

The State of Oil Globalization Before, During, and After the COVID-19 Pandemic

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ABSTRACT

This study aims to assess the state of globalization in the oil and gas sector by comparing the situation before, during, and after the COVID-19 pandemic, by determining the extent of the pandemic's impact on the oil and gas sector in general, and the prices of these materials in particular. By addressing globalization, we also seek to study the market situation for the most important and necessary products, and the extent to which it is affected by the repercussions of this pandemic, which is still ongoing today. The study concluded that the impact of the Covid-19 pandemic was clear through the historical decline in oil prices due to the contraction and shrinking volume of global production, which was negatively reflected on oil-producing countries, especially OPEC countries.

Keywords: COVID-19, oil and gas sector, globalization, oil prices.

INTRODUCTION

Following WWII, and for the first time in history, the global economy recognized new ways of connecting in each sector and industry, driven by multinational and multilateral companies working in various sectors and industries¹, driven by ; technical advancement and the increasingly free character of trade and investment, as well as the steady removal of various trade barriers².whereby free markets, democratic privatization, and the free flow of technology and innovation transformed the world into a global village where opportunities would allow for the economic advancement that we now enjoy³. The oil and gas industry is no exception, as multinational companies had the opportunity to operate in every imaginable location of the world in recent decades, and create numerous profits globally, benefiting from the diverse opportunities afforded by globalization, through the easy flow of the supply chain, labor, financial supports, and commercial barriers; and as the COVID 19 emerge the O&G industry encountered another facet of globalization, an unpleasant one. The COVID-19 outbreak in China placed millions of people in quarantine and idled factories, impacting Chinese workers and the global supply chains that depend on China as the factory of this planet ⁴, and as a result, where the global trade can circulate in ease, so it can the diseases. Historically the O&G industry is no stranger to supply and demand shocks, but recent developments indicate that significant market upheaval is on the way. COVID-19 has caused a demand-side shock that is currently reverberating across the global economy. Meanwhile, we're seeing a supply-side shock as a result of OPEC+. The simultaneous decrease of demand and ramp-up of production is unprecedented in the global oil and gas industry.

I. The state of Oil & Gas globalization Before COVID 19

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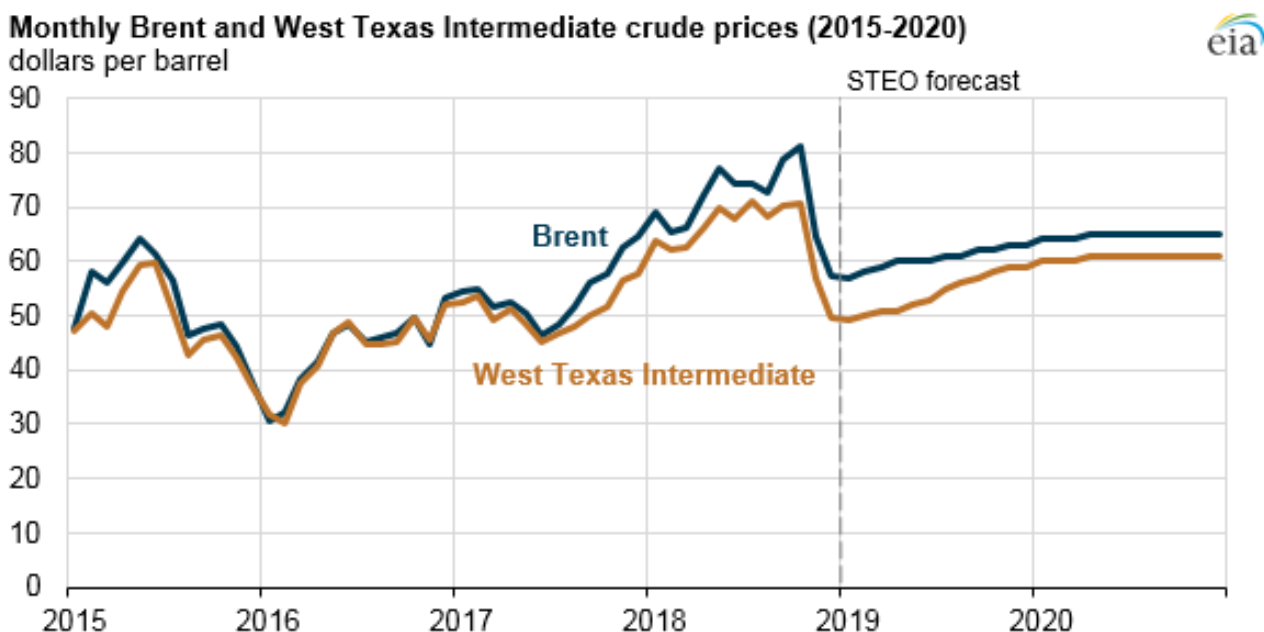
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1.1 Oil & Gas market Before COVID 19:

Since 2014, the oil market has been volatile, when COVID 19 when the Corona crisis escalated and deepened the situation. Since mid-2014, the crude oil market cycle has gone downward, resulting in progressively lower prices, severe CAPEX investment cuts, and turbulence throughout the oil and gas industry. Market prices momentarily fell below \$30/bbl⁵. In the period between mid-2014 and early 2016, the oil market registered a 70 % price drop during that period was one of the three biggest declines since World War II and the longest lasting since the supply-driven collapse of 1986⁶. Driven by supply factors, including booming U.S. oil production, receding geopolitical concerns, and shifting OPEC policies⁷ led by Saudi Arabia to protect market share rather than balance the market as it had in the previous downturns^{8 9}. the lifting of sanctions on Iran, growing inventory levels of crude oil and refined products worldwide, and expectations of lower world oil demand growth due to a worldwide economic downturn¹⁰. However, deteriorating demand prospects played a role as well, particularly from mid-2015 to early 2016. This partly explains why the oil price plunge failed to provide a subsequent boost to global activity¹¹. In response to the price decrease, oil and gas companies began reducing their CAPEX budgets in early 2015, anticipating that crude would settle in the \$55/bbl to \$65/bbl range¹². As for 2017 and 2018, the oil prices were still below 60 \$/B levels, in the January [Short-Term Energy Outlook](#) EIA's forecasts that world benchmark Brent crude oil will average \$61 per barrel (b) in 2019 and \$65/b in 2020 (see chart N°01), an increase from the end of 2018, but overall it will remain lower than the 2018 average of \$71/b. U.S. benchmark West Texas Intermediate (WTI) crude oil prices were \$8/b lower than Brent prices in December 2018, and EIA expects this difference to narrow to \$4/b in the fourth quarter of 2019 and throughout 2020¹³.

but at the beginning of 2020, the COVID 19 started to spread all over the world, the countries imposed quarantine protocol, the expectations were blown, and then the oil market has entered a new era that it has never experienced before.

Chart N°02 Monthly Brent and West Texas Intermediate crude prices (2015-2020)



Source: U.S. Energy Information Administration, [Short-Term Energy Outlook](#), January 2019

Besides previous, one of the main characteristics of the O&G market during the pre-COVID19 period according to “Oil 2019 the annual IEA outlook for global oil markets”¹⁴:

- The emerge of the United States in global markets as a result of rapidly expanding shale oil production: as it becomes a net exporter of crude oil and products;
- Supply growth in the non-OPEC world, including Brazil, Canada, Norway, and Guyana;
- Falling capacity for OPEC members;
- Growing demand from China and India
- The increasing importance of petrochemicals as the industry spends to fulfill expanding consumer demand;

I.2 Oil and Gas (Upstream and Downstream pre-COVID19)

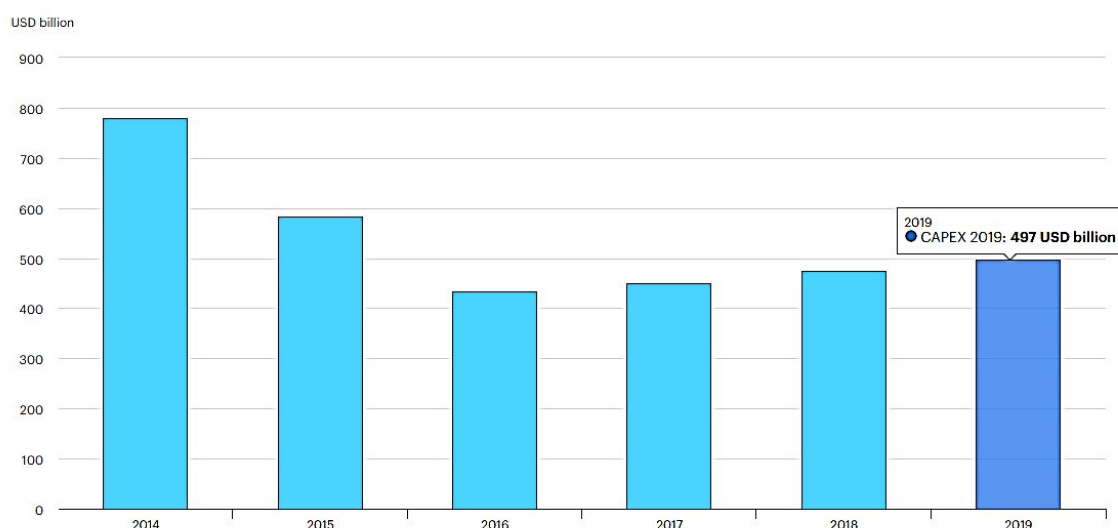
1.2.2Upstream phase: The oil production registered a significant increase of 6.89% between 2014 and 2019; where the global oil production in 2019 reached an all-time high level of oil production amounted to 94.69 million barrels per day¹⁵, driven by non-OPEC members countries (mainly USA), which will increase oil supply by 2.4 million b/d in 2019, offsetting forecast supply declines from OPEC members, resulting in an average of 1.4 million b/d in total global supply growth. As for In 2020, IEA's annual outlook for global oil markets Oil 2019¹⁶ expects that oil production will increase by 1.7 million b/d driven by the production growth in the United States, Canada, Brazil, and Russia, while overall OPEC crude oil production is expected to remain flat and China will lead the global oil demand growth¹⁷.

World oil production pre-COVID19 (2014-2019)

Source:<https://www.statista.com/statistics/265203/global-oil-production-since-in-barrels-per-day/>

As for the investments, a strong buildup of supply will require substantial investment and for a third consecutive year, upstream investment is set to rise. Following higher than expected spending last year, global upstream CAPEX for oil and gas is set to increase by 4% in 2019¹⁸

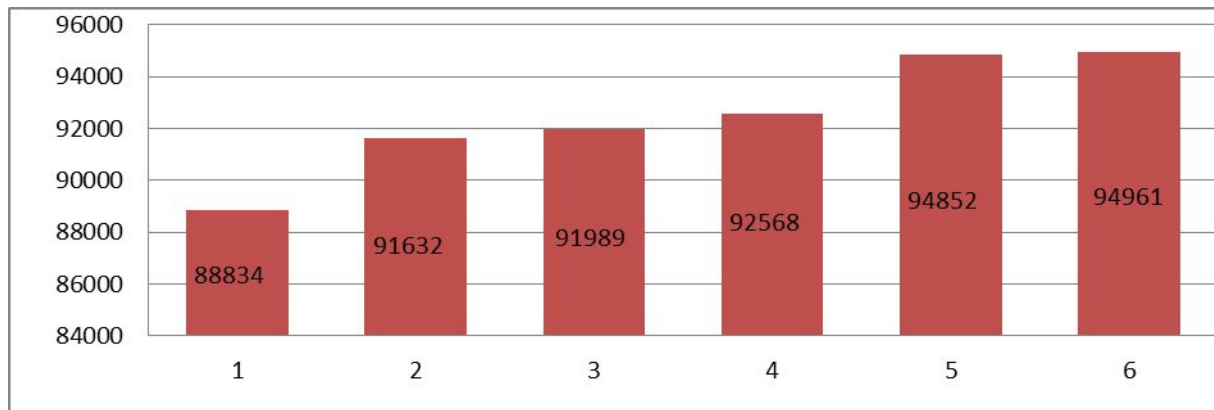
Chart N° 03 World liquid fuels production and production balance



Source: U.S. Energy Information Administration, [Short-Term Energy Outlook](#), January 2019

The global upstream investment in 2019 is 497 billion USD, representing a 4.63 percent rise in nominal terms over the previous year. Despite four years of marginally increased spending, this amount is roughly USD 282 billion lower than the peak achieved in 2014, resulting in a less drastic 36 percent decline in nominal spending from 2014 to 2019. All the forecasting in tracking company announcements and investment-related policies The estimate predicted that global capital expenditures on energy might rise by 2% in 2020, which would be the greatest increase in global energy investment since 2014¹⁹.

1.2.2Downstream phase: after recovering from a fall in 2015, refining investments have continued to grow strongly. The capital spending on refining units (new units and renovations) and maintenance totaled USD 43 billion and USD 24 billion, respectively (see chart N°). Meanwhile, in 2018, over 70% of investment in refining facilities was completed in Asia as the regional product demand is rising. In addition to current distillation capacity, refiners are progressively investing in different upgrading and desulphurization units to respond to changing demand, supply, and regulatory environments, upgrading capacities grew by 9% between 2014 and 2018 to minimize the production of heavy residue. Moreover, Condensate splitter capacities registered a strong 42% growth, primarily in the United States, Iran, and Korea in light of a growing light feedstock supply.

Chart N°03 Investment in oil refineries (Greenfield and upgrade) by region

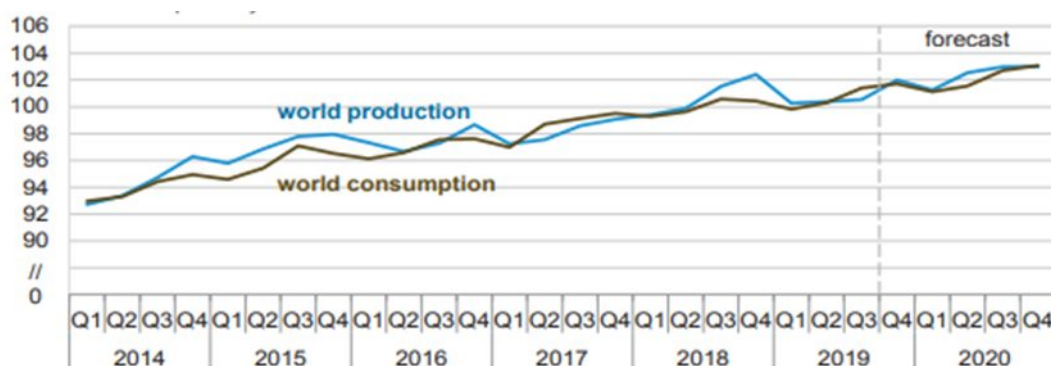
Source: <https://www.iea.org/reports/world-energy-investment-2019/fuel-supply>

II. Globalization of O&G industry during COVID 19

By the arrival of 2020, predictions for the oil industry's recovery from the previous crisis remained optimistic and gradual price recovery. However, an invisible virus spread in a Chinese city called Wuhan, turning the world, the global economy, and with it, the oil industry, upside down in a way that historians have not seen before introducing a new term of globalization Pandemic globalization.

II.1.Oil and Gas market:

The collapse in oil and gas prices in 2020, due to the decline in economic activity stemming from coronavirus pandemic leading to a debate on whether it is just an extreme version of the familiar commodity cycle or whether it may result in a turning point for oil and gas markets, accelerating the transition away from fossil fuels towards a low carbon era²⁰. Despite the shakeups the industry has experienced over the years the recent events portend a new and perhaps even more disruptive market: A black swan event, ²¹. The second quarter of 2020 was very challenging. Global oil demand, with significant consequences for supply, became subject to an immense shock from decreased economic activity, which in turn turned hostage to the lockdowns attempting to contain the epidemic. The implications have been unexpected, including an unprecedented drop in oil demand (close to 19 million barrels per day, or 18 percent, in the first four months of 2020), rapid descent in prices (West Texas Intermediate— WTI, a major benchmark crude, hit a historic USD -40 per barrel on April 20)²², and Since June 2020, the Brent oil price benchmark has exhibited stagnation at approximately \$45/bbl. ⁷ The price stability of oil at this level is reassuring, but its failure to break the upper level (\$50/bbl) amid a bull run in the broader equities and commodities markets is concerning. In reality, oil was the worst-performing commodity in 2020, behind even coal, and its range-bound behavior was unusual²³.

Chart N°04 Demand destruction due to COVID19

Source: <https://www.accenture.com/us-en/insights/energy/oil-markets-responding>

2.2 . Oil &Gas Upstream during COVID 19

2.2.1 Upstream : Upstream is significantly harmed; severe fall in profits, which may not meet the operational expenses of comparatively higher-cost producers in some situations .At the 10th special meeting on April 2020 , OPEC+ members decided to lower total oil output by 9.7 mb/d. over the 1 May 2020 - 30 June 2020 period

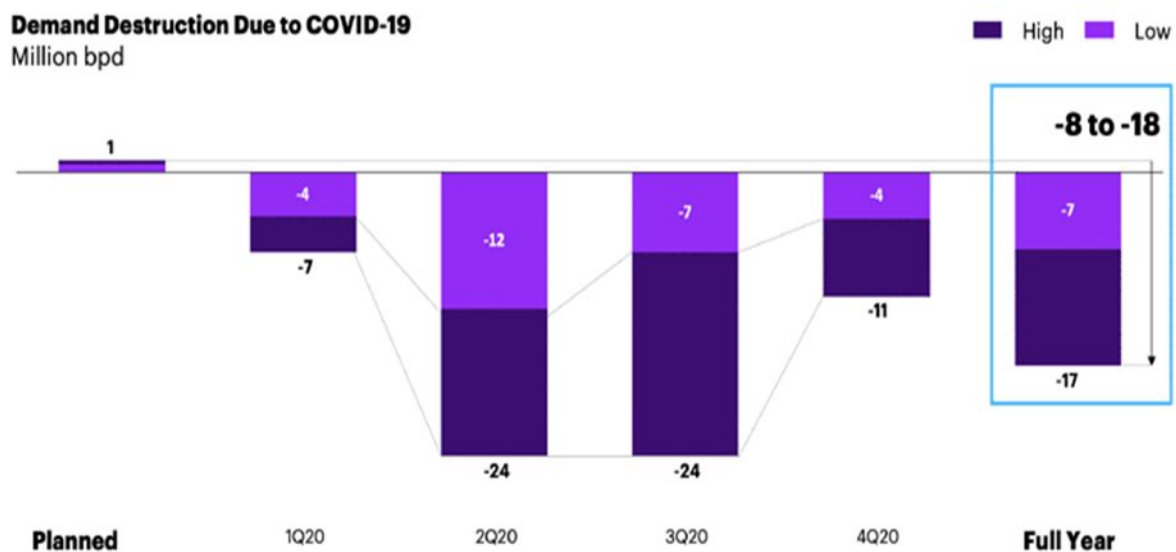
Table 1. Crude Oil Futures (Prices), 2020, in US\$/b

Product	January	February	March	Change		Year-to-Date	
				Mar/Feb	%	2019	2020
NYMEX WTI	–	50.54	30.45	–20.09	–39.8	54.90	45.78
ICE Brent	–	55.48	33.73	–21.75	–39.2	63.83	50.82
DME Oman	–	54.30	34.22	–20.08	–37.0	59.64	50.60
Crude oil, monthly average	61.6	53.3	32.2	–	–39.6	60.5	49.1

Source: Organization of Petroleum Exporting Countries (OPEC) (2020).

(extended to end-July 2020 This is the highest oil production reduction ever arranged to firm up depressed oil prices (see chart N°07°. The agreed-upon 9.7 mb/d output decrease will take place over two months, beginning on May 1, 2020^{24 25}. As of August 2020, restrictions were removed (global reduction restricted to 7.7 mb/d). Overall, oil production fell by -8.8% in the Middle East, including -7% in Saudi Arabia, by 8.6% in Russia, and by 14% in Nigeria. It declined by 4.5% in Canada but grew by 1.6% in China and by 7.1% in Brazil (surging pre-salt production)²⁶. According to IEA “the Global oil supply rose 1.5 mb/d in November to 92.7 mb/d as the US recovered from hurricane shut-ins and Libya built up production. In December, production may rise again ahead of OPEC+ increasing its quota by 0.5 mb/d in January. OPEC+ dominates global growth in the near term, with virtually all the 4Q20 gains and 80% in 1Q21”²⁷. The OPEC and Non-OPEC Ministerial Meeting on 3 December reconfirmed the existing commitment under the DoC decision from 12 April 2020, then amended in June and September 2020, to gradually return 2 mb/d, given consideration to market conditions²⁸.

Chart N°07 OPEC and word Supply



source: OPEC Monthly Oil Market Report – December 2020,P:50

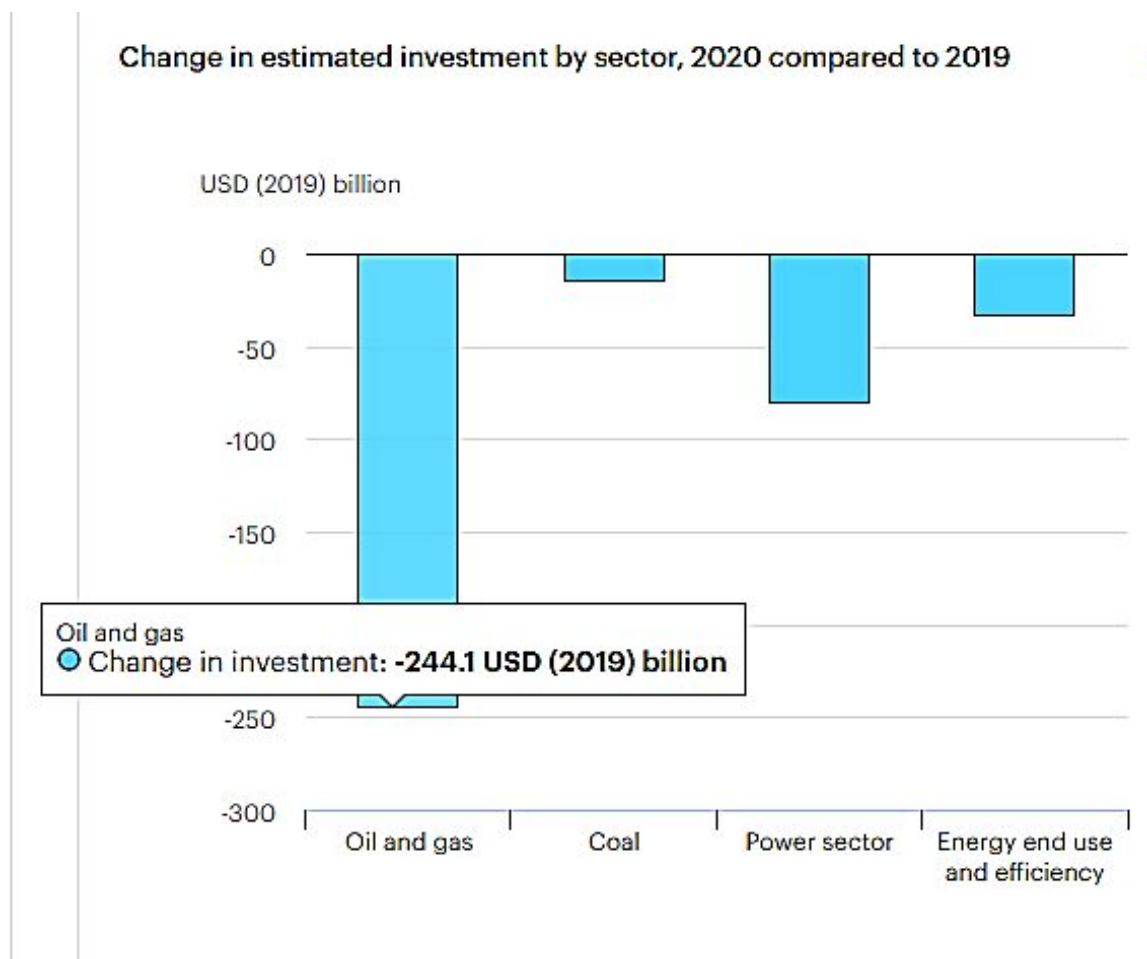
https://www.opec.org/opec_web/static_files_project/media/downloads/publications/OPEC_MOMR_December-2020.pdf

As for the oil investments; The rate and magnitude of the drop in energy investment activities in the first half of 2020 are unprecedented and the change in investment during 2020 reached a level of -244,1 USD billion

compared to 2019 levels (see chart N°06). Many companies cut back on expenditure; project workers were confined to their homes; planned investments were delayed, postponed, or canceled; and supply networks were disrupted.

Almost all investment activity has been hampered by lockdowns, whether owing to limitations on the movement of persons or products or because the supply of machinery or equipment was disrupted. However, the biggest implications on investment expenditure in 2020, particularly in the oil, derived from revenue decreases as a result of weaker energy demand and prices, as well as more unclear projections for these elements in the coming years.

Chart N°08 Change in estimated investment by sector, 2020 compared to 2019



Source: <https://www.iea.org/reports/world-energy-investment-2020/key-findings#abstract>

2.2.2 Down Stream The COVID-19 pandemic has negatively affected the market due to a reduction in consumption of refined petroleum products and declining economic development across the major nations of the world. The COVID-19 pandemic coupled with the high volatility of crude oil prices has delayed many refinery projects across the globe²⁹, where the global refinery throughputs fell almost 1 mb/d in October mainly due to maintenance and hurricane shutdowns. The seasonal slowdown of refined product demand in the northern hemisphere winter combined with tighter crude oil markets will result in a challenging environment for refiners in the short-term. Estimated product stock draws reached their 2020 peak in October and are expected to slow until the next leg of the demand recovery in 2Q21³⁰.

Despite the demand and price shock induced by Covid-19, global oil refining capacity is expected to rise. To 2025, worldwide investment in new downstream oil refining and integrated chemicals capacity will average \$55 billion per year, resulting in a 1.7 percent annual growth in global crude distillation unit (CDU) capacity. According to findings variety of reasons are boosting downstream investment as follows³¹:

- China's refining sector is being consolidated and modernized.
- Middle Eastern exporters are expanding strategically.

- Bets on a rise in the demand for chemicals

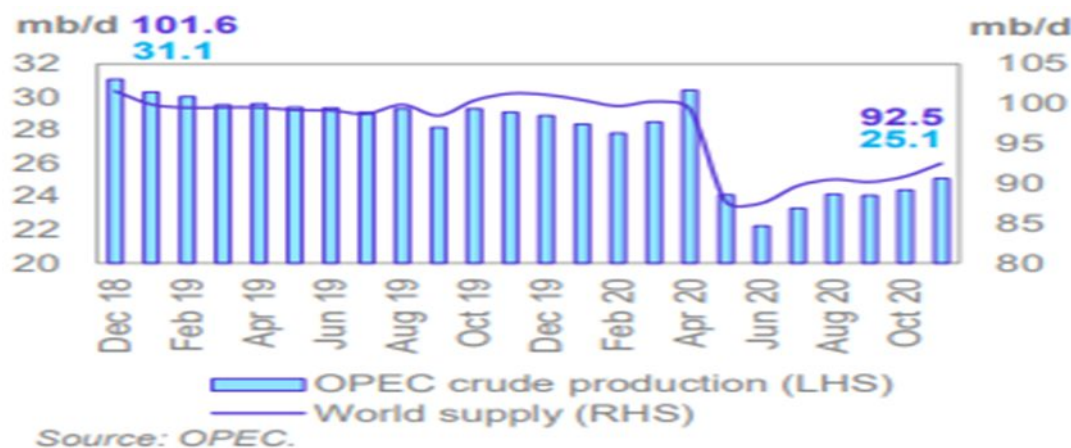
III. Oil & Gas industry globalization post COVID19

According to recent IEA's report "The global economy and oil markets are recovering from the historic collapse in demand caused by the coronavirus (Covid-19) pandemic in 2020. The staggering inventory surplus that built up last year is being worked off and global oil stocks, excluding strategic reserves, will return to pre-pandemic levels in 2021. And yet, there may be no return to "normal" for the oil market in the post-COVID era.

3.1. Oil market post COVID 19

At The Beginning 2021, Crude oil prices increased as increasing COVID-19 vaccination rates, loosening pandemic-related restrictions, and a growing economy resulted in global petroleum demand rising faster than petroleum supply³². the Brent oil futures have increased by more than 50%, reaching their highest level since October 2018, owing to a rebound in fuel demand and tighter supply from OPEC+ members (OPEC +RUSSIA)³³. OPEC expecting that" Brent prices will average \$71/b in December and \$73/b in the first quarter of 2022 (1Q22). For 2022 as a whole the growth in production from OPEC+, of U.S. tight oil, and from other non-OPEC countries will outpace slowing growth in global oil consumption, especially in light of renewed concerns about COVID-19 variants. We expect Brent prices will remain near current levels in 2022, averaging \$70/b"³⁴. Global oil consumption is expected to reach 100.8 million bpd in 2022, reaching pre-pandemic levels, according to OPEC, while the IEA predicts 96.1 million bpd in 2021 and 99.4 million bpd in 2022, compared to 90.9 million bpd in 2020³⁵. but at the end of 2021 the Crude oil spot prices declined in November, amid concerns regarding the emergence of the new Omicron COVID-19 variant, and easing of the energy crunch which had resulted in higher oil demand from the gas-to-oil switching. The OPEC Reference Basket (ORB) value dropped by \$1.74, or 2.1%, in November to average \$80.37/b, similarly, crude oil futures prices ended November sharply lower amid higher volatility after a broad selloff in futures and equity markets, amid the emergence of the new Omicron COVID-19 variant and easing concerns about an energy crunch. The ICE Brent first-month fell by \$2.90, or 3.5%, in November to average \$80.85/b³⁶.

Chart N° 09 Crude oil price movement



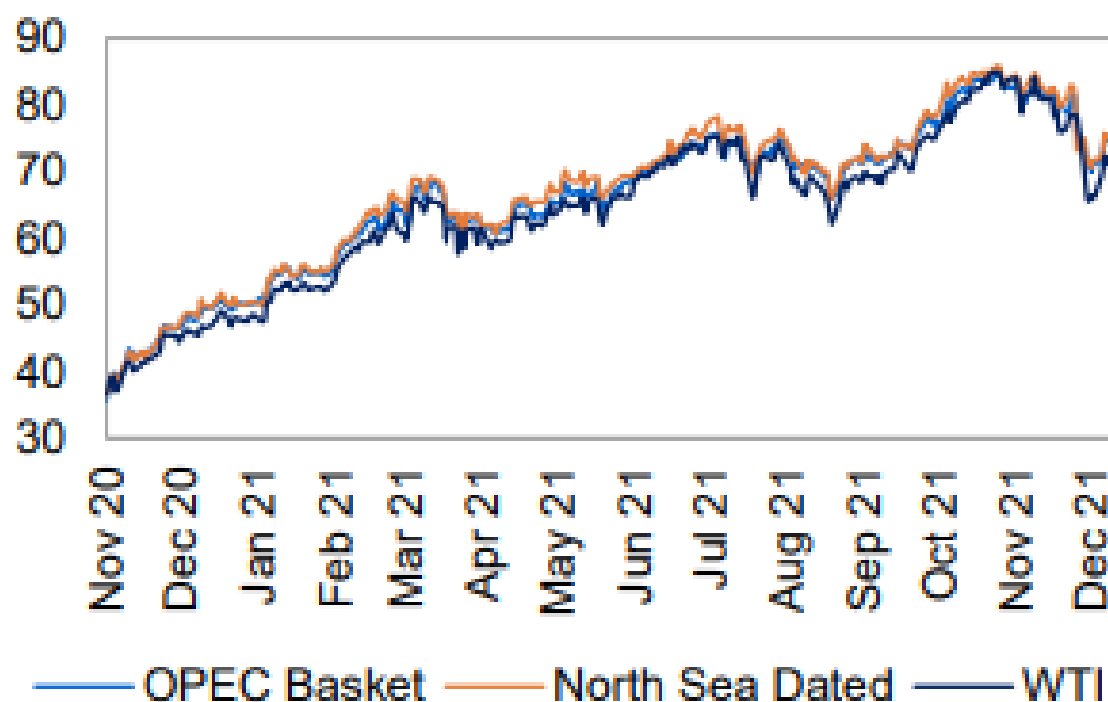
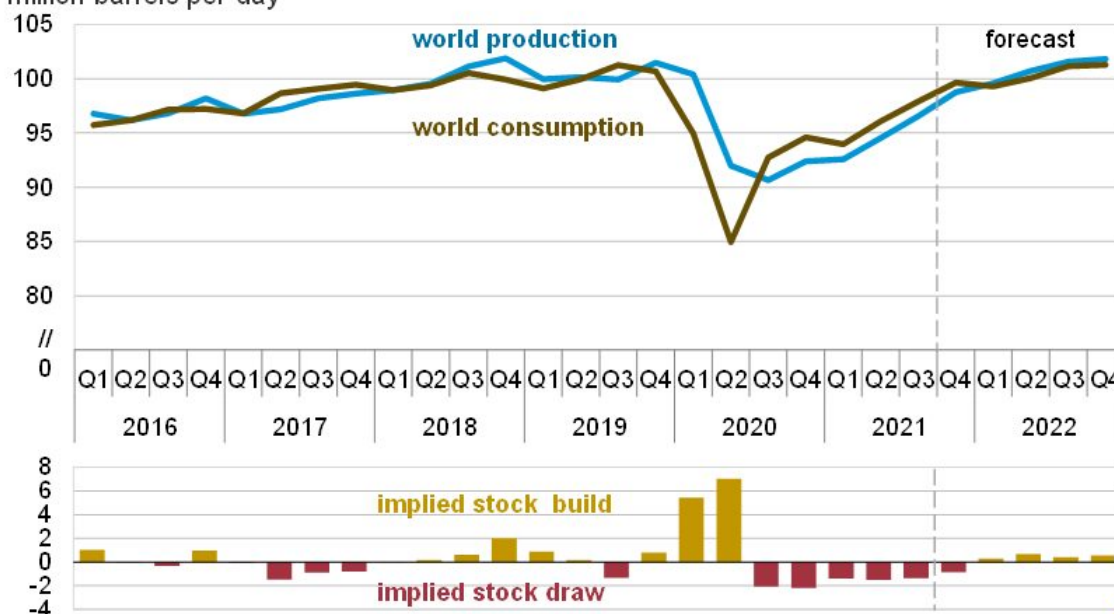
Source: OPEC, OPEC Monthly Oil Market Report, 13 December 2021, P:01

, file:///C:/Users/pc%20marhaba/Downloads/OPEC_MOMR_December_2021.pdf

3.2 The Oil and Gas Upstream & downstream post COVID

3.2.1 Upstream: According to "Global oil production is poised to outpace demand from December, led by growth in the US and OPEC+ countries. As this upward trend extends into 2022, the US, Canada and Brazil look set to pump at their highest ever annual levels, lifting overall non-OPEC+ output by 1.8 mb/d in 2022. Saudi Arabia and Russia could also hit records if remaining OPEC+ cuts are fully unwound. In that case, global supply would soar by 6.4 mb/d next year compared with a 1.5 mb/d rise in 2021"³⁷. Middle Eastern producers are likely to deliver half of the additional capacity, primarily from idle capacity. If Iran stays under sanctions, maintaining global oil market equilibrium may require Saudi Arabia, Iraq, the United Arab Emirates, and Kuwait – with their excess capacity – to pump at or near record levels³⁸.

Chart N: 09 World liquid fuels production and consumption balance

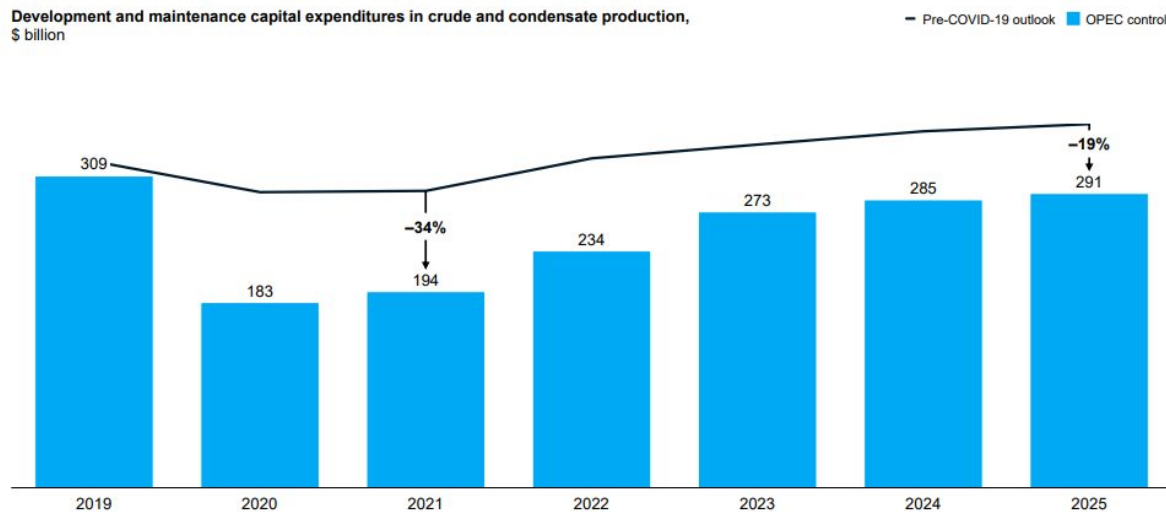
Graph 1 - 1: Crude oil price movement**US\$/b***Sources: Argus, OPEC and Platts.***Source:** US energy information administration, Short Term Energy Outlook ,December 2021**World liquid fuels production and consumption balance**
million barrels per day

Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



Oil investments increased by 6% in 2021 compared to 2020 but stay below the pre-COVID19 level with -34 percent, and they are predicted to progressively recover, registering 234 USD Billion in 2022 and 291 USD Billion by 2025 while remaining below the pre-COVID19 level with -19%³⁹.

Chart N°08 Oil investments and prediction 2019-2025



Source: Energy Insights by McKinsey **Global oil outlook to 2040 Summary Report**, February 2021, P:05

3.2.2 Downstream: The initial Quarantine Policies led to a huge year-over-year yield change in gasoline, jet fuel, and diesel fuel. With aerial and vehicular transportation effectively paralyzed for some of March and April, downstream activities at refineries faced a huge demand hit. Normally, oil producers respond to decreased demand by cutting supply; however, in this case, a price war between the world's two largest oil producers—Saudi Arabia and Russia—did the opposite and flooded the market with unnecessary products⁴⁰. Excess supply, larger crude inventories, and limited demand have proven to be too much for certain downstream companies to overcome, resulting in refinery closures and decreased run rates. Furthermore, a lack of demand will result in a drop in refining margins, leading refining economics to deteriorate⁴¹.

CONCLUSION:

Globalization has played a pivotal role in shaping the oil and gas industry in its development, allowing the integration of production, refining, trade, finance, technologies, etc. Until the outbreak of the COVID-19 pandemic, the integration of global supply chains made it possible to create a competitive global oil market, marked by increasing shale production in the U.S., growth in non-OPEC supply, growing demand in Asia, and massive upstream and downstream investments.

However, globalization, which created a high level of efficiency and growth, was also associated with increased vulnerability, since any economic shocks started to spread across the world through the same interconnected supply chains.

The coronavirus pandemic proved the fragility of the existing oil and gas globalization model. Firstly, the pandemic brought about a shock to demand (lockdowns and reduced mobility decreased oil consumption) and supply (disagreement between the OPEC+ at the beginning of the year and the consequent market oversupply). In addition, the crash in demand, negative WTI price at the end of March 2020, and record production cuts in OPEC+ proved that this was not just a cycle-related crisis, but a disruptive event in the global oil market.

Moreover, the pandemic led to a sharp decline in revenue for upstream producers, problems with projects, disruptions in logistics, a significant drop in capex. Thus, the global oil and gas investment in 2020 declined by approximately \$244 billion compared to 2019. Furthermore, downstream activities faced the challenges of reduced demand for petroleum products (gasoline, diesel, jet fuel), low margins and throughput, and delayed projects.

It can be concluded that globalization has increased the exposure of the oil and gas industry to correlated risks: the occurrence of a health crisis in some parts of the world has quickly affected demand, logistics, investment and pricing of oil products.

As of the post-COVID era, the market started recovering due to the increase in demand associated with vaccination and opening of the economies, as well as supply management of the OPEC+. At the same time, the recovery cannot be considered as a complete return to the pre-crisis model. Investment level remained below the

pre-COVID one, producers were more cautious, and the crisis intensified discussions about energy security, diversification, decarbonization, and future demand of oil.

All things considered, the data suggests that COVID-19 turned globalization in the oil and gas sector from a process that mainly created opportunities into a source of systemic risk. Therefore, the industry's future will depend on its capacity to create more robust supply chains, maintain disciplined investment, adjust to unstable market conditions, and react to the quickening global energy transition in addition to the recovery of demand and prices. In this way, the pandemic did not stop oil and gas globalization; rather, it changed its circumstances, highlighting the advantages of international integration as well as the strategic need for resilience.

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