COVID-19's effect on the global crude oil scenario

LA3010 : FINANCIAL INSTITUTIONS AND MARKETS

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Contents

1 Introduction

Corona-virus disease 2019 (COVID-19) is a contagious disease caused by the coronavirus 2, which causes severe acute respiratory syndrome (SARS-CoV-2). In December of 2019, the first known case was discovered in Wuhan, China. Since then, the disease has spread around the world, resulting in the current COVID-19 pandemic.

Without oil, our world would practically come to a halt. Several important operations would have to be shut down. In addition, relevant to some countries, if people's houses and offices were heated with oil, they would freeze in the winter. Many products involve oil in their manufacturing process: several chemicals, plastic toys and other plastic goods, cosmetics, detergents, and nylon clothes are just a few examples. Even chewing gum waxes are manufactured with the aid of oil. Because oil is so crucial, everything happens to it has an impact on the entire world.

This time however, we will be observing the reverse relationship. The world came to a halt due to the COVID-19 Pandemic and this greatly disturbed the global oil demands - resulting in large economic effects. Over the period of this course, I have learned about the various tools and policies that organizations in positions of responsibility employ to maintain a healthy economy. COVID-19 is a very rare event in terms of the effects it has, and their extent, on the global economy. These are the effects that I intend to survey in this report and how various organizations in positions of responsibility reacted to the same

1.1 Motivations for the Study

- My life, as of everyone, was affected with the COVID-19 pandemic
- I'm aware to some fair extent of the local effects of such a scenario
- but now, I wish to identify how such a global level pandemic affects the international economy
- COVID-19's effects on oil prices should be a good starting point to observe the global changes that are caused by this or are the cause of this.

2 Survey

2.1 Effect on the US stock market[1]

The US Stock Market is an exchange where investors come together to buy and sell shares of publicly-traded companies. The shares of stock that are actively bought and sold by the investors represent a

[1]: How has the relationship between oil and the US stock market changed after the Covid-19 crisis?

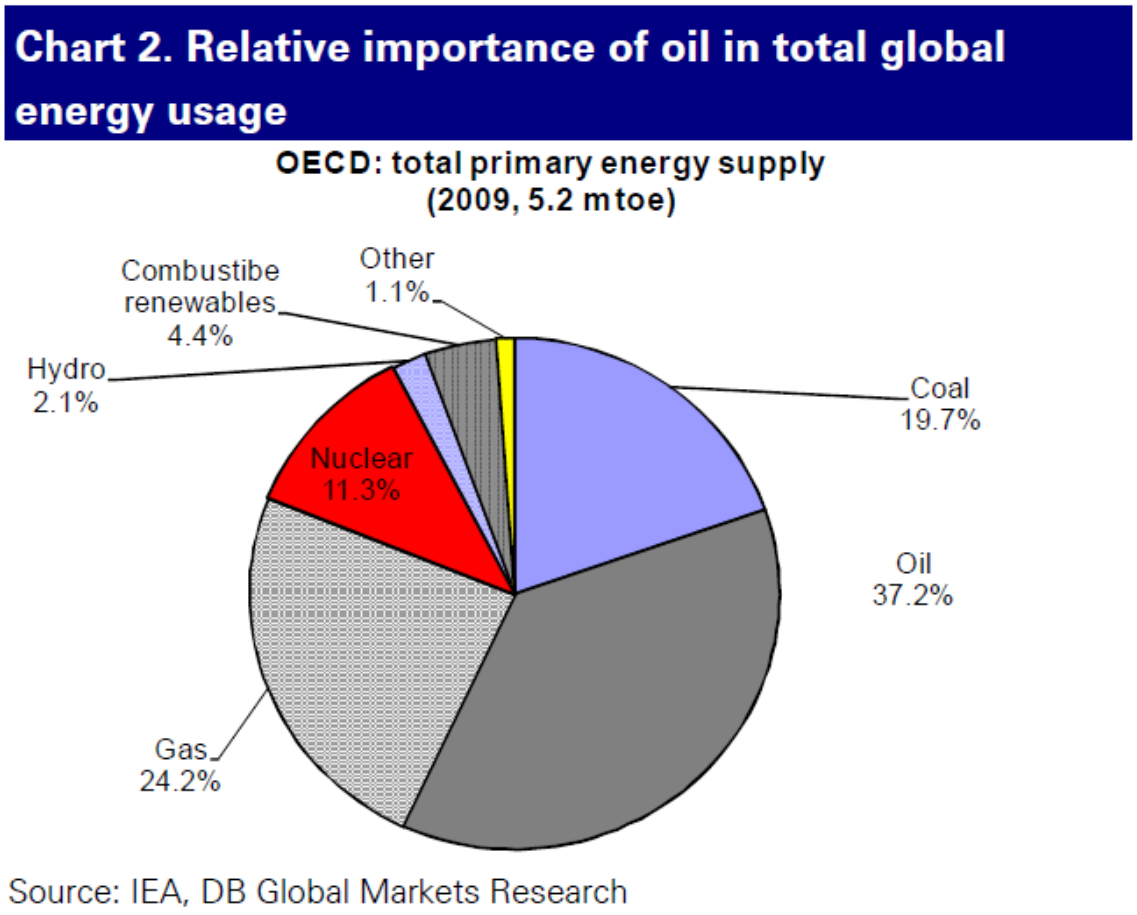

Figure 1: Relative importance of oil in total global energy usage - source: IEA, DB Global Markets Research

financial interest in the underlying company or organization. I specifically analyse the US stock market because the global economy is dependent on its status.

The authors of this research look at how the link between oil and the US stock market has altered since the Covid-19 crisis. They achieve this by calculating the upside and downside correlations of the two markets. The following are their findings: They first demonstrate the asymmetry of correlations: the downside correlation is higher than the upside correlation. Second, they discovered that following the crisis, both upside and downside correlations rose. This means that a positive (negative) oil shock after the onset of the Covid-19 issue is much better (worse) news for the stock market than an identical shock before the crisis.

2.2 Effect on emerging stock markets[2, 3]

The term "emerging markets" refers to an economy that has had significant economic growth and has some, but not all, of the features of a developed economy. Emerging markets are countries that are in the process of changing from "developing" to "developed" status.

Some basic characteristics of an emerging economy are as follows:

1. Higher market volatility
2. Higher growth and investment potential
3. High rates of economic growth
4. Lower income per capita

Correspondingly, The five major emerging markets are:

1. Brazil
2. Russia
3. India
4. China
5. South Africa

The purpose of this research is to see how COVID-19 affects emerging stock markets from March 10 to April 30, 2020. The negative impact of the pandemic on emerging stock markets has gradually decreased and begun to taper off by mid-April, according to the findings. In terms of regional classification, the outbreak's impact has been greatest in Asian emerging economies, whereas it has had the least impact in European emerging markets. They also discovered that the magnitude of the government's stimulus package and the time it takes for the government to respond important in mitigating the consequences of the pandemic.

2.3 Extended effects to geopolitical risk in the US economy[4]

They use a time-frequency paradigm to examine the relationship between the recent spread of COVID-19, oil price volatility shock, the stock market, geopolitical risk, and economic policy uncertainty in the United States. The COVID-19 and oil price shocks have an unprecedented impact on geopolitical risk levels, economic policy uncertainty, and stock market volatility over the low frequency bands, according

[2]: The impact of COVID-19 on emerging stock markets

[3]: `https://corporatefinanceinstitute.com/resources/knowledge/economics/emerging-markets/`

[4]: COVID-19 pandemic, oil prices, stock market, geopolitical risk and policy uncertainty nexus in the US economy: Fresh evidence from the wavelet-based approach

to the coherence wavelet approach and wavelet-based Granger causality tests applied to US recent daily data. The COVID-19 has a much greater impact on global risk than it does on US economic uncertainty. The COVID-19 danger is regarded differently in the short and long term, and it could be viewed as an economic disaster at first.

2.4 Spillovers during COVID-19 [5]

The authors look for volatility spillovers and co-movements across energy-focused companies during the COVID-19 pandemic's outbreak, including the events in April 2020 when West Texas Intermediate (WTI) oil future prices went negative. They examine the sectoral transmission mechanisms of volatility shocks and contagion throughout the energy sector using the spillover index approach of Diebold and Yilmaz (2012), as well as developing a DCC-FIGARCH conditional correlation framework and using estimated spillover indices built on a generalised vector autoregressive framework in which forecast-error variance decompositions are invariant to the variable ordering. They discover favourable and economically significant spillovers from dropping oil prices to both renewable energy and coal markets, among other findings.

2.5 Revisiting oil-stock nexus during COVID-19 pandemic [6]

During the COVID-19 pandemic, we present some tentative estimations of how the oil-stock nexus will behave. As a result, we run separate studies for the time periods preceding and following the pandemic's announcement. The reaction of oil and stock prices to shocks is studied using a panel Vector Autoregressive (pVAR) model. Between the two data samples, a panel Logit model is also developed to assess the likelihood of negative oil price and stock returns. According to the pVAR calculations, the initial and long-term effects of own and cross shocks on both oil and stock markets may be stronger during the pandemic than before it. The panel Logit estimates support this conclusion, indicating that the likelihood of negative oil and stock returns during the epidemic is likely.

2.6 COVID-19 global fear index [7]

The global fear index (GFI) for the COVID-19 pandemic is examined empirically in this study, with a focus on its predictive value in the predictability of commodity price returns during the pandemic. One of the index's appeals is its breadth of coverage, as it takes into account all countries and, by extension, areas and territories around the world. Our findings reveal a positive link between commodity price returns and the global fear index, indicating that commodity returns rise in tandem with COVID-19-related dread. As a result of the negative correlation between GFI and the stock market, we conclude that the commodities market has superior safe-haven features than the stock market.

2.7 Future effects of COVID-19 on oil [8]

Assessing future oil price prospects is a risky business, but unless a Middle East conflict causes severe supply disruptions, crude oil prices are expected to recover by the third quarter of 2020, with a modest further recovery in the first half of 2021, with WTI and Brent prices in the $40 to $60 per barrel range. Despite such a rebound, several oil sectors will suffer losses, ranging from US shale oil and Canadian tar sands producers to many standard crude oil exporters facing access and cost issues, as well as a lack of competitiveness in important markets.

[5]: Co-movements and spillovers of oil and renewable firms under extreme conditions: New evidence from negative WTI prices during COVID-19

[6]: Revisiting oil-stock nexus during COVID-19 pandemic: Some preliminary results

[7]: The COVID-19 global fear index and the predictability of commodity price returns

[8]: A crude future? COVID-19s challenges for oil demand, supply and prices

2.8 In alignment with environmental effects [9]

COVID-19 appears to be a global emergency caused by an infectious virus that causes respiratory illness such as flu-like symptoms, nausea, headaches, and difficulty breathing. The world has been turned into a new order in just a few months, with thousands of people dying and many more becoming ill as a result of the COVID-19 pandemic. China was the first to notice the outbreak and the first to bring it under control. The disease, however, has spread throughout Europe, the Middle East, the United States, and other parts of the world. The United States has the most cases of any country in the globe.

2.9 Effect in conjunction with agricultural futures [10]

The impact of COVID-19 on cross-correlations between crude oil and agricultural futures markets was investigated in this study. The cross-correlations between Brent crude oil and agricultural futures such as London Sugar, London Wheat, USA Cotton #2, and USA Orange Juice futures were studied using a multifractal detrended cross-correlation analysis (MF-DCCA) approach. The DCCA coefficient was used to confirm their associations at first. The cross-correlations were then investigated further from a multifractal perspective, and the sources for producing the correlations were discussed. The results demonstrate that among the three agricultural future markets, Brent Crude Oil has the strongest cross-correlation with London Sugar Futures.

2.10 Effect on oil prices in China : another major economy [11]

While the loss of human life is one component of a pandemic, the outbreak has multi-dimensional effects on regional and global communities. A comparative regression and neural network model is created in this paper to examine the effects of COVID-19 (coronavirus) on China's power and petroleum use. The severity of the epidemic, according to the environmental analysis, has a direct and indirect impact on power and petroleum demand. According to the model's outputs, the elasticity of petroleum and electricity demand toward the sick people's population is 0.1 percent and 0.65 percent, respectively. The above findings demonstrate that pandemic status has a considerable impact on energy demand, and that its consequences may be traced throughout human society.

3 Conclusion

We have now looked at the varied effects of the pandemic with regards to different aspects of the global economy and its different geographical partitions as well. What we can take away from this survey is that one can never be prepared for all that may happen and policies/proctoring principles need to be more adaptive to whatever situation the society encounters for maintaining a healthy economy.

4 References

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- https://corporatefinanceinstitute.com/resources/knowledge/economics/emerging-markets/

[9]: COVID-19: Healthy environmental impact for public safety and menaces oil market

[10]: Analysis of the impact of COVID-19 on the correlations between crude oil and agricultural futures

[11]: When pandemics impact economies and climate change: Exploring the impacts of COVID-19 on oil and electricity demand in China

4.2 Research Papers

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   - https://doi.org/10.1016/j.frl.2020.101773
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   - https://doi.org/10.1016/j.frl.2020.101691
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