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FUNDAMENTAL REASONS FOR EXXONMOBIL'S EXPULSION FROM THE DOW JONES INDUSTRIAL AVERAGE ON AUG 31, 2020: LESSONS AND IMPLICATIONS FOR THE GLOBAL OIL MARKET AND KAZAKHSTAN

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Abstract

The article provides a reasonable explanation for Exxonmobil's unprecedented expulsion from the Dow Jones Industrial Average on August 31, 2020 based on the Kondratieff Wave Concept and Capital Overaccumulation Theory.

Authors of this paper suggest that the crisis in the oil market in 2020, triggered by the coronavirus, was expected and could be explained by the economic origins of development, namely, the change of the 5th technological mode to the 6th one. Taking into account the fact that oil is the main energy source of the 5th technological mode, it is obvious that its change will affect the oil market. At the same time, the process of the oil market losing its positions is not spontaneous, since the intensive development of new technologies and a sharp increase in renewable energy investments have led to a decrease in oil consumption.

Key words: Dow Jones Industrial Average, Kondratieff Waves, oil industry prospects, renewable energy.

On August 25, 2020, S&P Dow Jones Indices LLC announced that ExxonMobil would be delisted from the Dow Jones Industrial Average on August 31, 2020. This is perceived as a sign of the end of the era of oil, and this arguably could be true. However, the current economic transformation needs a comprehensive analysis to understand the completeness of the current situation. Let's look at this question at a time.

About the Dow Jones Industrial Average (DJIA)

The term "Dow Jones Average" was first coined in 1884 by the owner of Dow Jones & Company and editor of the Wall Street Journal. This index originally had included the average share price of the 11 largest US companies. The prefix "industrial" was added to it in 1896, reflecting the fact that the companies included in the index belonged to the industrial sector of the economy. At the moment, the Dow Jones Industrial Average is a stock index that reflects the average share price of 30 largest US companies.

Despite the fact that the index is still called "industrial", it has already included not only industrial companies. Thus, the word "industrial" in the name of the DJIA is nothing more than a tribute to history.

History of ExxonMobil Corporation

ExxonMobil, an American oil company, one of the largest in the world, has been a member of the Dow Jones Industrial Average since 1928. Therefore, the exclusion of this company is truly a significant event, although it was expected in modern conditions. Now let us try to answer the question why the fate of ExxonMobil cannot be ignored by Kazakhstan. To do

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this, it is enough to say that ExxonMobil, being a company that covers the full range of oil and gas production - from exploration to distribution and sale, in 1993 became a partner of Kazakhstan for the exploration of oil fields in the Caspian Sea.

Being the only American member of the consortium for the Caspian Sea at that time, ExxonMobil conducted research on the oil and gas prospects of the Caspian Sea in Kazakhstan. Since the beginning of the partnership, ExxonMobil has gradually become an important investor in our oil and gas sector. For instance, in 1996 the company acquired 14.3% of the shares of Offshore Kazakhstan International Operating Company (OKIOC). In the same year, ExxonMobil acquired a 25% stake in the Tengizchevroil joint venture. Direct investments from ExxonMobil had a positive impact on the development of Tengizchevroil: since the company acquired a stake in this project, the company's production level increased from 100 to 600 thousand barrels of oil per day in 2019.

ExxonMobil has long been the leader in the growth of stock prices, or the so-called blue chip. For example, if in 1996 ExxonMobil shares were traded at $20 per share, in September 2014 the price of share achieved $104.76, although the peak of the company's value growth occurred in 2007, when its capitalization reached $525 billion. After the crisis of 2008-2009 ExxonMobil began to gradually lose ground, but had still remained the leader in the oil market. However, this year has become a new test for the oil giant - today one share of the company is worth only $40.78 with a capitalization of about $189 billion. Since the beginning of 2020, ExxonMobil shares have fallen in price by 42%. The decline in the value of ExxonMobil shares had justified reasons: according to the reports published in July for April-June 2020, the company suffered a net loss of $1.08 billion or 26 cents per share, compared to a net profit of $3.13 billion or 73 cents per share in Q2 2019. ExxonMobil's earnings outlook was even worse, with April-June 2020 expected to post a net loss of 41 cents per share. Nevertheless, the fact, that compared to the forecast the oil company's actual report was better, did not save it from falling out of the Dow Jones Industrial Average.

The importance of the transformation of the Dow Jones Industrial Average

The key moment in this event is not the exclusion of ExxonMobil, but the companies which ousted it from the index: its place in the index will now be divided by two companies - Salesforce and Amgen. The first one became the largest software provider in a short time; the second, Amgen, is a next-generation pharmaceutical company, that heralds the advancement of biotechnology.

The importance of the information about which companies ousted ExxonMobil is due to the following: in 2008, oil companies, including ExxonMobil, also faced difficulties in the form of low global energy prices. However, at that period the question of ExxonMobil's exit from the Dow Jones Industrial Average was still not raised. The fact that it was decided to remove the oil giant from the index exactly this year says to us that the oil crises of 2008 and 2020 are radically different. The main difference is that if during the 2008 crisis investors knew for sure that the drop in oil prices was a temporary phenomenon, then the current drop in oil prices is perceived by investors differently - not as temporary, but as a permanent phenomenon, after which there will hardly be a significant rebound in energy prices towards growth. And despite the fact that this event is a turning point, it was not so unexpected. The gradual "retreat" of oil giants in the stock market began ten years earlier: for example, according to CNBC, if the share of oil companies in the S&P 500 index 10 years ago was 10.89%, now it is only 2.5%.

The phenomenon’s explanation is not a coronavirus, as many people believe, but the fact that the concept of Kondratieff's long waves turned out to be a working theory.

Review of the revision of the DJIA structure in the framework of the Kondratieff's long waves theory

In 1926, Kondratieff N.D. discovered that the economy is always unstable in its development: periods of growth are gradually replaced by recessions, i.e. economic development is undulating. The length of one wave from growth to decline is about 50-55 years. But Kondratieff himself identified only 2.5 wavelengths according to the United States data and couldn't find an explanation for the phenomenon of the wave-like economic development.

The explanation was found later - in the framework of the theory of capital overaccumulation. One of its subtypes is the non-monetary theory of capital overaccumulation that focuses on technology. The non-monetary theory of capital overaccumulation assumes that every technology in the world has its own life cycle: no technology lives forever, but goes through the stages of "birth - market conquest - spread - extinction - death". And since at a certain stage of development all technologies are interconnected they form a technological mode. The technological mode, thus, is a complex of technologically coupled, interconnected industries that form a self-reproducing integrity. The definition of a technological mode is easiest to understand by looking at its structure:

- the "***key factor***" of the technological mode is a basic technology. The basic technology leads to the development of related technologies. For example, the appearance of a steam engine led to the emergence of another technology - steam locomotives, and then other machines operating on the steam engine;

- the "***core***" of the technological mode is formed by technologies interconnected with the key factor; in our example, these are steam locomotives.

- the technological structure is also characterized by the presence of a ***supporting industry***. This industry, being a branch of the economy that produces the basic technology and extends it to other areas, dominates in the economy.

The process of crisis emergence is explained by the theory of capital overaccumulation as following: as the key factor has a limited lifespan and dies over time, interconnected technologies also die with it. Hence, since that period the supporting industry is also starting to generate less and less profit, and gradually manufacturers and investors are leaving this industry. As a result, the technological mode itself "perishes". In other words, the theory of capital overaccumulation, connecting Kondratieff's waves with technological changes, assumes that every crisis is a result of changes of technological modes.

Each new Kondratieff's wave begins with an epochal introduction of some technology (innovation), which marks the gradual death of the old technological mode and the birth of a new one. Moreover, the change of technological modes is not a spontaneous process, but a long one, covering two phases of 15-25 year long.

The first phase is the phase of the birth of a new technology, the emergence of a "key factor" for a new technological mode within the old one. In the first phase, new technology is treated with extreme caution. It is still considered as a scientific novelty, and only the most risk-averse economic agents try to commercialize this idea on the market.

The second phase is the period when the new technological order begins to show its contours as the first manufacturers, who successfully introduced this innovation, were found, and their investments began to bring growing returns.

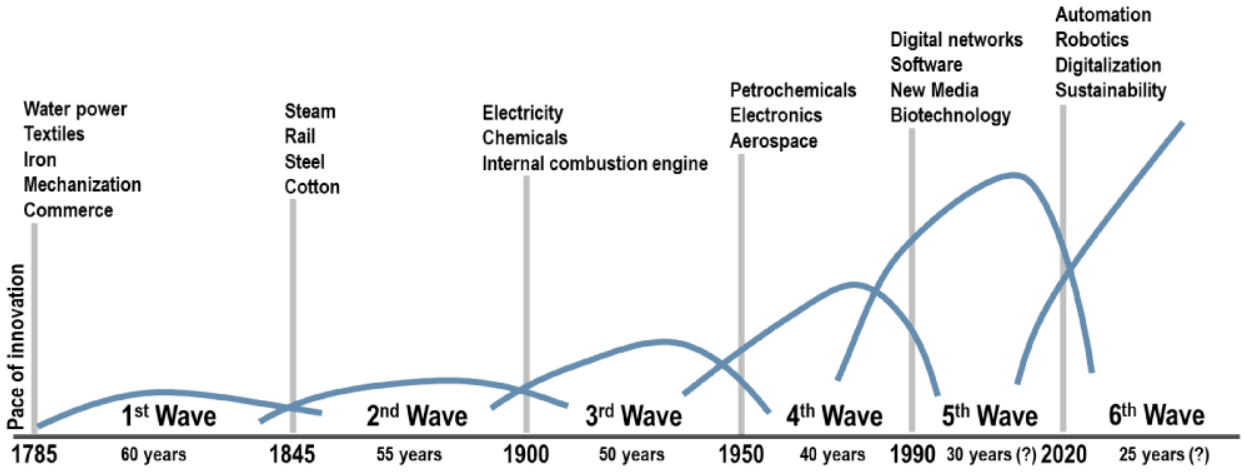
The third phase is a key phase, when a new technological paradigm shows a positive dynamics and a new technology becomes popular across different markets, displacing the old key technology. At this moment we can talk about a change in the Kondratieff's waves, and this process manifests itself in the form of a period of turbulence in the world market. On average, the third phase lasts about 15-25 years.

The general scheme of changing the technological mode:

The technology at the moment of its birth on the market sharply reduces the cost of production, making previously expensive goods more accessible to people. Those companies that were the first to implement the technology become monopolists. The unprecedented growth in profits due to the introduction of this technology attracts other entrepreneurs. This is how competition grows in production using this technology. Increased competition drives down prices, lowers profits, and once "innovative" technology ceases to be innovation, slowly spreading across all markets. After some time, the production of this technology or its use in production no longer brings such profit. Investors are starting to look for new, more profitable areas for capital investment.

Desperately looking for high returns, capital starts to gradually outflow from the real sector of the economy to the financial one, in particular, to the stock market, where the performance of certain companies' shares is still high, as the stock market lags behind the slowdown. At that moment, only speculative and arbitrage transactions are profitable, and therefore trading companies "grow". Some investors at that moment are looking for salvation in the so-called blue chips. Since all the money rushes to the stock market, a bubble is inflated there, which inevitably bursts. At the moment the bubble bursts, the freed up funds again begin to look for higher rate of return. Since the stock market is already seemed as not reliable for savings, money rushes back to the real sector of the economy - to startups. Not all startups survive, but those that remain bring new innovations, new technologies, which bring a birth to a new wave of growth. And everything is repeated from the beginning. Below is the most understandable diagram with wave periods and key technologies.

Figure1. Periods of Kondratieff's waves with the core (basic technology)



Source: Hargroves K., Smith M.H. The Natural Advantage of Nations: Business Opportunities, Innovations and Governance in the 21st Century, 2006

At the moment, within the framework of the theory, 5 formed technological modes are distinguished, and the crisis of 2020 is associated with the birth of 6-th technological mode. Based on the theory, the downward phase of the wave fell into 2015-2025. And if we recall, then the markets really started to experience instability and turbulence since 2014. The countries tried to restrain the onset of the crisis using instruments of macroeconomic policies, but, as we can see, the crisis still began in 2020.

Parallels between the current economic situation and the theory of capital overaccumulation

1) Now we see ***a crisis in the real sector of the economy in the absence of the same fall in the stock market*** – it's a typical indicator of the downward phase of the long Kondratieff's wave. The absence of a similar fall in the stock market behind the real sector indicates that money is leaving the real sector, "pumping up" the financial (stock market). And now, as economic theory states, companies engaged in arbitrage transactions are growing, since these transactions are the most profitable at the moment. For example, the first online stock store in Kazakhstan, Freedom24, grew on average by 27% in July compared to January of this year, although the company does not produce anything - it is just a platform for reselling shares.

2) In parallel, ***some investors are looking for salvation in tech companies*** that are "blue chips". And now it is undoubtedly for us that the growth of shares of companies such as Tesla, Yandex, is more due to the growth in demand for the shares themselves, rather than the growth of their real value. For example, Tesla's company grew by 32.5% in July this year compared to June. Russian Yandex also grew in July by 20% compared to June. At the same time, neither Tesla nor Yandex can show a similar increase in profits. Instead, Yandex's net profit for the 1st quarter of 2020 fell by 5% altogether. Therefore, a correction in the value of tech stocks is inevitable. Investors, on the other hand, continue to believe in tech companies, seeing such investments as forward-thinking, because investors see that technology herald a new era. However, it is important to understand that not all technologies will mark the entry into a new technological mode, into a new phase of the wave. Many of these high-tech companies produce technologies of the old technological mode, in particular, microelectronics. Meanwhile, the basic technologies of the 6th technological mode, according to experts, are nanotechnologies. And the key industry in the framework of the new wave is medicine. From this position, not only the exit of ExxonMobil, but even the entry of Amgen into the Dow Jones Industrial Average instead of it, is not surprising.

3) ***The oil industry is getting lower return on investment every year.*** And it is worth dwelling on the description of the situation on the oil market in detail, since oil is the main energy carrier of the 5th technological order.

To begin with, it should be noted that each technological mode is based on certain energy sources. So, in the first technological mode, in the era of the first prototype of manufactories, in the era of the beginning of the growth of urbanization in England and the beginning of industrial production, natural resources in the form of firewood, water and, to a lesser extent, natural minerals were the main energy source. However, since the beginning of electrification, the era of coal and steel arose.

But in the era of 4-5 technological mode oil became a key energy carrier. That is why we have witnessed a long growth in the market value of oil companies in the world. During this period human life became highly dependent on this resource and it even seemed as there wouldn't have been limits to the use of oil. Not only the movement of people and the transportation of goods within the framework of the 4-5 technological mode has become depended on oil's sustainable production, but also the production of clothes, household items, new synthetic materials used in various fields, fertilizers for agriculture and thousands of other goods of the civilized world. Undoubtedly, today oil remains an important source of energy in the world, occupying one third of the world's energy consumption along with coal, gas, nuclear and other types of renewable energy. However, oil is gradually losing its position of dominance in the world. And this process has been observed over the past decade. It all started in 2008, when successful experiments in shale oil production were first conducted in the United States.

And although the first results were very modest, and the world reacted to this discovery with skepticism, this discovery became the trigger for the decline in oil prices, which, with certain rebounds, is still noticeable today. The fact is that over 5 years the technology of shale oil production has been brought to perfection, which has reduced the production cost by half. The introduction of breakthrough technologies led to an explosive growth in the production of unconventional oil in the United States, allowing in a short time to surpass the world leaders in the production of conventional oil - Saudi Arabia and Russia. Thus, due to the doubling of oil production in the United States over the past 10 years - from 340 million tons in 2008 to 669 million tons in 2018, the country has become the world leader in oil production. New technologies have dispelled the myth of limited oil reserves in the world, so its price has begun to fall in recent years.

The consistent decline in oil prices has made the production of this resource less profitable. Due to the fact that investments in the oil industry began to bring less and less returns, even within the framework of the 5th technological order, investors were looking for various options for alternative placement of free funds, making attempts to move away from the oil industry. Alternative (green) energy, IT industry, nanotechnology, medicine, etc. have become a new area of capital investment for many investors. Today's rapid development of energy from renewable sources, the emergence of new technologies for the storage and economical consumption of energy, the abundance of fossil fuels have become the main factors of destabilization of the old economic order in the oil market.

In particular, according to British Petroleum, the growth rate of energy consumption in the world in 2019 decreased by 2 times compared to 2018 (from 2.8 to 1.3%). At the same time, the slowdown is associated with a reduction in consumption of the main energy carriers (oil, coal), while the growth was provided by alternative energy sources: they accounted for ¾ of the growth. Nuclear energy consumption alone grew by 3.2% in 2019, demonstrating the largest increase since 2004.

Therefore, 2014-2015 can be considered as the onset of the initial phase for the new wave, when, within the framework of the old technological paradigm, the formation of basic technologies for the new mode begins. And in the framework of the new wave the previous dominance of oil will no longer exist.

Many people erroneously believe that the end of the oil era will be associated with the depletion of oil reserves. But the calculation of world oil reserves does not support such fears. So, at the moment, only conventional oil reserves amount to about 3.5 trillion barrels, of which 10% or 345 billion barrels are shale oil. Proven reserves of unconventional oil additionally account for 150 billion tons. In other words, it is clear that there are enough oil reserves in the world and in the next 200 years there is no need to be afraid that the reserves of this important resource will suddenly run out. On the contrary, the development of modern technologies makes it possible to extract more and more unconventional oil. For example, modern technologies have made it possible to involve even bitumen and tar sands in the production process. And if 10 years ago Canada produced about 100 million tons annually and ranked 10th in the world in terms of production volume, then the improvement of tar sands mining technology over the past 10 years has allowed it to halve the production cost. As a result, today Canada is able to receive unconventional oil with a positive margin even at an oil price of $ 35-40 per barrel. Now about 10% of the world oil market belongs to newcomers producing unconventional oil.

Here we can draw an analogy with the fact that the Stone Age ended not because the stones ended, but because more efficient ways of using other resources were found, which bring greater profits to their producers. The same situation is with the oil: thanks to technologies, the cost of oil production is falling, its supply is growing and, as a result, the price of oil is decreasing. Oil production is becoming less profitable every year. Attempts to maintain oil prices

within the framework of cartel agreements are not successful anymore. We see how countries increasingly began to violate agreements within the framework of OPEC, and then OPEC +, and even the existence of such a cartel agreement itself is under concerns in modern conditions. For example, even this year, when due to the pandemic in April the OPEC+ countries had to accept the OPEC agreement, the member states didn't fulfill the terms of the agreement by 100%.

Thus, all of the above gives us the right to assert that the status of oil will gradually change, although mankind will use this resource for a long time in its life. At the same time, due to the presence of excess oil production capacity, as well as limited global oil demand, competition in oil markets will intensify, leading to a further decrease in oil price and in production profitability. Low profitability in the industry will lead to the redistribution of free financial resources from oil sector to more profitable, promising sectors of the economy. This process is an axiom of a market economy. Since today alternative energy sources, technologies of effective energy saving and energy storage are the most tempting areas of investment, there are already signs of investors leaving the oil market. In particular, Fig. 2 shows the dynamics of investments in renewable energy sources from 2004 to 2019. As we can see, there is a steady growth trend in renewable energy investments.

in billion US dollars

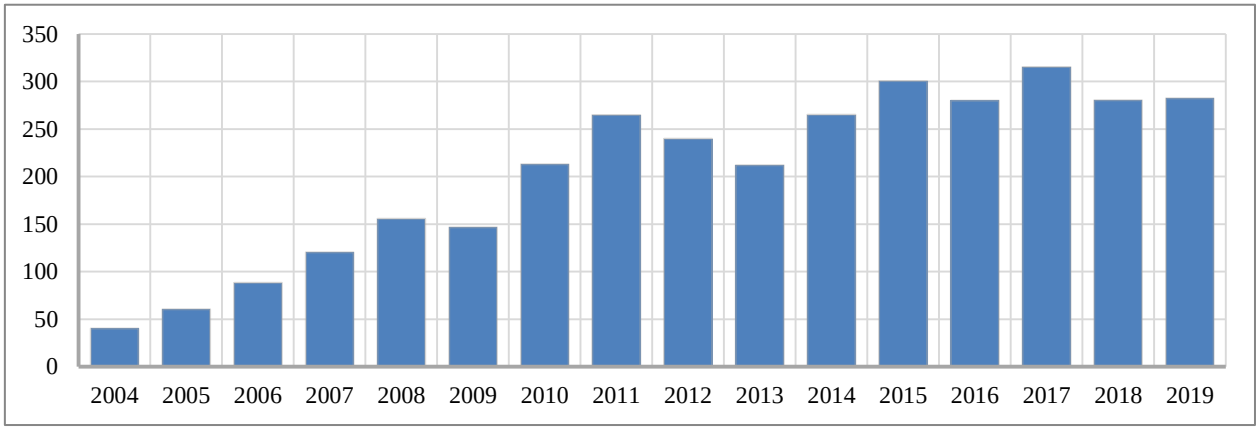


Figure 2. Renewable Energy investments for the period 2004-2019

Source: International Energy Agency

Consequently, this new trend could accelerate the process of replacing fossil fuels with newer, more efficient and cleaner energy sources.

The change in attitudes towards oil production can be clearly seen if we compare the structure of the energy supply, for example, in 1970 and 2019.

in percent of the total volume of energy supply

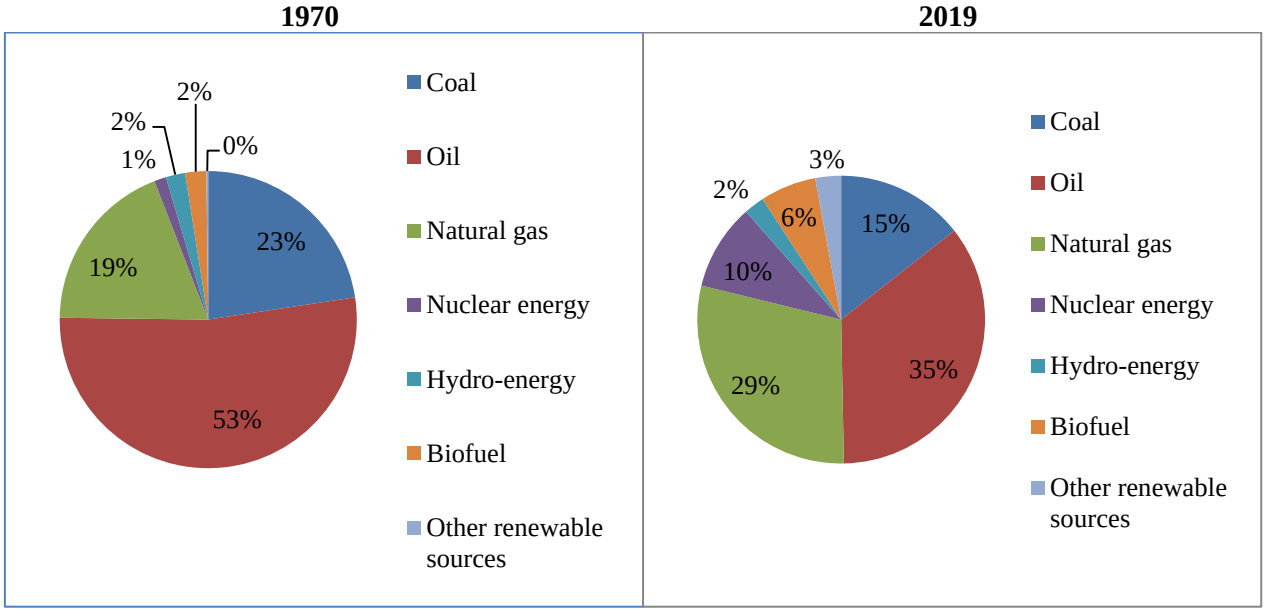


Figure 3. The structure of energy supply by sources in 1970 and in 2019

Source: International Energy Agency

As you can see, if in 1970 in the structure of the energy supply oil occupied 53%, then in 2019 this share was only 35%.

Now the additional downward pressure on oil prices is exerted by the decrease in demand for it (see Table 1).

Table 1. The global oil demand

in million barrels per 24 hours

Region	2019	1Q2020	2Q2020	3Q2020	4Q2020	2020	Change of the global oil demand in 2020 compared to 2019, in percent
OECD	47.68	45.40	36.04	44.13	45.77	42.85	-10.13
America	25.63	24.31	19.47	24.43	24.91	23.29	-9.15
Europe	14.25	13.34	10.32	13.19	13.53	12.60	-11.61
Asian-Pacific ares	7.79	7.75	6.25	6.51	7.33	6.96	-10.64
Total global oil demand	99.69	92.67	81.84	92.10	95.83	90.63	-9.09

Source: https://www.opec.org/

Although this phenomenon is now associated with the coronavirus, a number of experts believe that demand will still not reach the level it was before the pandemic. The fact that the trend of a decrease in oil consumption and a switch to renewable energy sources in the world has been observed over the past 5 years is evidenced by the graph below (Fig. 3).

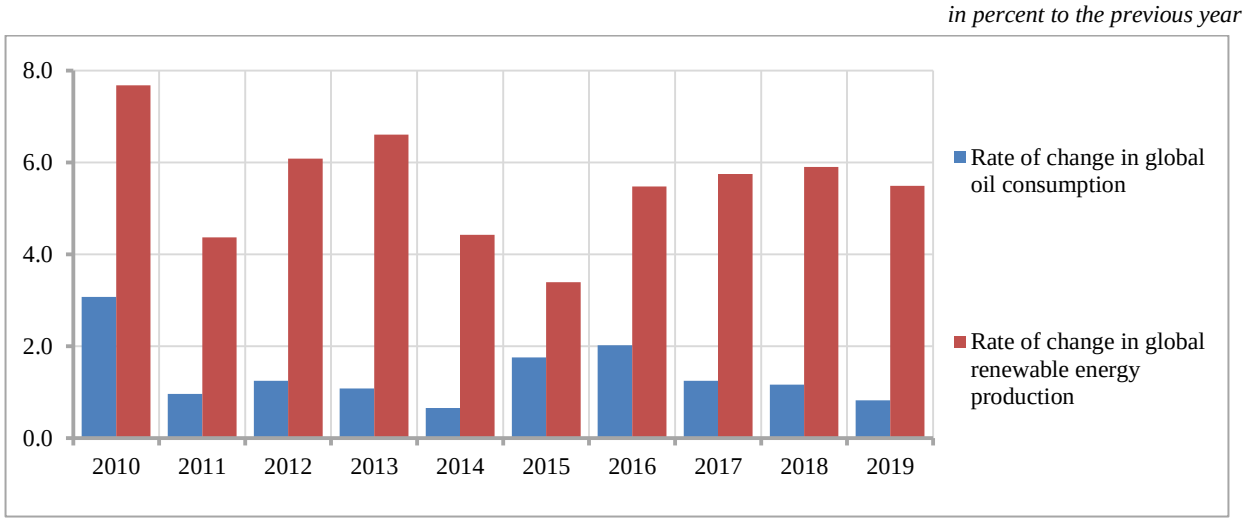


Figure 4. Rate of change in the global oil consumption and renewable energy production

Source: International Energy Agency

The Fig. 4 shows that since 2016 the rate of oil consumption in the world has been steadily declining, while the production of renewable energy is growing rapidly.

Due to the reduction in demand, for example, now another oil giant - Saudi Aramco - is experiencing difficulties: from April to June, the giant's net profit fell by 73%. In this regard, this year the company is taking an unprecedented step: it abandons projects and sells part of its assets. For ExxonMobil, the current year may become the beginning of the end, because despite the partial recovery in oil prices to $40 per barrel, the company continues to incur losses, since this price is below the break-even point.

Even with the curtailment of its fixed investment programs, ExxonMobil, at the current oil price, only covers 70% of its capital investment programs. The company pays dividends and covers the rest of its capex programs by increasing its debt. This strategy is clearly not sustainable, leaving investors fearful that ExxonMobil will eventually cut dividends. As a result, even if oil prices recover, ExxonMobil will have to use a significant portion of its future free cash flow to pay off its current debt, which will hold back its share price growth in the future.

Another factor that is likely to influence ExxonMobil's valuation is investor sentiment. Even if oil prices rise in the future, investors will not want to buy oil stocks. In addition to the fact, that this sector has already demonstrated instability several times, it has also already lost ground to renewable energy sources. As a result, an increasing number of investors are simply abandoning their fossil fuel investment. Naturally, with fewer buyers, ExxonMobil's stock valuation will not improve as much, even if market conditions improve.

4) Another parallel between the theory of capital accumulation and the current situation is ***the shift in the center of development***. This theory suggests that with a change in technological structures, the center of development often shifts from one country to another. For example, in the second technological mode, England was the dominant economy. During the transition from the second to the third technological mode, the center shifted from England to the USA, and the USA, on the basis of the developed foundation of the 3rd technological mode, became the dominant economy within the 4th technological mode. Within the framework of the 5th technological mode, despite the fact that the United States remained the largest economy in the world, the center of development began to gradually shift to Southeast Asia. And now the

countries of Southeast Asia have already started to take the "dominant" position within the emerging 6 technological mode on the basis of the formed technological foundation of the 5th mode. For example, Messler D.[3] suggests in his work that India may become a new recipient of the flow of world capital. The author substantiates his opinion by a number of factors: according to forecasts, by 2030, India will become one of the most densely populated countries in the world with more than 50% of the population under 25 years old. The rise in education of the population, together with the low labor cost in comparison with other countries and the high potential of development due to modernization, makes India attractive for long-term investments.

Why is there a shift in the center of the world development and dominance in the global economy of a new country? The answer is that the leaders of the old technological mode gradually become hostages of this mode, as being dominated by technologies, capital and institutions of the old technological mode, which cannot be painlessly destroyed in order to “free up” the market for new technologies, the country cannot attract investments with high returns anymore. Being overaccumulated with capital of old production, as well as by the institutions that mediate the functioning of the technologies of the old technological mode, the country starts to lose its investors, money starts to gradually outflow into other countries where there is "space" for the new technological mode. A problem of old capital overaccumulation in developed countries can be clearly seen in the dynamics of the investments in renewable energy sources (see Fig. 5)

in billion U.S. dollars

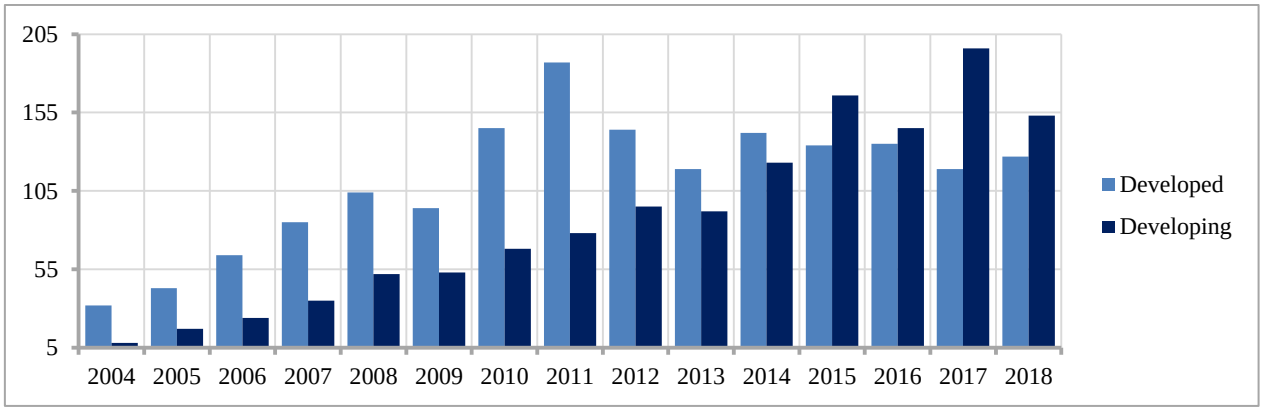


Figure 5. The volume of investments of developed and developing countries

Source: Global Trends in Renewable Energy Investment 2020, Bloomberg Report, Frankfurt School-UNEP Centre/BNEF. 2020

If earlier the developed countries were the main drivers of investment in renewable sources, then since 2015 the trend has been changing. Currently, the volume of investments of developing countries in renewable energy sources exceeds the volume of investments of developed countries. Furthermore, we can observe a steady slowdown in renewable energy investments of developed countries since 2011.

Here it’s important to highlight that in the phase of old technological mode’s replacement with a new one a "window of opportunity" appears for developing countries to become one of the leaders of the new wave. Such examples can be clearly observed throughout the history of the world economy, for example, in the 19th century, Germany, during the transition from the 2nd to the 3rd technological mode, without being burdened by the overaccumulation of old

[3] Messler D. The Start of a New Oil Market// Online Journal Oilprice.com, URL: https://oilprice.com/Energy/Energy-General/The-Start-Of-A-New-Oil-Market-Supercycle.html

technologies and institutions, became one of the leaders of the third technological mode. Another example is that during the Great Depression, which marked the transition from the 3-rd to the 4th technological mode, the USSR became one of the leaders of the 4th technological mode.

It is practically impossible for the country to integrate into the established technological mode for the following reasons: when a new technological paradigm is already entering the phase of its growth, when its production already shows stable economic dynamics, the production of technologies of this technological mode becomes unprofitable for beginners, since investments in the development of these already existing technologies are too high. A developing country is unlikely to be able to provide such a concentration of investments to win the competition against the market leaders. This, by the way, is the answer to the question why, for example, there is no production of mobile phones or computers in Kazakhstan. The answer is because it is already unprofitable: other countries have already occupied all possible spheres in the production of these technologies, have taken a position in the world market. Therefore, during this period, there is no need to try to integrate into the production of old, already known technologies, since the world market has already been formed and the technological structure is already rigid, marking that no new countries will be able to integrate there as a competitive manufacturer. Countries that want to form a long-term strategy for innovative development should look for free spheres in those industries that form a new technological mode, because the development of industries of the new wave at the initial period of its formation is not so expensive and therefore profitable.

5) ***The growth of the arms race between countries with the intensification of the militarization of the economies*** is another noticed indicator of changes in long waves, which we can also observe today. The regularity of the intensification of the arms race with the change of Kondratieff's long waves is explained by the fact that in order to ensure the development of new technologies, a concentration of investments is vital, and the easiest way to achieve such a concentration is deep militarization of the economy. Historical facts confirm this idea: for example, the military spending of World War II became the driver for the new technologies' creation and movement from the 3-rd to the 4-th technological mode. And the deepest militarization of the US economy during World War II allowed the country to become an absolute leader in the development of production of the 4th technological mode. Today we are witnessing again a kind of arms race between the United States, China and Russia. The share of spending on the military-industrial complex in these countries has been steadily growing over the past 5 years.

6) ***Development of a new basic industry in the economy:*** medicine is becoming a new industry carrying the 6th wave. As economists, we can say, that even this fact is not surprising. And the origin of it is not the coronavirus, but the growth of the average life expectancy around the world, in connection with which the demand for medical services is growing, and therefore it is natural to expect the commercialization of this industry.

As you can see, the coronavirus only became a trigger for natural events in the economy. The loss of positions by the oil sector was an expected event, as well as the fact that health care is gaining more importance.

Thus, the main conclusion for the whole world and Kazakhstan is that the era of high profitability in the oil sector is coming to an end. Of course, this does not mean that tomorrow we will see an oil-free world, but its production will no longer bring the same profits as before. This means that we have come close to the need to diversify the economy, and one of the ways for this is to start the production of technologies of the 6th long wave.

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