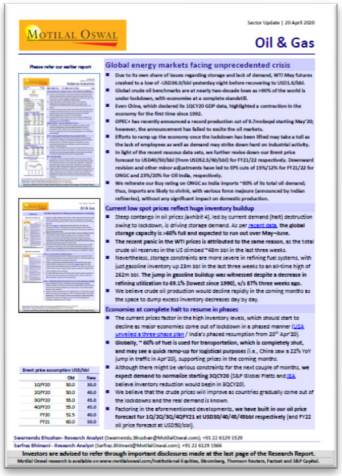
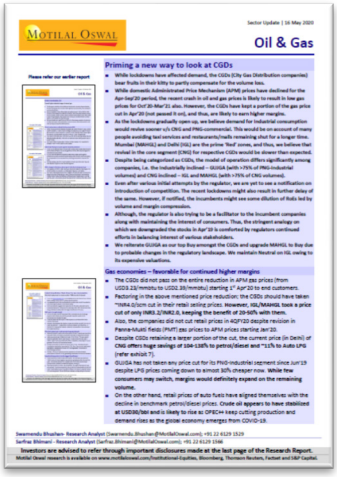
Oil & Gas

Please refer our earlier reports

Global energy markets facing unprecedented crisis



Priming a new way to look at CGDs



Crude oil prices – Low *not* for long

- **The lack of co-operation among OPEC+ countries resulted in Brent slumping to USD15/bbl by Mar'20 end. To add to this, COVID-19-led global demand destruction resulted in Brent plunging to a low of USD11/bbl in April'20, with onland/offshore storage reaching its limit amid continued production.**
- **Latest estimates suggest global demand contraction could be as high as ~8.6mnbopd for CY20, against the initial estimate of 6–7mnbopd. This would be the sharpest decline in growth ever witnessed.**
- **However, lockdowns are being eased across the globe and demand for auto fuels has also seen an uptick. With the easing of product inventories, refiners also appear to have increased their utilization rates, thus increasing demand for crude oil.**
- **On the supply side, production cuts, both intentional (OPEC++) and unintentional (due to poor economies/bankruptcies), appear to be putting upward pressure on oil prices.**
- **Our report highlights what we believe is sustainable oil price (of USD40/50/bbl for FY21/22) for the longer term, and we reiterate Buy on ONGC and Oil India as a result.**

Demand and supply projections

- Against demand growth of 1mnbopd in CY19, COVID-19 has resulted in global institutes such as IEA putting demand destruction at ~8.6mnbopd for CY20 (EIA forecasts de-growth of 8.1mnbopd), the greatest ever witnessed.
- The sharpest decline has been witnessed in aviation and transportation fuels, which account for 58% of the total consumption. However, COVID-19 is also likely to alter transportation trends, with the focus moving away from shared mobility. This would certainly further boost demand for transportation fuels going forward.
- Agreed production cuts by OPEC++ amount to ~8mnbopd (staggered) in CY20. Additionally, few shale oil producers such as Whiting, Diamond Offshore, and Gavilan Resources have already filed for bankruptcy among the others. The US oil rig count has slumped to 301, the lowest since the availability of data (2010).
- US commercial inventories appear to be at 642m bbls, estimated to have swelled up by 7m bbls since Dec'19. As per IEA, the global total crude oil storage capacity is estimated to be ~6.7b bbls, ~4.2b bbls of which is currently utilized.

Global capex cut could result in higher oil prices over next 2–3 years

- Low oil prices, coupled with demand uncertainty, have resulted in large-scale cuts in capex for CY20. Reports suggest ~USD44b (~28%) of capex has been cut for CY20 in North America only.
- Almost 80% of incremental oil production growth in the past five years has come from US shale oil drillers. They need to drill a much higher number of wells as production decline is quite sharp in a typical well. Hence, a large share of capex in the US is put toward sustaining production rather than supporting growth.
- A large part of the incremental production globally is carried out in difficult fields (high temperatures/pressures/ deep or ultra-deep waters), which also require a higher breakeven oil price. The capex cut is also likely to keep new production at bay for longer, which may drive up oil prices going forward.

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Decline in global inventories

- Latest data suggests that from the peak of 263.2m bbls in Apr'20, US total petrol inventories declined to 255m bbls for the week ending May'20. Even the utilization rates for US refineries have jumped to 71% for the week ending May'20 (from 67% in Apr'20).
- Tanker rates have plunged from the peak of ~USD250k/day in Apr'20 to USD60k/day as demand for vessels for use as storage has reduced.
- Two big economic powerhouses, China and India, appear to be springing back to life. While Chinese refineries started ramping up their utilization from last month itself, Indian refiners also appear to have ramped up their utilization in the last few days. This suggests normalization in oil demand, which would be reflected in higher oil prices.

Breakeven prices for Middle East countries

- The GDPs of most Middle East countries have a high dependency on oil. Saudi Arabia, the largest oil producer, is estimated to require oil price of USD91/bbl to achieve budget breakeven.
- Iraq, the second largest producer in OPEC, also requires breakeven price of ~USD70–75/bbl for its GDP, while Iran requires breakeven of USD180–190/bbl.
- Outside the Middle East, upstream accounts for 30% of Russia's GDP; hence, higher oil prices are also a necessity for the Russian economy. Hence, despite the non-cooperation prior to the Mar'20 meeting, both Russia and Saudi Arabia agreed for a sharp production cut in their subsequent meeting in Apr'20.

Shale, the biggest loser

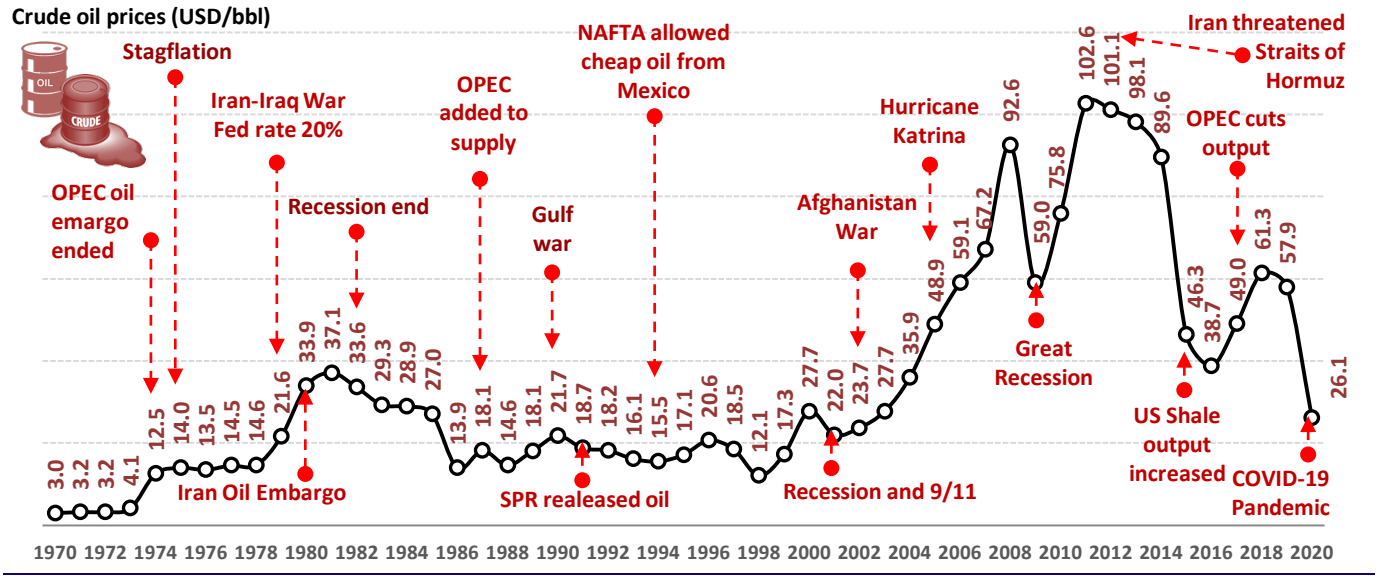
- Although there is a lot of confusion related to breakeven prices for shale producers, they still appear to be at the higher end of the cost curve, along with deep/ultra-deepwater production.
- Few companies such as Whiting, Diamond Offshore, and Gavilan Resources have announced bankruptcy. The total debt of USD86b is estimated to be due for payment over CY20–24, and an additional USD123b needs to be refinanced during this period (link).
- The IEA estimates US shale oil production would decline by 3.6mnbopd in 2020 after growth of 4.7mnbopd reported during CY17–19. This production cut would also provide a base to oil prices.

Valuation and recommendations

- As a result of capex cuts, demand revival, and better cooperation among OPEC++ countries, we expect oil prices to stabilize at USD40–50/bbl over the next few months. We expect oil to trade at USD50–60/bbl in the longer run.
- For our projections, we assume Brent of USD40/bbl in FY21 and USD50/bbl in FY22 (both unchanged).
- While no oil production growth is expected for ONGC, the company's efforts to arrest decline from age-old fields (accounting for 60–70% of the total oil production) is commendable. The company is working on 13 projects, which would help it maintain oil production at 24mmtpa (both domestic and JVs).
- Unlike Oil India, ONGC is expected to grow its gas production by ~11%/26% at 27.9bcm/35.2bcm in FY21/FY22. Although domestic gas prices may decline further from Oct'20, we expect them to be at the bottom during this period. Gas prices would start recovering owing to better global demand.

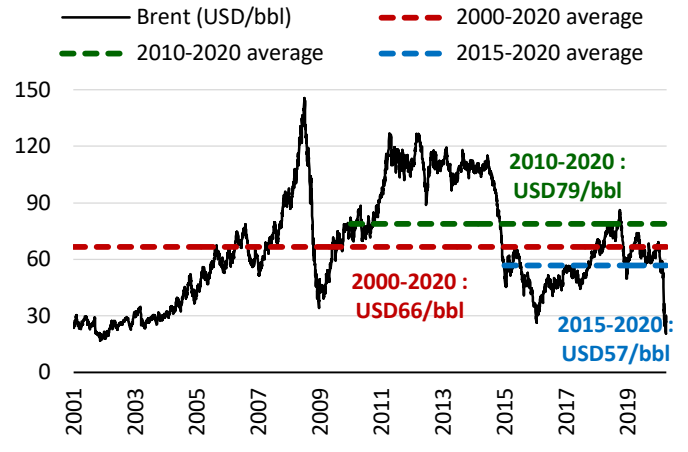
- According to **recent news**, the government is formulating a structure to give Indian upstream companies some relief in royalty and cess as well as other reliefs. As per our model calculation, 1% change in cess results in 2% consol. EPS change for ONGC.
- We forecast gas price of USD2.8/mmBtu in FY21 and USD3.0/mmBtu in FY22. A change of USD1/mmBtu in gas price would result in a change of 18% in the company's consolidated EPS.
- ONGC is trading at 3.3x FY22 EV/EBITDA and 4.3x FY22 PE. While for financials projection, we use USD50/bbl, we raise our PE multiple from 8x to 10x expecting further increase in oil prices. We reiterate Buy with a target of INR105. We further highlight that a change of USD1/bbl in oil price impacts the consol. EBITDA by 2%. Reiterate Buy.
- OINL is not expected to show any sharp increase in oil or gas production going forward. OINL is trading at 3.8x FY22 EV/EBITDA and 5.3x FY22 PE. We value it at 8x FY22 adjusted PE and add the value of investments to arrive at a target price of INR105. We further highlight that a change of USD1/bbl in oil price impacts the consol. EBITDA by 3%.

Exhibit 1: Oil price chart – annotation highlighting major events



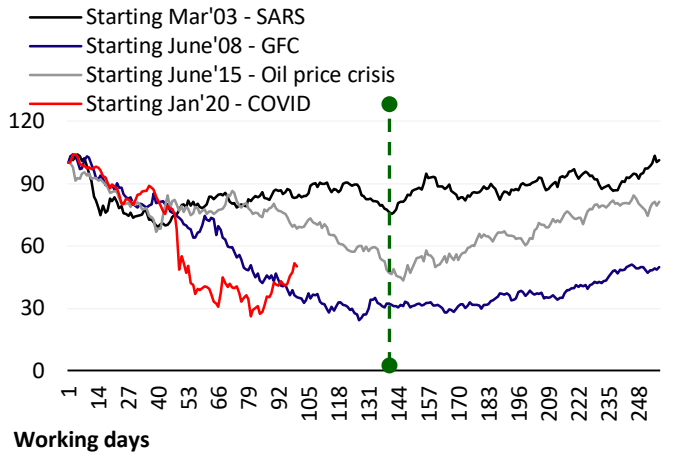
Source: MOFSL

Exhibit 2: Long-term price average stands above USD55/bbl



Source: Bloomberg, MOFSL

Exhibit 3: Indexation price chart – past crude oil crises



Source: Bloomberg, MOFSL

OPEC+ cuts – attempt at balancing the markets…

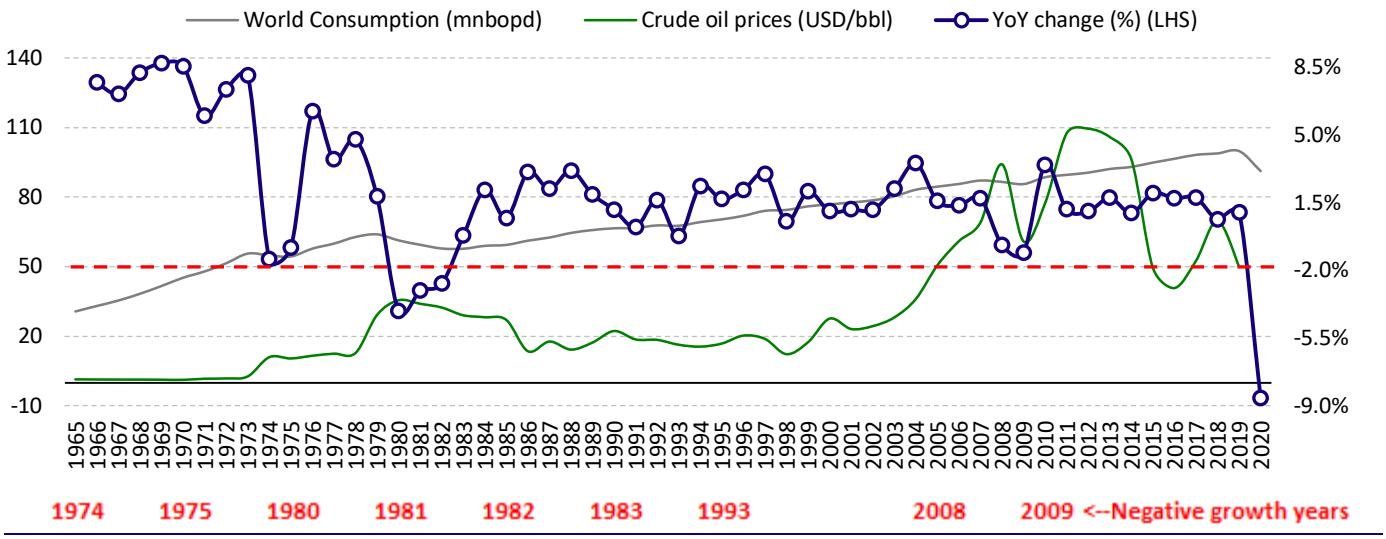
…further aided by economies coming out of lockdown

- **Global crude oil benchmarks tumbled to multi-decade lows as almost the entire world went into lockdown, with economies at a complete standstill.**
- **The lack of minimal demand for crude oil resulted in huge surplus in production, translating to inventories reaching their peak capacities.**
- **OPEC+, as a result, announced a record (voluntary) production cut of 9.7mnbopd starting May'20; however, the announcement failed to excite the oil markets.**
- **Although, as economies across the globe came out of lockdown in a staggered manner, the expected OPEC+ cuts seemed magnified, aided by improving demand. Crude prices rallied quickly from <USD20/bbl to the current ~USD35/bbl.**
- **The challenges remain whether economies just out of lockdown could adapt to the new normal: a world with a virus; economic activity may be boosted as a result.**
- **Our crude oil price forecast stands at USD30/40/45/45bbl for 1Q/2Q/3Q/4Q of FY21, averaging at USD40/bbl for FY21; we build in USD50/bbl for FY22.**

Unprecedented demand destruction…

- Demand in 2020 is expected to see growth destruction of ~8.6mnbopd, the worst since 1965, as per the IEA (after an upward revision by 0.7mnbopd v/s 9.3mnbopd forecast in its Apr'20 MOMR). April'20 saw a record 29mnbopd plunge and ~26mnbopd in May.
- The sharpest decline has been witnessed in aviation and transportation fuels, which account for 58% of the total consumption. However, COVID-19 is also likely to alter transportation trends, with the focus moving away from shared mobility. This would certainly further boost demand for transportation fuels going forward.
- We believe despite various constraints for the next couple of months, demand would normalize starting 3QCY20 (S&P Global Platts and the IEA believe inventory reduction would begin in 3QCY20).
- **However, we also believe there would be more clarity in terms of real demand as countries gradually come out of lockdown, supporting prices further.**

Exhibit 4: 2020 to see largest percentage decline of ~9% (as per decline of 8.6mnbopd) since 1965

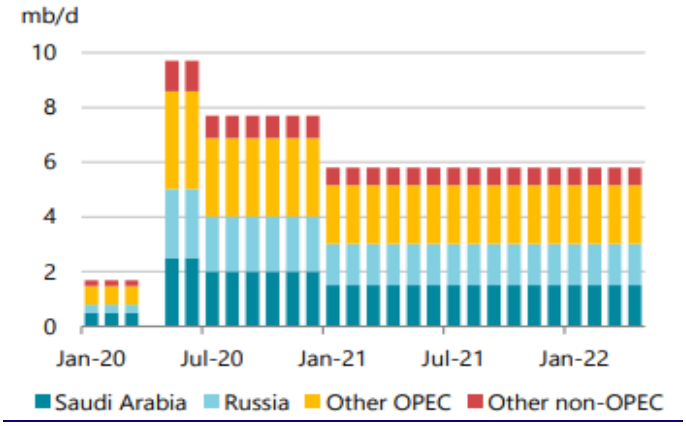


Source: BP, MOFSL

…requires unprecedented supply cuts

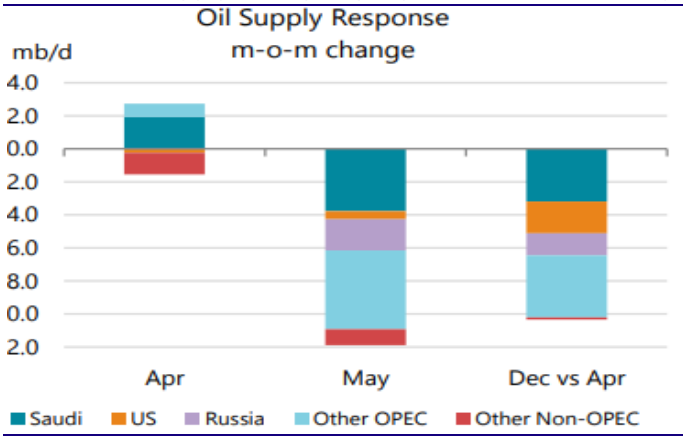
- The deal announced by OPEC+ on 9th Apr'20 entails a series of phased cuts up to Apr'22, as follows:
  (1) **Production cut by 10mnbopd starting May–June'20**
  (2) Cuts would be reduced to 8mnbopd during Jul–Dec'20
  (3) Eventually, cuts would be reduced to 6mnbopd over Jan'21–Apr'22
  (4) The extension of the agreement would be reviewed in Dec'21
- The cut is with regard to Oct'18, and baseline production for Saudi Arabia and Russia has been set at 11mnbopd (in Oct'18, the former produced 10.6mnbopd, while the latter 11.6mnbopd).
- **As per May'20 OPEC MOMR, Saudi Arabia (by 1mnbopd), the UAE (100kbopd), and Kuwait (80kbopd) announced (on 12 May) that they would voluntarily deepen oil output through adjustments from June in an effort to expedite draining the global supply glut and rebalancing the oil market.**
- As per the IEA, May is set to see a massive supply cut of 12mnbopd (the lowest in nine years) as OPEC+ cuts come into play. On the other hand, the US and Canada have already seen a drop of 3mnbopd in April v/s the start of the year.

Exhibit 5: OPEC+ production cuts – extend to Apr'22



Source: IEA, MOFSL

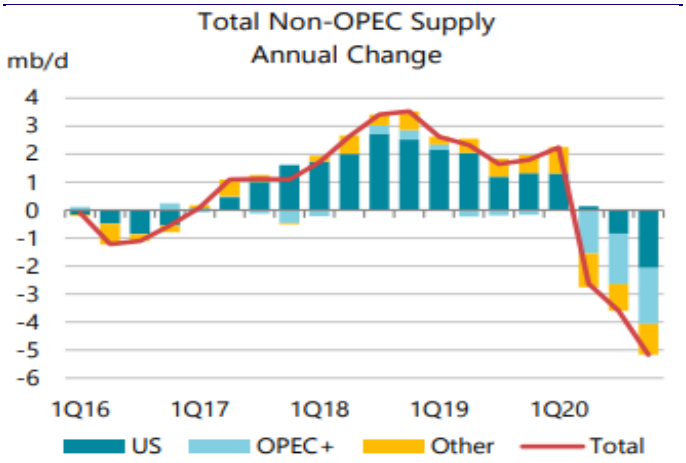
Exhibit 6: Oil supply set to plunge by record 12 mb/d in May



Source: IEA, MOFSL

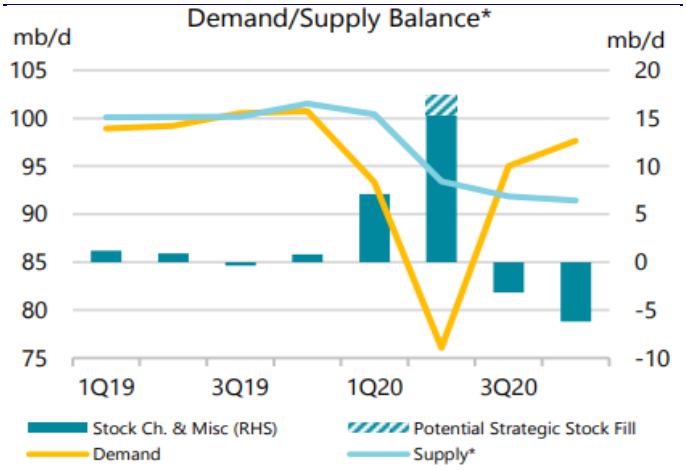
- Collapsing demand in 2QCY20 implies that even with supply cuts from May, stocks could build up by a massive 17.4mnbopd. However, the IEA believes stock draws in 2H20 could amount to 4.7mnbopd, assuming demand recovers.
- **Thus, the total average production is set to fall by 2.3mnbopd in 3QCY19 and 5mnbopd by year-end.**
- The IEA forecasts the US, Canada, Brazil, and Norway to decline by a total of 3.6mnbopd; however, the timing of the cuts may vary.
- Similarly, the OPEC estimates 3.5mnbopd decline for Russia, the US, Canada, and Brazil.
- Hence, as per the demand/supply balance chart below, the demand-supply balance is expected to turn positive ~5mnbopd by the end of 2020, given there is 100% compliance from OPEC+ and no further demand-led concerns ahead.

Exhibit 7: Supply declines to be >5mnbopd by year-end



Source: IEA, MOFSL

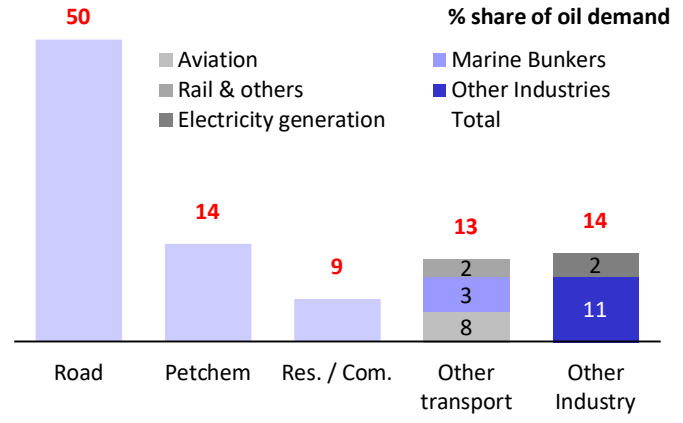
Exhibit 8: Demand/Supply to balance in 2HCY20



Source: IEA, MOFSL

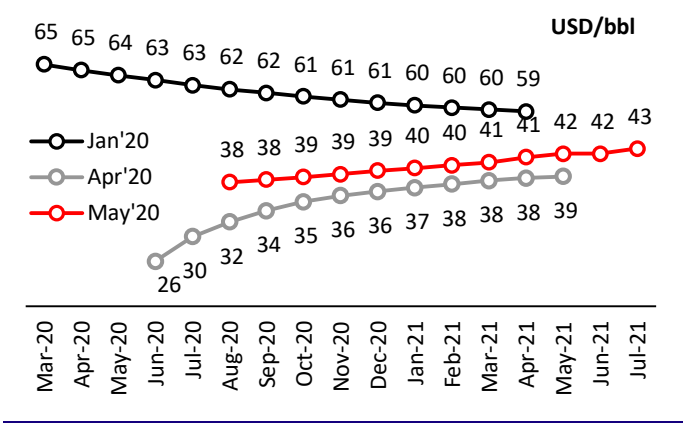
- **Globally, ~60% of fuel is used for transportation, which was completely shut during lockdown; it has started seeing a ramp-up for logistical purposes as the economy revives.**
- China saw a 22% YoY jump in Apr'20 in both road and air traffic. Key macro indicators, such as work at large industrial enterprises, freight turnover, and car sales, returned to near prior-year levels in April.
- **The forward Brent curve in May'20 is tuning flat (from being into a contango in Apr'20) as various countries plan on lifting their lockdowns. The curve was in backwardation in Jan'20 with the first COVID-19 outbreak and risk of huge demand destruction globally.**
- The COVID-19-led impact on prices was much higher than other oil price crises (refer exhibit 3); however, revival has also been strong, with improvement seen in transportation and logistical requirements.
- Also (refer exhibit 2), in the long term, historical prices have hovered at >USD55/bbl in the last five years despite witnessing two major crises (2016 oil crisis and COVID-19 demand destruction).

Exhibit 9: Transportation constitutes >60% of oil demand



Source: Statista (*Note: OECD in 2017)*, MOFSL

Exhibit 10: Forward curve is turning flat from steep contango

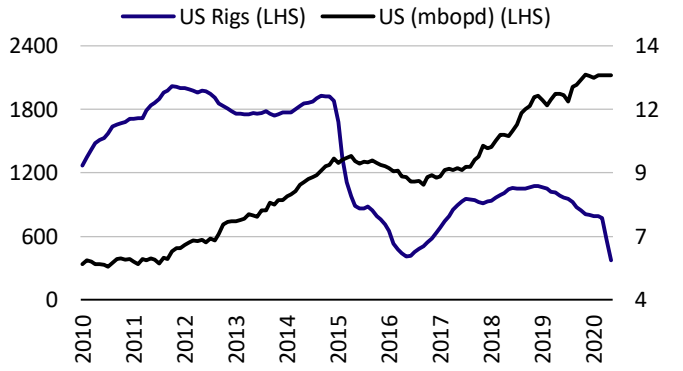


Source: Bloomberg, MOFSL

Involuntary cuts: US the facilitator

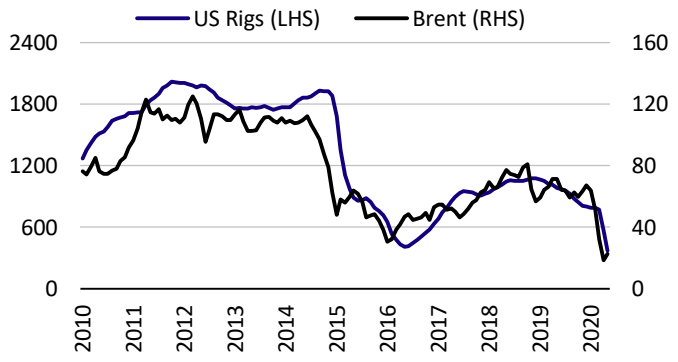
- OPEC++ (the US, Canada, Brazil, China, Norway, and others) potential involuntary cuts would largely be due to the closure of uneconomical fields (already being witnessed in Brazil and Canada).
- As per the IEA, the US and Canada have already posted a drop of 3mnbopd in April v/s the start of 2020.
- This phenomenon would strongly support global crude prices as some of the older fields may not be able to return to production once they have been closed.
- Also, along with the plunge witnessed in the rig count (down 62% since 28th Feb'20 levels), US oil producers have cut capex by ~27% (USD38b) for 2020 as it would be impossible for US producers (with high breakeven of USD48–54/bbl) to sustain at current oil prices.
- Companies have cut their production outlook, delayed new activity, and/or lowered their dividend payout plans.
- The EIA forecasts US crude oil production to decline, averaging ~11.7mnbopd in 2020, and further drop to 10.9mnbopd in 2021 (v/s 12.2mnbopd in 2019).
- US being a net exporter saw some relief on the demand side as the economy came out of lockdown and demand saw revival.
- However, the Permian basin accounts for 20% of the total US oil production; also, because they have lower breakeven, drillers would be the last to close and first to lead new output if oil prices collapse or improve.

Exhibit 11: US shale rigs in service reduced after 2016 crisis as producers improved efficiencies of their wells



Source: Baker Hughes, MOFSL

Exhibit 12: While, US rigs move in exact tandem with global crude oil prices (currently even below 2016 levels)



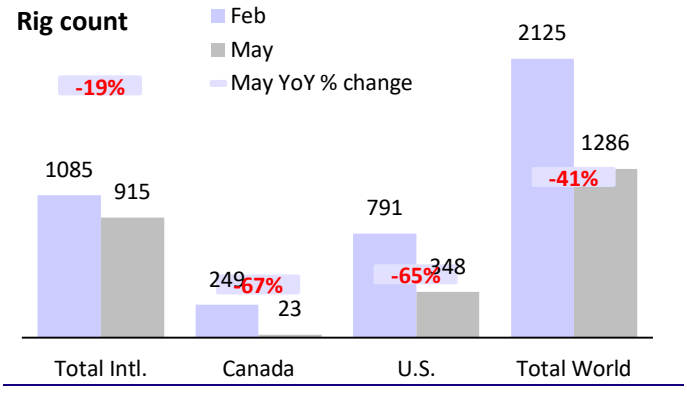
Source: Baker Hughes, MOFSL

Exhibit 13: US shale – average crude oil price breakeven according to various regions

Play	Average	Minimum	Maximum
Permian Basin – Midland	48	23	65
Other U.S. (Shale)	49	35	60
Permian Basin – Delaware	49	40	65
Other U.S. (Non-shale)	49	20	75
Eagle Ford	51	40	75
Oklahoma – SCOOP/STACK	53	48	60
Permian Basin – Other	54	40	70

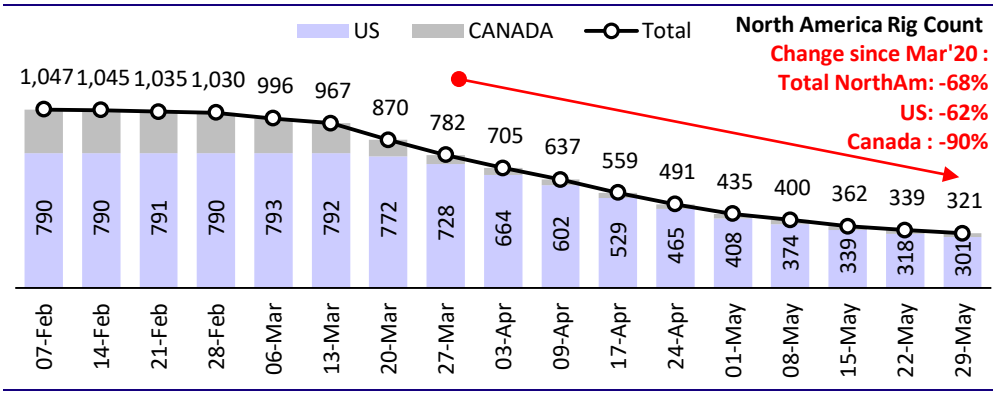
Source: Dellas Fed Energy Survey, EIA, MOFSL

Exhibit 14: Change in rig counts



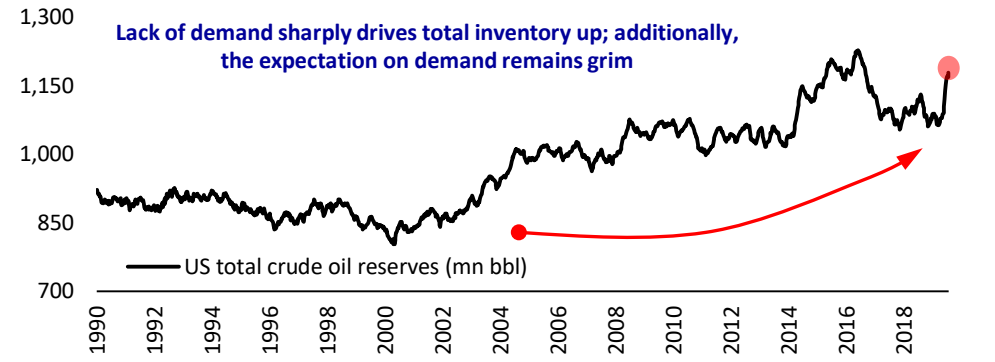
Source: Baker Hughes, MOFSL

Exhibit 15: US rig count is down more than 50% since Mar'20



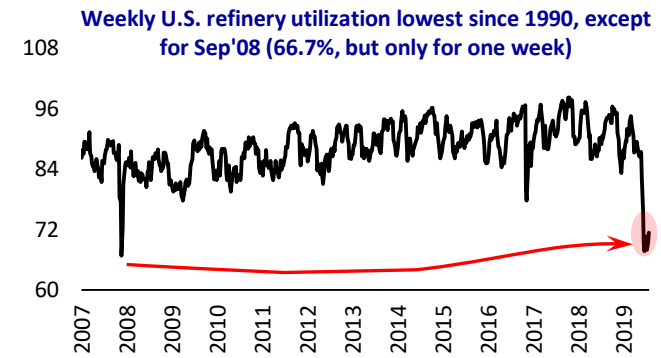
Source: Baker Hughes, MOFSL

Exhibit 16: US total crude oil reserves increases by 3% in last five weeks



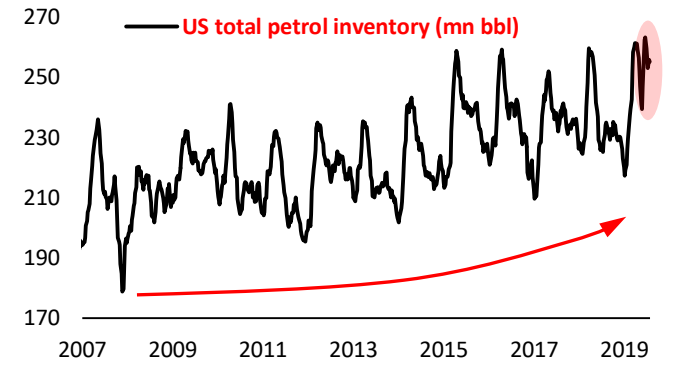
Source: EIA, MOFSL

Exhibit 17: While US refinery utilization improves back to 71.3%...



Source: EIA, MOFSL

Exhibit 18: ...all-time high inventory of gasoline saw dip of 3% in last five weeks



Source: EIA, MOFSL

What are the major E&Ps doing…

…in the current crises of low oil price, forced production cuts, and poor demand outlook?

Saudi Aramco

- It has reaffirmed its commitment to pay dividend of USD75b this year. However, it also needs to pay the first installment for the USD70b acquisition of Saudi Basic Industries Corp (SABIC).
- The Kingdom is expected to cut a total of 4.8mnbopd of oil production as per reported news, which would severely impact its profits in 2020.
- News suggests the company is contemplating raising USD10b through a pipeline stake sale amid capex of USD25–30b for 2020. On the other hand, capex for the next two years may reduce.
- The company also appears to be in talks to raise USD10b in debt to fund its SABIC acquisition.

Exxon Mobil

- It wrote off USD3b, resulting in loss of USD610m in 1QCY20, against profit of USD2.4b last year.
- It is expected to cut production by ~0.4mnbopd in 2QCY20 through shut-ins and curtailments. The Permian drilling rig count is expected to be cut by as much as 75% by 2020-end.
- It is expected to lose total revenue of USD70b in 2020, against total revenue of USD265b reported in 2019.
- It targets a 15% cut in operating expenditure and 30% cut in capex for 2020.

Chevron

- It has cut its capex by USD4b as well as suspended its share buyback plans. The cuts include USD2b in expenditure in shale. So-called cash capital and exploratory expenditures are seen dropping by USD3.3b to USD10.5b in 2020.
- Production this year is seen as roughly flat relative to 2019.
- The company says it would shut as much as 400k barrels of daily output.

Royal Dutch Shell

- It has suspended its share buyback plans.
- The company has surprised investors with a two-thirds cut to its dividend to 16 cents per share from 47 cents for the first time since the Second World War.
- Shell would use measures, including voluntary severance for staff, to bolster its finances as the COVID-19 pandemic batters net profits, which halved in the first three months of 2020 to USD2.9b.
- Shell has forecast that its refineries would not run at more than 70% of their capacity in the current quarter.
- It would reduce capex this year to USD20b at most from the planned level of about USD25b, and cut an additional USD3–4b in operating costs over the next 12 months.
- Trefis expects Shell's total revenues to be negatively impacted by slow economic recovery in the latter half of the year and stand at roughly USD232b in FY20.

British Petroleum

- Upstream second-quarter reported production is expected to be lower than in the first quarter. There is significant uncertainty with regard to the implementation of OPEC+ restrictions, price impact on entitlement volumes, divestments, market restrictions (given the lack of demand for oil), and the COVID-19 operational impact.
- During the second quarter, BP also expects to make an annual payment of around USD1.2b toward the Gulf of Mexico spill settlement.
- It remains committed to selling its Alaska business to Hilcorp for a total consideration of USD 5.6b. This transaction is part of BP's divestment program to deliver USD15b worth of announced divestments by mid-2021.
- The company expects organic capex to be around USD12b for 2020, around 25% below the prior full-year guidance. In Upstream, this includes a reduction of around USD1b in spend on short-cycle onshore activity, including BPX Energy, as well as the deferral of certain exploration and appraisal activities and the optimization of its major project spend.
- Underlying replacement cost profit, the company's definition of net income was USD800m (GBP645m) in the first three months of 2020, down from USD2.4b a year earlier, following a sharp reduction in demand for its products.

Exhibit 19: Companies in North America have cut their capex plan for 2020 by ~28% to USD44b (thus far)

Permian Basin drillers (USD b)	Old Capex	Cuts	New Capex	Remarks
Apache Corp	1.7	-37%	1.1	❖ Suspended all drilling
BP	16.0	-25%	12.0	❖ Cuts production by 14% to 430kbopd, cuts capex at BPX shale
Chevron	20.0	-20%	16.0	❖ Cuts production by 20% to 125kbopd, cuts capex in Permian basin
Concho Resources	2.7	-26%	2.0	❖ Cuts at Permian pure play
ConocoPhillips	6.6	-11%	5.9	❖ Cuts production by 2% to 1.23mbopd, delays activity
Devon Energy	1.8	-44%	1.0	❖ Cut capex from STACK and Powder river basin, defer Eagle Ford activity
Diamondback Energy	2.9	-41%	1.7	❖ Cuts production by 10% to 188kbopd, pulls out 2/3 of the rigs
EOG Resources	6.5	-31%	4.5	❖ Cuts production by 12% to 456kbopd, does only focused drilling
ExxonMobil	33.3	-31%	23.0	❖ Cuts capex in Permian basin, delays activity in Rovuma LNG and Guyana
Marathon Oil	2.4	-21%	1.9	❖ Pulls all rigs from Oklahoma, reducing Delaware activity
Noble Energy	1.7	-29%	1.2	❖ Major cuts from Delaware Basin
Occidental Petroleum	5.3	-47%	2.8	❖ Cuts production by 6% to 1.29mbopd, cuts dividend by 6%
Ovintiv	2.7	-19%	2.2	❖ Pulling 16 rigs from Permian, Anadarko, Montney
Parsley Energy	1.7	-41%	1.0	❖ Pulling 75% rigs from Permian pure play
PDC Energy	1.1	-23%	0.8	❖ Cuts production by 5% to 200kbopd, reduces rigs largely
Pioneer Natural Resources	3.3	-45%	1.8	❖ Cuts production by 12% to 211kbopd, reduces 50% rigs at Permian pure play
Royal Dutch Shell	25.0	-20%	20.0	❖ Cuts operating expenses
WPX Energy	1.7	-23%	1.3	❖ Cuts production by 6% to 150kbopd
Others	5.2	-39%	3.2	
PERMIAN BASIN TOTAL	**141.7**	**-27%**	**103.4**	**US PRODUCERS CUT CAPEX BY ~USD38b**
Canadian producers				
Canadian Natural Resources	2.8	-27%	2.0	❖ Delay new activity
Husky Energy	2.4	-27%	1.7	❖ Suspended Western Canada drilling
Kelt Exploration	1.6	-36%	1.0	❖ Delay Canada (country) drilling
Suncor	3.9	-26%	2.9	❖ Delayed drilling/offshore
Others	7.6	-39%	4.63	
CANADA TOTAL	**18.2**	**-33%**	**12.3**	**US PRODUCERS CUT CAPEX BY ~USD6b**
TOTAL NORTH AMERICAS	**159.9**	**-28%**	**115.7**	**TOTAL CAPEX CUT IN NORTH AMERICAS IS ~USD44b**

Source: S&P Platts, MOFSL

Global crude storage – key factor in COVID-19...

…oil embargo prominent reference in global oil market

- **In 1971, President Richard Nixon prompted an embargo when he decided to take the US off the gold standard. Countries were now unable to redeem US dollars for gold in their foreign exchange reserves.**
- **OPEC countries were hurt by the plummeting value of the dollar as their government revenues depended on the petrodollar. Oil contracts were also priced in US dollars, which meant decline in revenues. The OPEC even considered pricing oil in gold, replacing dollars, to keep revenue stable.**
- **In Oct'1973, OPEC members decided on an oil embargo, the decision to stop exporting oil to the US.**
- **The oil embargo lasted for the next six months, and oil prices quadrupled (to USD11.7/bbl from USD2.9/bbl) during the period. Prices still remained at higher levels after the embargo ended in Mar'74.**

US SPR is the world's largest reserve (Bayou Choctaw – 76m bbls, Big Hill – 170m bbls, Bryan Mound – 247m bbls and West Hackberry – 221m bbls).

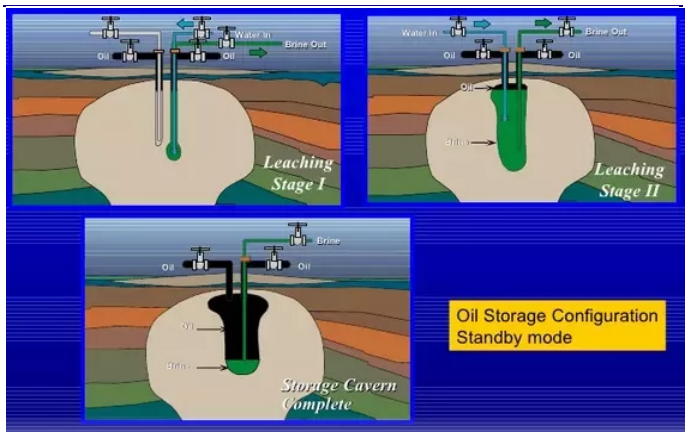
China holds the second largest reserve (of 511m bbls).

Among other oil-consuming nations, Japan has 324m bbls, South Korea 146m bbls, Spain 120m bbls, and India 39.1m bbls.

Birth of strategic petroleum reserves

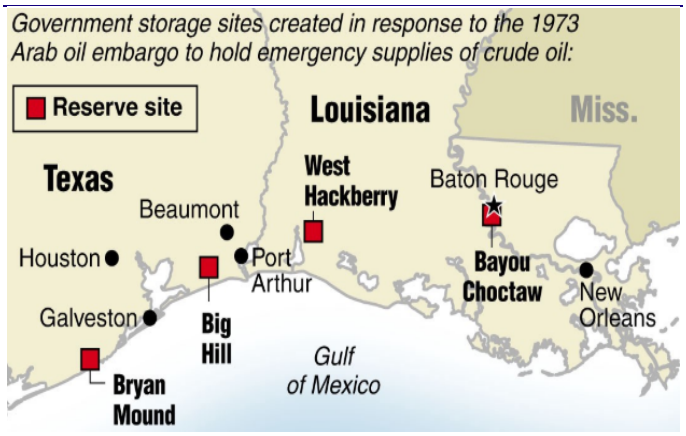
- In response to the oil embargo, the US created a strategic petroleum reserve (SPR) in 1973.
- Four underground salt caverns (with maximum capacity of 714m bbls) on the coast of the Gulf of Mexico store the oil. The federal government owns all the oil in the SPR, and it has been filled to capacity only once in Dec'09.
- Salt caverns are carved out of underground salt domes through a process called 'solution mining'. Essentially, the process involves drilling a well into a salt formation, then injecting massive amounts of fresh water (to dissolve the salt).
- At the end of CY19, the US SPR's crude oil inventory was 635m bbls (equivalent to ~1,069 days of supply of the total US petroleum net imports). This increased to 642m bbls as of 15th May'20 (link).
- SPR is now mandated by governments to provide a cushion in the event of an energy crisis. As per the IEA's first criteria for membership, applicants must have crude oil or product inventory equivalent to 90 days (of the previous year's net imports).

Exhibit 20: Storage cavern development



Source: Industry, MOFSL

Exhibit 21: US SPR locations

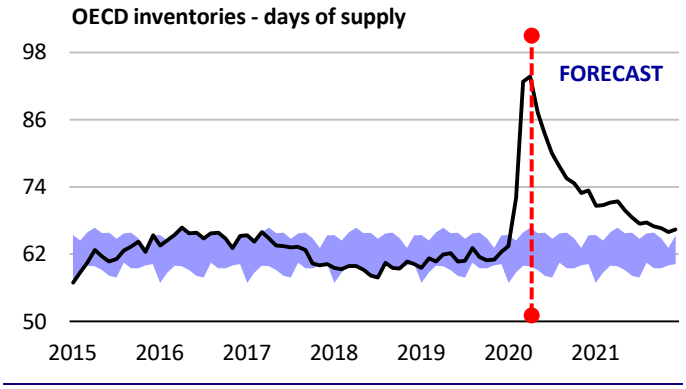


Source: Medium, MOFSL

Global crude storage – favorite for steep contango

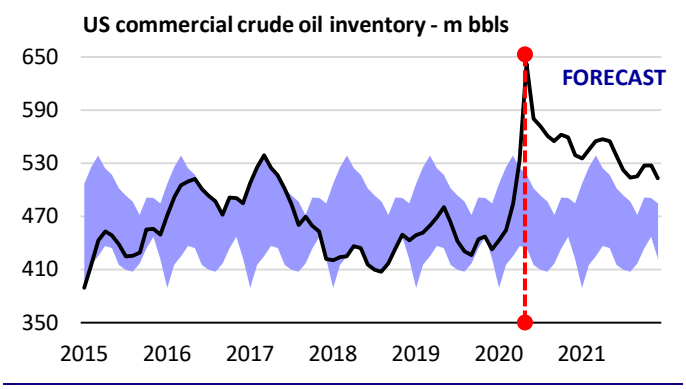
- As per the IEA, global total crude oil storage capacity is estimated to be ~6.7b bbls (i.e., including commercial and strategic storage), ~4.2b bbls of which is currently utilized. Due to various technical reasons, only ~80% of the nameplate capacity can be filled (rest is reserved as contingency space), thus leaving only 1.2b bbls of effective spare capacity, which would run out by June.
- **Steep contango in oil prices, led by the current demand (halt) destruction, is driving storage demand. As stated above, the US SPR has just 11% of spare capacity, barring the contingency.**
- The COVID-19 demand destruction has resulted in a huge supply glut; various countries are exploring different options to use SPR for storing cheaper crude to take advantage of opportunity cost.
- However, the IEA estimates OECD stockpiles (including SPR) which represents ~60% of the world's petroleum reserves, normalizing of the spike in the following charts is a crucial indicator of returning normalcy.

Exhibit 22: OECD inventories jumped to 94 days in Apr'20



Source: EIA, MOFSL

Exhibit 23: US SPR short of just 11% to the brim



Source: EIA, MOFSL

China is taking advantage of stocking up on the cheapest crude oil as demand starts to return.

A total of 117 VLCCs – holding ~230m bbl of oil – are likely to be delivered to the ports of China by August.

According to an article, the fleet en route to China could be the largest number of supertankers traveling to the world's top oil importer at one time ever.

Oil on water – traditionally used modern strategy

- Companies and governments have historically held petroleum stocks in floating supertankers when oil prices have been in contango.
- In current times, when onshore storage capacities are filling fast, a spike has been seen in the use of offshore tankers as storage facilities. This has led to a huge spike in tanker freight rates by 8–10x in the last couple of months.
- Normally, floating storage uses very large crude carriers (VLCC), which can hold about 2 million barrels (~802 VLCCs active globally).
- According to Rystad data, the entire global fleet is projected to have a total capacity of 630m dwt, or 4.6b bbls (including VLCC and the smaller Suezmax and Aframax vessels). However, ~50% of cargo is required to fulfill flowing demand across the globe. Thus, logically, of the 2.3b bbls in available capacity, 1.3–1.4b bbls is already full.
- However, China, the second largest importer, is showing some signs of recovery. Independent refiners in China are running at rates of 68% currently, which has led to its inventory peaking in late March / mid-April.
- Although, the improvement in crude oil price would cap as soon as global inventories start entering the markets.

China – Heading recovery…

…probably first country globally to lift lockdown

- **China is the second largest consumer and largest importer of crude, with consumption at 13.6mnbopd in 2019. It imports ~8.7mnbopd (~64% of its consumption).**
- **The country is heading recovery in oil demand across the globe, as several indicators of demand registered spikes as the country lifted its lockdown in April.**
- **Key macro indicators, such as work at large industrial enterprises, freight turnover, and car sales, returned to near prior-year levels in April.**
- **Road traffic has returned to normal for personal mobility vehicles; road traffic on the weekdays is now at pre-lockdown levels.**
- **IHS Markit now expects a Base Case scenario real GDP growth for China in 2020 at 0.45%, compared with 6.2% on a pre-COVID-19 basis. On the other hand, oil demand growth for the year is expected to decline by 1.2mnbopd (or -8%) in 2020.**

China comes out of lockdown strongly…

- China's oil demand has seen a sharp rise after the country's lockdown was lifted. Oil demand for April'20 was down by just 11% YoY (v/s -40% YoY in Feb'20) at ~12.7mnbopd v/s ~14.3mnbopd in April'19.
- IHS expects demand to improve further and demand destruction to be in the single digits at -8% YoY in May'20 as personal mobility and economic activity resume. Thus, for the full-year 2020, oil demand growth is expected to decline by 1.2mnbopd (or -8%).
- Demand for products would be more varied as the severity of COVID-19 has induced changes in consumer preferences and behaviors (e.g., prolonged revival in jet fuel demand as seen during SARS outbreak in 2003).
- Also, the use of public transportation and cab services remains depressed, along with "holiday peaks" for road traffic, indicating a prolonged aftermath on Leisure and Tourism.
- However, in the last month, China's oil refiners (which saw a jump in utilization rates to 76% in May from 39% in Feb) bought spot cargo from Alaska, Canada, and Brazil, taking advantage of the deep discounts due to non-existent demand elsewhere.

…spikes futures curve above Brent

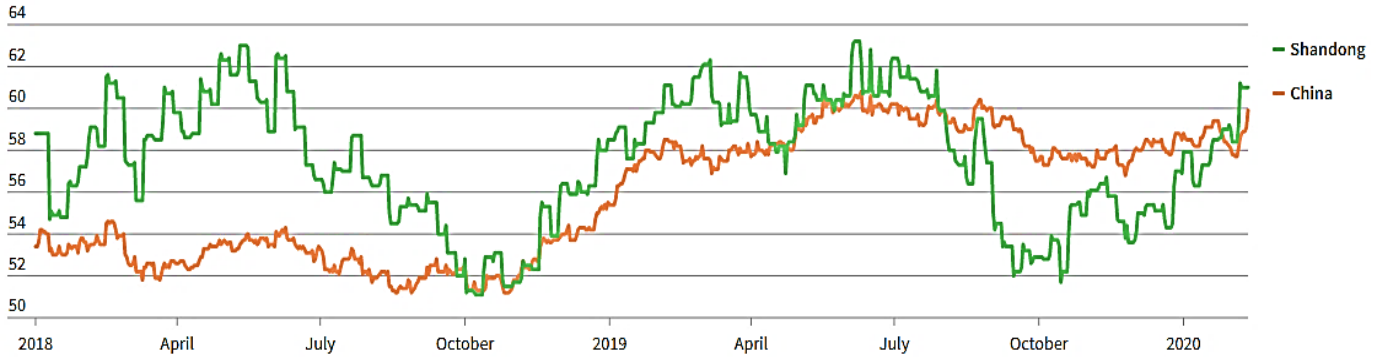
- China has filled ~68% of its commercial storage capacities (i.e. 164mn bbls.
- Chinese financial investors are betting heavily on its inventory and filling commercial storage tanks held by the Shanghai Futures Exchange. Buying has pushed Shanghai crude futures prices above global Brent prices.
- China is taking advantage of stocking up on the cheapest crude oil as demand starts to return. A total of 117 VLCCs – holding ~230m bbl of oil – are likely to be delivered to the ports of China by August.
- According to an article, the fleet en route to China could be the largest number of supertankers traveling to the world's top oil importer at one time ever.
- Shandong province is all set to expand its crude storage capacity by 64.5mn bbl mostly as early as July'20, according to S&P Global Platts.

Exhibit 24: New crude tankers at Shandong province in China

Owners	Location	Capacity (m bbls)	Start-up
Sinopec	Dongjiakou	10.1	Started
Baogang International	Dongying	7.3	Started
PetroChina	Dongjiakou	3.8	Jul-20
Zhenhua Oil	Dongjiakou	5.0	Jul/Aug-20
Qingdoa Port	Dongjiakou	10.1	2HCY20
Hongrun	Binzhou	15.7	Jul-20
Dekun	Rizhao	12.6	Jul-20
Total		**64.5**	

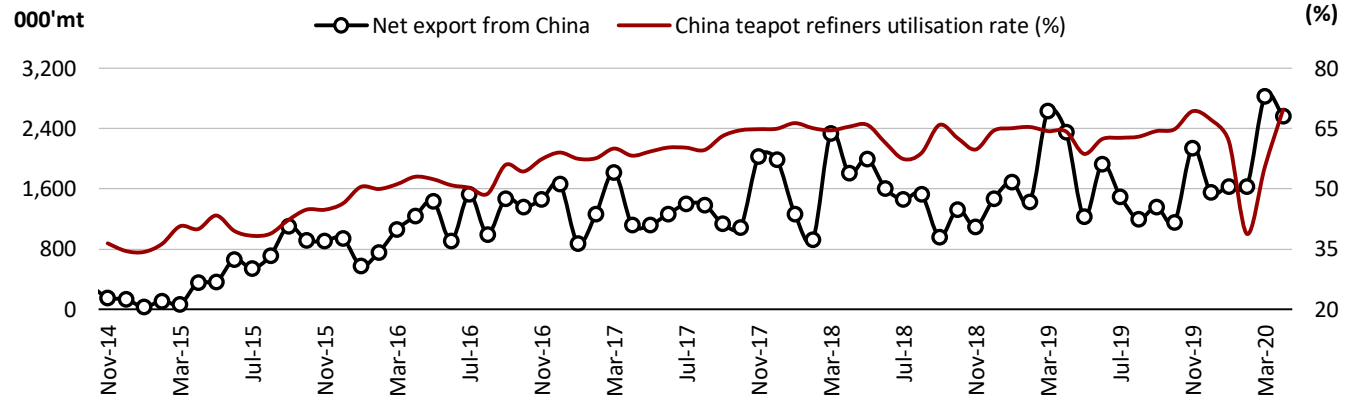
Source: S&P Platts, MOFSL

Exhibit 25: China's oil storage utilization rates climb to more than 60% as the country lifts the lockdown



Source: Industry, MOFSL

Exhibit 26: China refinery utilization up to 76% in May from 39% in Feb, while Net exports from China jump over 2.5mmt



Source: Bloomberg, MOFSL

India – third largest consumer

…beneficiary of price wars between countries for share of its oil market

- **India is the third largest crude oil consumer, with consumption at ~4.4mnbopd. Its imports from the US increased to 5% in 2019 from 2% in 2018.**
- **Also, India's imports from GCC countries increased to 39% in 2019 from 34% in 2018 (Saudi Arabia jumped to 23% in 2019 from 20% in 2018), led by the various steep discounts provided by these countries.**
- **Despite OPEC+ cuts and calling it truce with global price war, Saudi Arabia continues to offer huge discounts to Asian buyers. Saudi Aramco set its official OSP for Arab Light Crude to Asia at USD5.9/bbl below the benchmark. This price is up from a discount of USD7.4/bbl in May, but still down v/s April OSP at USD4.4/bbl.**
- **Indian refiners also appear to have ramped up their utilization in the last few days. In Apr'20 total refinery utilization in India stood at 70%, with utilization of IOCL and BPCL refineries at 52-63%, while strong utilization from HPCL and RIL at 83-92%.**
- **With gradual lifting of lockdown in India, we believe that the refineries would see huge revival in refinery utilization rates in May-June as transportation demand picks.**
- **A major rebound in demand for Petrol and ATF is expected in May, as various states in India have lifted most of the lockdown restrictions, thus increasing the demand for oil petroleum consumption in India.**

Exhibit 27: India's crude oil imports, destination-wise

mmt	2018	2019	YoY change
Iraq	47.71	49.2	1.49
Saudi Arabia	39.27	42.59	3.32
UAE	16.06	19.57	3.51
Nigeria	16.8	18.49	1.69
Venezuela	17.3	15.9	-1.4
Kuwait	11.38	10.63	-0.75
Mexico	8.88	10.04	1.16
US	4.86	9.13	4.27
Iran	25.7	6.13	-19.57
Angola	6.47	5.78	-0.69

Source: FT, MOFSL

Taking advantage of lower crude oil prices

- According to recent media articles, India's strategic crude oil reserves would be at capacity by mid-May, Petroleum Minister Dharmendra Pradhan stated.
- The minister revealed that we have nearly 38mmt of product and crude oil storage facilities, constituting ~18% of India's annual energy requirement.
  - India has SPR of 5.3mmt (equivalent to 9.5 days' worth of imports) at Visakhapatnam (1.33mmt), Mangaluru (1.5mmt), and Padur (2.5mmt).
  - Indian companies have ~7mmt of floating oil in their contracts.
  - Domestic online capacity in crude oil or products comprises storage of ~25mmt.
- In addition to the aforementioned capacities, the government has approved the construction of an additional 6.5mmt of strategic crude oil reserves at Chandikhol (4mmt) in Odisha and Padur (2.5mmt) in Karnataka.
- Thus, India would have oil reserves equivalent to at least 87 days' worth of net imports, once the second phase of ISPR turns operational.
- IEA members maintain emergency oil reserves equivalent to at least 90 days' worth of net imports.

GCC countries – lack of aggression

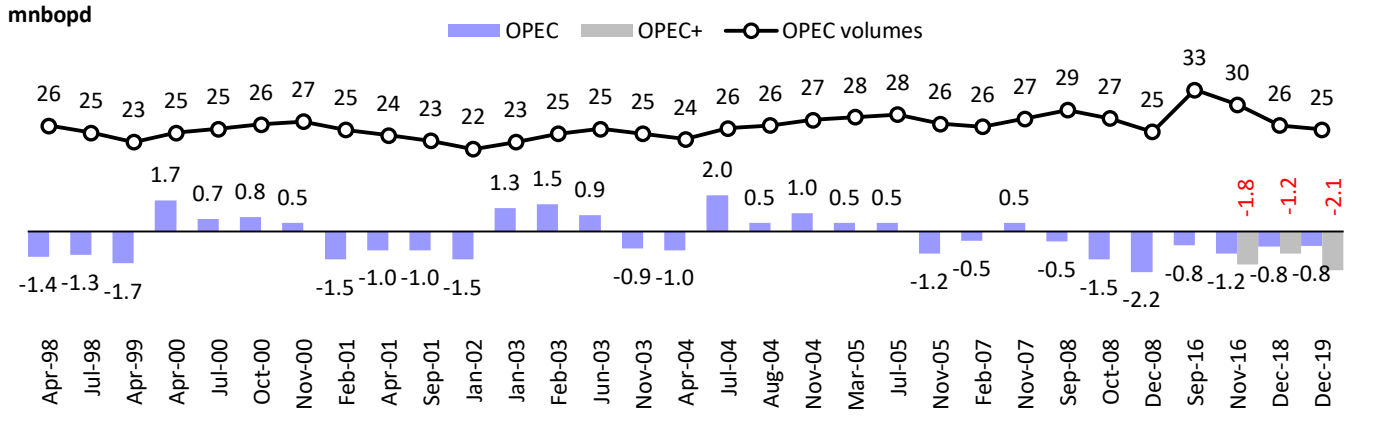
Lower oil prices to impact oil-exporting countries the most

- **GCC has been the backbone for balancing the global crude oil market since its formation in 1981. Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE) are also prime members of the OPEC.**
- **GCC countries constitute around 83% of the total OPEC production and ~23% of the total global production.**
- **The OPEC has always been quite clear about its motives/goals of keeping oil prices stable, reducing volatility, and balancing the markets. Lately, these efforts are primarily supported by Saudi Arabia, which carries the entire burden of the OPEC on its shoulders.**
- **However, these countries with treasures of oil aim to find a reasonable price that could strike a balance for running their economies, which are primarily and largely based on oil revenues.**
- **Moody's estimates that fiscal revenue and exports as a percentage of GDP would decline in oil-exporting sovereigns due to lower oil prices: Iraq and Kuwait by >10%; Oman, Qatar, Azerbaijan, Saudi Arabia, the Republic of the Congo, and Bahrain around 4–8%; and Russia, Kazakhstan, Trinidad and Tobago, Nigeria, and Gabon by <3% in 2020.**

The OPEC – core GCC

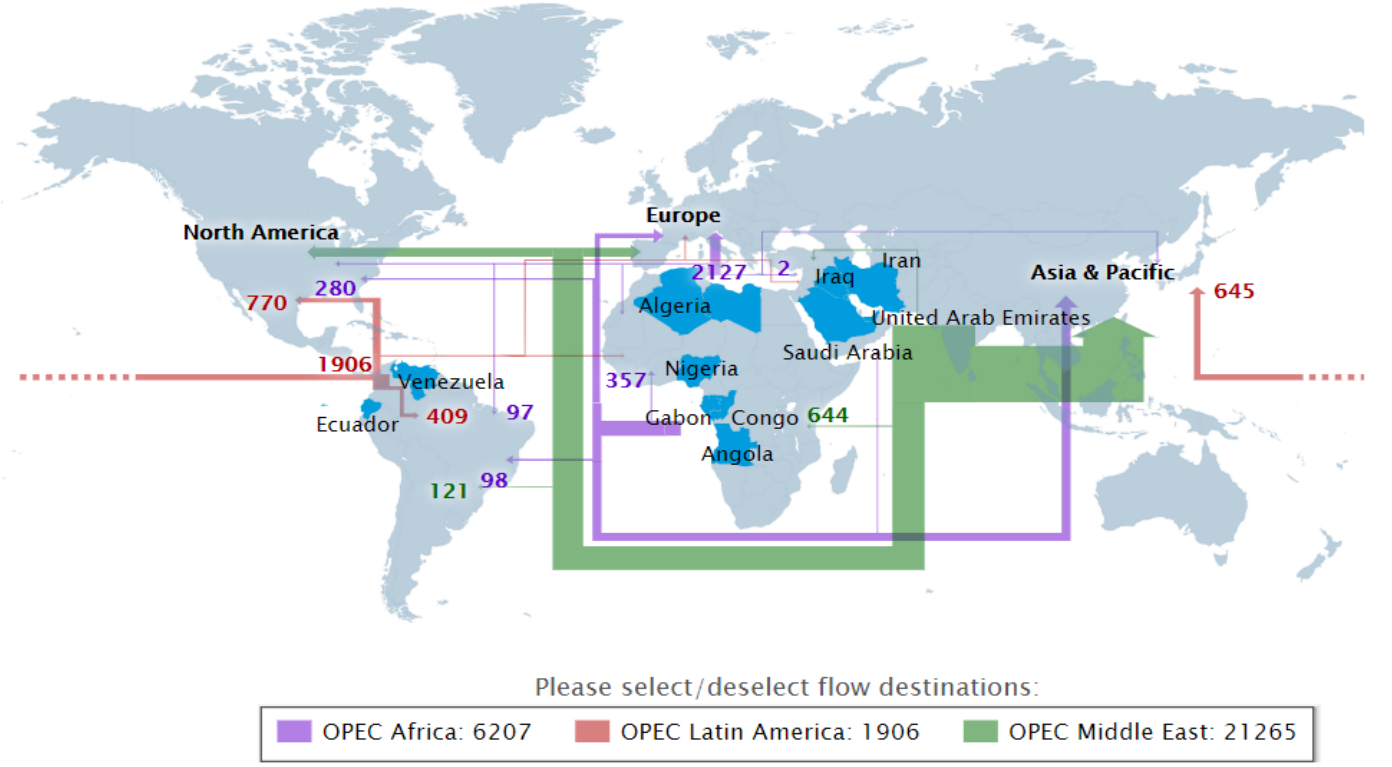
- The OPEC was formed in 1960 with five members: Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela (i.e., three GCC members). The OPEC was registered with the United Nations (UN) on 6th Nov'1962.
- *The OPEC's objective is to co-ordinate and unify petroleum policies among Member Countries, to secure fair and stable prices for petroleum producers; an efficient, economic, and regular supply of petroleum to consuming nations; and fair return on capital to those investing in the industry* (from the OPEC website).
- The OPEC held its first meeting over 10–14th Sept'1960 in Baghdad (Iraq), with the motive to regulate supply and price of oil.
- In 1968, it adopted a 'Declaratory Statement of Petroleum Policy in Member Countries' on the realization that the importance of non-renewable resources (oil) and competing with each other would drop oil prices, with the risk of the finite commodity running out sooner.

Exhibit 28: OPEC adjustments to production changes – excluding the unprecedented cuts announced recently



Source: Reuters, OPEC, MOFSL

Exhibit 29: OPEC countries' crude flow to various other regions across the globe

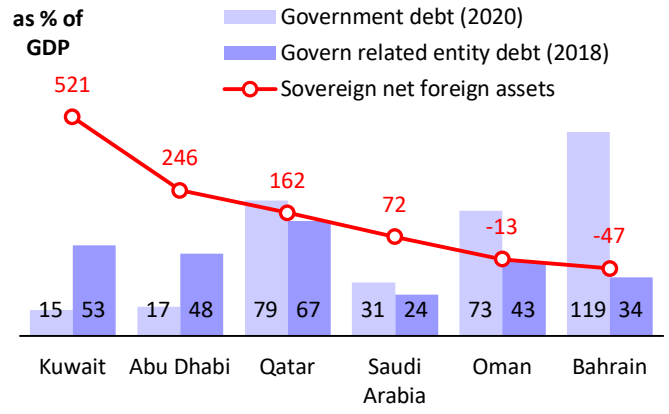


Source: OPEC, MOFSL

Breakeven (fiscal) has started to hurt

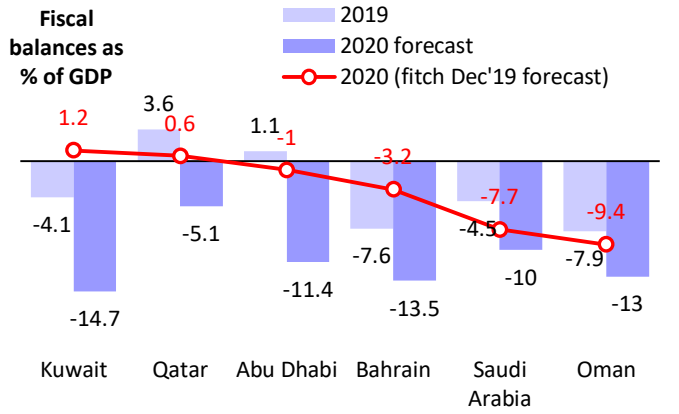
- The economies of the GCC – Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE – are suffering from oil prices well below the fiscal breakeven.
- The members are also impacted by the collapse in oil demand (the key export commodity). Despite various efforts to diversify their revenue streams, oil remains the primary revenue stream.
- Most GCC countries such as Bahrain and Oman (30% of GDP), the UAE and Qatar (10% of GDP), and Saudi Arabia (over 4% of GDP).
- The countries are forced to find various ways to fund stimulus packages and mitigate the pain from oil prices, which are two (and even three) times lower than their budget breakeven.
- Oil & Gas contributed 83.3% to Qatar's total revenue and 34% to the total nominal GDP in 2018; it recently sold USD10b in three different tranche (5-10-30 year) bonds in the backdrop of lower oil prices and COVID-19-led challenges. The fund received subscription of USD44b (4x the offer) as Qatar offered incentive 300–440 bps interest over US Treasuries.
- Nevertheless, Qatar's ruler has also asked the government to postpone USD8.2b in capital expenditure despite the country having the lowest fiscal breakeven of USD55/bbl.
- The IMF has also said that Kuwait could need ~USD180b in financing over the next six years in the absence of more serious drastic fiscal measures.
- Also, various other GCC members have witnessed expenditure cuts; e.g., Oman (5%) and Saudi Arabia recently announced a further 5% cut in spending (in addition to 3% per year over 2021–23 announced in the 2020 budget).

Exhibit 30: GCC countries – public sector balance sheet



Source: Fitch ratings, MOFSL

Exhibit 31: GCC countries – fiscal balances



Source: Fitch ratings, MOFSL

Saudi Arabia – more vulnerable

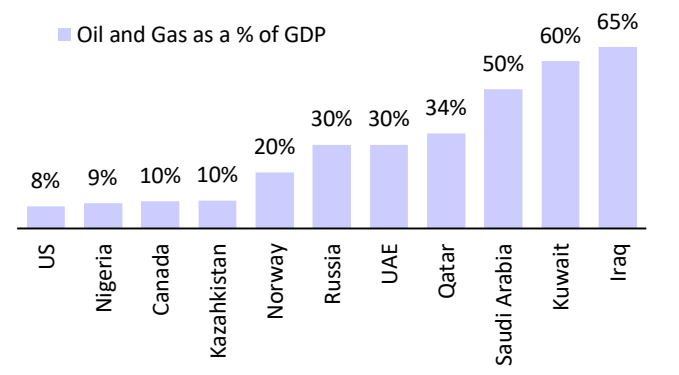
- The Saudi government announced its own budget forecast, fiscal deficit at 6.5 percent of GDP for 2020, which it plans to fund via reserves, loans, or bonds.
- Despite the Kingdom's various efforts to be less dependent on oil revenues, as in 2019, non-oil revenues stand at 50% of the total revenue.
- Also, price wars have impacted Saudi Arabia and the OPEC more in the past as well. The last time in 2014, Saudi Arabia had tried a similar strategy to flood the markets to destroy US shale; during the two years alone (2014–16) that this strategy had lasted, OPEC member states had lost ~USD450b in total oil revenues from the lower price environment, according to the IEA.
- US shale producers are, in fact, in a better production profile now with technological improvements driving down their breakeven prices.
- Oil & Gas as a percentage of GDP in the US is only ~8%, with much lower crude oil field breakeven of USD48–54/bbl v/s Saudi's budget breakeven 2x at ~USD91/bbl.
- Nevertheless, in 2016, Saudi Arabia's economic and political situation was so bad the Kingdom's Deputy Economic Minister Mohamed Al Tuwaijri stated, "If we [Saudi Arabia] don't take any reform measures, and if the global economy stays the same, then we're doomed to bankruptcy in 3-4 years."

Exhibit 32: Budget breakeven of crude oil prices – for GCC countries

Country	Break-even Oil Price
Nigeria	144
Bahrain	96
Saudi Arabia	91
Oman	82
Kuwait	68
Abu Dhabi	65
Qatar	55

Source: Fitch Ratings, MOFSL

Exhibit 33: GCC countries have higher % of O&G in GDP



Source: Saudi Arabia MoF, MOFSL

Russia – Better-off than Saudi Arabia…

…based on (budget) breakeven

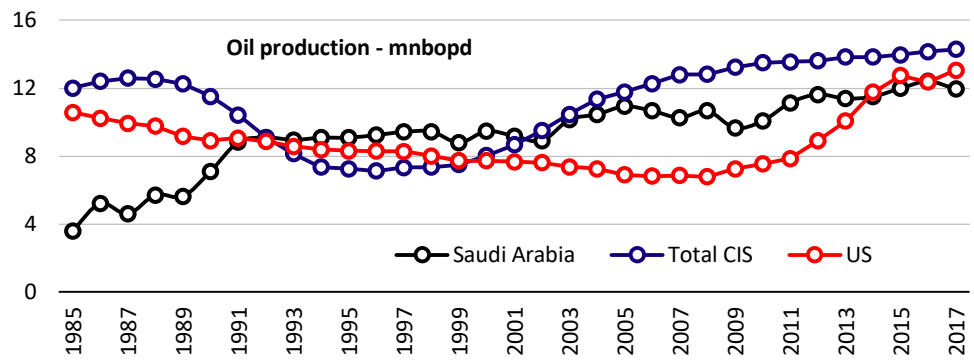
- **Russia is the third largest oil producer in the world, with production of ~11.4mnbopd, and the top fifth oil consumer at ~3.4mnbopd.**
- **Russia relies on oil sales for ~66% of its export earnings and 40% of its revenue, clocking ~30% of its GDP from Oil & Gas.**
- **With its rising significance in the global oil supply scheme, it is the newest member of the extended group called the OPEC+. As per COVID-19-led unprecedented cuts announced in Apr'20, Russia was producing ~11mnbopd and was supposed to reduce production by 2.5mnbopd starting May'20.**
- **According to Reuters' sources, Russia's crude oil production averaged 8.72mnbopd in May (close to the 8.5mnbopd quota given in the Apr'20 cuts).**

Russia has some edge over Saudi in price war

- Since Russia joined the OPEC in its production cut plans, the group called OPEC+ saw disagreement for the first time, just before the global outbreak of COVID-19 in the first week of March.
- Saudi Arabia in the spur of the moment entered into a price war, stating it would flood the markets with crude oil supply. The Kingdom then increased its output from <10mnbopd to >13mnbopd over the next couple of weeks to gain market share.
- Russia, in a tussle back, announced it would increase production by 0.5mnbopd on its already high production rates (producing ~11.5mnbopd at the time).
- Russia has a budget breakeven price of USD40/bbl, almost 50% lower than Saudi Arabia at USD91/bbl (and a 20–40% lower budget breakeven v/s shale oil field breakeven in the US).
- Also, even in terms of production, Russia's (total CIS) production in the last two decades averages at around ~11.6mnbopd, ~12% higher than Saudi's average of ~10.4mnbopd.
- Another advantage for Russia is the nation's flexible fiscal tax scheme. Last year, when oil prices averaged USD50–60/bbl, government levies formed the bulk of expenses for Russian producers (which paid USD34–42/bbl to the state in extraction taxes and export duties).

Exhibit 34: Revisions in US shale reserves have been in line with changes in oil prices

Incremental crude oil production in last couple of years has been from US.



Source: BP, MOFSL

US shale – the biggest loser?

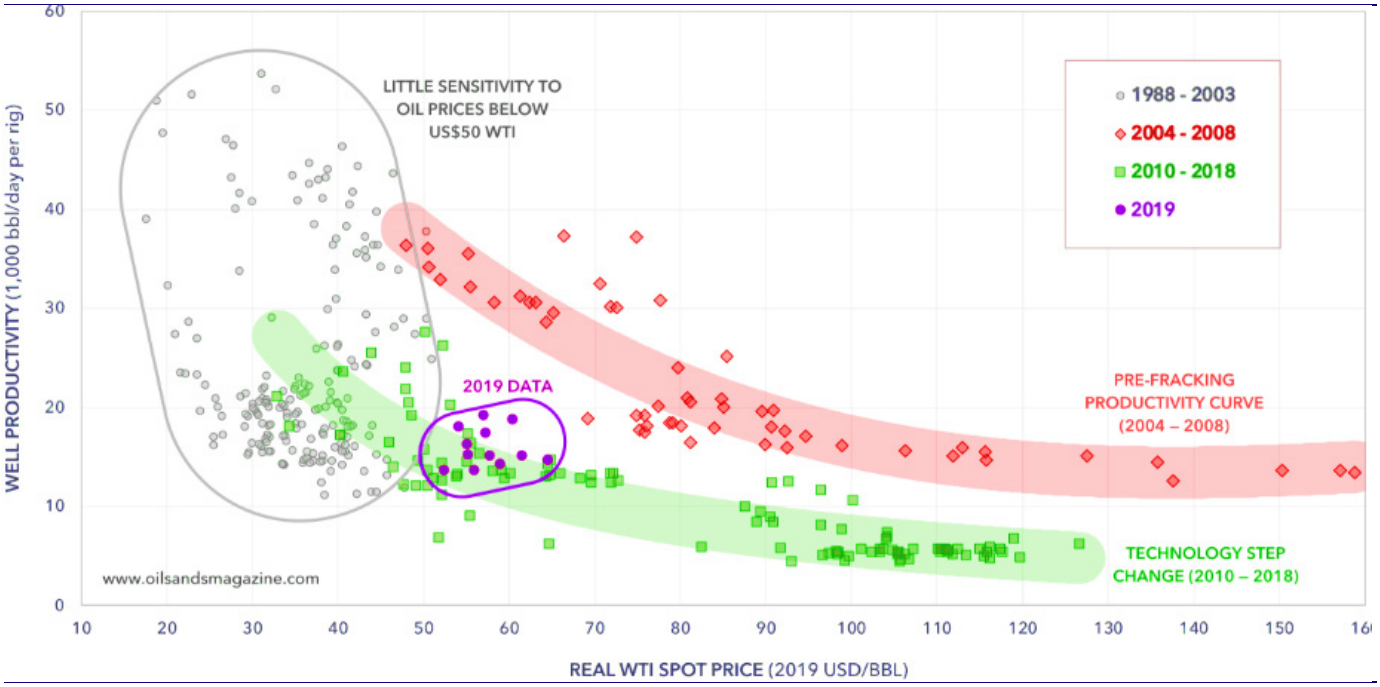
Is this the end of the second shale boom?

- **As per the EIA, in Nov'19, total crude production jumped 11% YoY and reached milestone peak production of 12.87mnbopd.**
- **In 2019, the US became the top producer of oil globally, with average production of 12.2mnbopd.**
- **In the current year, this was further expected to rise by 0.5mnbopd and reach 13.3mnbopd and a further 13.6mnbopd in 2021.**
- **Unfortunately, COVID-19 put the brakes on the steep climb enjoyed by the US in crude production. Production is now expected to fall to 11.7mnbopd in 2020 and 10.9mnbopd in 2021 as the steep climb reverses.**

The shale boom: 2010–14 and 2017–20

- Three reasons for the US shale boom are: stable and higher oil prices, continued improvement in technology, and cheap credit (lower interest rate). This led to a quick rise in US shale output, changing the dynamics of the global crude oil market.
- **Stable and higher oil prices**
  - **Shale boom 1:** Oil prices averaged higher than USD90/bbl over 2011–14, giving shale producers enough space and room to expand and turn profitable.
  - **Shale boom 2:** This was fueled by voluntary cuts by the OPEC (starting from 2017), which supported crude oil prices, favoring the conditions for shale production.
  - Thus, production increased meaningfully in 2019, led by stable crude prices. In 2019, the US turned the top producer of oil globally (~12.2mnbopd).
- **Cheap credit availability**
  - A low interest rate environment gave banks and private equity investors' strong incentive to lend to shale oil companies.
  - Shale oil has advantages in terms of quick start (very less time to commence production, i.e., one–three years v/s conventional wells of more than three years), which resulted in quick investments in these projects.
  - However, with these advantages came the disadvantage in terms of the nature of its wells. Shale wells are fracked wells and tend to deplete faster; thus shale oil producers have to keep drilling new wells to maintain production levels, making extraction expensive.
  - US shale production is directly related to capital deployment.
- **Continued improvements in technology**
  - The above-stated issue is seeing continuous resolution as producers have been driving down breakeven cost through technological improvements and shedding away less-productive wells, thus improving production with a reduced number of rigs.
  - Lower crude oil prices hamper both major improvements in new technologies and capex of these companies.
- In the exhibit below, well productivity increased by 18kbopd in the latter part of 2019, reflected in the upward-sloping 2019 data set (v/s downward-sloping data sets in other comparable periods).

Exhibit 35: Bankruptcy filings in US over 2015–20, region-wise

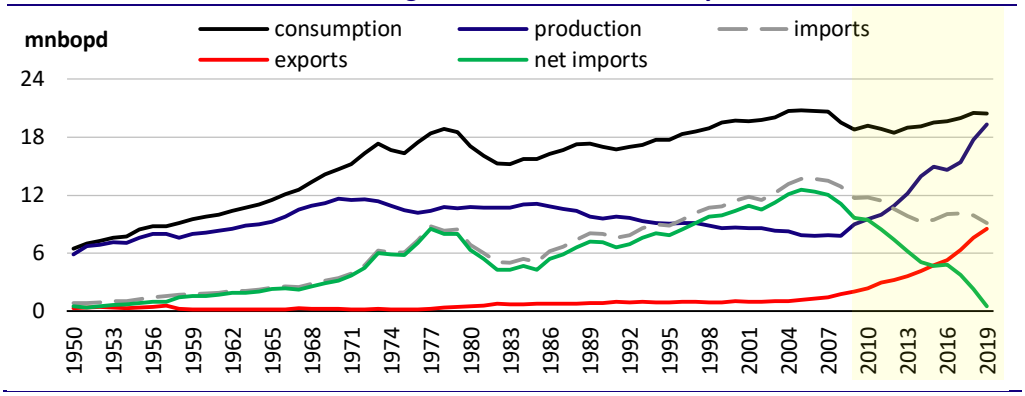


Source: Oil sands magazine, MOFSL

Since 2010, when the shale boom began, the US saw a production CAGR of 8% over 2010–19, while consumption grew at a 1% CAGR.

This led to an export CAGR of 16%, resulting in a net import CAGR of -25% over the past decade.

Exhibit 36: Clear inflection and change in US crude oil market dynamics after 2010



Source: EIA, MOFSL

Exhibit 37: US' export destinations

	Total Petroleum		Crude Oil
Mexico	14%	Canada	15%
Canada	12%	South Korea	14%
South Korea	7%	Netherlands	9%
Japan	7%	India	9%
Brazil	6%	UK	8%
Total	**46%**	**Total**	**55%**

Source: EIA, MOFSL

Exhibit 38: US' import destinations

	Total petroleum		Crude oil
Canada	49%	Canada	56%
Mexico	7%	Mexico	9%
Saudi Arabia	6%	Saudi Arabia	7%
Russia	6%	Iraq	5%
Colombia	4%	Colombia	5%
Total	**72%**	**Total**	**82%**

Source: EIA, MOFSL

The shale bust – will 2014 repeat itself?

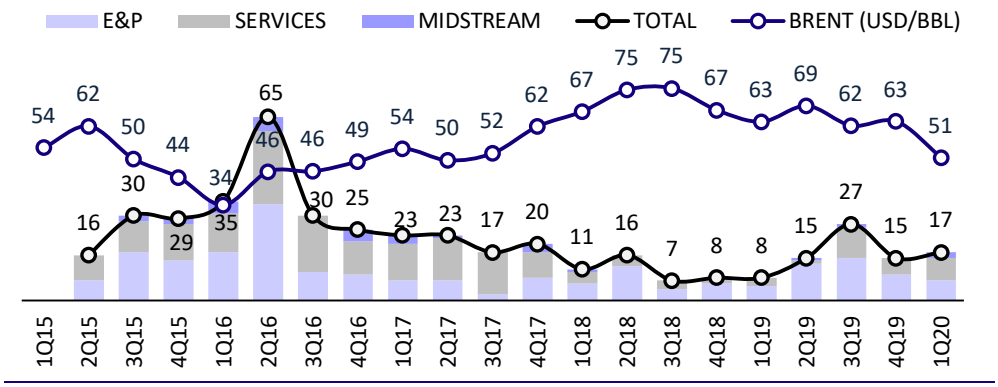
With a huge slump in oil prices, bankruptcies jumped to 65 in a single quarter in 2QCY16 (after crude price bottomed in 1QCY16), showing the immediate stress faced by shale producers.

Exhibit 7 highlights the direct correlation between bankruptcies and crude oil prices. 2016 saw the highest bankruptcy with 155 filings, while 2019 clocked 65 fillings (in the final months) as crude oil price declined.

E&P companies led the pack in terms of bankruptcies, followed by services companies.

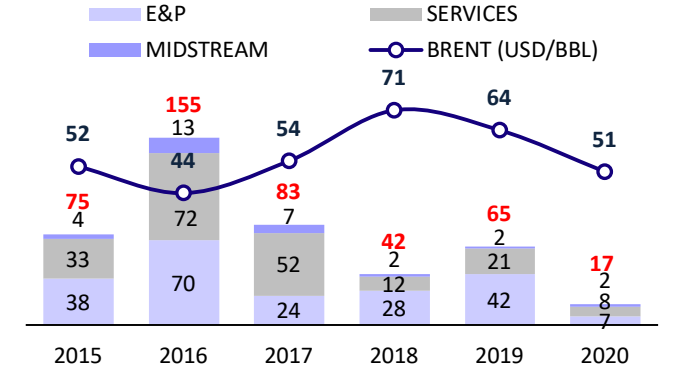
- Owing to the characteristics of shale oil production (continuous fracking – increasing cost), the industry is highly capital-intensive. Thus, companies have to turn to banks for aid with capital.
- Oil price averaged higher than USD90/bbl over 2011–14; however, it fell to ~USD30/bbl in 2016 from more than USD100/bbl.
- However, with the aforementioned advantages (lower credit cost) and advancements (better cost efficiencies), shale producers continued drilling, which led to a spike in crude oil supplies.
- The OPEC also kept pumping oil to maintain market share.
- Bankers/Lenders used oil reserves as collateral; as prices slumped, the value of the collateral declined. As a result, the scenario turned on its head immediately.
- The impact on US shale producers was a double whammy as revenue recognition took a hit and lenders also became less willing to roll over debt.
- Many smaller shale companies had mortgage payments against ~40% of their revenue in 2015. Thus, as prices kept low, many companies filed for bankruptcy and went out of business.
- Once again in 2017, the second US shale oil boom began with recovery in crude oil prices. Continental Resources' Harold Hamm warned his fellow producers, "While this period of adjustment is going on, drillers don't want to drill themselves into oblivion. Back up, and be prudent and use some discipline."
- Reports state US oil & gas companies have more than USD200b in debt maturing over the next three–four years, with ~USD40b in debt by US oil companies maturing in 2020.

Exhibit 39: US bankruptcies v/s Brent prices



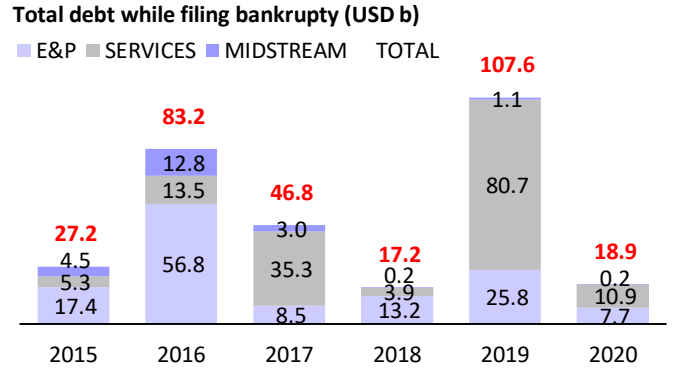
Source: Haynes and Boone, MOFSL

Exhibit 40: Yearly bankruptcies in the US…



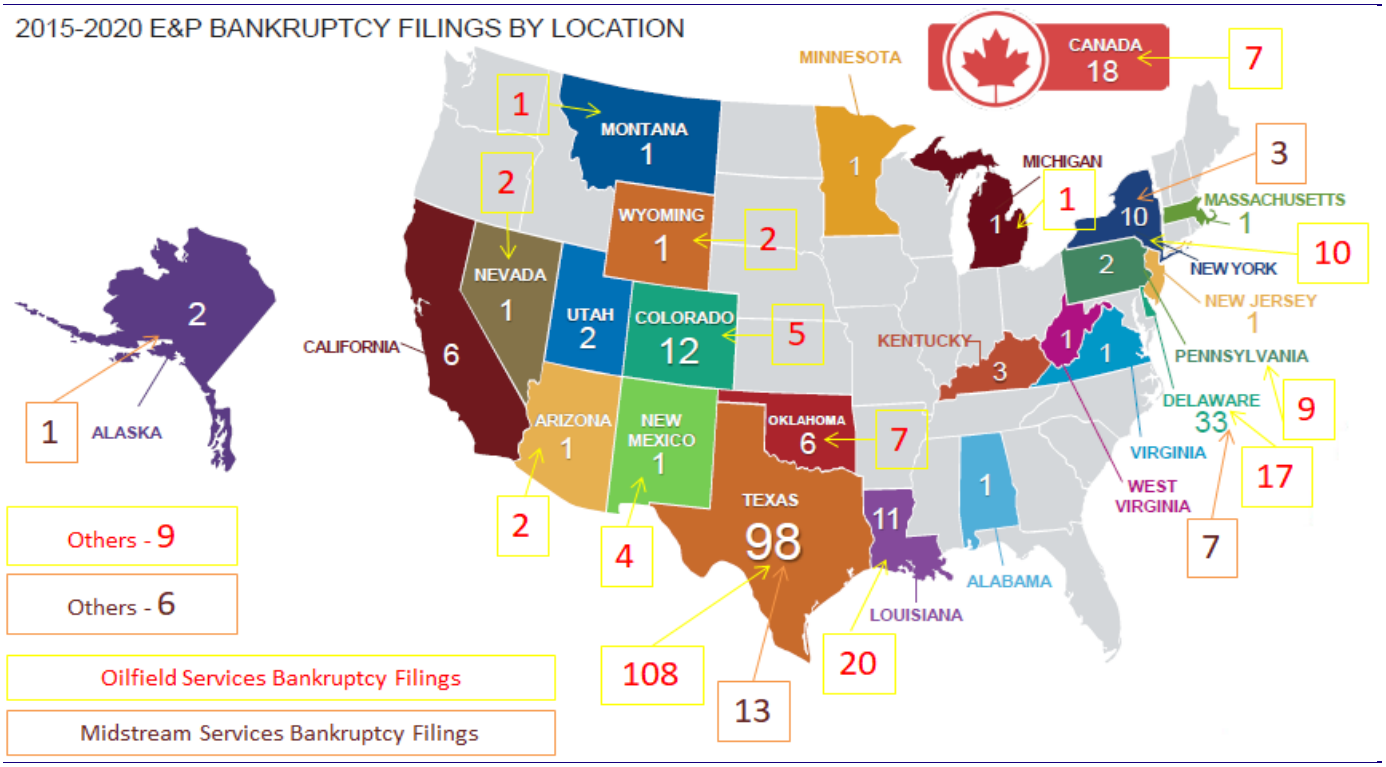
Source: Haynes and Boone, MOFSL

Exhibit 41: …with total debt when filing for bankruptcy



Source: Haynes and Boone, MOFSL

Exhibit 42: Bankruptcy filings in the US over 2015–20, region-wise

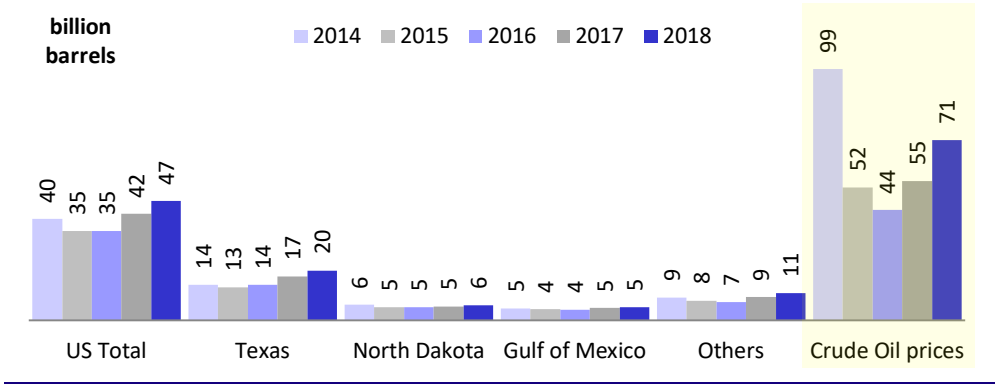


Source: Haynes and Boone, MOFSL

US shale oil reserves directly correlated to crude oil prices

- The EIA reported 43.8 billion barrels of proved (oil and natural gas) reserves in 2018. For oil, the largest reserves are in Texas, North Dakota, and the Gulf of Mexico. For natural gas, the largest reserves are in Texas, Pennsylvania, and Oklahoma.
- Various revisions primarily occur when operators change their estimates of what they will be able to produce from the properties they operate in response to changing prices or technology improvements.
- Higher fuel prices typically increase estimates (positive revisions), while lower prices generally reduce estimates (negative revisions).
- Thus, with a fall in average crude prices, downward revision in crude oil reserves impacts US shale producers' credibility to lenders. This results in significant decline in the value of collateral (lower reserves in a lower crude price environment.)

Exhibit 43: Revisions in US shale reserves have been in line with oil price changes



Source: EIA, MOFSL

Appendix:

- Top five oil producers
- Top five oil consumer
- Total global reserves

Exhibit 44: Top oil producers – the top 5 constitutes ~52%

Country	mnbopd	Share of world total
United States	19.51	19%
Saudi Arabia	11.81	12%
Russia	11.49	11%
Canada	5.50	5%
China	4.89	5%
Iraq	4.74	5%
UAE	4.01	4%
Brazil	3.67	4%
Iran	3.19	3%
Kuwait	2.94	3%
Total top 10	**71.76**	**71%**
World total	**100.63**	

Source: EIA, MOFSL

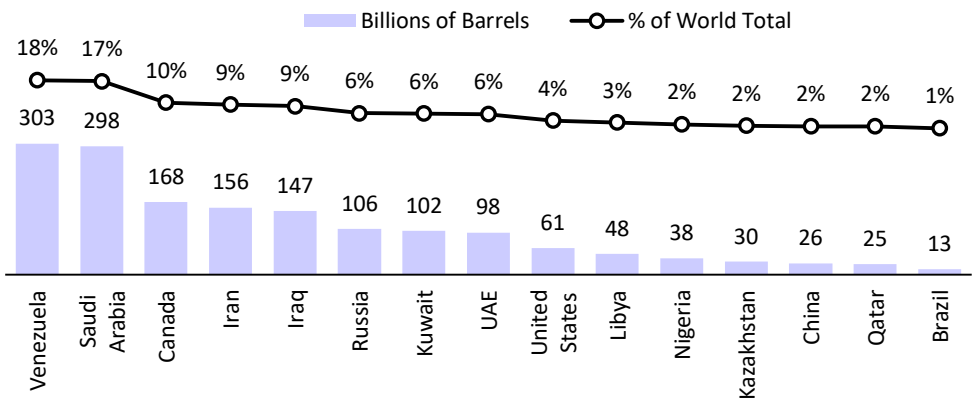
Exhibit 45: Top oil consumers – the top 5 constitutes ~46%

Country	mnbopd	Share of world total
United States	19.96	20%
China	13.57	14%
India	4.34	4%
Japan	3.92	4%
Russia	3.69	4%
Saudi Arabia	3.33	3%
Brazil	3.03	3%
South Korea	2.63	3%
Germany	2.45	2%
Canada	2.42	2%
Total top 10	**59.33**	**60%**
World total	**98.76**	

Source: EIA, MOFSL

Despite being the current largest crude oil producer, the US has only 4% of the total global reserves.

Exhibit 46: Total reserves – top 5 producers have ~39% of global oil reserves



Note: includes crude oil, NGL and condensate Source: BP stats 2019, MOFSL

ONGC: Company summary – PT INR105 (+25%)

ONGC: gas production to get a boost

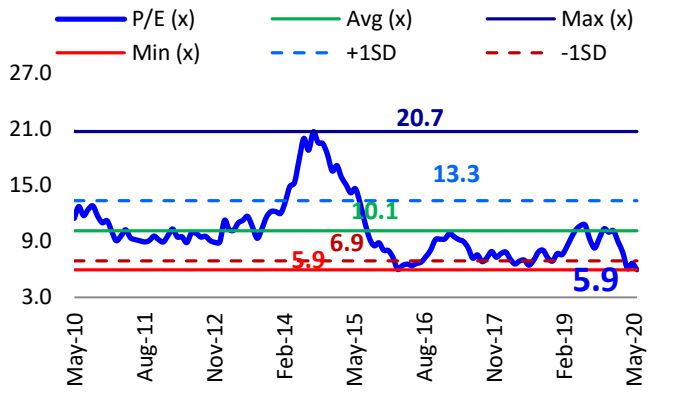
- **The government is looking at a slew of initiatives for the upstream sector. Our estimate suggests that a change of 1% in royalty is likely to boost the EPS by 3%.**
- **While oil production is largely expected to remain flat, we expect gas production to increase by 11/26% in FY21/22. Major boost is expected from KG-DWN-98/2. The production is also likely to command a higher price than the APM gas. We also expect that the next revision in domestic gas prices be the bottom of gas prices. A change of USD1/mmBtu in gas price is expected to boost consolidated EPS by 18%.**
- **ONGC is trading at 3.3x FY22 EV/EBITDA and 4.3x FY22 PE (v/s its long term average of 10.1x). We forecast an oil price of USD50-60/bbl in the longer term. While for financials projection, we use USD50/bbl, we raise our PE multiple from 8x to 10x expecting further increase in oil prices. We reiterate Buy with a target of INR105.**

Exhibit 47: ONGC – Valuation snapshot

Valuation of ONGC	
FY22 Standalone adj EPS(INR)	7.5
PE (x)	10.0
Valuation of ONGC stand (INR/share)	75
Listed investments	
Indian Oil Corporation	9
Petronet LNG	4
GAIL	2
MRPL	4
HPCL	16
Total valuation	**109**
Valuation of Mozambique	
Recoverable reserves (tcf)	75
Valuation of block (USD bn)	31
ONGC's stake (%)	16
Discount rate (%)	50
Valuation for ONGC (USD bn)	3
Value paid (USD bn)	3
Valuation for ONGC (INR/share)	(4)
Valuation of ONGC (INR/share)	**105**

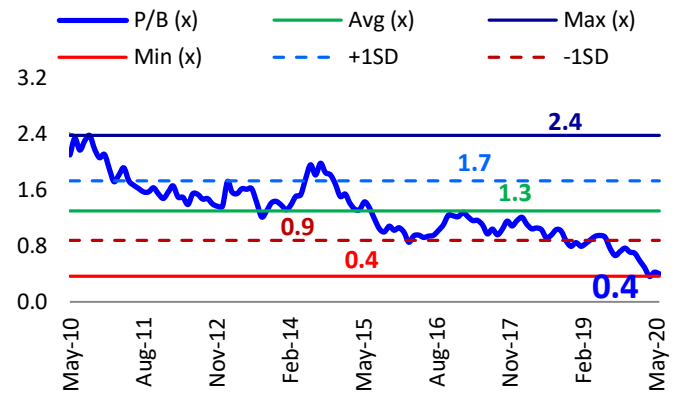
Source: Company, MOFSL

Exhibit 48: ONGC – 1 year fwd PE trading at 40% discount…



Source: Company, MOFSL

Exhibit 49: …with 1 yr fwd PBV at 0.4x (v/s LT avg. of 1.3x)



Source: Company, MOFSL

Exhibit 50: ONGC – key assumptions

Year End: March 31 (INRm)	FY15	FY16	FY17	FY18	FY19	FY20E	FY21E	FY22E
Exchange Rate (INR/USD)	61.4	65.5	67.1	64.5	70.0	70.8	72.5	73.3
APM Gas Price (USD/mmbtu)	4.9	4.7	3.1	3.0	3.5	3.8	2.8	3.0
Brent crude price (USD/bbl)	86.0	47.6	48.6	57.6	70.1	61.2	40.0	50.0
Production Details (mmtoe)								
Domestic Oil Prodn (mmt)	25.9	25.9	25.5	26.2	24.2	23.5	24.0	24.0
Domestic Gas Prodn (bcm)	23.5	22.5	23.3	25.6	25.8	25.0	27.9	35.2
Domestic Prodn (mmtoe)	**49.5**	**48.5**	**48.8**	**51.8**	**50.0**	**48.5**	**51.9**	**59.2**
OVL Production (mmtoe)	**8.9**	**8.9**	**12.8**	**14.2**	**14.8**	**14.8**	**13.9**	**14.5**
Group Production (mmtoe)	**58.3**	**57.4**	**61.6**	**66.0**	**64.9**	**63.4**	**65.8**	**73.7**
Subsidy Sharing (INRb)								
ONGC Subsidy	363	17	0	0	0	0	0	0
Oil Price Realization (USD/bbl)								
Gross	86.0	48.6	50.2	57.4	68.9	59.2	40.0	50.0
Upstream Discount	40.9	1.8	0.0	0.0	0.0	0.0	0.0	0.0
Net	**45.1**	**46.8**	**50.2**	**57.4**	**68.9**	**59.2**	**40.0**	**50.0**

Source: Company, MOFSL

Exhibit 51: ONGC – Financial snapshot

Y/E March	2015	2016	2017	2018E	2019	2020E	2021E	2022E
Sales	1,609	1,357	3,257	3,622	4,535	4,313	4,263	4,610
EBITDA	547	452	580	644	839	679	494	649
Adj. PAT	184	174	288	259	348	219	161	248
Adj. EPS (INR)	14.3	13.6	22.4	20.2	27.1	17.1	12.5	19.3
EPS Gr. (%)	-30.0	-5.0	64.9	-9.9	34.4	-37.0	-26.8	54.6
BV/Sh.(INR)	140.6	154.1	151.5	159.0	170.0	179.7	188.6	202.5
Ratios								
Net D:E	0.2	0.1	0.3	0.5	0.4	0.5	0.5	0.4
RoE (%)	10.4	9.2	14.7	13.0	16.5	9.8	6.8	9.9
RoCE (%)	9.1	8.3	11.1	9.2	11.1	7.0	4.8	7.0
Payout (%)	53.2	66.8	36.0	38.0	31.3	42.9	29.1	28.1
Valuations								
P/E (x)	5.9	6.2	3.7	4.2	3.1	4.9	6.7	4.3
P/BV (x)	0.6	0.5	0.6	0.5	0.5	0.5	0.4	0.4
EV/EBITDA (x)	2.6	2.8	2.9	3.2	2.4	3.2	4.6	3.3
Div. Yield (%)	7.5	6.7	8.3	7.9	8.2	7.5	3.7	5.5
FCF Yield (%)	-2.7	43.5	15.9	-20.2	17.1	-0.2	-6.0	16.1

Source: Company, MOFSL

Oil India: Company summary – PT INR105 (+21%)

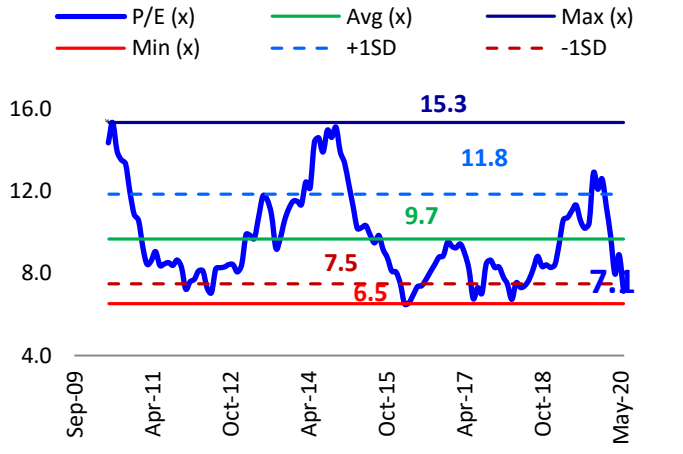
- **For FY21/22, we model Brent price at ~USD40/50/bbl and INR/USD at 72.5/73.3 for FY21/22 respectively.**
- **OINL is not expected to show any sharp increase in oil or gas production going forward. We further highlight that a change of USD1/bbl in oil price impacts the consol. EBITDA by 3%.**
- **The company has dividend payout of more than 50% and dividend yield of ~12% in FY19. The stock trades at ~27% discount to its long term PE average.**
- **OINL is trading at 3.8x FY22 EV/EBITDA and 5.3x FY22 PE. We value it at 8x FY22 adjusted PE and add the value of investments to arrive at a target price of INR105.**

Exhibit 52: Oil India – Valuation snapshot

On P/E Basis	
Adj. FY'21 EPS	13.1
Target P/E Multiple (x)	8.0
Fair Value	105
Investments	49
Fair Value	154
Valuation of Mozambique	
Recoverable reserves (tcf)	75
Valuation of block (USD bn)	13
OIL's stake (%)	4
Discount rate (%)	50
Valuation for OIL (USD bn)	0
Value paid (USD bn)	1.0
Valuation for OIL (INR/share)	-49
Total Valuation (INR/share)	**105**

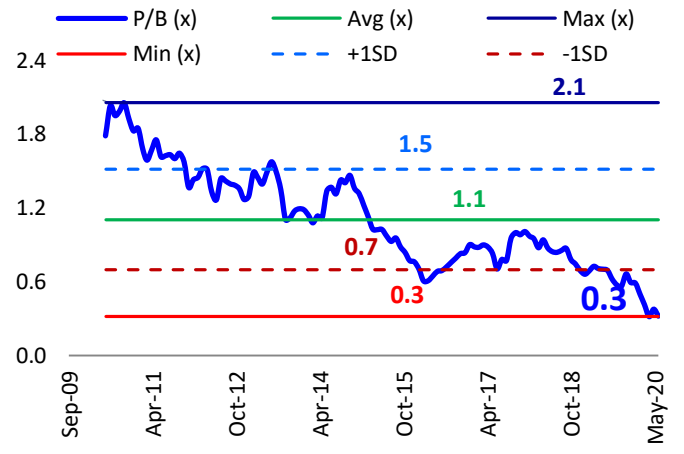
Source: Company, MOFSL

Exhibit 53: Oil India –1 year fwd PE trading at 27% discount…



Source: Company, MOFSL

Exhibit 54: …with 1 yr fwd PBV at 0.3x (v/s LT avg. of 1.1x)



Source: Company, MOFSL

Exhibit 55: OILI – key assumptions

Year End: March 31 (INRm)	FY15	FY16	FY17	FY18	FY19	FY20E	FY21E	FY22E
Exchange Rate (INR/USD)	61.1	65.4	67.1	64.5	64.5	70.8	72.5	73.3
APM Gas Price (USD/mmbtu)	4.8	4.7	3.0	3.0	3.5	3.8	2.8	3.0
Brent Crude Price (USD/bbl)	85.5	47.5	49.0	57.6	70.1	61.2	40.0	50.0
Production Details								
Oil (mmt)	3.44	3.25	3.28	3.39	3.32	3.11	3.23	3.24
Gas (bcm)	2.72	2.84	2.94	2.89	2.72	2.69	2.69	2.80
Total (mmtoe)	**6.16**	**6.09**	**6.22**	**6.29**	**6.05**	**5.80**	**5.93**	**6.04**
Subsidy Sharing (INRb)	**55**	**2**	**-**	**-**	**-**	**-**	**-**	**-**
Oil Price Realization (USD/bbl)								
Gross	84.3	46.4	47.4	55.7	68.5	59.6	40.5	50.5
Upstream Discount	37.3	1.0	-	-	-	-	-	-
Net	**46.9**	**45.3**	**47.4**	**55.7**	**68.5**	**59.6**	**40.5**	**50.5**
EPS (INR/sh.)	**19.4**	**22.3**	**23.9**	**23.6**	**32.0**	**17.5**	**8.5**	**16.5**

Source: Company, MOFSL

Exhibit 56: OILI – Financial snapshot

y/e march (INR bn)	2015	2016	2017	2018E	2019	2020E	2021E	2022E
Sales	92.3	92.7	93.6	106.6	137.3	117.1	86.7	106.6
EBITDA	30.1	30.7	29.6	39.1	54.8	44.0	20.6	32.4
Adj. PAT	21.9	25.2	27.0	26.7	36.2	19.8	9.6	18.6
Adj. EPS (INR)	19.4	22.3	23.9	23.6	32.0	17.5	8.5	16.5
EPS Gr. (%)	-26.5	14.9	7.2	-1.2	35.6	-45.3	-51.4	93.9
BV/Sh.(INR)	212.0	220.5	257.4	246.9	245.5	255.1	259.8	268.9
Ratios								
Net D:E	0.0	0.0	0.1	0.2	0.0	0.1	0.1	0.1
RoE (%)	9.8	9.4	5.7	9.4	9.3	7.0	3.3	6.2
RoCE (%)	3.8	4.1	3.5	4.8	6.8	4.4	1.3	3.2
Payout (%)	65.8	56.5	96.5	52.7	53.8	53.8	53.8	53.8
Valuations								
P/E (x)	4.5	3.9	3.6	3.7	2.7	5.0	10.2	5.3
P/BV (x)	0.4	0.4	0.3	0.4	0.4	0.3	0.3	0.3
EV/EBITDA (x)	2.9	2.9	4.1	3.6	2.0	2.6	6.1	3.8
Div. Yield (%)	12.3	11.1	12.7	11.9	11.8	9.0	4.4	8.5
FCF Yield (%)	4.5	19.0	17.3	28.8	52.2	5.7	-9.6	12.9

Source: Company, MOFSL

Valuation snapshot

Exhibit 57: India Oil and Gas companies – valuation snapshot

Company	EPS (INR)			P/E (x)			P/BV (x)			EV/EBITDA (x)			ROE (%)			Div. Yld
	FY20E	FY21E	FY22E	FY20E	FY21E	FY22E	FY20E	FY21E	FY22E	FY20E	FY21E	FY22E	FY20E	FY21E	FY22E	FY20E
Aegis Logistics	4.2	10.5	14.2	41.0	16.4	12.1	3.9	3.3	2.8	18.7	10.3	7.5	10.0	22.1	25.0	0.5
B P C L	17.0	33.6	44.5	20.4	10.3	7.8	1.7	1.5	1.3	10.0	7.8	6.3	8.4	15.4	18.2	1.6
GAIL (India)	10.4	9.8	13.2	8.8	9.4	6.9	0.9	0.9	0.8	6.5	6.8	5.1	10.6	9.5	12.0	7.6
Gujarat Gas	17.1	12.3	15.5	14.4	20.0	15.9	5.4	4.5	3.7	10.7	10.9	8.6	44.2	24.5	25.5	1.3
Guj.St.Petronet	19.6	17.1	19.3	10.3	11.9	10.5	1.7	1.5	1.3	4.4	4.0	3.0	17.7	13.5	13.5	0.9
H P C L	9.5	37.4	47.8	20.6	5.2	4.1	1.0	0.9	0.8	7.6	4.9	4.6	4.7	17.4	20.1	1.8
I O C L	3.3	12.5	17.7	25.7	6.9	4.9	0.7	0.7	0.6	6.7	4.6	3.6	2.7	9.8	13.0	1.6
Indraprastha Gas	17.2	16.4	19.7	27.3	28.7	23.8	6.5	5.5	4.7	19.8	19.0	15.6	26.2	20.7	21.2	0.6
Mahanagar Gas	82.4	64.3	69.7	11.7	15.0	13.8	3.3	3.0	2.6	7.8	8.9	7.9	31.0	20.9	20.2	3.1
M R P L	-13.3	5.5	7.9	NM	5.8	4.0	0.7	0.6	0.5	NM	4.2	3.3	-24.4	10.9	14.3	0.0
Oil India	17.5	10.4	19.2	5.0	8.4	4.5	0.3	0.3	0.3	2.5	4.1	2.8	7.0	4.0	7.2	9.0
O N G C	17.1	11.3	20.5	4.9	7.4	4.1	0.5	0.4	0.4	3.1	3.8	2.9	9.8	6.2	10.6	7.5
Petronet LNG	21.0	19.1	22.4	11.8	12.9	11.0	3.4	3.1	2.9	8.4	7.9	6.7	29.9	25.1	27.3	4.8
Reliance Inds.	68.1	66.4	98.1	22.3	22.9	15.5	2.1	2.0	1.8	10.4	10.1	7.1	10.3	8.9	11.9	0.4
Castrol India	8.4	9.6	10.0	14.1	12.3	11.8	8.5	7.7	6.9	9.1	8.0	7.4	65.3	65.7	61.8	4.7

Source: Company, MOFSL

NOTES

Explanation of Investment Rating	
Investment Rating	**Expected return (over 12-month)**
BUY	>=15%
SELL	< - 10%
NEUTRAL	< - 10 % to 15%
UNDER REVIEW	Rating may undergo a change
NOT RATED	We have forward looking estimates for the stock but we refrain from assigning recommendation

*In case the recommendation given by the Research Analyst is inconsistent with the investment rating legend for a continuous period of 30 days, the Research Analyst shall within following 30 days take appropriate measures to make the recommendation consistent with the investment rating legend.

Disclosures

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