Pressure Valves for the Oil Market in EU in the Context of Ukrainian War

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Abstract

The purpose of this paper is to make some predictions related to the oil market, considering the context of the invasion of Ukraine by the Russian Federation.
In order to meet the objectives of the article, we have used quantitative and qualitative analysis, interpreting both the data and the global oil market context in a suitable way to show possible evolutions.
Our main insights for the future of the global oil market reveal important evolutions which may change the world as we know it. The emerging global political separation, which would drive an economic segregation, would directly impact the Russian Federation oil exports. As a consequence, the income from oil and oil products exports for this country would be highly impacted; the most likely scenario is that the Russian Federation exports oil towards China and India. These two oil importers are in a position to buy oil at much lower prices than the market.
The sanctions on Russian oil exports already have an impact on the European Union (EU). This impact will be limited by the fact that the Russian oil will be delivered elsewhere (China and India), giving the opportunity to other oil suppliers to fill in the gap and deliver to European market, this functioning like a re-arrangement of the present oil trade flows.

Keywords: crude oil, Russian Federation, Ukrainian War

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Introduction

The invasion of Ukraine by the Russian Federation, an act of a nature which we thought to be obsolete for the civilized mankind, has the effects of an earthquake, most of the countries condemning this attack.

One of the most affected industries is the Oil&Gas (O&G) industry, and in this paper we address especially the oil market.

Russia is one of the most important oil extractors, its exports summarizing 11.4% of all the oil exported in the world. The lack of this oil on the market can create issues; however, if there will be some countries (as we assume later in the paper, it can be China and/or India) which would buy oil from Russian Federation, the impact would be reduced.

The impact of the sanctions imposed by the civilized world on the Russian Federation would have impact on the EU, but we estimate that the impact would be less important than assumed previously.

1. Review of the scientific literature

There are lots of papers on Russian economy, also on the O&G market. Both are strongly influenced by a strong trend – the drive given by the 'rapid deployment of renewable energy' (Bradshaw, Van de Graaf and Connolly, 2019) on one hand and measures taken against Russia, as a response from the Civilized World to the Russian aggression on Ukraine.

Russian Federation internal prices differ from the free market prices, which perhaps will not be applied any more, putting a supplementary pressure on the Russian economy (Figure no. 1).

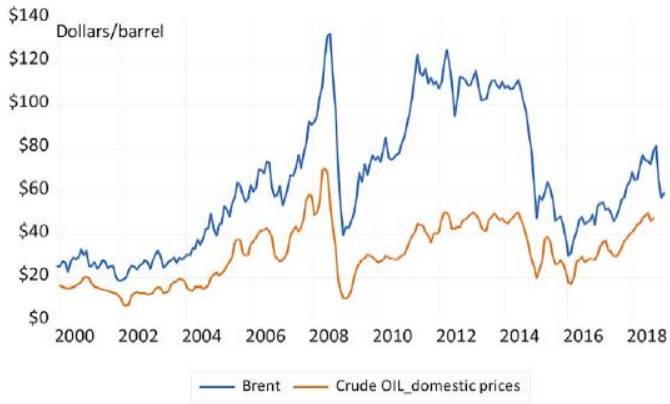

Figure no. 1. Oil price difference between Brent and Russian domestic prices
Source: Balashova and Serletis, 2020

For the Russian Federation are important on one hand the exported quantity of oil, on the other hand the price, because these two factors determine the bottom-line oil export income for Russia; but "Financial specialists believe that the forecasting the path of crude oil prices are extremely challenging since they are unstable and complex and rely on different conditions" (Sedighi, et al., 2019). So it is difficult to forecast the oil price.

In this context we need to mention as circumstance the Russia-Saudi Arabia oil price war, which began in March 2020 when Russia and Saudi Arabia didn't have an agreement on cutting oil production by Russia, and as consequence Saudi Arabia increased production (Ma, Xiong and Bao, 2021); now, knowing about the Russian invasion of Ukraine, we can assume why.

We can compare the return on operations for several countries, in terms of Oil Rents – which represent "the difference between the value of crude oil production at world prices and total costs of production." (Basher, Haug and Sadorsky, 2018), illustrated in Figure no. 2. As per the figure, the Russian oil industry has a low rent, which shows low efficiency.

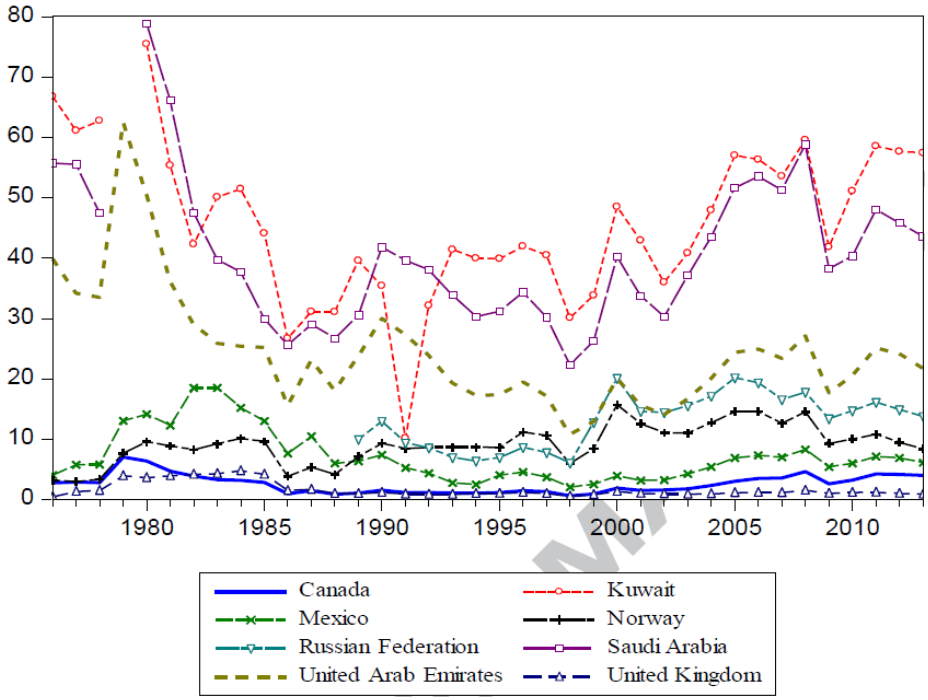

Figure no. 2. Oil rents (% of GDP), annual figures
Source: Basher, Haug and Sadorsky, 2018

2. Research methodology

We have analysed several aspects related to the Oil market, which we consider would influence the future energy market.

In this research we have used quantitative and qualitative methods, graphical illustrations showing the main aspects important to the economic side of the oil market.

The quantitative data supported the inferences used to draw qualitative conclusions, some of them already getting substance in the flow of actual events.

We used historical data to define the trends, shown with suggestive graphs, and superposing our assumptions of changes due to the actual context.

For this paper we compared Russian Federation figures with other countries, in order to highlight different aspects considered relevant, or we highlighted specific aspects. We kept into the picture also the European Union, in order to get a meaningful perspective for us.

3. Results and discussion

An underlying trend is towards green energy, putting pressure on the oil market volume. A lot of countries have announced and started green energy policies, and all the main auto manufacturers are shifting towards electrical transportation.

Russian GDP is based primarily on exports of raw materials, mainly of oil, gas and some O&G products, but also other materials as cobalt etc.

Below you can see the exports profile of the Russian Federation, divided by products categories (Figure no. 3):

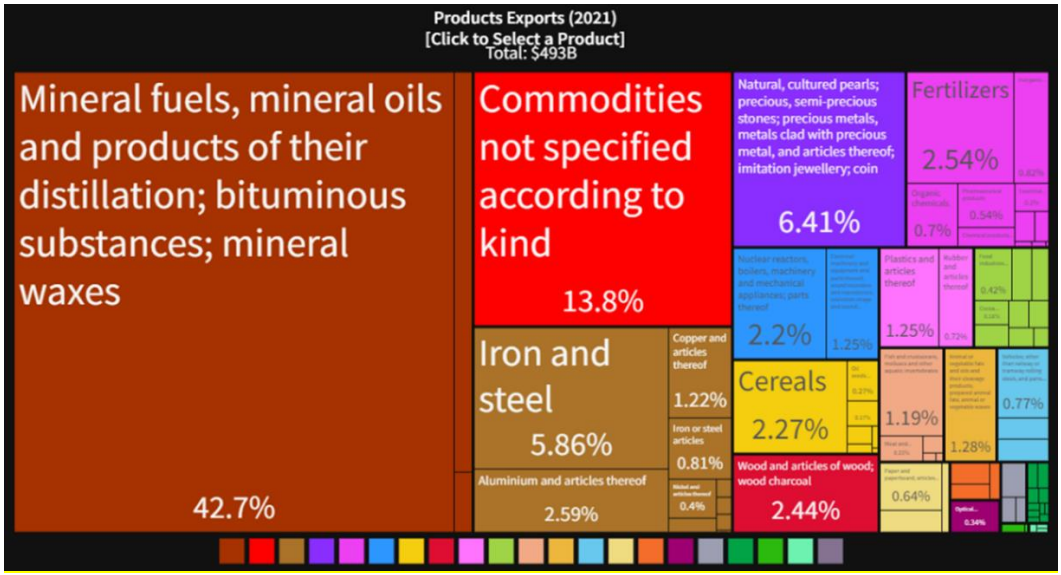

Figure no. 3. Exports Profile of Russian Federation for 2021
Source: OEC - The Observatory of Economic Complexity, 2022

The Russian Federation exports destinations are variate, most important destinations being China (13.6%), the Netherlands (8.63%) and Germany (6.02%), as in Figure no. 4:

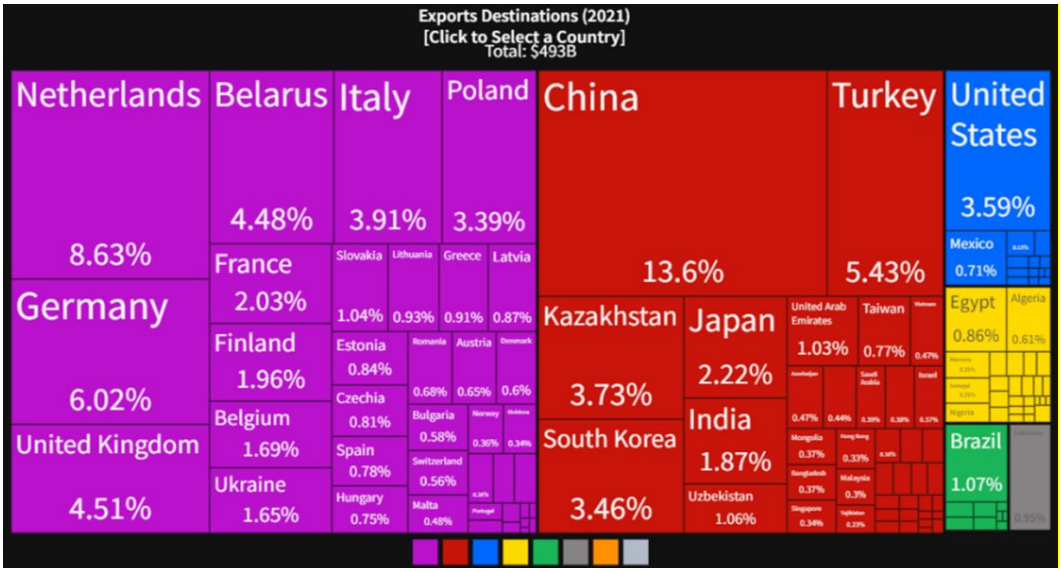

Figure no. 4. Russian Federation Exports Destinations for 2021
Source: OEC - The Observatory of Economic Complexity, 2022

We examine the reserves available and how they are distributed in the world. As expected, the main proved reserves, almost 50%, are in the Middle East (48%), the CIS region summing 8% (Figure no. 5).

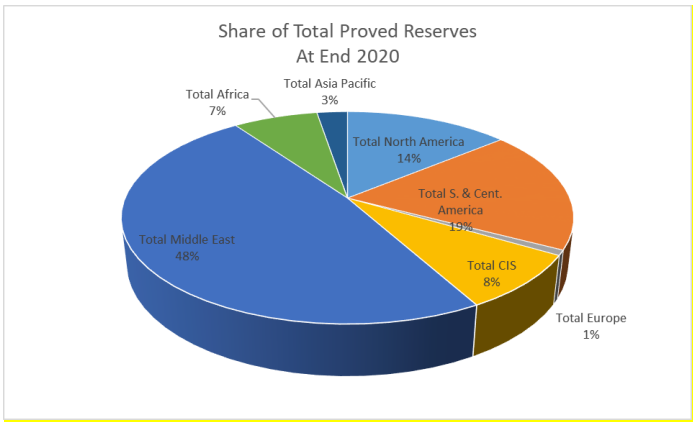

Figure no. 5. Share of World Proved Reserves, 2020
Source: BP Statistical Review of World Energy, 2021

We highlight that Russia has only 6.2% of the overall proved reserves in the world, and almost three quarters of the CIS reserves (Figure no. 6):

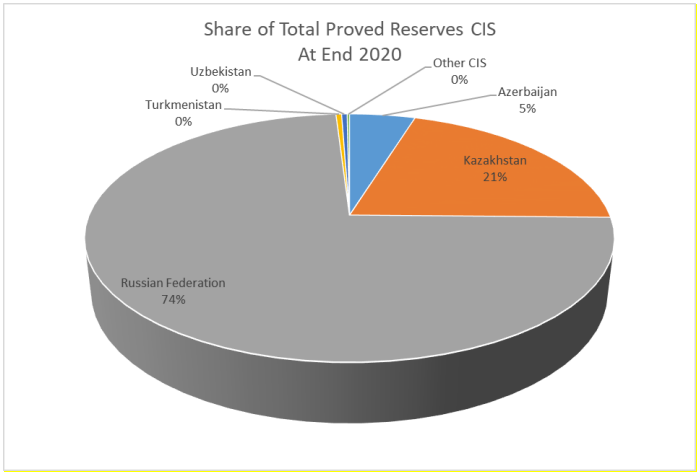

Figure no. 6. Share of CIS Proved Reserves, 2020
Source: BP Statistical Review of World Energy, 2021

Russia's reserves are comparable with those of Kuwait (similar proved reserves), Saudi Arabia (similar production) and EU, as shown below in Figure no. 7:

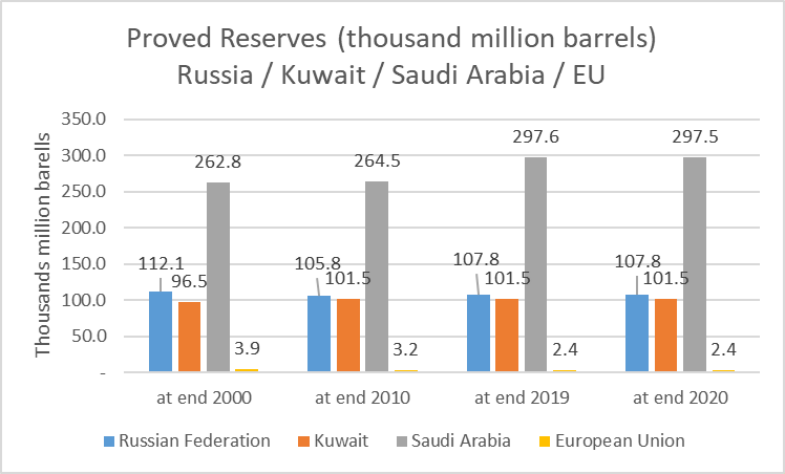

Figure no. 7. Comparison of Proved Reserves for Russia, Kuwait, Saudi Arabia and EU
Source: BP Statistical Review of World Energy, 2021

The difference is in the intensity of production, as seen in comparing the R/P ratio. The R/P ration (Reserves to Production) can be interpreted as the number of years to extract the remaining reserves if the production is maintained at the same level, as illustrated in Figure no. 8 bellow.

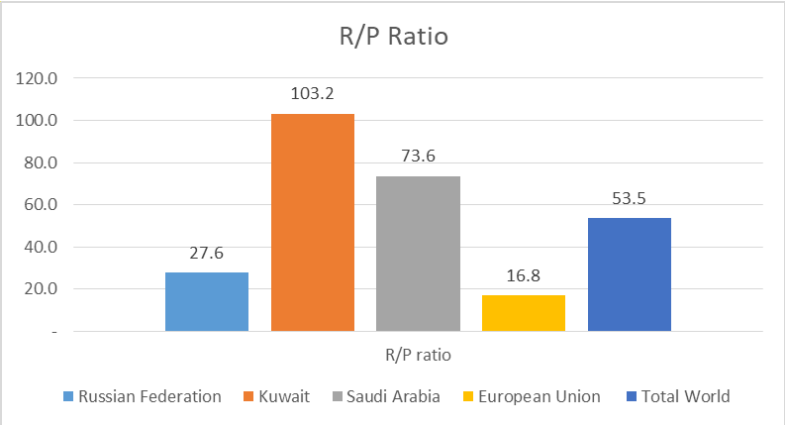

Figure no. 8. Comparison of R/P ratio for Russia, Kuwait, Saudi Arabia, EU and World, 2021
Source: BP Statistical Review of World Energy, 2021

Regarding the production of oil, the intensity for Russian Federation is kept up, between 10 and 12 million barrels per day, much higher than Kuwait and at the same level as Saudi Arabia (Figure no. 9):

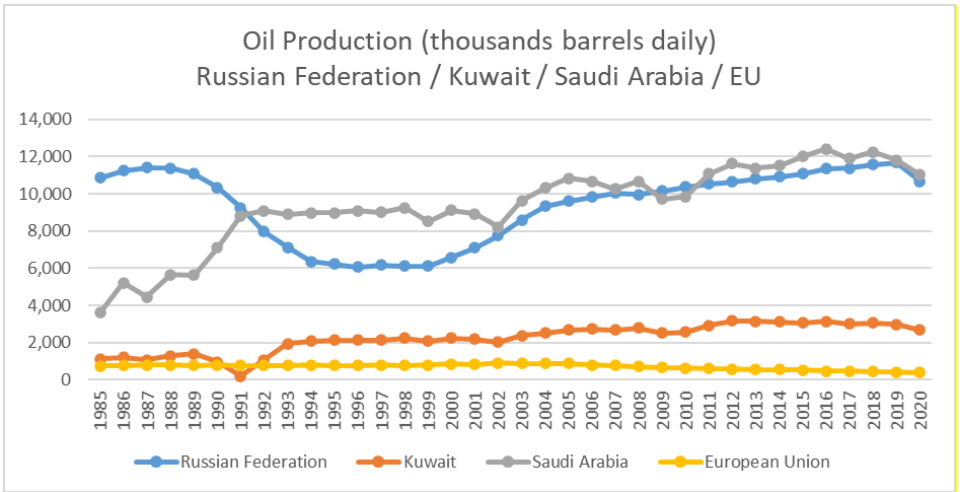

Figure no. 9. Comparison of oil production for Russia, Kuwait, Saudi Arabia and EU
Source: BP Statistical Review of World Energy, 2021

The Russian Federation production shows an overexploitation of their reserves, which comes with associated costs, some in extraction technology and some ecological, through the abuse of the resources.

At a rough estimation, the Russian oil production is ~3 times more aggressive than the extraction in the Middle East (you can see this by the fact that at similar reserves as Kuwait, the production is triple and at one third of the reserves of Saudi Arabia, the production is comparable). This strategy is in a way better in the context of the world shifting more and more to green energy, therefore lowering the need of crude oil.

The oil export market (Figure no. 10) shows Russia sharing the 4th place with Asia Pacific region, after ME (without Saudi Arabia), US and Saudi Arabia.

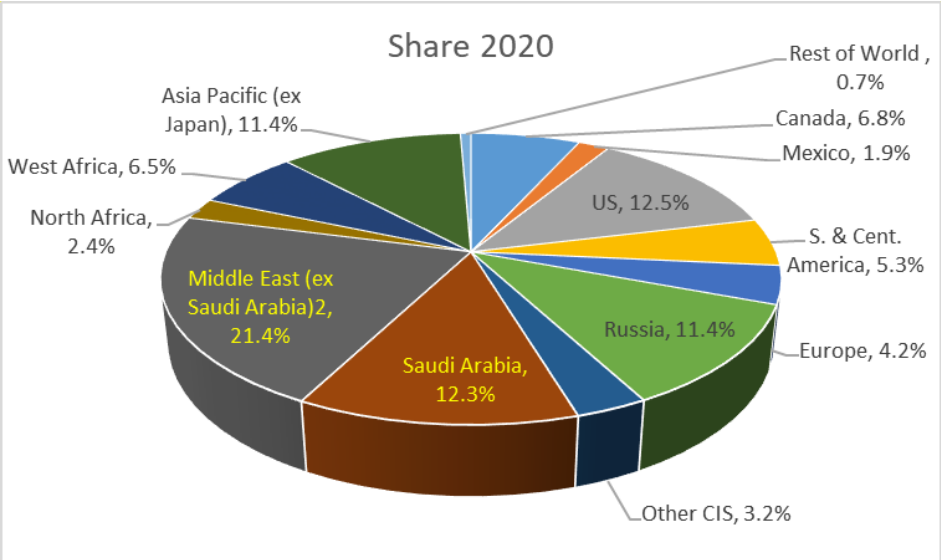

Figure no. 10. Oil Export market profile, 2020
Source: BP Statistical Review of World Energy, 2021

So, the Russian portion of the pie representing the exported oil is 11.4%, meaning that this is the maximum impact on the market. However, even if Russian Federation is sanctioned and banned from the international market, they still can deliver some quantities to selected countries, like China, India, perhaps even Hungary.

In bellow Figure no. 11 is a comparison of the main oil exporters, compared with Europe. Saudi Arabia and the rest of Middle East export three times more oil than Russia.

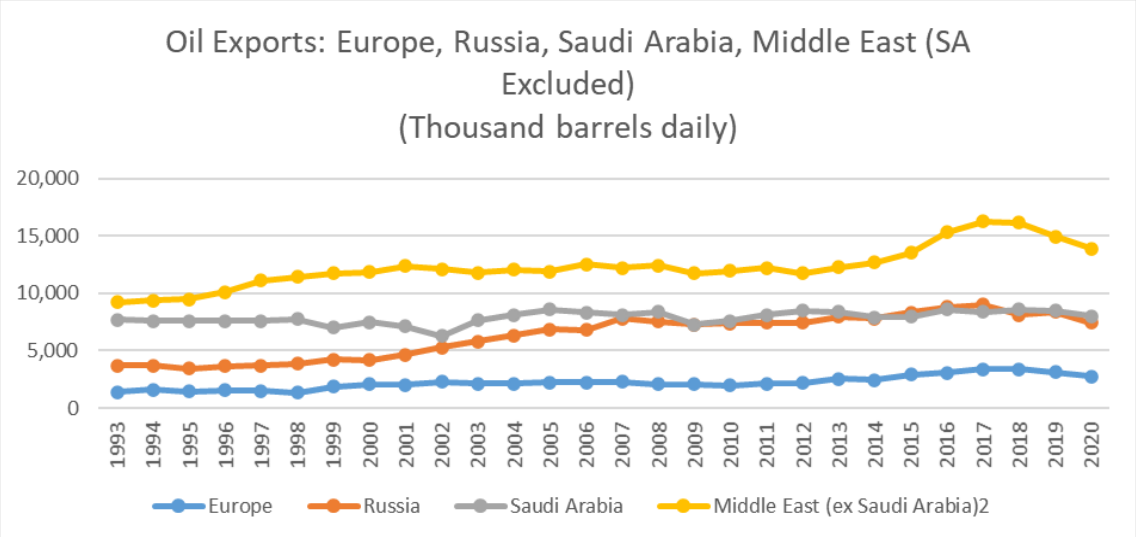

Figure no. 11. Comparison of oil export for Russia, Kuwait, Saudi Arabia and EU
Source: BP Statistical Review of World Energy, 2021

On the receiving side, as it can be seen in Figure no. 12, the most important country importing oil is China, followed closely by Europe, US on the third place at some distance:

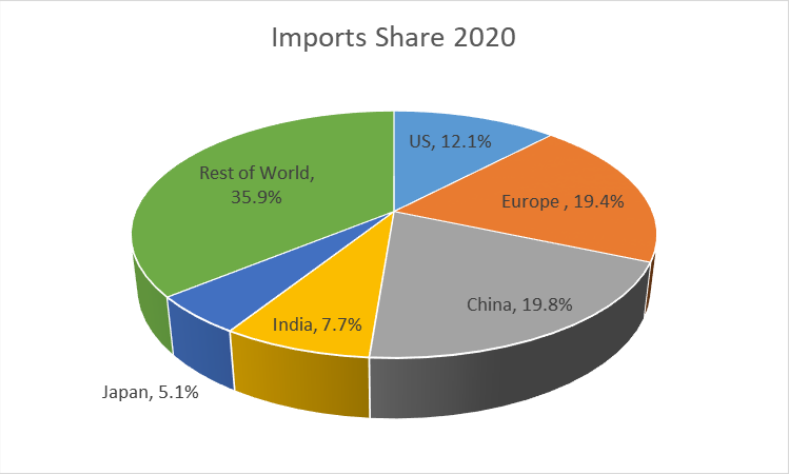

Figure no. 12. Oil Import market profile, 2020

Source: BP Statistical Review of World Energy, 2021

This shows that China and India together are able to absorb 2.4 times the total oil exported by Russia, should they support Russian Federation. However, if this happens, it functions as a pressure valve for the oil price, as it would lower the request on the market; on the other hand, China and India could – and perhaps would – put harsh conditions on the oil prices, lowering also the prices paid to Russia for oil.

Conclusions

There are two main influencers for the oil market:

- A shift towards green, renewable energy, renouncing at the fossil fuel as much as possible and as fast as possible, for environment reasons;

- An isolation of Russia of the international markets, including the oil market, due to the repeated aggression against neighbouring countries.

The shift towards green energy would lower the demand of oil, which would lead to a decrease of oil production. Here we need to mention that all the important players in the automotive industry are shifting towards electric vehicles.

The oil production and export of Russia shows the following:

- Russia has proved reserves comparable with Kuwait, but it produces 3 times more, at the level of production of Saudi Arabia; this shows an extraordinary intensity of the Russian oil production;
- The Russian oil industry has a low efficiency;
- China and India, two of the main oil importers in the market, can absorb 2.4 times the oil exported by the Russian Federation.

The sanctions against Russian Federation and its isolation from the free oil market generate some interesting perspectives, from which we highlight:

- If on the long term the oil demand will diminish, then this would be correlated with the export of Russian oil, due to the sanctions. This releases some pressure of the oil market; though we need to see that a low oil price is not in the interest of OPEC, so the big Middle East oil producers would want to keep high prices through controlling the oil output;

- Due to the sanctions, Russia is going to have a high oil surplus, with some predictable effects:

- In order to gain money (oil export constitutes a huge part of the Russian GDP) will try to find other ways to sell the oil, and this can be done through countries which do not respect the sanctions. The most probable candidates are China and India, able to absorb 2.4 times the present export capacity of Russia. This would come with an associated price, as in this situation China and India can blackmail Russia and impose low prices. It would be necessary to mention that Russia, with an oil production close to that of

- The sanctions have a high probability to lower and limit the oil exported by the Russian Federation, however this can lead to the necessity to lower the oil production in the near future, which means less return on the investments and also could lead to the necessity to lower the production capacity, so sacking people working in this industry, and by this putting additional pressure on Russia's social system;

The sanctions for Russian Federation concern also technologies, which would affect also the oil industry. Russia would be barred from Occidental technology; however, they could be supplied by China, which has access to almost everything produced by the developed countries. Considering the context that China's market is constituted by the developed Occidental countries, it is to be assumed that China would not risk these markets only to sell to Russia. As a consequence, it could be very difficult for Russia to develop new exploring and production technologies without access to the right tools, in oil industry or in any other industry.

The impact on EU regarding the crude and refined oil supply by the Russian Federation would be minimized if some countries, like China and India, would import oil from Russia; the pressure would be only in the form of remapping / contracting with different suppliers and perhaps would create some issues regarding new oil transportation routes.

Of course, there are other impacts which are not treated here, for example the increase of prices and the increase of inflation; such subjects would be treated in future papers.

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