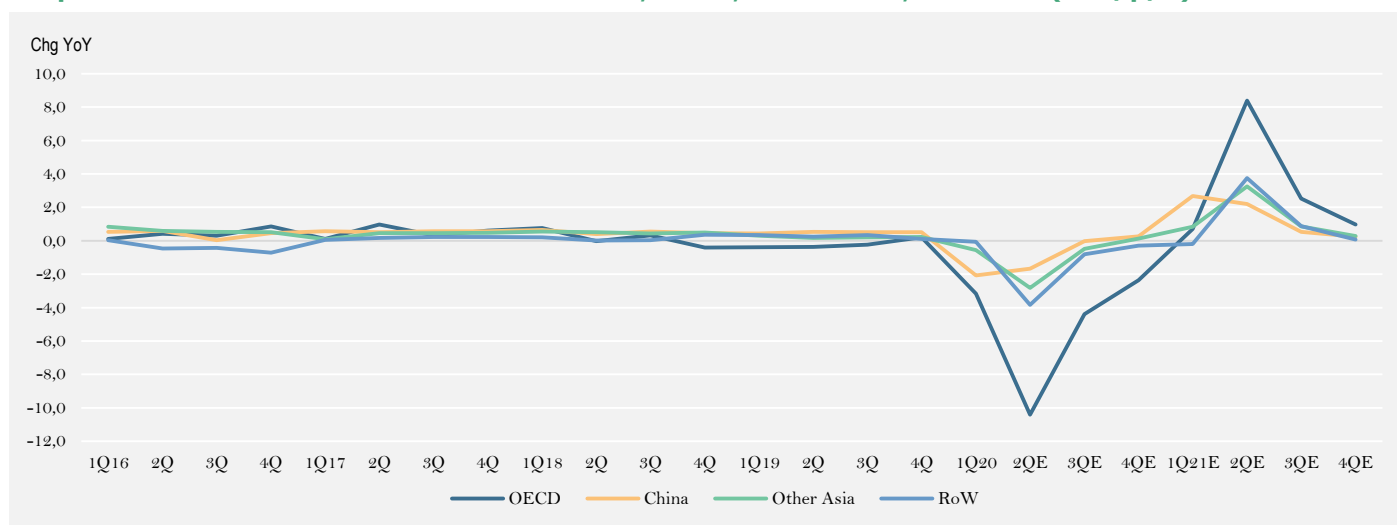
**Table 6: Historical and expected GDP growth by country versus oil demand**

Country	GDP growth 2009 versus 2008	GDP growth 2020 versus 2019	Oil demand in 2018 M b/p/d	As % of total
EU	-4.2%	-7.1%	13.3	13.3%
USA	-2.5%	-5.9%	20.5	20.5%
China	+9.4%	+1.2%	14.0	14.0%
India	+8.5%	+1.9%	5.2	5.2%
Japan	-5.4%	-5.2%	3.9	3.9%
Russia	-7.8%	-5.5%	3.2	3.2%

Source: IMF, BP Statistical Review 2019 Please note: Global oil demand was approximately 100m b/p/d in 2018

At the next graph I have given an overview of oil demand growth YoY between 1Q16 and 4Q21 according to estimates from the U.S. Energy Information Administration. The strongest drop in demand is expected at the OECD countries in 2Q20 (OECD countries are for instance USA, Canada, EU, UK, Australia, NZ, Japan, S. Korea). Whereas oil demand growth in China will resume in 4Q20, it will take one quarter longer to be positive again in the OECD countries (1Q21). As said before, bear in mind that the U.S. Energy Information Administration is less pessimistic compared to the IEA. In fact, the U.S. Energy Information Administration expects global oil demand in 2021 will match the level seen in 2018 (nearly 100m b/p/d). Taking into account the above mentioned stretched governmental budgets and sharply increased unemployment levels worldwide, I believe that this forecasted recovery is a challenge (see also below).

**Graph 1: Growth oil demand in OECD countries, China, rest of Asia, and RoW (m b/p/d)**

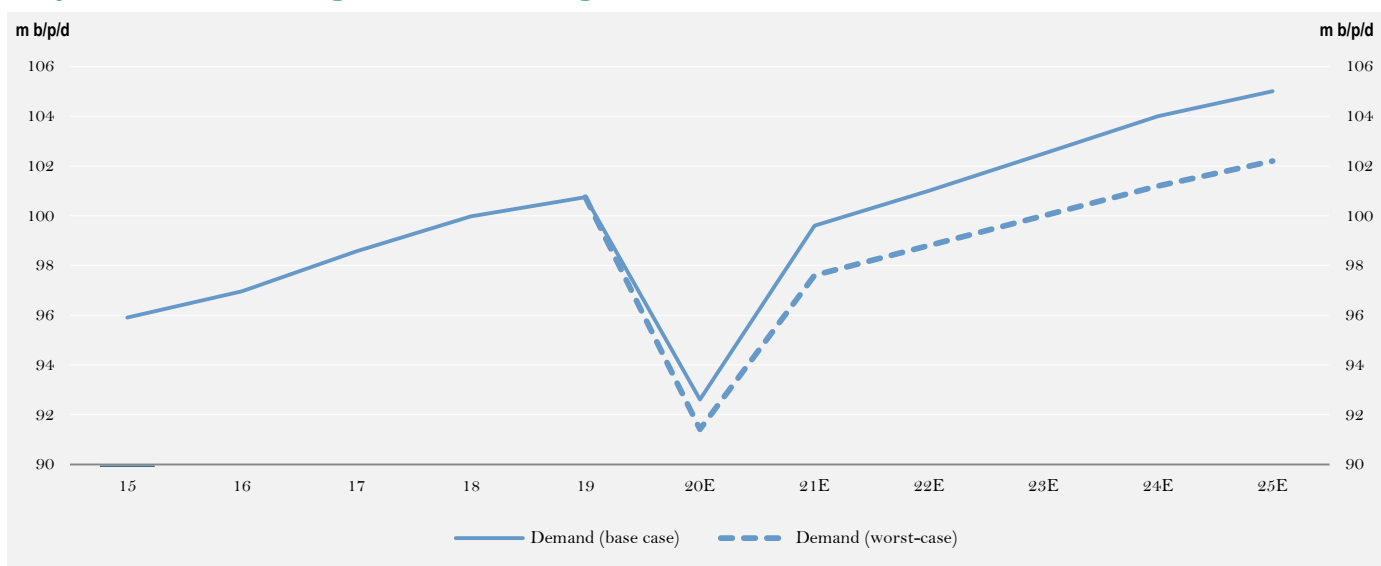


Source: U.S. Energy Information Administration Please note: RoW = rest of the world

### Medium-term global oil demand growth using two scenarios

As said above, uncertainties are high, in the short-term, but also in the long-term. Assuming a Corona vaccin before year-end 2020, economies could return to 'normal' conditions in 2021 (IMF scenario and our base case scenario). As said before, however, the '1.5 metre economy' could be prolonged for a long(er) time, which would have a huge impact on sectors like aviation and tourism in general. This would also have a clear negative impact on global oil demand. In our base case scenario, global oil demand in 2022 will match the record set in 2019, climbing further to 105m b/p/d in 2025 (before the COVID-19 pandemic started I had pencilled in a demand of 106.5m b/p/d in 2025). If the worst-case comes reality, global oil demand will recover more slowly, i.e. in 2024 demand would match the level reached in 2019. At the latter scenario, the oil producing countries will have to trim their production also beyond April 2022 (current OPEC & non-OPEC production cutback agreement), as we will discuss later on.

**Graph 2: Medium-term global oil demand growth in base and worst-case scenario**



Source: R. Brakenhoff

## Global oil demand in 2Q20 expected to fall back to level seen in 2001

At the next table we have summarized the short-term oil market outlook by the U.S. Energy Information Administration. Whereas oil supply already exceeded demand by 6.6m b/p/d in 1Q20, it will jump to an unprecedented 11.5m b/p/d in 2Q20. If IEA's more pessimistic outlook for oil demand materializes in 2Q20, worldwide oil demand would be only 77.1m b/p/d in 2Q20 instead of the 81.5m b/p/d forecasted by the U.S. Energy Information Administration, resulting in a surplus of 15.9m b/p/d in 2Q20 instead of the forecasted 11.5m b/p/d. Already well-filled tank storage facilities (and oil tankers) would be even more occupied than currently estimated.

**Table 7: Global oil market heavily oversupplied despite OPEC's/Russia's production cutback**

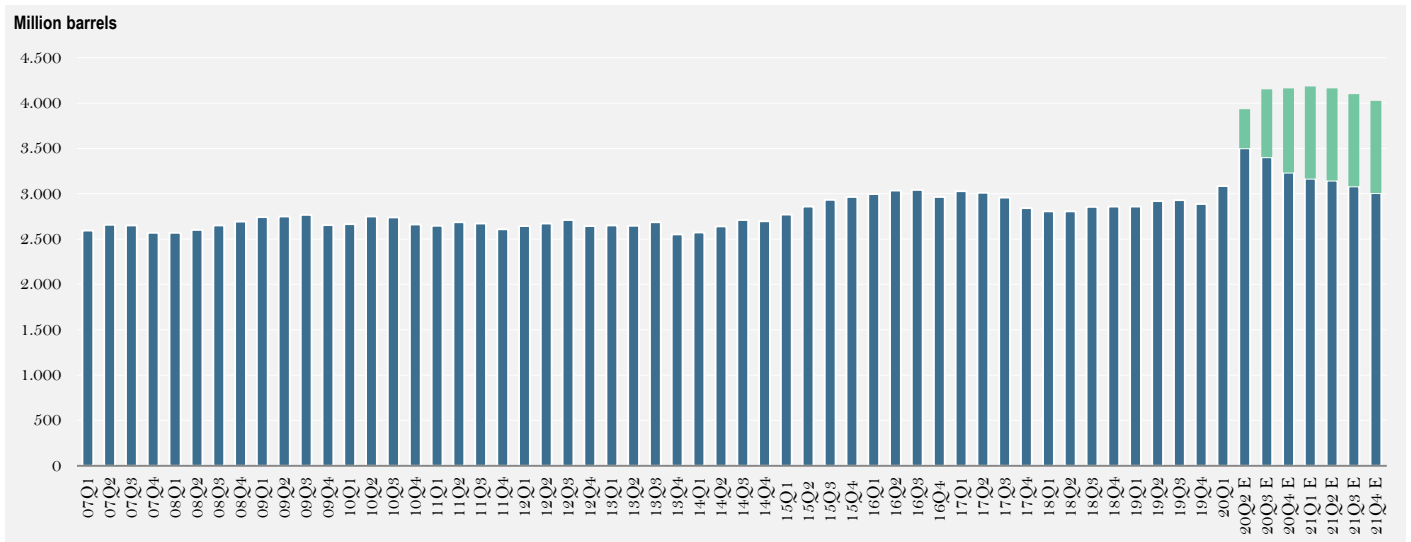
Production (m b/p/d)	3Q19	Change YoY (m b/p/d)	4Q19	Change YoY (m b/p/d)	1Q20	Change YoY (m b/p/d)	2Q20E	Change YoY (m b/p/d)
OPEC	28.66	-2.83	29.02	-2.40	28.28	-1.66	26.14	-3.33
USA	19.42	+0.96	20.21	+1.16	20.27	+1.42	18.52	-0.80
Total supply	100.13	-1.45	101.49	-0.92	100.78	+0.47	92.97	-7.40
Total demand	101.38	+0.84	101.31	+0.96	94.14	-5.85	81.48	-18.77
Over/(Under)supply	-1.25		+0.18		+6.64		+11.49	

Source: U.S. Energy Information Administration; Please note: 2Q20 are estimates; OPEC's figures adjusted for Qatar (leaving) and Congo (Brazzaville) entering OPEC. Production figures USA including natural gas liquids (NGL) and condensates

## Commercial inventories of oil in OECD countries skyrocketing in 2Q20

Whereas the level of commercial inventory of oil in the OECD countries fluctuated in a bandwidth of 2.5-3.0 billion barrels between 1Q07 and 4Q19, it will rise strongly in 2020. According to the latest estimates of the U.S. Energy Information Administration the inventory levels are expected to climb to more than 3.5 billion barrels in 2Q20. Historically, inventories were enough to cover around 50-60 days of oil consumption in the OECD, but this will jump to around 70 days in the coming quarters according to the U.S. Energy Information Administration. However, using the more pessimistic outlook issued by the IEA, inventory levels could rise even stronger (see green bars at the graph below). Weak demand could lead to inventory levels of more than 4.0 billion barrels at the end of 2020, i.e. covering nearly 90 days of oil consumption. Taking into account the high level of uncertainty, the graph clearly shows that the oil production cutback by the OPEC and the non-OPEC allies should be extended in the coming quarters if they want to achieve oil prices of USD 50-60 p/b again in the coming years.

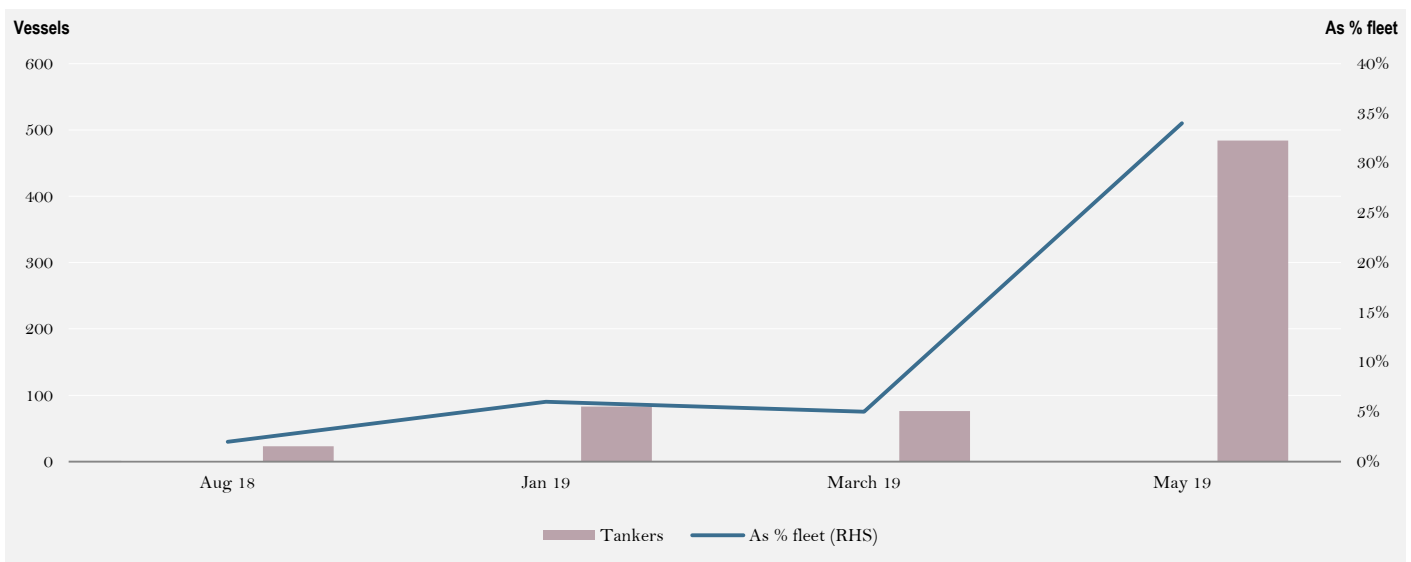
**Graph 3: Development commercial inventory of oil at the OECD countries (million barrels)**



Source: U.S. Energy Information Administration Please note: Green bar is our estimated difference between more optimistic estimate of the U.S. Energy Information Administration and the more pessimistic outlook by the IEA

Also in the USA crude oil inventory level rose spectacularly in 2020 YTD: +24%. Comparing early May 2020 with May 2019, inventory levels rose by 14%. Unfortunately, the U.S. Energy Information Administration has not yet released its bi-annual storage utilisation data (end of May), but lack of oil storage capacity resulted in the dramatic drop of the WTI oil price in the course of April (will be discussed later on). To illustrate the shortage of crude oil storage, oil companies and oil traders hired floating storage, i.e. VLCC and Suezmax oil tankers. Usually between 20-30 tankers are used for floating storage, but at the beginning of May 484 tankers were used (see graph below). Historically around 2% of the available number of VLCC and Suezmax tankers are used for floating storage, it currently stands at 34% and will go up further, I believe. As a result, spot rates for VLCC tankers climbed from on average USD 15,561/day in 2018 to USD 41,364/day in 2019 and to USD 167,652 at the end of April 2020.

**Graph 4: Development of floating storage (VLCC and Suezmax tankers)**



Source: Clarkson, Euronav

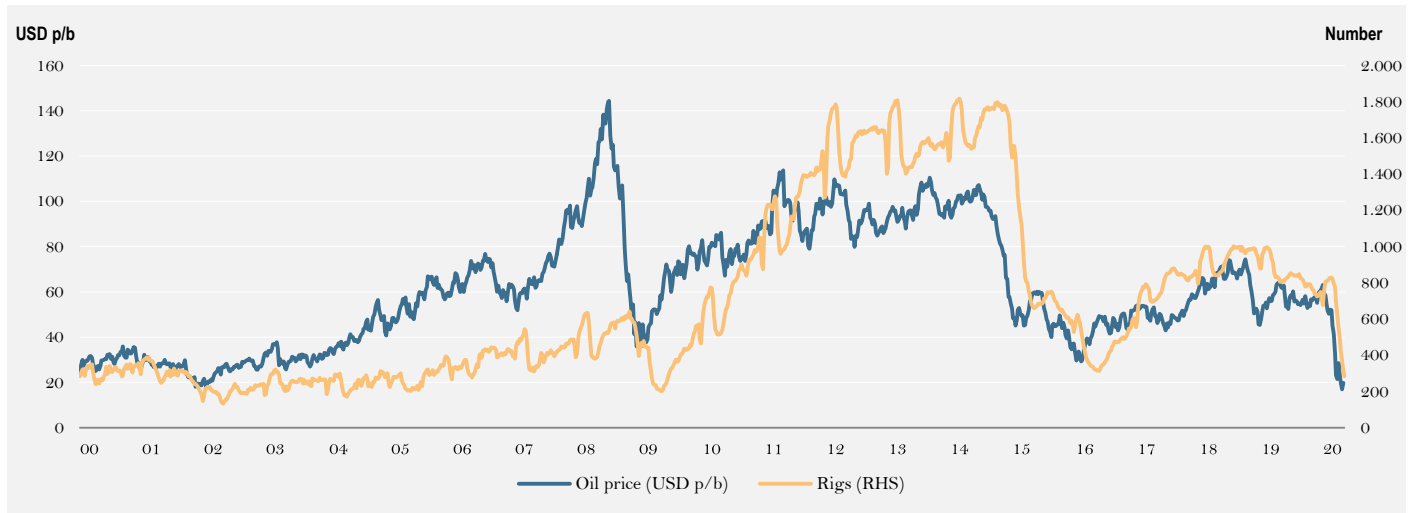
### Spectacular drop in number of active drilling rigs in North America

The sharp fall of the oil price as of July 2014 has led to a significant decrease in the number of operating onshore oil drilling rigs in North America. Whereas the number of rigs peaked at around 1,800 units in October 2014, it plummeted to 312 units in May 2016, which was the lowest number in the last decade. Thanks to the oil price recovery as of 2Q16 the number of drilling rigs recovered to 1,000 onshore drilling rigs in February 2018. It hovered around 1,000 units until the end of November, but the sharp drop of the oil price during 4Q18 pushed



down the number to 877 at the beginning of 2019. Although the North American WTI oil price recovered from USD 45 p/b at the start of 2019 to USD 61 p/b at the end of 2019, the number of onshore oil drilling rigs declined further to 670 units. The outbreak of the Coronavirus has led to a spectacular drop of the US (WTI) oil price in 2020. As a result, the number of onshore oil drilling rigs plummeted to 284 in early May 2020, i.e. nearly 60% down compared to the start of 2020. Looking at the current WTI oil price (around USD 24 p/b), the number of drilling rigs will decrease further in the coming months.

**Graph 5: Development of number of onshore oil drilling rigs in North America**

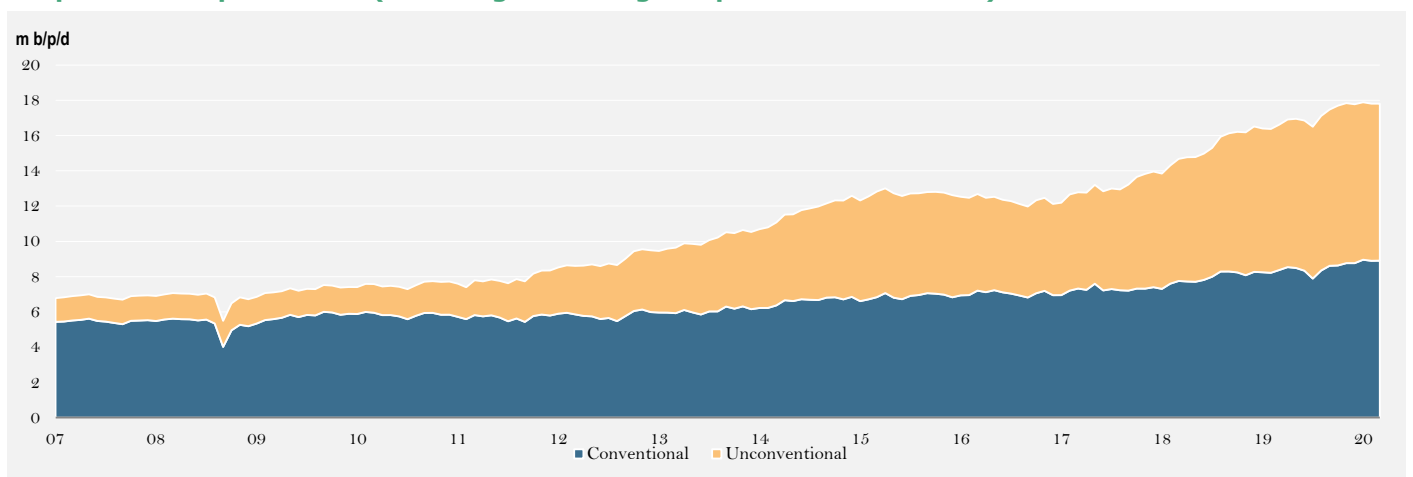


Source: Baker Hughes, Refinitiv

The number of drilling rigs in operation does not provide the full picture regarding the current and future oil & gas production in North America. Thanks to spectacular technological improvements, the efficiency (measured in daily oil or gas production per rig) climbed strongly. Between 2011 and 2019 the average daily oil and gas production per rig rose by five and three times, respectively.

With a certain time lag of around 6-12 months, the sharply lower number of drilling rigs in use resulted in lower oil (and gas) production in North America in the period until 1Q17. However, as of April 2017 unconventional oil production has increased YoY again. The U.S. Energy Information Administration estimates that unconventional oil production rose by 9% YoY in 1Q20. For April 2020 the U.S. Energy Information Administration expects an unconventional oil production of 8.7m b/p/d, which means an increase of 0.3m b/p/d (+4%) compared to April 2019. Looking at the development of the number of onshore drilling rigs in the USA as well as the announced Upstream CAPEX budget cuts by the US Independent oil companies, we believe that the unconventional oil production will decrease YoY as of June 2020. For 2020 as a whole, we foresee a decline of 5% (2019: +17%). For the total oil production in the USA, the U.S. Energy Information Administration estimates a production decrease of 0.5m b/p/d in 2020 (2019: +1.5m b/p/d) and forecasts a further decline of 0.3m b/p/d in 2021.

**Graph 6: US oil production (including national gas liquids & condensates)**

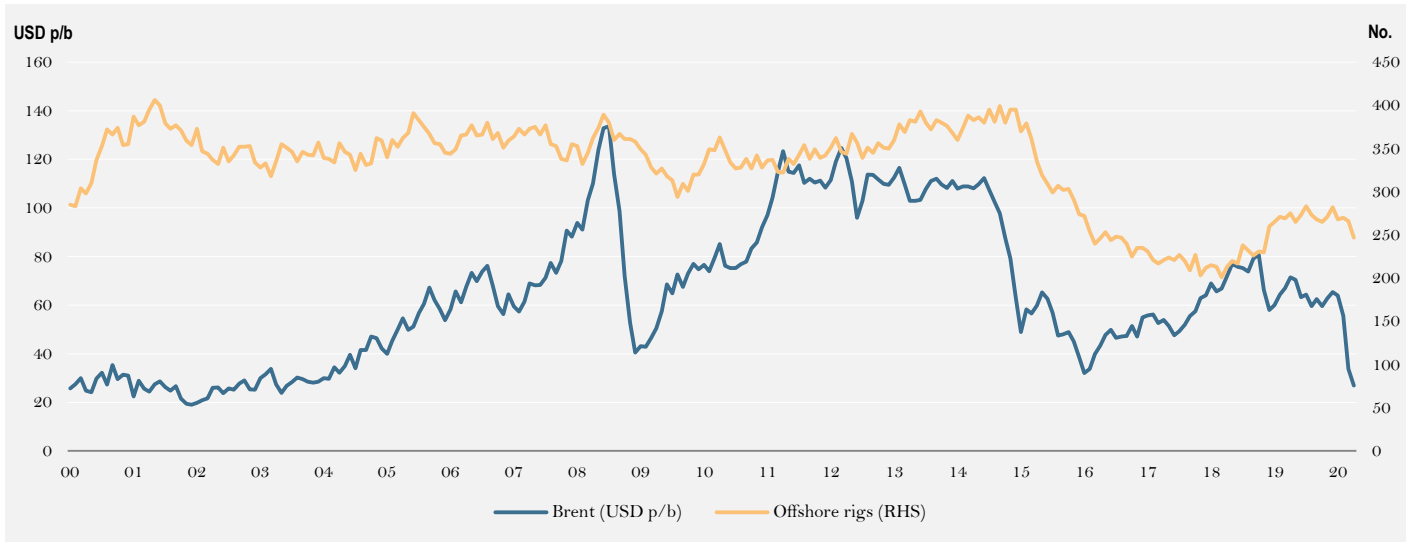


Source: U.S. Energy Information Administration

## Number of offshore drilling rigs in the world decreased 10% YoY in April 2020

According to Baker Hughes the number of offshore drilling units (Jack-Ups, Semi-Submersibles, Drillships) decreased by 10% YoY globally to 247 units in April 2020. The largest YoY declines in April were seen in Europe (-44%) and North America (-21%), whereas it more or less stabilised in the Middle East, Asia, and in Latin America. As shown above, there was quite a big gap in the development in the number of onshore drilling rigs (-45%) in North America compared to offshore (-21%). The latter illustrates in our view the increased competitiveness of offshore compared to onshore oil & gas production.

**Graph 7: Development number offshore drilling rigs in the world versus Brent oil price**

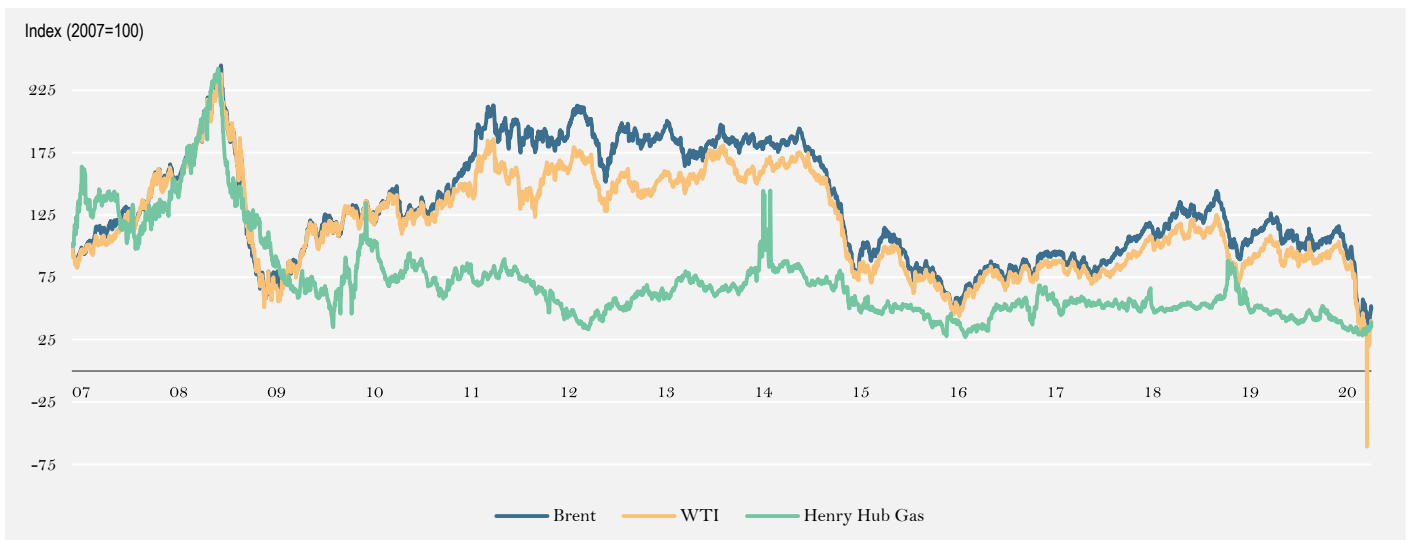


Source: Baker Hughes, Refinitiv

## Brent oil price fell 19% YoY in 1Q20, but 66% since the start of 2020

In 1Q20 the Brent oil price was on average USD 50.50 p/b, down 19% compared to 4Q19. However, the Corona outbreak particularly impacted the global economy as of March. As a result, oil demand collapsed, whereas the OPEC and Russia refused to adjust their production. Following worsening market conditions at the beginning of April finally resulted in a cease fire between OPEC (Saudi Arabia) and Russia. They agreed to lower their production by nearly 10m b/p/d in May and June. Unfortunately, this historically high production cutback could not stop oil prices to drop even further. For the first time ever, the US WTI crude oil price was strongly negative on 20 April.

**Graph 8: Development of oil and gas prices (Index: 1 January 2007 = 100)**

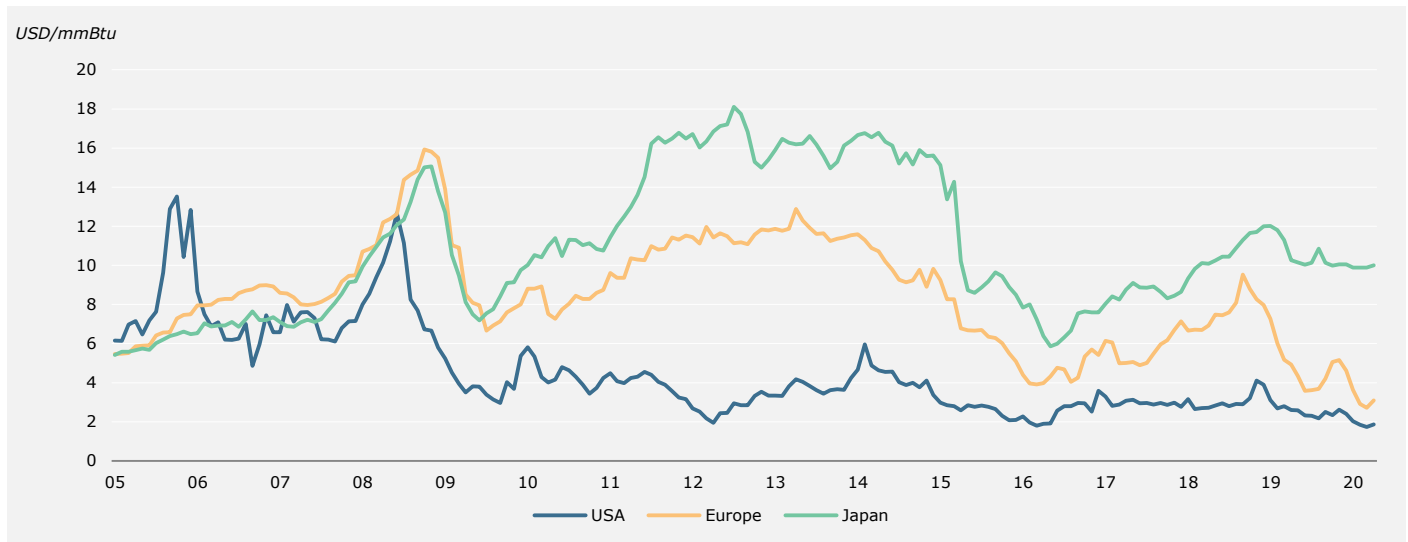


Source: Refinitiv Datastream



The price of natural gas in North America (Henry Hub) plummeted 35% YoY to USD 1.87/mmBtu in 1Q20. Usually gas prices in Europe follow closely the Brent oil price, but in 1Q20 the European gas price plummeted 50% compared to 'only' 19% lower Brent oil price. This difference can in my view be explained by the oversupply of gas worldwide in combination with the extreme mild winter in Europe in 2020.

**Graph 9: Development of gas prices in Europe, Japan, and North America**



Source: Refinitiv Datastream, World Bank

### Brent oil futures points towards price recovery in 2H20

Oil price futures are often used to forecast oil prices, but they are not always accurate as forecaster. Current Brent oil price (April 29<sup>th</sup>) is USD 24.2 p/b, whereas it costs USD 24.2 p/b when delivered in June, USD 25.9 p/b (July), USD 27.8 p/b (Aug), USD 29.3 p/b (Sept), USD 30.5 p/b (Oct), USD 31.6 p/b (Nov), and USD 32.4 p/b (Dec). However, futures give a wrong price signal at times of 'abnormal' events, such as the financial crisis (2008/09), the oil price crisis (2H14), and Corona outbreak. For instance, the spot Brent oil price on June 30<sup>th</sup>, 2008, stood at USD 141.4 p/b. The 3 months future oil price was USD 143.7 p/b, but the actual oil price was only USD 92.5 on September 30<sup>th</sup> (-36%). On June 30<sup>th</sup>, 2014, the spot Brent oil price was USD 113.5 p/b and the 3 months future stood at USD 112.3 p/b, but the actual price on September 30<sup>th</sup> was USD 94.7 p/b (-16%). Finally, at year-end 2019 the Brent spot price was USD 66.3 p/b and the 3 months future stood at USD 64.1 p/b. Actually, the Brent oil price was only USD 22.7 p/b on March 31<sup>st</sup> (-65%). At the graph below we have given the development of the 3 months future Brent oil price versus the actual price on that date. To sum up, oil price futures are necessary for companies to know what their costs will be, but it is not a reliable indicator on what the oil price actually will be.

**Graph 10: Price difference between spot and 3 months forward oil price**

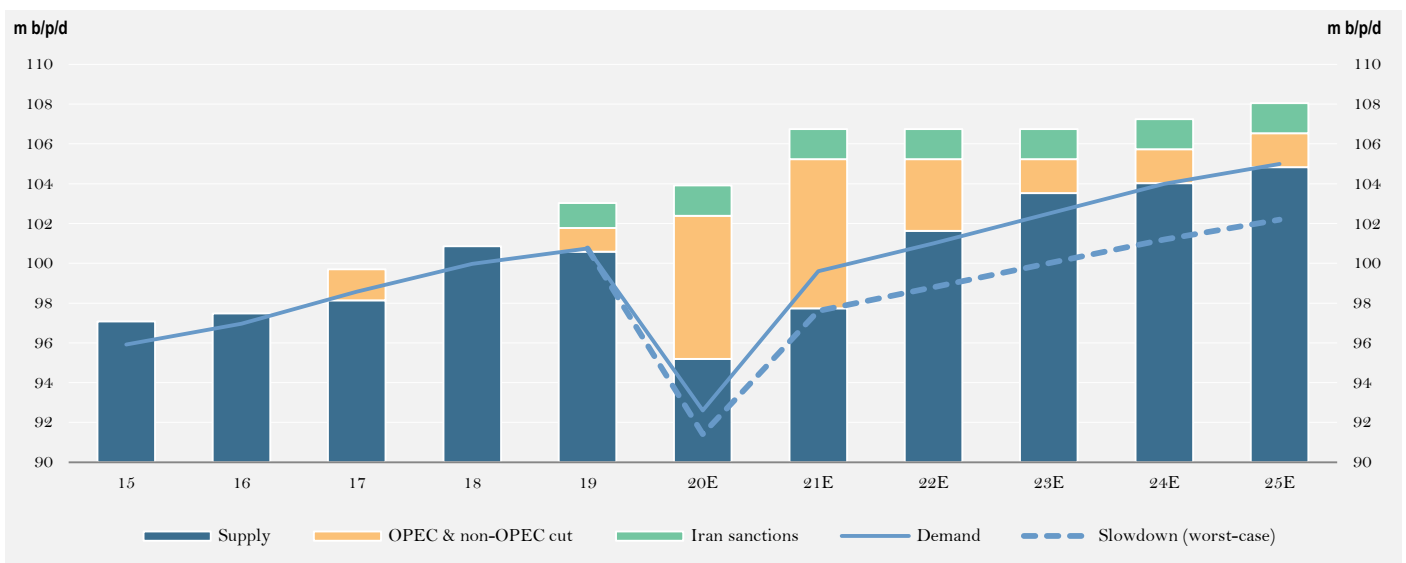


Source: Refinitiv Datastream

### Oil production cutback OPEC & non-OPEC a necessity for a long period

Above I had already discussed the outlook for global oil demand, now I will discuss the oil production outlook. In April OPEC and its non-OPEC allies (mainly Russia) agreed to cut their oil production by an unprecedented 9.7m b/p/d in May and June 2020, 7.7m b/p/d in 2H20, and 5.8m b/p/d in the period January 2021-April 2022. As shown on the next graph, this huge production cutback in 2020 is not enough to balance the market and therefore leading to a strong rise in OECD oil inventories (see graph 3). We have assumed that the 'original' oil production cutback by the OPEC and its allies (1.7m b/p/d as of January 2020), will continue after April 2022. In addition, I believe that oil production in the USA will not rebound earlier than in 2024 due to the deteriorated financial position of the US Independent oil & gas companies (will be discussed later on). I expect oil production growth in Brazil and in Guyana, albeit the latter at a slower path than originally estimated. The graph shows that the global oil market could be in an equilibrium as of 2022, but there is a clear downside risk. If the global economy and therefore oil demand recovers more slowly (worst-case), than there would still be an oversupply of oil of 2-3m b/p/d in the years 2022-2025, I believe.

**Graph 11: Risk of oversupply has increased due to Coronavirus**



Source: IEA, U.S. Energy Information Administration, R. Brakenhoff

In the table below we compare several oil price forecasts from market surveyors. The forecast by Bloomberg is the average based on estimates given by analysts. To illustrate the huge uncertainty level in the market, the oil price

forecast for 2020 is on average USD 43 p/b, but it ranges between USD 33 p/b and USD 68 p/b. I foresee an average Brent oil price of USD 37 p/b in 2020, i.e. average was USD 45 p/b in the first four months of 2020 and I expect a gradual recovery from USD 30 p/b at the moment to USD 35 p/b in 4Q20. Thanks to decreasing oil stocks in 2021, I believe that the Brent oil price will jump to USD 50 p/b. However, I expect slight oversupply of oil in the years 2022-2024, leading to a slight decrease of the oil price. At the worst case scenario, I expect an average oil price of USD 35 p/b in 2020, i.e. USD 30 p/b for the period May-December 2020. Because of forecasted oversupply of oil in the years 2022-2024, I expect that the Brent oil price will decrease to USD 25 p/b.

**Table 8: Brent oil price forecasts (2020 - 2024)**

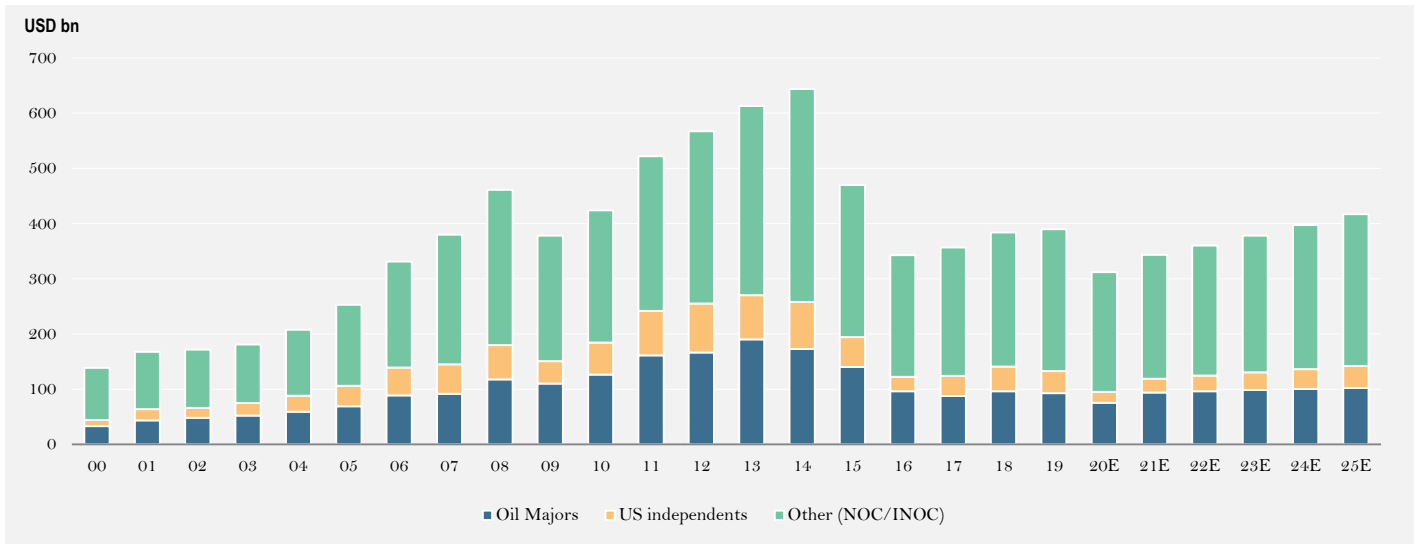
USD per barrel	2020E	2021E	2022E	2023E	2024E
IEA Stated Policies Scenario	67	69	72	75	78
U.S. Energy Information Administration	34	48	67	69	71
World Bank	35	42	44	45	49
Rystad	34	44	70	66	66
IMF	37	40	n/a	n/a	n/a
Bloomberg	43	51	55	62	64
Rabobank	41	51	60	66	n/a
<b>Richard Brakenhoff (base case)</b>	<b>37</b>	<b>50</b>	<b>47</b>	<b>45</b>	<b>45</b>
<i>Richard Brakenhoff (worst case)</i>	35	35	30	27	25

Source: IEA World Energy Outlook 2019, U.S. Energy Information Administration STEO May 2020 and Annual Energy Outlook 2019, World Bank, IMF World Economic Outlook April 2020, Rystad, Bloomberg, Rabobank, Richard Brakenhoff

## Global Upstream E&P CAPEX expected to drop 20% 2020

According to market surveyors global Upstream E&P CAPEX spending more or less stabilised in 2019 compared to 2018, whereas at the start of the year still a 8% rise was anticipated. However, the drop of the North American oil price WTI in the course of 4Q18 made the US Independents, i.e. US oil & gas companies mainly producing onshore shale oil & gas in the USA, to adjust downwards their Upstream E&P CAPEX spending budgets during 2019. At the start of 2020, market surveyors expected stable Upstream CAPEX spending, i.e. lower spending onshore in North America, being offset by higher investments outside North America. The corona pandemic and the steep fall in oil & gas prices has caused the Oil Majors and US Independents to cut their budgets by 19% and 50%, respectively. Also other oil & gas companies, such as Saudi Aramco, have announced considerable CAPEX budget cuts. To sum up, I expect total Upstream CAPEX spending to drop by 20% in 2020. For 2021 I have pencilled in a 10% recovery, mainly based on higher CAPEX spending by the Oil Majors. Looking at the oil price forecasts as shown at table 8, the Oil Majors will have ample financial room to step up their investments again (postponed plans from 2020 being approved in 2021). Excluding the Oil Majors I expect CAPEX spending only to recover by 4%, partly caused by the limited financial room at the US Independents. For 2022-2025 I have pencilled in 5% growth per annum.

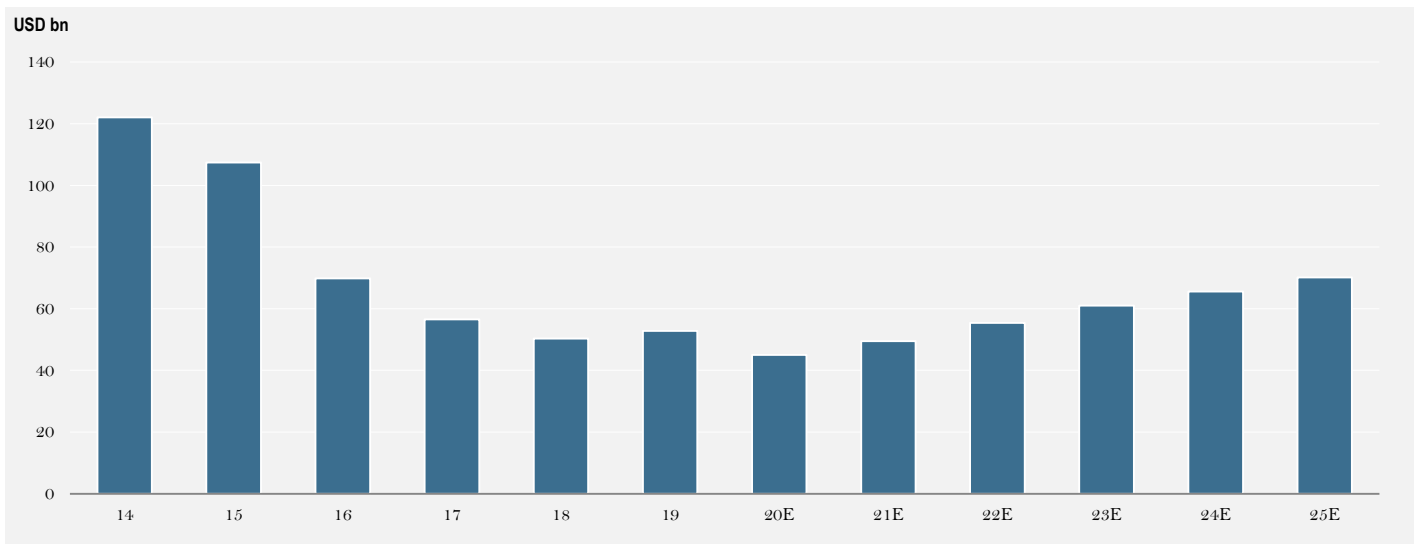
**Graph 12: Global Upstream CAPEX spending forecast until 2025**



Source: Barclays, Rystad, WoodMackenzie, R. Brakenhoff

Regarding Upstream E&P CAPEX spending at Offshore, I believed that the global market had bottomed out in 2018, which was approximately 60% lower compared to the level reported in 2014. However, COVID-19 has resulted in the delay of several offshore projects, such as ExxonMobil’s Rovuma LNG project in Mozambique. Also oil company Hess announced the postponement of the decision of a 3<sup>rd</sup> FPSO offshore for Guyana. I believe that Offshore CAPEX will decrease in 2020, but to a lesser extent compared to Onshore projects in North America. The reason is relatively low break-even oil price production level at offshore (USD 35 p/b or less) compared to onshore. I expect Offshore CAPEX spending to increase again as of 2021 to USD 70bn in 2025 (previously estimate was USD 80bn). The main difference are – again – lower costs at new projects, bringing to total investment sum down.

**Graph 13: Global Offshore Upstream CAPEX spending forecast until 2025**



Source: R. Brakenhoff

**Earnings development of oil majors and US independents in 1Q20**

The oil majors’ total earnings (ExxonMobil, Shell, BP, Chevron, ConocoPhillips, Total, ENI) dropped 40% to USD 10.7bn in 1Q20 due to lower oil (Brent: -19%; WTI -16% YoY) and gas (Henry Hub -35%) prices. The companies’ total E&P net earnings plummeted by 57% to a USD 6.1bn profit in 1Q20 (see table below) due to above mentioned lower oil & gas prices, being only partly offset by 1% higher oil & gas production. The oil majors’ Upstream CAPEX spending slightly declined by 7% to USD 21.2bn. The oil majors’ Cash Flow from Operations fell by 14% YoY in 1Q20, which was not sufficient to cover the companies’ Upstream CAPEX and dividend payments (deficit USD 5.9bn in 1Q20 versus a deficit of USD 2.0bn in 1Q19).

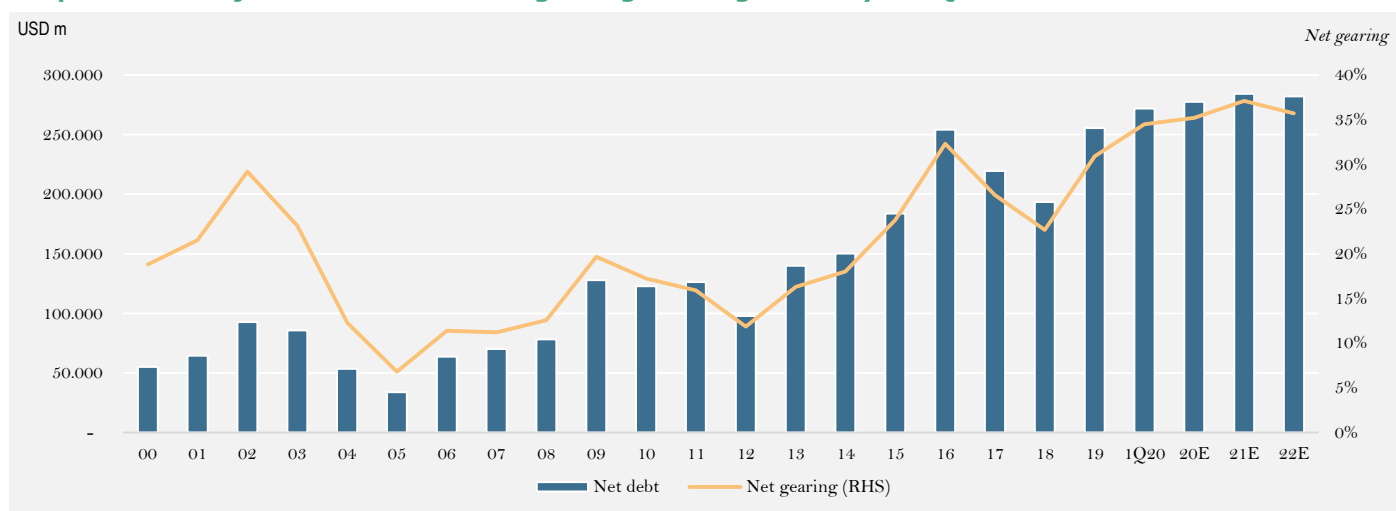
**Table 9: Earnings development of oil majors in 2Q19, 3Q19, 4Q19, and 1Q20**

USD m	2Q19	Change YoY	3Q19	Change YoY	4Q19	Change YoY	1Q20	Change YoY
E&P	+13,985	-8%	+11,318	-41%	+11,704	-31%	+6,069	-57%
Downstream	4,429	-3%	6,969	-5%	5,044	-43%	4,780	+23%
Total	17,083	-19%	17,888	-36%	14,549	-44%	10,677	-40%
Upstream CAPEX	22,785	+2%	22,709	-1%	24,860	-9%	21,169	-7%
Cash Flow from Operations	46,792	+7%	48,032	-9%	48,641	-26%	31,279	-14%
CF from Operations – CAPEX – Dividend	+2,372	-61%	+10,779	-26%	+8,193	-72%	-5,864	n/a

Source: Company websites

Whereas the implementation of IFRS 16 (operational leases included into the balance sheet) as of January 2019 resulted in a significant rise of billions of USD in the net debt level of the Oil Majors, COVID-19 resulted in a further increase in 1Q20. The Oil Major's net debt level climbed by USD 16bn (see graph below) and the company's combined net gearing ratio weakened from 30.9% at year-end 2019 to 34.5% on March 31<sup>st</sup>, 2020. The latter is still very solid compared to other industries or to the US independent oil & gas industry (see also below). However, the weak outlook for 2Q20 and the high level of uncertainty regarding the height and speed of the global economic recovery in the quarter, caused Shell to lower its quarterly dividend payment by 66%, which was for the first time since the WWII.

**Graph 14: Oil Major's net debt and net gearing rose significantly in 1Q20**



Source: Company websites, Refinitiv Please note: Jump in net level at year-end 2019 mainly caused by IFRS 16 (operational leases)

Another group of oil & gas producing companies - the US independents - also reported sharply lower earnings due to the lower oil and prices. Combining the figures of 15 quoted US oil & gas producing companies' net profit declined 95% to USD 0.2bn in 1Q20. Whereas only two out of the fifteen companies reported a net loss in 1Q19 (adjusted for one-offs), the number rose to six companies in 1Q20. In addition, the companies reported impairments and restructuring costs in the amount of USD 32bn, which was the one of the highest figures in the last years (3Q15: USD 38bn). Since the drop of the oil price has started (2H14), the US independents reported cumulative one-offs of nearly USD 200bn. Positively, however, Cash Flow from Operations rose by 3% to USD 9.6bn in 1Q20. Because of the oil and gas prices being under pressure in 2019, the companies lowered their Upstream CAPEX spending by 22% YoY, which was the fourth decrease since 4Q16. In the coming quarters, Upstream CAPEX spending will be substantially lower compared to the same quarters in 2019 (see graph 20b) as the US Independents lowered their budgets dramatically following the impact of COVID-19 (will be discussed later on). Despite the continuously lower CAPEX spending, the combined oil & gas production still rose by 4.6% YoY in 1Q20.

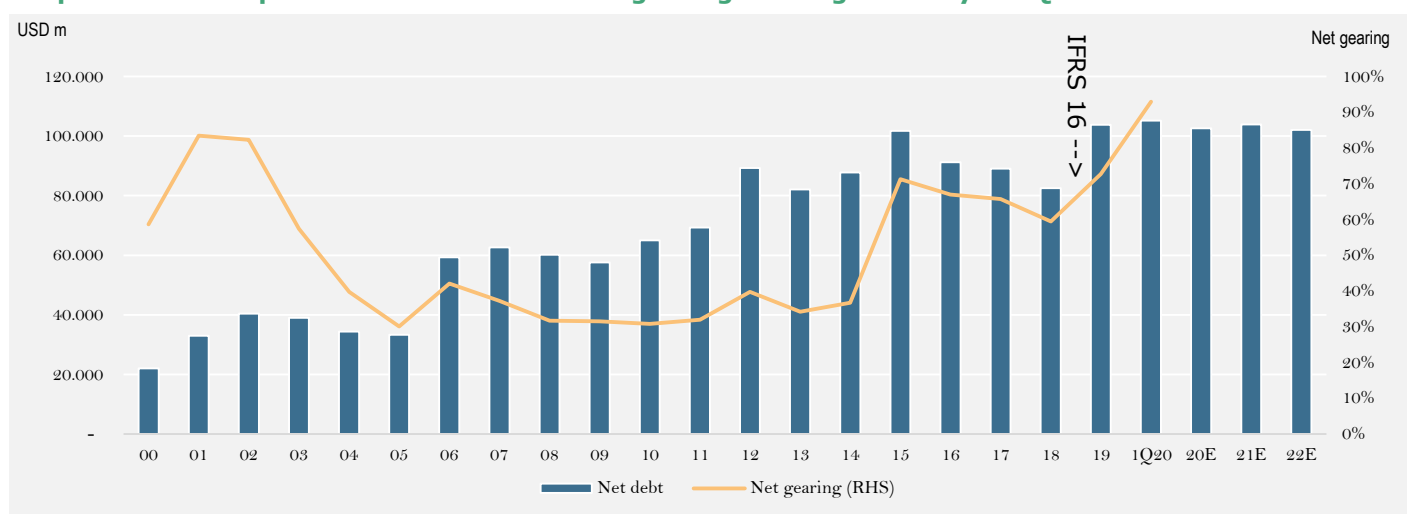
**Table 10: Earnings development of US Independents in 2Q19, 3Q19, 4Q19, and 1Q20**

USD m	2Q19	Change YoY	3Q19	Change YoY	4Q19	Change YoY	1Q20	Change YoY
EBIT	+5,542	-15%	+3,687	-58%	+3,438	-48%	+3,745	-23%
Net profit excluding one-offs	+2,818	-21%	+1,295	-75%	+1,380	-58%	+152	-95%
Oil & Gas production (m b/p/d)	7.1	+8.2%	6.7	-2.5%*	7.1	+3.8%	7.2	+4.6%
Upstream CAPEX	10,989	-10%	9,743	-16%	9,323	-20%	8,867	-22%
Cash Flow from Operations	12,823	+10%	11,112	-23%	10,114	-27%	9,635	+3%

Source: Company websites \*) Adjusted for consolidation effects, production would have been +2% YoY

Looking at the balance sheet, the impact of COVID-19 was hardly visible on the US Independents combined net debt level, which only rose by USD 1.4bn to USD 105.2bn on March 31st, 2020. However, the huge amount of impairments and restructuring costs in 1Q20 pushed down the combined Equity level by nearly USD 30bn to USD 113.3bn, giving a net gearing ratio of 92.9% on March 31st, 2020, compared to 72.7% at year-end 2019.

**Graph 15: US Independents' net debt and net gearing rose significantly in 1Q20**

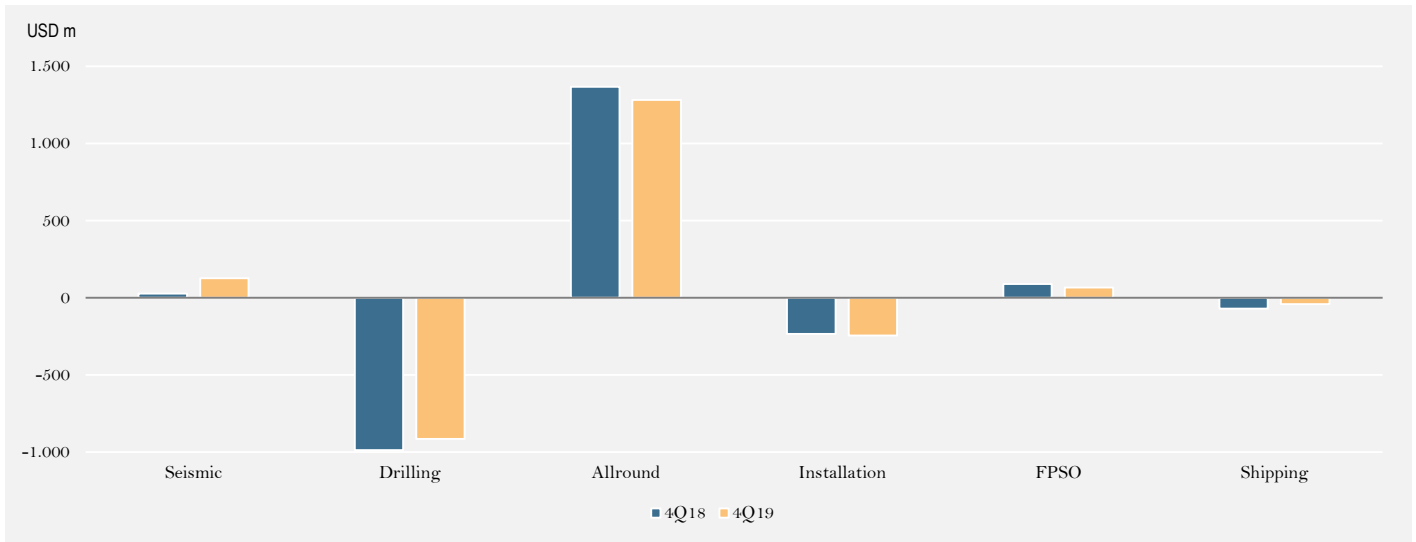


Source: Company websites, Refinitiv Please note: IFRS 16 = As of 2019 operational leases are included in the net debt figures

## Oil Services industry's earnings under severe pressure again

As a number of Oil Services companies have not released their 1Q20 results yet, we will focus on 4Q19 and where possible on 1Q20. Whereas EBITDA recovered at seismic and installation companies in 4Q19, it decreased both at allround oil services companies and at FPSO companies, and losses deteriorated at drilling and Offshore shipping companies (see graph below). In 4Q19 the combined order backlog of the installation and seismic companies climbed by 60% YoY and 35% YoY, respectively. Unfortunately, reflecting the poor order intake in 1Q20, these high percentages fell back to +24% and +5% on March 31<sup>st</sup>, 2020, respectively. At year-end 2019, the order backlog at the drilling companies fell by another 15% (no figure for 1Q20 yet), clearly showing the ongoing extremely market conditions at this segment of the market. Of course, these figures are just before or only with one month (March) of the impact of COVID-19. The latter particularly will be visible in the 2Q20 results, albeit a lot of Oil Services companies that have already reported their 1Q20 results announced huge impairments and restructuring costs. Whereas the Oil Services incurred exceptional losses of USD 2bn at the financial crisis of 2008/2009, in the period 2H14-1Q20 they took impairments and restructuring provisions of USD 171bn. The latter is more than 5 times the sector's record net profit realised in the year 2014.

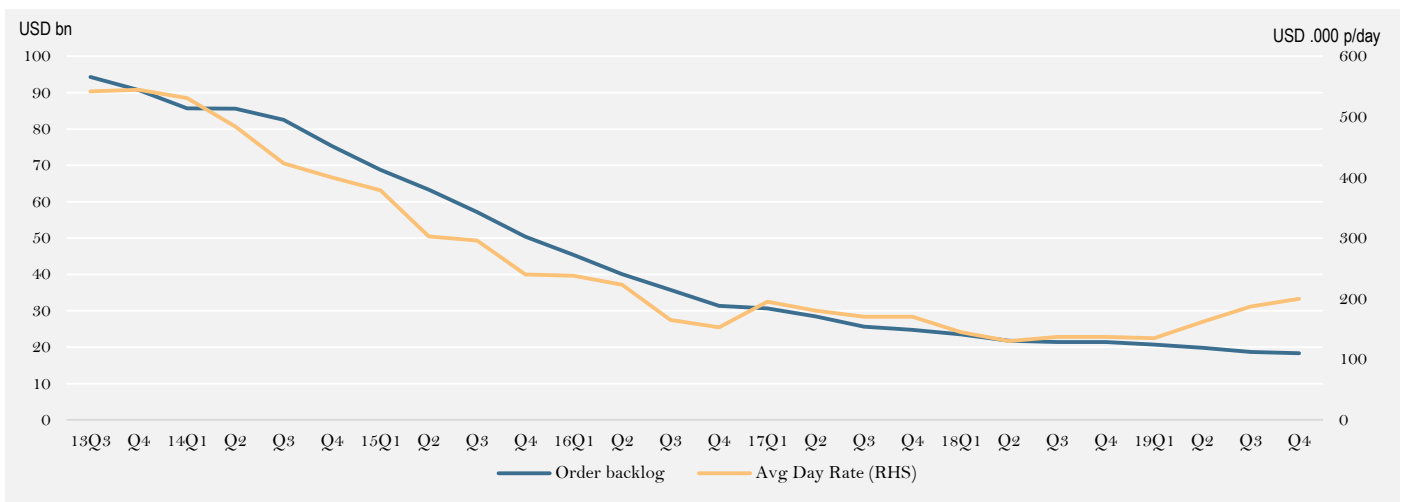
**Graph 16: Earnings improvement Seismic illustrated (temporary) market recovery in 4Q19**



Source: Company websites

Drilling rates of floaters (semi-submersibles and drillships) used at (ultra-) deepwater recovered in 3Q19 and 4Q19, which was for the first time since the start of the crisis at the oil & gas industry (July 2014). Looking at data from Clarkson rates improved further in January and February 2020 (March not available). However, drilling companies Transocean and Noble Corporation announced slightly lower average drilling day rates in 1Q20 compared to 4Q19. The total number of floaters being laid-up expressed as a percentage of the global fleet slightly stabilised at 19% at the end of February, 2020 (latest available data). The market situation at jack-ups is somewhat less worse. At the end of February 14% of all jack-ups were laid-up, which was similar to year-end 2019.

**Graph 17: Order backlog decreased, but day rates at Drilling – temporary - improved in 4Q19**

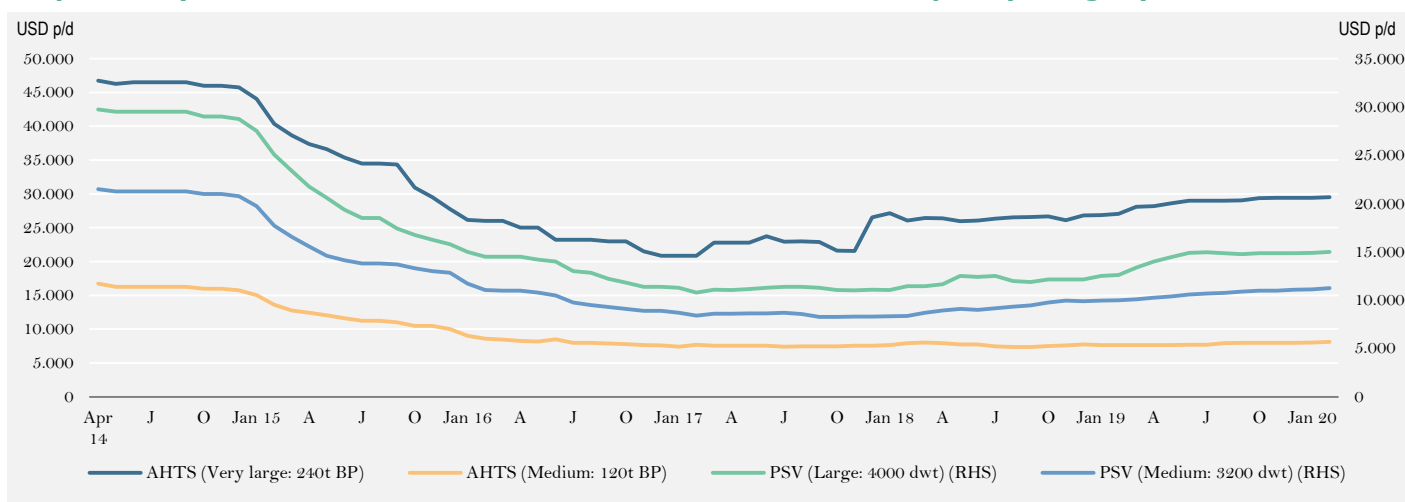


Source: Company websites, Clarkson Research

A similar market picture can be seen at Offshore Shipping. Shipping companies merged together, such as Solstad Offshore and Farstad as well as Tidewater and Gulfmark, with the aim to cut costs. Furthermore, French Offshore Shipping company Bourbon Offshore was in deep financial problems and subsequently being sold, and Hornbeck Offshore went into Chapter 11. Despite that a substantial amount of vessels were scrapped in 2018 (and slightly less in 2019), the percentage of vessels being laid-up remained high at the end of February (AHTS: 25%; PSV: 25%). Although Offshore shipping companies had – at last - passed the trough in 2019, COVID-19 has changed the picture completely again. Looking at the weak financial situation at several shipping companies after five years of depressed earnings, I believe that several companies will not survive this crisis.



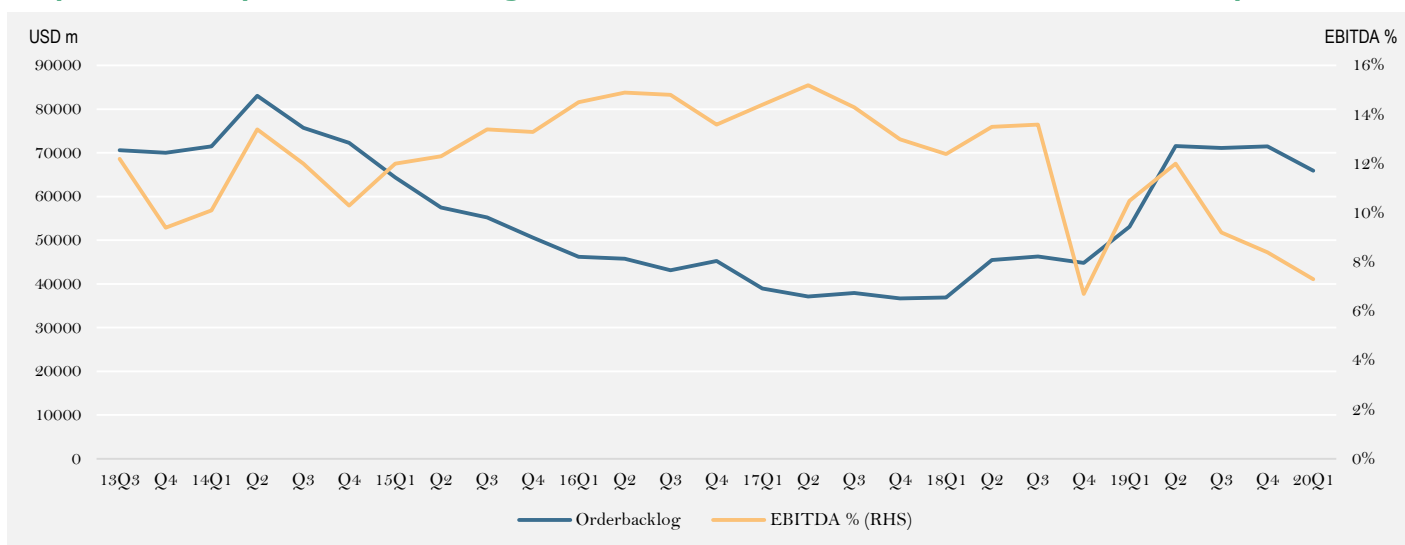
**Graph 18: 1-year time-charter rates for AHTS and PSV vessels – temporary – slightly recovered**



Source: Clarkson Research

Not surprisingly, but the late-cyclical segment of installation/construction reported lower earnings in 4Q19 and 1Q20. One of the reasons was the higher cost estimates at ongoing projects at McDermott, but also TechnipFMC, Saipem, and Subsea7 reported a net loss in 1Q20. Positively, the order intake was strong in 2019, resulting in a 24% YoY higher order backlog at the end of March 2020. Because of COVID-19 and the lowered Upstream CAPEX spending budgets at the Oil & Gas industry, I believe that part of the combined order backlog will be postponed, and/or cancelled and/or renegotiated at lower prices.

**Graph 19: Development order backlog and EBITDA % of the Installation/Construction companies**



Source: Company websites Please note: Order backlog adjusted for CB&I

**Table 11: Earnings development of Oil Services between 1Q18 and 4Q19**

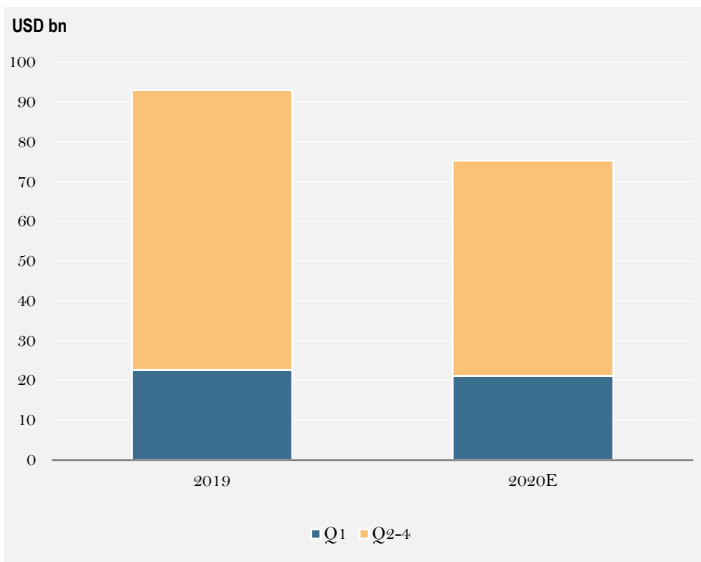
Change YoY	1Q18	2Q18	3Q18	4Q18	1Q19	2Q19	3Q19	4Q19
Sales	+15.6%	+18.6%	+8.1%	+7.7%	+5.9%	+3.1%	-1.9%	-2.1%
EBITDA	+5.3%	+13.5%	+5.9%	+1.7%	-1.2%	-3.2%	-6.7%	-3.1%
EBITDA margin	16.5%	17.8%	17.8%	16.2%	15.4%	16.2%	16.8%	16.0%
Net profit excluding one-offs	+408.5%	+154.2%	-11.4%	-81.8%	-100%	-87.8%	-82%	+44%
Equity (USD bn)		209.8		202.6		190.0		172.1
Net debt (USD bn)		81.6		84.0		98.1		82.8
Net gearing		38.9%		41.5%		51.6%		48.1%

Source: Company websites Please note: Not all companies have reported its 2016-2019 results due to delays as a result of financial difficulties/Chapter 11

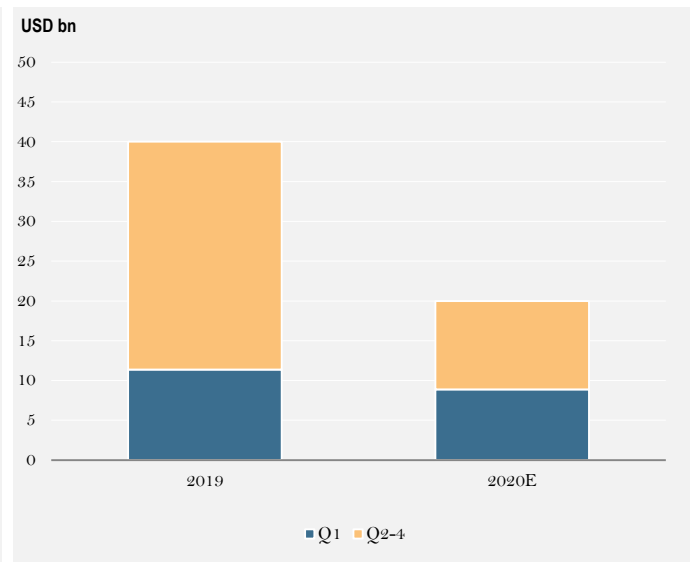
## Oil & Gas Industry strongly reduced their Upstream CAPEX budgets for 2020

Looking at the original Upstream CAPEX budgets for 2020 that were presented at year-end 2019 or early 2020, the Oil Majors and the US Independents expected to spend a combined amount of nearly USD 136bn in 2020, which would have been slightly higher compared to the combined figure in 2019 (USD 133bn). However, in 1Q20 the group together did spend 12% less. In addition, most of the companies, especially the US Independents, announced spectacular budget cuts. Whereas the US Independents originally would have spent USD 35.8bn in 2020, their combined current budget stands at only USD 20.0bn or less. The latter means that the group will cut their spending by more than 60% in the remaining quarters of 2020 (1Q20: -22% YoY) and – if this materialises – Upstream CAPEX spending in 2020 will be less than the trough in 2016. The Oil Majors also announced budget cuts, albeit less severe compared to the US Independents as they are financially stronger as well as less cyclical in their earnings thanks to their Downstream activities. Whereas the Oil Majors originally planned to spend USD 100bn in 2020, their current combined budget stands at USD 75bn, i.e. 23% reduction in the remaining quarters of 2020 compared to the same period last year (1Q20: -7% YoY). If this materialises, it would be the lowest figure since the beginning of the 21<sup>st</sup> Century. Combining the budgets of the Oil Majors and the US Independents, the group will spend 34% less in the remaining quarters of 2020 compared to the same period last year (1Q20: -12% YoY).

**Graph 20a: Upstream CAPEX budget Oil Majors**



**Graph 20b: CAPEX budget US Independents**

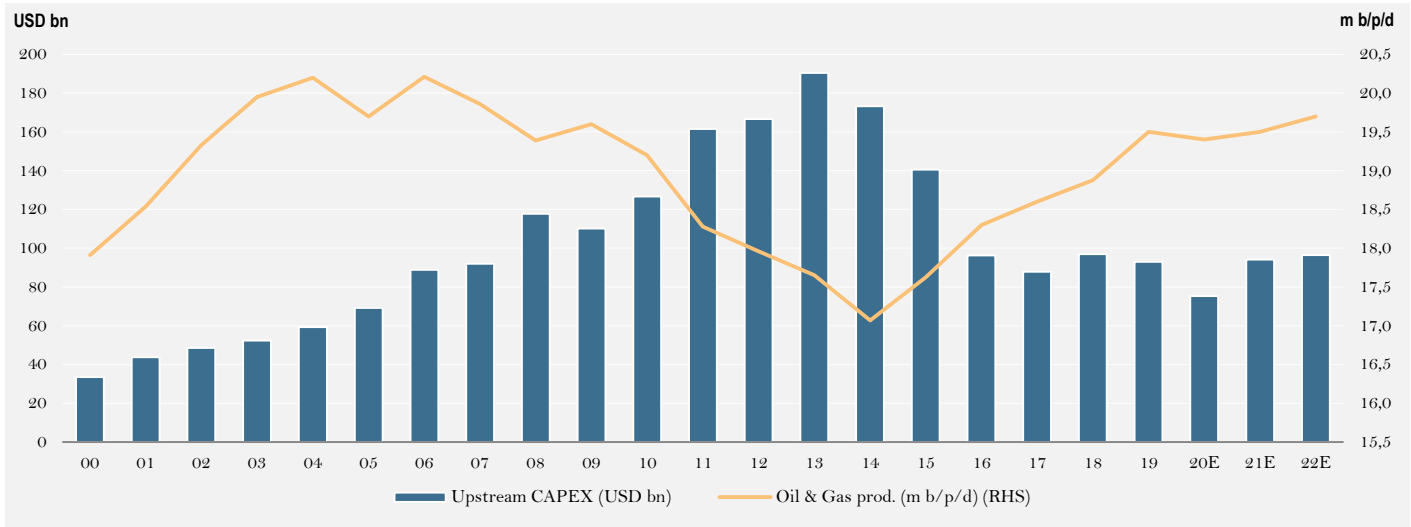


Source: Company websites

## Recovery Oil Majors' Upstream CAPEX spending expected as of 2021

Thanks to a gradual recovery of global demand for oil & gas as well as oil & gas prices as of 2021, I expect that the Oil Majors will raise their Upstream CAPEX spending again, albeit it will remain at a relatively low level in the coming years compared to the period 2011-2014. Thanks to the fact that several large projects have come on stream, such as a number of large LNG projects in Australia, the total oil & gas production by the Oil Majors is expected to go up slightly to 19.7m b/p/d in 2022.

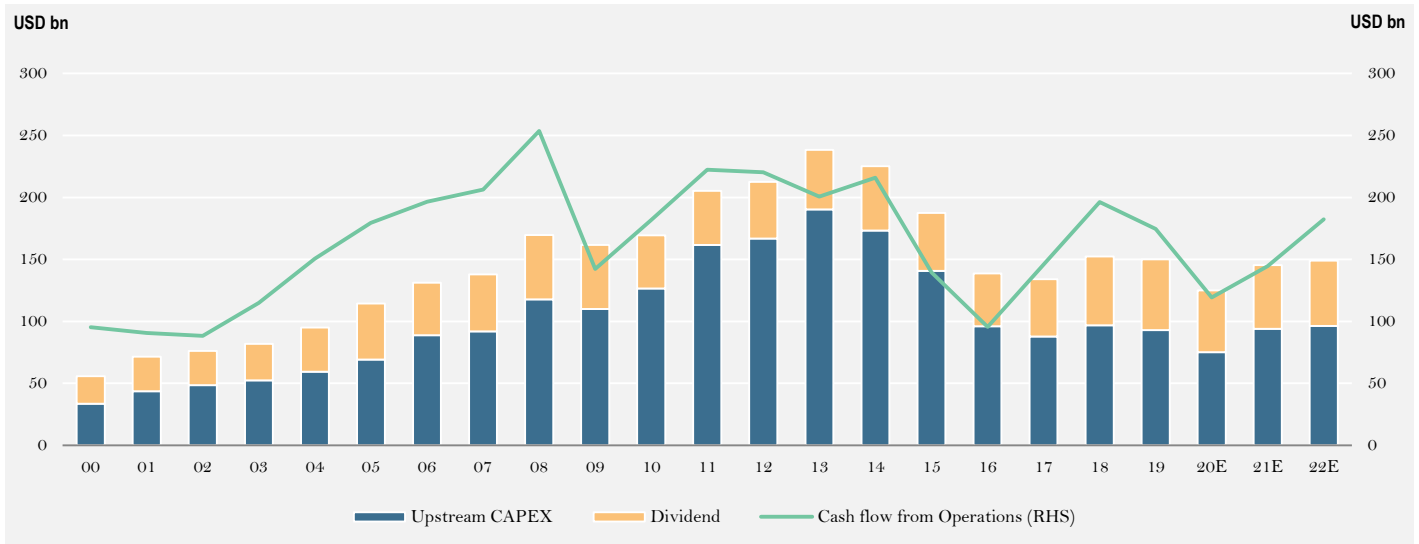
**Graph 21: Upstream CAPEX of Oil Majors recovering as of 2021, but remains relatively low**



Source: Company websites, Refinitiv consensus estimates

For most of the Oil Majors, maintaining or even gradually raising their dividend payments to their shareholders is one of their top priorities. Only BP was forced to significantly cut its dividend payment in 2010 due to the Macondo disaster in the Gulf of Mexico. However, the severe impact of the Coronavirus resulted in a 66% cut in dividend payments by Shell as of 1Q20, which was the first dividend cut since WW II. Because of the sharply lower oil & gas prices in 2015 and 2016, the Oil Majors combined Cash Flow from Operations was not sufficient to cover the CAPEX plans and dividend payments (see graph below). The Oil Majors financed this gap by raising debt, leading to a deterioration of the group’s combined net gearing. However, the recovery of the oil & gas prices as of 2Q16 resulted in a surplus again in the period 2017-2019. Based on equity analyst’s full-year consensus estimates and announcements made by the Oil Majors, Cash Flow from Operations will not be sufficient to cover CAPEX and dividends in 2020 (and probably in 2021 as well). As a result, the Oil Majors have to raise debt to fund their dividend payments. Although the net gearing ratio deteriorated substantially on March 31<sup>st</sup>, 2020, the Oil Majors have ample financial room to finance their CAPEX plans and dividend payments in the coming years, I believe.

**Graph 22: Oil Majors’ Cash Flow not sufficient to cover CAPEX and dividend payments in 2020**



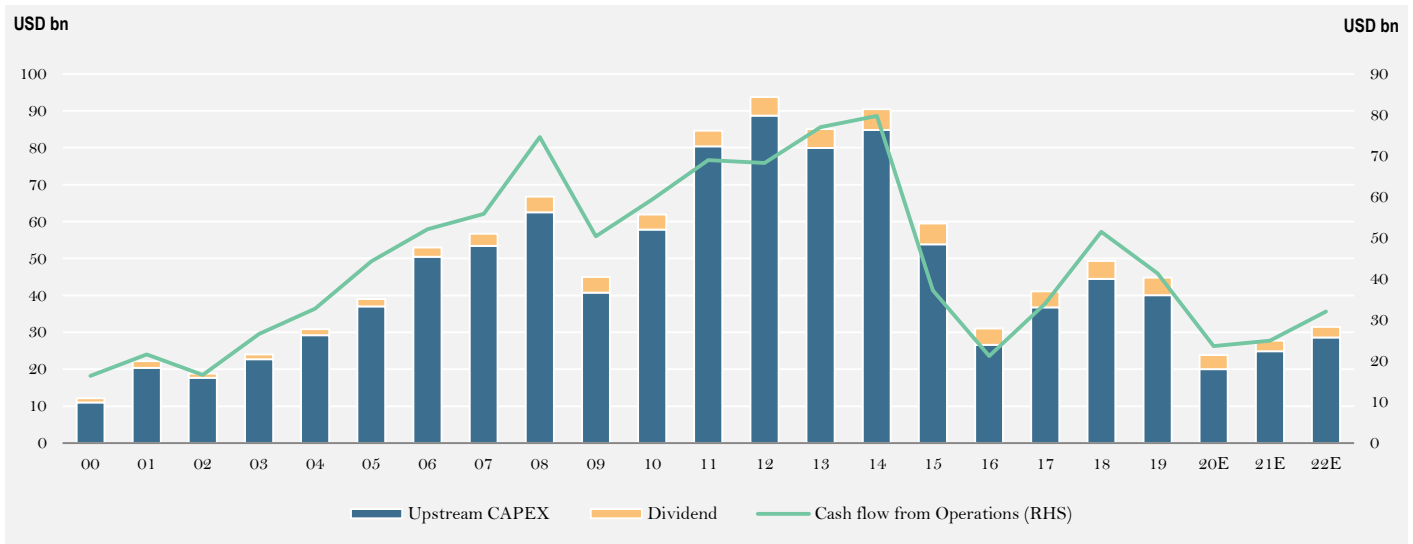
Source: Company websites; Refinitiv consensus estimates

**US Independents will hardly be able to recover CAPEX spending again as of 2021**

As said above, the current market conditions for the US independents are extremely challenging, causing them to cut their Upstream CAPEX spending budgets by – at least – 50% in 2020. As the graph below shows, Equity Analysts expect a slight recovery in the US Independents’ generation of Cash flow from Operations in 2021 and

2022 compared to 2020. However, the height of the cash flow will still be very low historically, giving the companies only limited room to recover their Upstream CAPEX spending again as of 2021. Taking into account the sharply deteriorated financial position (net gearing peaked at 93% on March 31<sup>st</sup>, 2020), the US Independents do not have the possibility – like the Oil Majors – to raise debt to finance their Upstream CAPEX spending plans. Therefore, I believe that Upstream CAPEX spending will only recover marginally in the coming years, i.e. the height of total spending will be comparable to the years at the beginning of the 21<sup>st</sup> Century.

**Graph 23: US Independents’ Cash Flow from Operations remains weak in coming years**

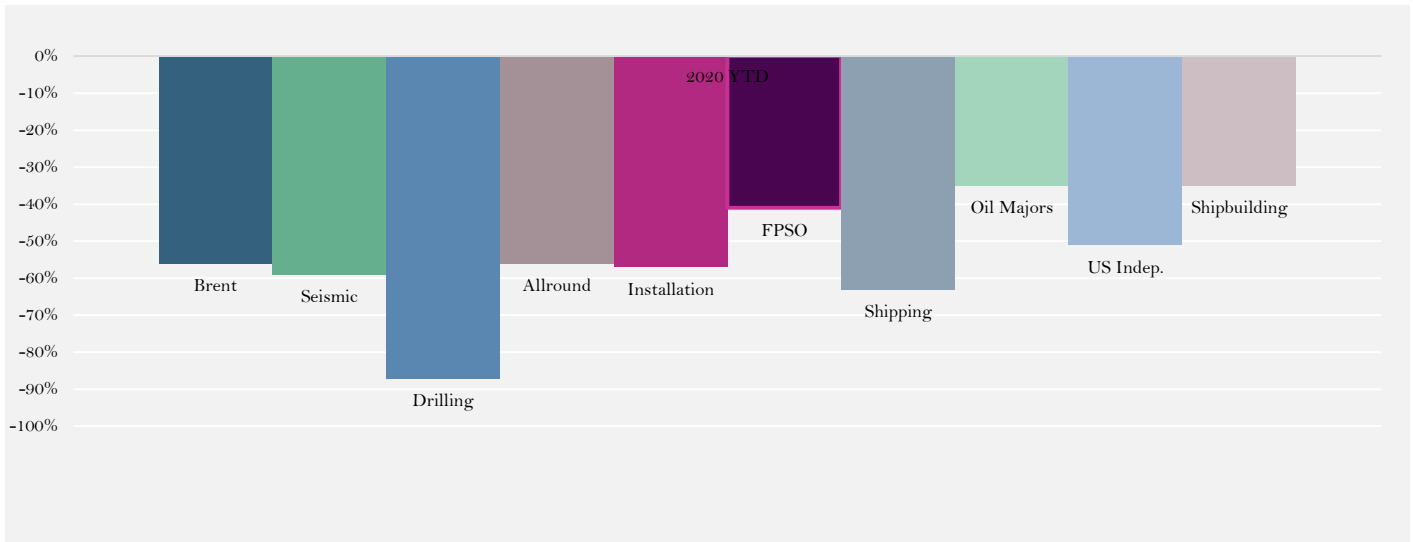


Source: Company websites; Refinitiv consensus estimates

### Massacre at Equity stock markets in 2020 YTD

Since the collapse of the oil price started in July 2014, share prices of the Oil Majors, US Independents, Oil Services’ companies, and Shipbuilding companies plummeted. However, first signs of a recovery was visible in 2019, resulting in a recovery of share prices of Seismic and FPSO companies. Unfortunately, the Corona pandemic pushed down commodity prices strongly and therefore share prices as well. Some companies filed for Chapter 11 (protection from creditors), such as Diamond Offshore, McDermott, Hornbeck Offshore, etc. All told, as of the beginning of 2020 the Brent oil price fell 56%, but share prices of highly cyclical – and financially weak – drilling and shipping companies deteriorated even more. Thanks to its relatively strong financial position and being diversified (Downstream), share prices of the Oil Majors ‘only’ decreased 35%. Also the FPSO operators performed better than the oil price as they benefit - also during the downturn - from the steady earnings contribution by the FPSO lease fleet. In addition, before the ‘new’ oil crisis started in 2020, the FPSO operators could improve their order backlogs significantly during 2019, giving them a good starting point for the coming years.

**Graph 24: Development share prices in 2020YTD compared to Brent oil price**



Source: Refinitiv

As said earlier, oil inventories have climbed strongly in 2020 YTD. Therefore, it would have been logical that quoted tank storage companies performed strongly in 2020. However, quoted US tank storage and oil pipeline operators performed weak in 2020 YTD (January 1<sup>st</sup> – May 11<sup>th</sup>) compared to the Dow Jones index. Only Dutch Vopak showed a positive share price performance, also compared to the AEX index. Belgium tanker company Euronav, which benefits from the strong rise in tanker day rates, showed a negative share price performance. Investors most likely believe that the current exceptionally strong day rates are not sustainable in the coming years.

**Graph 25: Development Tank Storage share prices in 2020YTD compared to Brent oil price**



Source: Refinitiv

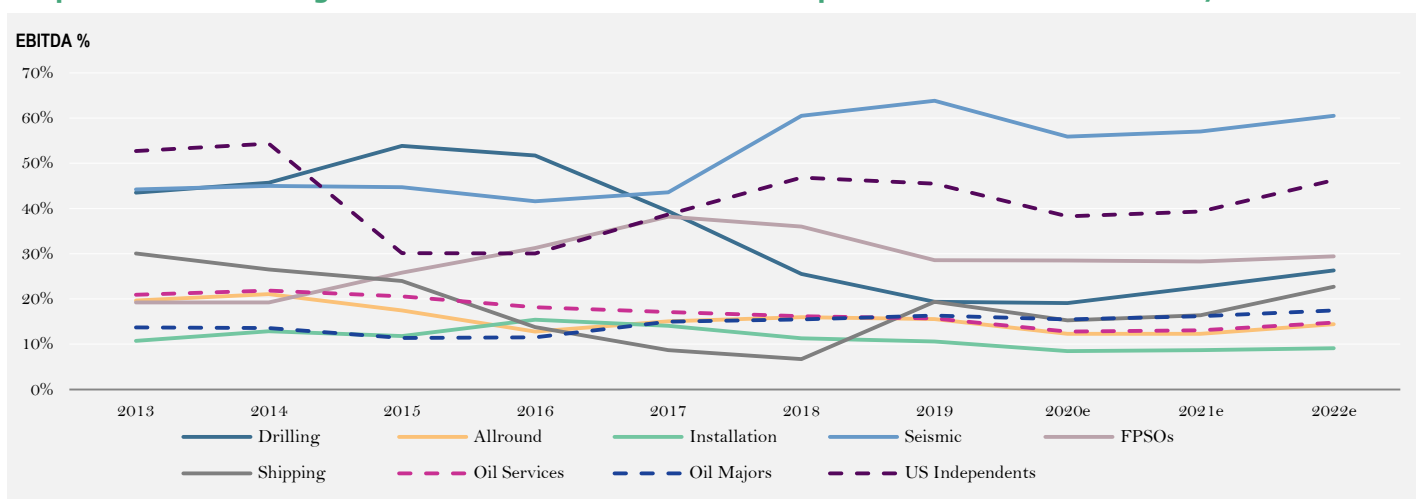
### Recovery Oil Services market postponed by another two years

After several years with in general very difficult market conditions, the market turned around in 2019. However, COVID-19 will lead to a spectacular drop in Upstream CAPEX spending by the global oil & gas industry in 2020. In addition, the spectacular drop in oil demand and weakening financial situation at the oil & gas industry will also put OPEX spending under pressure. It is obvious that 2020 will be a difficult year again for the Oil Services industry. Although I expect that the global oil & gas industry will raise their Upstream CAPEX spending again in 2021, the increase will be marginal and therefore market conditions for the Oil Services industry will remain difficult. As of 2022 I believe that the Oil Services market will recover again, albeit at first mainly volume growth. It will take longer before higher prices and profit margins will become visible. In addition, the early cyclical segments (seismic,

drilling) of the Oil Services' market should recover first, whereas late cyclical segments (subsea/installation, floating production) will follow with a time lag of two years.

The graph below shows the expected EBITDA margin for the different Oil Services sectors and oil & gas companies in the coming years using equity analyst's consensus estimates. No surprise, all sectors suffer from margin pressure in 2020, but severe cost cutting in combination with a gradually recovering global oil & gas market should result in recovering EBITDA margins as of 2021. Whereas the 'peak' year at the industry was the year 2014, for most sectors the year 2020 will be the trough, even more than in the year 2016. However, there are significant differences per sector. For instance the sectors Seismic and FPSOs are expected to realise higher EBITDA margins in 2020 compared to 2014, whereas margins nearly of more than halved at Drilling, Allround companies, and Shipping. Whereas there were the first signs of a recovery at Drilling and Shipping in 2019, the revival is short-lived unfortunately. Filing for Chapter 11, cost cutting, and/or mergers should help these companies to survive this incredible crisis. Equity analysts foresee recovering EBITDA margins at Drilling and Shipping in 2022, but this is still a long way ahead and it is the question how many companies will eventually survive this.

**Graph 26: EBITDA margins of all Oil Services' sectors are expected to recover as of 2021/2022**



Source: Refinitiv consensus estimates

**Short-term oil services market outlook: -**

- Oil price weak (2020E: on average USD 37 p/b);
- Global oil consumption could drop by more than 9 million barrels per day in 2020;
- Upstream CAPEX oil & gas industry stabilised in 2019 compared to 2018, but I expect a drop of 20% in 2020. Particularly investments in onshore North American fields will plummet (-60% YoY in coming quarters);
- Offshore CAPEX spending will decline in 2020, but less severe compared to onshore
- Increased overcapacity at the oil services industry, particularly at drilling and shipping;
- Offshore wind continues to be a booming market, but order intake remains very irregular. In addition, execution risks are increasing, whereas margins are under pressure

**Long-term oil services market outlook: +**

- Growth of global population (2018-2040E: +21%);
- Rise of GDP per capita (2018-2040E: +73%);
- Structural growth in oil & gas consumption (2018-2040E: +21%);
- Oil price remains relatively strong compared to 2015/2016;
- Growth of oil & gas production in (ultra) deepwater;
- Growth of decommissioning market;
- The offshore wind market remains strong, not only in Western Europe, but also in the rest of the world;
- Global oil & gas consumption will continue to increase in the '20s, despite the substitution of oil & gas by renewable energy

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