

ANALYSIS ON EFFECTS OF COVID-19 ON THE OIL AND GAS SECTOR

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Abstract: *The outbreak of COVID-19, often known as SARS-CoV-2, has wreaked havoc on the economy of global pioneers like the United States and China, and it is continuing to spread around the globe. Because Wuhan, the capital of Central China's Hubei Province, is where the Crown incident took place, the primary epicenter of this scourge is there. As a result, the job of ensuring the financial wellbeing of China at this stage assumes an essential role in the economy of the entire world, which contributes to the United States' position as the world leader. The world has been impacted by COVID-19, which is most likely the worst health crisis since SARS in 2003. Despite the fact that the entire world has been impacted by COVID-19, the World Health Organization is not currently classifying it as a pandemic because of its effort proximity all over the world. The economy has taken a significant blow, in addition to the clear toll it has had on people's health and the money it has cost them. The effect is so powerful that almost every country is under lockdown, which has an adverse impact on their trade and commerce. This test paper will lead you through the current state of the global economy, but the primary focus will be on the impact that the pandemic will have on the state of the Indian economy, both now and in the future. This article will aid in understanding how different segments of Indian companies are reacting to this situation and adopting steps to reduce the loss or risk in this precarious situation.*

Keyword: *COVID-19, Asymmetric Volatility, Leverage Effect, Crude Oil, Natural Gas, MCX Limited.*

I. INTRODUCTION

The Indian Oil & Gas (O&G) industry is notable in the global context – it contributes to 5.2% of the global oil demand, is among the top three large markets in demand growth and 4th in the world in refining capacity (~249 MTPA). India is also very imports-dependent, with oil imports at 84% and gas imports at 53% of their respective annual demands. Incidentally, O&G imports constituted ~25% of India's import bill in FY'19. Therefore the impact of COVID-19, whether due to the wide-spread demand destruction, or the downward spiral of crude prices, is of enormous concern for all of the Indian O&G industry participants.

The Indian O&G industry is usually proficient at disaster response and its effectiveness has been demonstrated across a range of disaster scenarios in the past. With COVID-19 too, the industry has done reasonably well thus far, as evinced by the near continuous operations and availability of different fuels, almost across the entire country. However, most O&G CXOs believe that the recovery for the sector is likely to be longer, and more protracted than anticipated.

The recovery for the Indian economy lies between a couple of equally plausible but alternate futures – a 'protracted' recovery (what is popularly known as 'U' shaped recovery) or

recovery in ‘Fits and Starts’ – speedy improvement to start with, but with a future dip(s) due to a second/third wave of the viral infections (a ‘W’ shaped recovery). While the jury is still out on the exact recovery path that the Indian economy will take, the real need of the hour for the O&G industry is to rise beyond the specifics of COVID-19 response and focus instead on what industry constituents could do to emerge stronger and ‘thrive’ in the brave new world. Managements should therefore prioritise their thinking onto the medium-to-long term opportunities.

First, develop an agile operations mindset: Most Indian O&G companies build in-depth operational plans based on a deterministic view of the future. Over the years, companies have set up strong organisational value chains (assets, supply chains, customer touch-points, etc.) needed to operate in different parts of the country. It is interesting to note that while companies have built elaborate operating processes to sense and react to safety incidents, they haven’t necessarily done the same for other business events. The O&G industry is increasingly facing disruption on multiple fronts: more nimble substitutes/alternatives, changing consumer preferences, and rapidly changing geo-politics. Companies need to encourage sensing and divergent thinking behaviour, ground-up, thus enabling them to look around corners, keep scanning the external environment, realise implications well in advance, and then take necessary actions. Companies that are able to design flexible, team-based organisational processes that help seamlessly blend these insights into operations planning and execution, more often than others, are likely to be the winners in the long-term.

Second, take the long view: Globally and in India, the O&G industry is one of the early adopters of scenario planning. However, Indian O&G companies haven’t always followed-through in making the sizable bets to back alternate scenarios (with the option of scaling-up), in addition to doing everything to accelerate the emergence of the future scenario of choice. Often, managements tend to view these bets only from a narrow lens of project economics, which prevents a go-ahead on any alternative investments other than the pet management case, which in turn negates the benefits of scenario planning in most cases.

Third, build partner ecosystems: Indian O&G companies have traditionally been good at working with suppliers/vendors, through multi-year, arms-length relationships. However, lots of other industries use a mix of financial investments and other forms of alliances to create value from complementary, but long-term relationships. Such alliances enable companies to get into positions early and thus enable them to seize opportunities or weather storms like COVID-19 better. The Indian O&G industry too should evaluate such alliances, which may require challenging some of the industry conventions, and may spawn collaborations with partners beyond industry battery limits in areas like advanced analytics and behavioural sciences, logistics, mobile/online payments, technology, etc., who could in-turn help incumbents create a tailored offensive/defensive strategy.

COVID-19 has definitely made the O&G industry in India sit-up and review what should go into business continuity plans. However, leaders who seize this opportunity to equally start thinking of pervasive changes that are needed for their operating models, using a combination of an agile operations mind-set, long-term view, and partner ecosystems, faster than others, are likely to emerge stronger as the dust settles.

II. LITERATURE SURVEY

The spread of the coronavirus has caused havoc in China's economy, which has contributed to an overall slowdown in international commerce. The fall in China's demand for raw resources has had a negative impact on the economies of nations that are major exporters of commodities, such as Saudi Arabia, Russia, and Australia. A number of enterprises in China have gone out of business, which has caused a scarcity of replacement parts in industries in other countries. One example of this is the Hyundai Company, which has been forced to close plants in South Korea as a consequence of a lack of supplies. The disruption of Chinese industries has led to an increase in the severity of shortages of pharmaceutical and manufacturing supplies. The epidemic has caused panic buying and food shortages in a number of nations, including Italy and Hong Kong, for example (2020b). In addition, the impact on tourism and airlines has been more severe, which means that the number of Chinese visitors visiting Thailand might decrease by as much as 20% in the year 2020. This would have a negative effect on Thai tourism. The Organization for Economic Cooperation and Development (OECD) predicts that global growth will be 2.4% this year, which is lower than the 2.9% that economists had anticipated. In response, the world's central banks may lower key interest rates and adopt expansionary monetary policy in order to stimulate economic growth. A number of studies have shed light on the relationship between economic activity and the price of oil.

Baumeister and Kilian (2016) demonstrates that a slowdown in the world economy was responsible for a \$49 drop in the price of a barrel of Brent crude oil between June and December of 2014. According to Kilian (2017), this decrease may be attributed to a decrease in the demand for crude oil.

Yardimcioglu and Gulmez (2013) shows that there is a strong integration relationship between oil prices and economic growth in the 10 OPEC countries over the period of time from 1970 to 2011, and he confirms the impact of the Dutch Disease on price oil fluctuations. This relationship was studied over the period of time from 1970 to 2011. Several empirical studies have been conducted with the purpose of gaining a better understanding of the macroeconomic effects that oil price shocks have on the economy of the United States.

Ghalayini (2011) examines whether shifts in the price of oil may be used to explain increases in the size of the global economy. There is a negative correlation between rising oil prices and economic growth in nations that are net importers of oil, whereas there is a positive

correlation between rising oil prices and economic growth in countries that are net exporters of oil. In addition to Russia, China, and India, nations from the OPEC group were included in this analysis as well. In recent years, a multitude of research has explored COVID-19's influence on economic activity all around the world.

Yilmazkuday (2020), indicates that the influence of COVID-19 fatalities is small, and explains the collapse in oil price on March 2020 by the OPEC dispute. This was shown by analysing daily data on the worldwide coronavirus illness 2019 (COVID-19). Majjama'a et al. (2020) investigates the impact of a coronavirus outbreak on the global energy demand. They do this by using daily data on China's population, the Chinese currency exchange rate, and international crude oil prices from the 23rd of January to the 8th of February in the year 2020. This line of research is similar to the previous one. The findings demonstrated that the total population has a positive and substantial influence on the total number of instances of coronavirus infection, but the price of crude oil has a negative and significant relationship with the number of cases of coronavirus infection.

III. ANALYSIS OF IMPACT ON INDIAN ECONOMY

In terms of growth forecasts, Standard & Poor's (S&P) decreased the growth estimate for Indian FY21 to 1.8% from 3.5%, indicating that the top of COVID-19 would come somewhat later in India. This was done in light of the fact that the peak of COVID-19 will come somewhat later in India. In addition to this, the rating agency noted that the supply and demand shocks would result in a loss of around \$2.2 trillion in revenue from corporations and households (Bartik, Bertrand, Cullen, Glaeser, Luca & Stanton, 2020). After reaching a high point of 7.9 in FY2018, the GDP of India has been on a consistent downward trend ever since. There was a significant amount of unemployed people, firms were hesitant to implement new plans, and exports had been decreasing for some months. The onset of the epidemic amplified the effects that the declining Indian economy was already having.

According to Klein, Lin, Tseng, Scheuller, and Kapoor (2020), it was discovered that some industries, such as the automotive industry, which contributes about 10% to India's GDP and employs more than 40 million people, were already experiencing a decrease as a result of declining sales. The Society of Indian Automobile Manufacturers suggested that auto sales hit a decade low in January 2019, and with the loss of income and lockdown, discretionary consumption will further make the situation worse for the auto sector. In addition, the Society of Indian Automobile Manufacturers suggested that auto sales hit a decade low in January

2019. In addition, Gumber and Bulsari (2020) noted that this would make it difficult for car businesses to retain personnel, which will further degrade the status of the Indian labour market. This is a challenge that will be presented to auto companies.

In addition to this, financial and banking services were already suffering enormous challenges prior to the pandemic due to the failure of DHFL, the catastrophe at Yes Bank, and IL&FS.

The retail loan books of NBFCs, micro-financial institutions, and private banks were being rapidly built, which puts these loan books at risk of coming under substantial strain in the event that companies experience massive layoffs (Singh, 2020). The fact that these loans are entirely unsecured makes the situation much more precarious. This may lead to a large number of defaults, which in turn can put MFIs and NBFCs dangerously close to failing totally. Furthermore, the information technology industry, which is a significant factor in the Indian economy, is not immune to the pandemic issue since the majority of their customers are located in countries in North America and Europe that are heavily impacted by the virus. This might lead to a drop in orders not just from the Banking, Financial Services, and Insurance (BFSI) industry, but also from other industries like tourism, aviation, and retail as well. As a result, the falling demand for fuels and the sharper decline in economic activity as a result of the drop in economic activity may lead to a reduction in the rate of inflation because of the increased social distance. In addition, the Reserve Bank of India (RBI) has the ability to lower prices in order to control inflation. Economists have also pointed out that the pandemic will have the most substantial influence on supply chains, relationships, and macroeconomic issues.

A reduction in urban transactions may also lead to a sharp decline in the consumption of commodities that are not required, and because of consumer attitude and poor domestic consumption, there may be a delay in investment owing to these factors. In terms of the influence on individual industries, interruptions in the supply of raw material have had a negative effect on twenty percent of the world's chemical output (Koshle, Kaur & Basista, 2020). In addition, the epidemic has a negative influence on the movement of cargo service providers, as the average number of daily vessels has dropped by more than 70 percent. The effect on the automotive sector has previously been discussed, however the impact on the pharmaceutical business has led to interruptions in medicine exports as a direct consequence.

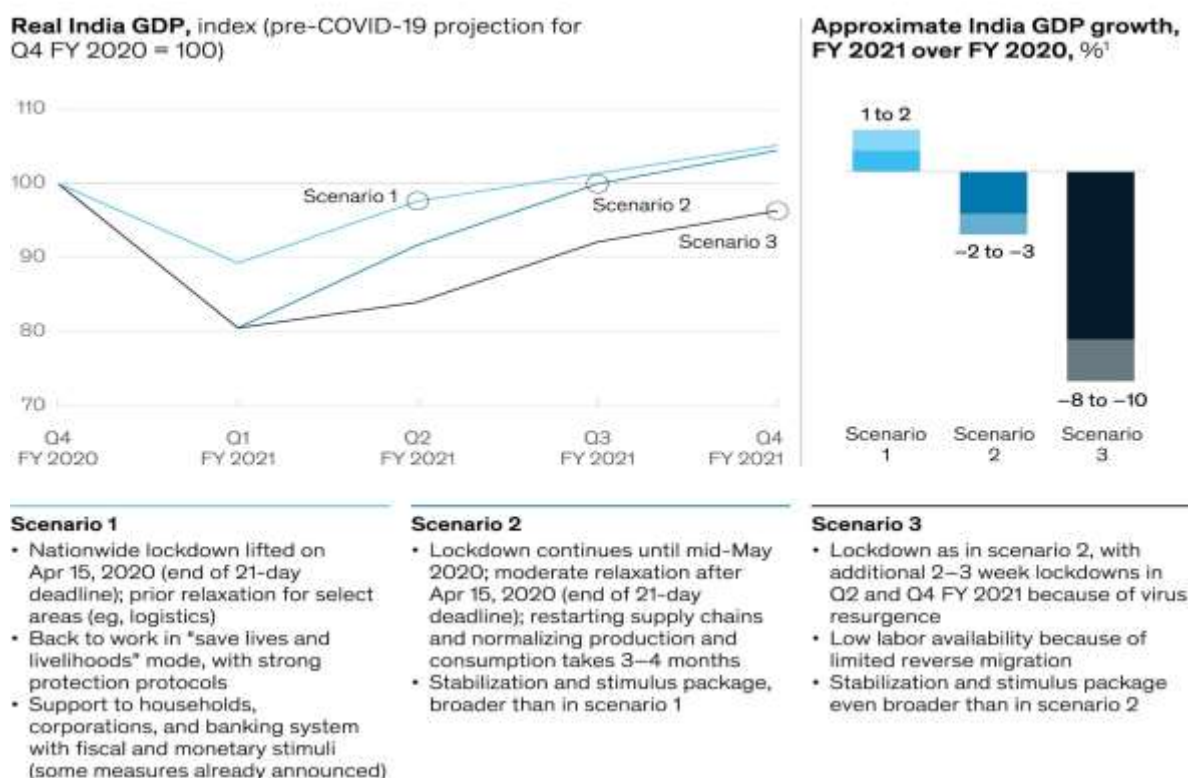
The following table provides an overview of the projected repercussions that COVID-19 would have on different parts of the Indian economy.

| Sector | Growth rate |
|-------------------------------------------------------------------|-------------|
| Financial, real estate and professional services | -17.3% |
| Electricity, gas, water supply, and utility services | -13.9% |
| Trade, transport, hotels, communication and broadcasting services | -9.7% |
| Manufacturing | -6.3% |
| Public administration, defence, and other services | -0.4% |
| Mining and quarrying | -14.7% |
| Construction | -13.3% |
| Overall GVA | -9.3% |

Source: (Koshle, Kaur & Basista, 2020)

In addition, McKinsey & Company conducted a study of the economic effect of COVID-19, and their findings revealed that there are three distinct scenarios associated to the changes that would occur in India's GDP as a result of the pandemic.

Three economic scenarios model India GDP estimates.



Source: (McKinsey, 2020)

The first scenario predicts that there may be a contraction of around 10% in the economy during the first three months of 2021, with a growth rate of GDP ranging from 1% to 2%. In this hypothetical situation, the lockdown would be lifted earlier than expected, and the

amount of government expenditure needed to restart the economy would be around \$79 billion, which is equivalent to 3% of the country's GDP. In the second scenario, the Indian economy would see a decline of around 20% with a slowdown in growth rate of 2% to 3%. In this scenario, the cost of restoring economic stability would be more than \$130 billion, which is equivalent to 5% of India's GDP (McKinsey, 2020). In this hypothetical situation, the damage to the economy would vary depending on the sector, with consumption falling by more than thirty percent overall. The following table details, by industry, how the economic effect of COVID-19 may be broken down.

The economic impact of COVID-19 in India will vary by sector.

Scenario 2 (lockdown continues until mid-May 2020): Potential impact on key sectors

| | Output change Q1 FY 2021 vs Q4 FY 2020, 1 % | GDP share, % | Bank credit FY 2019, % ⁴ | Employment FY 2018, millions |
|------------------------------|------------------------------------------------|-----------------------|----------------------------------------|---------------------------------|
| Airlines and hotels | -70 to -75 | 2 | 1 ⁵ | 8 ⁷ |
| Auto and advanced industries | -50 to -60 | 2 | 1 | |
| Construction and real estate | -50 | 8 | 11 | 54 |
| Textiles | -50 | 2 | 3 | |
| Freight and logistics | -40 to -45 | 8 | 2 ⁶ | 22 ⁶ |
| Metals and mining | -35 to -40 | 7 | 7 | |
| Oil and gas | -20 to -25 | 2 | 2 | |
| Power | -20 to -25 | 2 | 9 | 3 ⁸ |
| Consumer and retail | -20 to -25 | 11 | 11 | 47 |
| Chemicals | -15 to -20 | 2 | 1 | |
| Agriculture | -15 ³ | 15 | 18 | 205 |
| IT services | -10 to -15 | 5 | 0 | 4 |
| Pharmaceuticals | -10 to -15 | 1 | 1 | |
| Telecommunications | 0 to -5 | 2 | 2 | 1 ⁹ |
| Total | | 67³ | 69 | 402¹⁰ |

Source: (McKinsey, 2020)

The third scenario forecasts a more severe drop in economic activity of around 8% to 10% in the year 2021. Because of this, more lockdowns could be necessary, which would result in a somewhat sluggish recovery and a rise in unemployment. The Indian economy will need a comprehensive combination of monetary and fiscal reforms in order to combat the severity of the problems posed by failing businesses, high unemployment, and the threat of financial instability (McKinsey, 2020). This may become active gradually as the prevailing economic circumstances improve over time and become more favorable.

The numbers that were shown earlier make it quite clear that the pandemic has the potential to be fatal for underdeveloped nations. India has to be imaginative in order to support a V- shaped recovery, since the country's nonperforming assets have risen to 10% and the country's GDP growth has crashed to a 6-year low of 4.6%. (Rani, 2020). When it comes to the provision of disaster assistance packages, the nation can also take inspiration from the practices of other nations. In addition, both the public and private sectors in India should plan for the best case scenario while also making preparations for the worst case scenario, keeping in mind that a V-shaped recovery is not a given (Gumber & Bulsari, 2020).

In order to mitigate the damage that a pandemic may do to the Indian economy and to alleviate the suffering of Indian families, a number of preventative and relief measures have been implemented. The steps that have been granted equal to 0.8% of GDP; nonetheless, in order to properly revive the Indian economy, further measures are necessary. Banks might provide liquid lines of credit to micro, small, and medium-sized enterprises (MSME) as a means of providing liquidity assistance, and banks could be granted permission to restructure debt on their balance sheets in order to raise capital. In addition, the government may think about injecting cash into troubled industries in order to protect micro, small, and medium enterprises as well as employees (Mohan & Bhattacharjee, 2020). Overall, it is necessary to devise a system-wide, credible, and stabilization package in a timely manner in order to accelerate the rate of recovery and to lessen the effect that the pandemic would have on the Indian economy.

IV. CONCLUSION

We analyse the effect that COVID-19 will have on the commodities futures market by combining a TVP-SVAR analysis with a stochastic volatility model. First, we demonstrate the significance of investors' expectations in determining the future behaviour of commodity prices. Futures market speculators anticipate price fluctuations, which led to a high level of stochastic volatility during the time period that preceded the dramatic spike in the number of fatalities. Then, we demonstrate that reactions of commodities to the COVID-19 shock were not consistent from one period to the next. Both basic and financial aspects are included among the criteria that are anticipated to be responsible for explaining the dynamics of the SPGSCI Crude oil index and the SP GSCI natural gas index as they confront the COVID-19. In point of fact, the decline in the price of oil futures can be attributed in part to a structural imbalance between supply and demand, in particular a significant decrease in the demand for

energy following the COVID 19 in large emerging countries such as China and an oil shock caused by disagreements between the Organization of the Petroleum Exporting Countries (OPEC) and Russia, which triggered a decline in the price of oil spot. Both of these factors contributed to the fall in oil spot prices. In addition to this, the propagation of the virus in the United States led to a negative effect on the market for commodities futures. On the other hand, according to the behavioural finance theorists, the swings in the commodities indexes are tied to the expectations that investors have. In point of fact, speculators working on a purely financial logic resorted to the commodities markets during the crisis in order to improve their profits. This resulted in a minor gain in the commodity futures index during the fall of the stock market. The near-term prognosis for the commodities futures market will be contingent on how effective the government's strategy is in containing the COVID-19 epidemic and mitigating the effect that the global health crisis is having on economic activity.

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