

Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Economics



Diploma Thesis

The impact of oil industry on Kazakhstan's economic performance

Kamilla Smadyarova

© 2021 CULS Prague

DIPLOMA THESIS ASSIGNMENT

B.Sc. Bc. Kamilla Smadyarova

Economics and Management
European Agrarian Diplomacy

Thesis title

The impact of oil industry on Kazakhstan's economic performance

Objectives of thesis

The main aim of the present Diploma thesis is to define the impact of oil industry and crude oil trade on the economy of Kazakhstan.

To achieve this goal the following partial objectives are stated:

1. To conduct a brief retrospective analysis of Kazakhstan's economic performance.
2. To analyze the current state of oil producing industry in Kazakhstan.
3. To define main Kazakhstan's importers of crude oil and other key trade partners.
4. To evaluate the importance of the oil industry in the Republic.

Methodology

Theoretical part of the Diploma thesis will be mainly based on a relevant literature review and the research of similar studies, using methods such as abstraction, inductive reasoning, analysis, synthesis and deduction.

Practical part will contain descriptive statistical analysis and qualitative thematic synthesis of the main economic indicators and selected for the analysis variables. The results of the econometric regression analysis along with other main results will be provided and discussed in the Diploma's conclusion.

The proposed extent of the thesis

60-80

Keywords

Kazakhstan, economy, Kazmunaigaz, oil trade, oil production, GDP, export.

Recommended information sources

Anderson K., Capannelli G., Ginting E., Taniguchi K.: Kazakhstan Accelerating Economic Diversification. 2018, Mandaluyong, Asian Development Bank, ISBN: 978-92-9261-263-4.

Cherdabayev R.: Kazakhstan Oil: A century long history. 2010, Moscow, Alpina Business School. ISBN: 978-5-904522-44-5.

Nathan J.: Kazakhstan's New Economy: Post-Soviet, Central Asian Industries in a Global Era. 2014, Scranton, University of Scranton Press. ISBN: 978-1589661073.

Vakulchuk R.: Kazakhstan's Emerging Economy: Between State and Market. 2014, Bern, Peter Lang GmbH, Internationaler Verlag der Wissenschaften. ISBN: 978-3631650950.

Expected date of thesis defence

2020/21 SS – FEM

The Diploma Thesis Supervisor

Mgr. Elena Kuzmenko, Ph.D.

Supervising department

Department of Economics

Electronic approval: 4. 3. 2021

prof. Ing. Miroslav Svatoš, CSc.

Head of department

Electronic approval: 4. 3. 2021

Ing. Martin Pelikán, Ph.D.

Dean

Prague on 23. 03. 2021

Declaration

I declare that I have worked on my diploma thesis titled " The impact of oil industry on Kazakhstan's economic performance" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the diploma thesis, I declare that the thesis does not break copyrights of any their person.

In Prague on 31.03.2021

Acknowledgement

I would like to thank Mgr. Elena Kuzmenko, Ph.D. for her advice, support and coordination during my work on this thesis

The impact of oil industry on Kazakhstan's economic performance

Abstract

Kazakhstan possesses considerable oil reserves and its developed oil industry, undoubtedly, is considered as one of the largest exporters of crude oil to the global market. Therefore, the oil industry can be considered as the most important component of Kazakhstan's economy.

This thesis is dedicated to investigate the relationship between oil industry and economic performance of the Republic of Kazakhstan. This work applies the regression analysis using secondary data, retrieved from the official databases from the statistical sources, which aims to explain the interconnections between the oil industry and GDP growth in Kazakhstan.

Keywords: Kazakhstan, economy, oil trade, oil production, GDP, export, import, regression.

Vliv ropného průmyslu na ekonomickou výkonnost Kazachstánu

Abstrakt

Kazachstán vlastní značné zásoby ropy a jeho rozvinutý ropný průmysl státu je nepochybně považován jako jeden z největších vývozců ropy na světovém trhu. Proto, ropný průmysl lze považovat jako nejdůležitější složka ekonomiky Kazachstánu.

Tato práce je věnována zkoumání vztahu mezi ropným průmyslem a ekonomickou výkonností Republiky Kazachstán. Tato práce aplikuje regresní analýzu pomocí sekundárních dat, získaných z oficiálních databází ze statistických zdrojů. Jejichž cílem je vysvětlit vzájemné vazby mezi ropným průmyslem a růstem HDP v Kazachstánu.

Klíčová slova: Kazachstán, ekonomika, obchod s ropou, těžba ropy, HDP, export, import, regrese.

Table of content

| | |
|--|-----------|
| 1. Introduction | 10 |
| 2. Objectives and Methodology | 11 |
| 2.1 Objectives | 11 |
| 2.2 Methodology | 11 |
| 3. Literature Review | 12 |
| 3.1 “Crude Oil” term introduction | 12 |
| 3.1.1 Definition of Oil Industry | 13 |
| 3.1.2 Historical overview of crude oil importance | 14 |
| 3.2 Current state of the global oil market | 15 |
| 3.2.1 Major Crude Oil Exporters | 19 |
| 3.2.2 Oil Industry main current categories | 21 |
| 3.3 Price Dynamics in Era of Globalization | 22 |
| 3.3.1 Oil Prices Shaping Factors | 24 |
| 3.3.2 Oil Prices and its impact on Economy | 26 |
| 3.3.3 Dutch disease | 27 |
| 4. Practical Part | 32 |
| 4.1 Analysis of Kazakhstan's economic performance | 32 |
| 4.1.1 GDP per Capita | 33 |
| 4.1.2 Inflation Rate | 34 |
| 4.1.3 Unemployment Rate | 35 |
| 4.1.4 External Debt to GDP Ratio | 36 |
| 4.1.5 Oil prices affection | 39 |
| 4.1.6 Import and Export | 40 |
| 4.2 Oil Producing Industry in Kazakhstan | 43 |
| 4.2.1 History of the developing of oil industry in Kazakhstan | 44 |
| 4.2.2 Current state of oil industry in Kazakhstan | 46 |
| 4.2.3 Key Players of Oil Industry in Kazakhstan | 49 |
| 4.3 Key trade partners of Kazakhstan’s crude oil | 52 |
| 4.4 Evaluation of the importance of the oil industry in the Republic | 55 |
| 4.4.1 Econometric analysis | 55 |
| 4.4.2 Future driven by Global “Green” Economy | 61 |
| 5. Results and discussion | 63 |
| 6. Conclusion | 65 |
| 7. References | 66 |

List of tables

| | |
|--|----|
| Table 1: Categories of oil Industry | 14 |
| Table 2: Top 15 Major Countries' Oil Reserves, as of 2019 | 18 |
| Table 3: Major Crude Oil Producers, as of 2019. | 19 |
| Table 4: Top 15 Oil Exporters, as of 2019 | 21 |
| Table 5: Foreign Trade Values..... | 41 |
| Table 6: Kazakhstan's Export and Import Insides, as of 2019 | 42 |
| Table 7: Kazakhstan's Main Foreign trade partners, as of 2019..... | 43 |
| Table 8: GDP share by oil and non-oil sectors, year 2019..... | 47 |
| Table 9: GDP value and share by oil and non-oil sectors, year 2019 | 48 |
| Table 10: Main buyers of Kazakhstan's oil, as of 2019 | 54 |
| Table 11: Econometric model's data observations (2000-2019)..... | 56 |
| Table 12: Parameter's interpretation..... | 59 |
| Table 13: Autocorrelation Test | 59 |
| Table 14: Heteroskedasticity Test..... | 60 |
| Table 15: Normality Test | 60 |

List of figures

| | |
|--|----|
| Figure 1: World total energy supply by source | 16 |
| Figure 2: Proven oil reserves by country, by the end of 2019..... | 17 |
| Figure 3: Average Annual OPEC Crude Oil Prices, in USD..... | 23 |
| Figure 4: Estimated Oil Exports as a GDP Share, in %, year 2018 | 27 |
| Figure 5: Dutch Disease Developing Mechanism..... | 30 |
| Figure 6: Kazakhstan's GDP per Capita, in USD, year 2019 | 34 |
| Figure 7: Kazakhstan's Inflation Rate, in %, year 2019..... | 35 |
| Figure 8: Kazakhstan's Unemployment Rate, in %, year 2019 | 36 |
| Figure 9: Kazakhstan's External Debt to GDP ratio, in %..... | 37 |
| Figure 10: Kazakhstan's External Debt by Countries, in bil. USD, year 2019 | 38 |
| Figure 11: Kazakhstan's External Debt by Sectors, year 2019 | 39 |
| Figure 12: Annual OPEC Crude Oil Prices for the period 2000-2020, in USD | 40 |
| Figure 13: Map of Kazakhstan's oil buyers, year 2019..... | 53 |
| Figure 14: Correlation Matrix | 57 |
| Figure 15: Correlation Matrix with excluded Import variable | 57 |
| Figure 16: Correlation Matrix with difference added to Export variable..... | 58 |
| Figure 17: Gretl's results..... | 58 |

1. Introduction

Oil belongs to the non-renewable resources group; therefore, all economically developed states seek to gain direct or indirect control over the oil sector. Currently economic confrontation between countries is concentrated in the oil market. Oil affects the economic and political situation not only individually, on the particular states but also on the global economy as a whole.

Kazakhstan has large oil reserves and has a strong position among largest global market's oil suppliers. In addition, last few decades Kazakhstan's economy is highly dependent on oil production and its exports. Despite the fact, that Kazakhstan possesses other valuable resources such as gas, coal and different range of mineral resources, oil industry plays a major role in country's economy. During the years of Kazakhstan's independence, its crude oil reserves allowed to Kazakhstan to be among the richest Commonwealth of Independent States (CIS) with the thriving economy and to be able to held the second largest share of total CIS GDP than both Ukraine and Uzbekistan together. (Eurostat, 2019)

Kazakhstan began oil production in the late 19th century, long before Iran, Kuwait, Mexico, Norway and Saudi Arabia began production. Thanks to its large reserves, Kazakhstan attracts international investors who invest mainly in oil extraction and production. Countries such as Italy, France, Netherlands, Switzerland, Turkey, Korea, China, etc. are considered as main country's investors.

There are a number of countries whose economic situation depends on revenues from the export of oil and oil derivatives. Kazakhstan is among those countries and has a large share of oil exports in the state's total exports, which means that the balance of international trade is strongly dependent on the price and production of oil. Due to revenues from oil exports, the state fulfils its budget and has the opportunity to develop the economy. Economic growth and exchange rate stability in Kazakhstan, as well as in many other countries whose economies are focused on oil trade, depend on the oil market. With the movement of prices for oil derivatives, the economic situation of the state changes. In 2014-2015, the price of oil has been falling. The continuing decline in oil prices has affected the economy of Kazakhstan. The fixed exchange rate changed to floating, which caused the Kazakh currency to devalue against other currencies. Despite the fact, that country's economy faced difficulties during the oil prices falling and it affected the overall economic situation in a negative way, now, the situation got stabilised, but still any changes in oil prices influence on the Kazakhstan's economy.

2. Objectives and Methodology

2.1 Objectives

The main aim of the present Diploma thesis is to define the impact of oil industry and crude oil trade on the economy of Kazakhstan. To achieve this goal the following partial objectives are stated:

- To conduct a brief retrospective analysis of Kazakhstan's economic performance.
- To analyze the current state of oil producing industry in Kazakhstan.
- To define main Kazakhstan's importers of crude oil and other key trade partners.
- To evaluate the importance of the oil industry in the Republic

2.2 Methodology

Theoretical part of the Diploma thesis will be mainly based on a relevant literature review and the research of similar studies, using methods such as abstraction, inductive reasoning, analysis, synthesis and deduction. It will include the brief definition of oil and oil industry.

Practical part will contain descriptive statistical analysis and qualitative thematic synthesis of the main economic indicators and selected for the analysis variables. Also, in the practical part, econometric regression model is presented and tend to prove the dependence of the global oil market on the Kazakhstan's economy. The results of the econometric regression analysis along with other main results will be provided and discussed in the Diploma's conclusion. The analysis covers period from year 2000 till 2019 and for the regression model is based on the OLS method:

$$\gamma = (X^T X)^{-1} X^T y \quad (1)$$

γ – is a (kx1) vector of estimated parameters,

X – is a (nxk) matrix which contains n-observed values of k-explanatory variables (regressors);

y – is a (nx1) vector which contains n-observed values of the explained variable (regresand).

3. Literature Review

3.1 “Crude Oil” term introduction

The oil industry plays a significant role in the global economy. After all, this is not only raw materials and fuel, but also all the objects around us that every person uses in everyday life. Thus, humanity is completely dependent on oil resources. But this resource is running out, i.e. not renewable. Many countries are intensively producing oil, exploring hidden and inaccessible deposits, investing a significant amount of capital and investments in the fuel and energy complex. But some countries either lack sufficient resources or capital. They have to import oil from abroad, which is a big income for the exporting countries. After all, in order to carry out these operations, oil trading exchanges and world oil organizations and companies form oil prices, which play a significant role in export-import relations.

From the chemical perspective, oil is considered as a combustible, oily liquid, most important mineral which is widespread in the sedimentary shell of the Earth. A complex mixture of alkanes, some cyclanes and arenes, as well as oxygen, sulphur and nitrogen compounds. It contains over 1000 individual organic substances containing 83-87% of carbon, 12-14% of hydrogen, 0.5-6.0% sulphur, 0.02-1.7% of nitrogen and 0.005-3.6% of oxygen and a slight admixture of mineral compounds when the ash content of oil does not exceed 0.1%. (Karl Fink, 2012) The color of the oil is red-brown, sometimes almost black, although sometimes there is also a slightly yellow-green and even colorless oil, has a specific smell, and is common in sedimentary rocks of the Earth. As of today, oil is one of the most important minerals for mankind.

Oil as a raw material can be used for different purposes which includes:

- petrochemicals in the production of synthetic rubber, alcohols, polyethylene, polypropylene,
- wide range of various plastics and finished products from them, artificial fabrics;
- as a source for the production of motor fuels (gasoline, kerosene, diesel and jet fuels), oils and lubricants,
- as a boiler and furnace fuel (fuel oil), building materials (bitumen, tar, asphalt);
- raw materials for obtaining a number of protein preparations used as additives in livestock feed to stimulate its growth. (Karl Fink, 2012)

3.1.1 Definition of Oil Industry

The oil industry is an integral part of the fuel and energy complex - a diversified system that includes the extraction and production of fuel, energy production (electricity and heat), distribution and transportation of energy and fuel. The oil industry is a branch of the heavy industry, including the exploration of oil and oil and gas fields, well drilling, oil and associated gas production, pipeline transportation of oil. The purpose of oil exploration is the identification, geological and economic assessment and preparation for operation of industrial deposits. Oil exploration is carried out using geological, geophysical, geochemical and drilling operations. The exploration process is divided into two stages: prospecting and exploration. The first includes three stages: regional geological and geophysical work, preparation of areas for deep exploration drilling and prospecting for deposits. The second ends with the preparation of the field for development.

According to the degree of exploration, the deposits are divided into four groups:

- 1) explored deposits in detail;
- 2) previously explored deposits;
- 3) poorly explored deposits;
- 4) the boundaries of the deposits are not defined. (Dalvi S., 2015)

Categories 1, 2 and 3 are industrial stocks. Nowadays, one of the main problems that exploration workers are facing is insufficient funding. (Dalvi S., 2015)

It could be stated, that the oil industry today is a large economic complex that coexists and develops according to its own laws. Oil industry can be differentiated into 3 categories which include: Oil Extraction, Oil Transportation and Oil Refining.

Each category can be characterized as following:

Table 1: Categories of oil Industry

| Oil Extraction | Oil Transportation | Oil Refining |
|--|---|--------------------------|
| Boreholes (extraction from the bowels of the Earth, and then purification from water and other impurities) | Temporary storage | Oil refineries factories |
| Drilling companies | Construction of tanks | Oil refining |
| Geological services | Oil tankers | |
| Security services | Pipelines | |
| Construction of drilling stations | | |
| Other various commercial services | Enterprises for the construction and operation of pipelines | Petrochemical industry |

Source: compiled by author

3.1.2 Historical overview of crude oil importance

Oil has been known to man since ancient times. And its use for lighting, heating, making medicines in ancient times was mentioned a while ago dating to the times of Herodotus and Plutarch. (Craig J., 2018) In ancient times, oil was also used for military purposes. Chronicles say that the ancient Greeks tied a vessel with a mysterious mixture to a javelin launched by a giant sling. While the projectile reached the target, an explosion occurred and a cloud of smoke rose. The flame immediately spread in all directions. Water could not extinguish the fire. The composition of the "Greek fire" was kept in strict secrecy, and only the Arab alchemists of the 12th century managed to unravel it. The whole basis of this mysterious recipe was oil with the addition of sulphur and saltpetre. (Craig J., 2018)

In the 18th century, oil was also used as a remedy. In the middle of the 18th century, French missionary Paret Joseph de la Roche d'Allen discovered mysterious "black waters" in western Pennsylvania. The Indians added them as a binder to paints to paint their faces. From these waters, which were nothing more than oil lakes, the father created his miraculous balm. In many European countries, it was used as a medicine. (Craig J., 2018)

The “oil hunt” began. In all parts of the world, in inhabited and unexplored areas, on land and at the bottom of the ocean, people were looking for this black and brown oily liquid. The oil rush was whipped up by the invention in January 1861 of the Cracking, a modern method of oil refining. (Craig J., 2018) The substance, to which few people paid attention for thousands of years, has become widely used in industry and military purposes, has become an object of trade and speculation, has become a kind of bone of contention for various states of the world. Nevertheless, despite active searches, at the end of the last century, only about 5 million tons of oil were produced per year, a drop in the ocean by today's scale. (Craig J., 2018) The extraction was carried out in a primitive way.

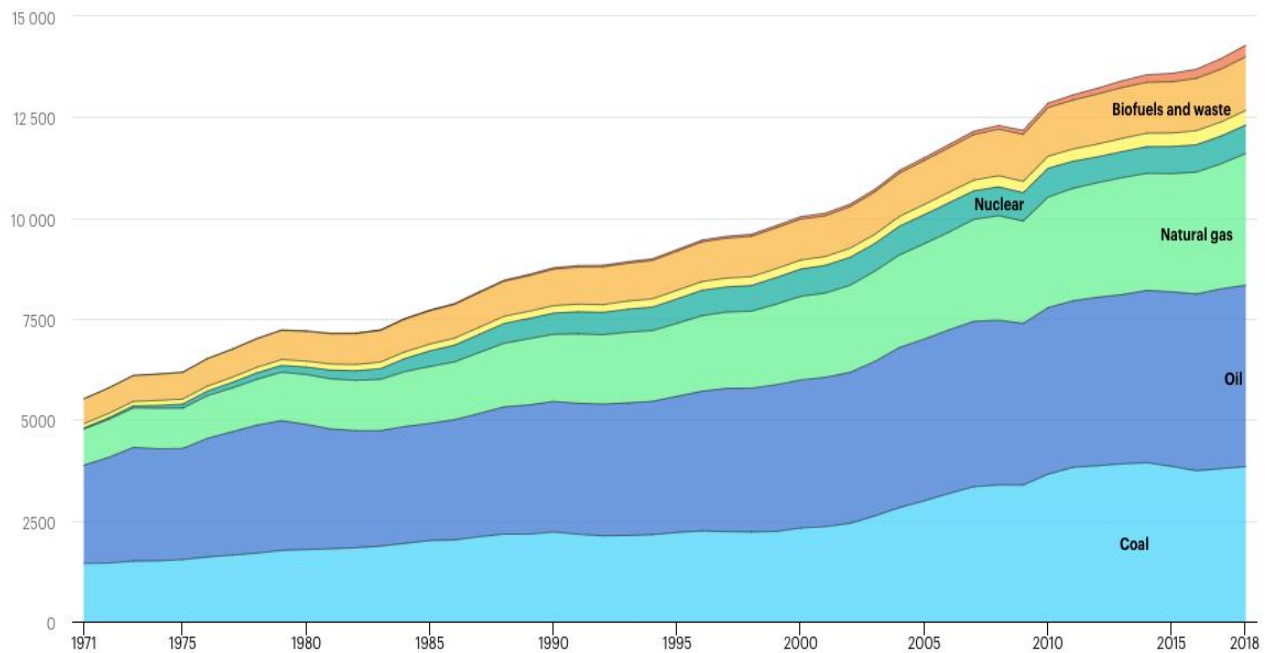
However, wide commercial oil production actually began only in the middle of the 19th century, and simultaneously in the USA, Russia and Romania. But products were again used only for lighting and less often for heating. And only at the beginning of the 20th century, there was a demand for gasoline, and then for diesel fuel, which began to switch first to the naval, and then the merchant fleet. That is why world oil production began to grow rather rapidly, exceeding by the middle of the 20th century and accounted for more than 500 million tons. (Frey John W., 2005) At the same time, the struggle of the great powers for the possession of oil resources intensified, most openly manifested in the years of the two world wars. So the real boom of oil production occurs in the post-war years: in year 1945, 350 million tons of oil were produced in the world, in 1960 - over 1 billion tons, and in 1970 - about 2 billion tons. And in the year 1979, production accounted for 3.2 billion tons. (Frey John W., 2005) So during this period, there's a tendency of increasing of oil production within 1 billion tons every 10 years.

3.2 Current state of the global oil market

Oil is a raw material for processing and obtaining goods such as gasoline, kerosene, diesel fuel, fuel oil, oils, and also used in chemical industry. A number of petroleum-derived products can be replaced with alternatives such as gasoline, diesel fuel and some - irreplaceable. These include paraffins, lubricating oils, bitumen.

In recent years, the structure of the global energy market the share of oil accounts for about 30% , which exceeds the same indicator for gas and coal, and other renewable energy sources. (International Energy Agency , 2020)

Figure 1: World total energy supply by source



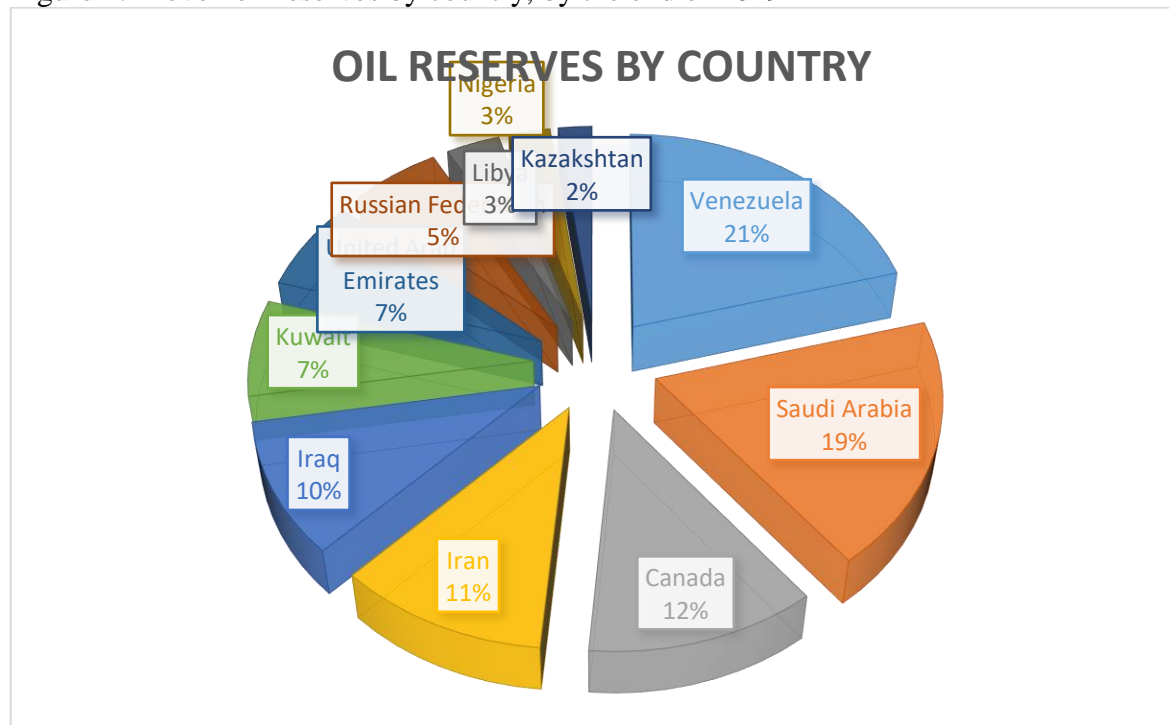
Source: compiled by International Energy Agency (International Energy Agency , 2020)

When in year 1973, the global share of total energy supply by oil was accounted for over 46%, the recent trends show the decrease and in the year 2018 oil's share was 31.6%. (International Energy Agency , 2020) According to analysts, indicator will remain at the same level for a longer period of time and in year 2050 will decrease till 28-29%. (International Energy Agency , 2020)

In 2019, the worldwide oil reserves accounted for more than to 1.72 trillion barrels. (IndexMundi Online Database, 2019) About 75% of all available world reserves belong to the group oil-exporting states that are members OPEC. OPEC is the Organization of the Petroleum Exporting Countries, which was established in 1960. OPEC currently consists of thirteen states: Algeria, Angola, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, the Republic of the Congo, Saudi Arabia (the De facto leader), the United Arab Emirates and Venezuela. (Organization of the Petroleum Exporting Countries, 2021) OPEC countries account for 2/3 of all world oil reserves. About 60% of all oil reserves are concentrated in the Middle East and belong to the following countries: Saudi Arabia, Iran, Iraq, Kuwait and the United Arab Emirates. (Organization of the Petroleum Exporting Countries, 2021) However, the first place in the world in terms of proven oil reserves belongs to Venezuela. Its reserves account for 298 billion barrels. The second place belongs to Saudi Arabia with 268 billion barrels. The third place belongs to Canada, which has reserves of 172 billion barrels. (IndexMundi Online

Database, 2019) Kazakhstan is on the 11th place with proven reserves accounted for 30 billion barrels. The top 10 countries also include: Iran, Iraq, Kuwait, United Arab Emirates, Russian Federation, Libya, Nigeria.

Figure 2: Proven oil reserves by country, by the end of 2019



Source: compiled by author base on the data from IndexMuni Official Online Database (IndexMundi Online Database, 2019)

Also needed to mention, that Venezuela has dramatically increased its proven oil reserves since year 2010, and since year 2013 has become a leader among other countries, bypassing Saudi Arabia who was the leader for several decades. (BP, 2020)

Below is the table with exact information with regard of oil reserves within the top fifteen major oil producers:

Table 2: Top 15 Major Countries' Oil Reserves, as of 2019

| No. | Country | Oil Reserves (billion barrels) |
|-----|----------------------|--------------------------------|
| 1 | Venezuela | 298 |
| 2 | Saudi Arabia | 268 |
| 3 | Canada | 172 |
| 4 | Iran | 158 |
| 5 | Iraq | 144 |
| 6 | Kuwait | 104 |
| 7 | United Arab Emirates | 98 |
| 8 | Russian Federation | 80 |
| 9 | Libya | 48 |
| 10 | Nigeria | 37 |
| 11 | Kazakhshtan | 30 |
| 12 | Qatar | 25 |
| 13 | China | 25 |
| 14 | Brazil | 15 |
| 15 | Algeria | 12 |

Source: compiled by aithor based on data from IndexMuni Official Online Database (IndexMundi Online Database, 2019)

Before, when evaluating oil fields, the traditional oil fields were taken into the consideration. Fields of other types of oil are being studied now; this include unconventional energy sources in order to assess the profitability development for the near future with active use of innovative technologies and new types of equipment. These types include so called "heavy oil", which is natural bitumen. Such oil hardens when extracted to the surface, and after it is being refined. (Simanzhenkov V., 2013)

The largest deposits of "heavy oil" are concentrated in Venezuela and several oil projects have been developed in the country. Venezuela applies three refining options. For example, blending "heavy oil" with chemicals, so that very expensive plants can produce synthetic medium and light oil. Special attention is now being paid to oil fields shale and sandstone. The most significant deposits of such oil concentrated in the USA and Canada. Russia also has similar fields. Oil sands contain crude oil, quartz sand, alumina and water However, the cost of using such techniques of oil development and production is high. (Simanzhenkov V., 2013)

Countries within the terms of oil production can be divided into several groups:

- countries producing more than 500 million tons per year;
- countries producing from 200 to 500 million tons;

- countries producing from 50 to 200 million tons;
- countries producing less than 50 million tons. (Raymond S. M., 2017)

The first group includes Russia, Saudi Arabia, and the United States.

The second - China and Canada.

The third group is the most numerous and it includes: Iran, Iraq, United Arab Emirates, Kuwait, Kazakhstan, Venezuela and others.

The fourth group includes: Azerbaijan, Oman, Ukraine. (IndexMundi Online Database, 2019)

So with regard to oil production, the table with leaders differs from the table, mentioned above, which contained information about countries' oil reserves.

The leaders are USA, Russia and Saudi Arabia. In this case Kazakhstan is on the 12th spot with amount of oil producing. Below is the table with oil production leaders:

Table 3: Major Crude Oil Producers, as of 2019.

| No | Country | Oil Production, bil barrels/day |
|----|--------------|---------------------------------|
| 1 | USA | 12.48 |
| 2 | Russia | 10.84 |
| 3 | Saudi Arabia | 9.82 |
| 4 | Iraq | 4.74 |
| 5 | Canada | 4.4 |
| 6 | China | 3.82 |
| 7 | UAB | 3.48 |
| 8 | Iran | 2.97 |
| 9 | Kuwait | 2.9 |
| 10 | Brazil | 2.78 |
| 11 | Nigeria | 1.94 |
| 12 | Kazakhstan | 1.83 |
| 13 | Mexico | 1.7 |
| 14 | Qatar | 1.52 |
| 15 | Angola | 1.44 |

Source: compiled by author based on the data from Statista Online Database (Statista Online Database, 2019)

3.2.1 Major Crude Oil Exporters

In an international trade, "black gold" has a leading role, and in terms of volume and share, it is one of the most important goods of world trade. It should be noted, that the world trade in

petroleum products involve more than a hundred states. This is especially concerns the crude oil imports. However, about 80% of total world oil imports are carried out by about a dozen states. At the same time, the world oil trade is geographically dispersed. The largest oil trade is concentrated in the Middle East (in the Persian Gulf), Western Europe, Southeast Asia and The Caribbean. This applies to the crude oil trade.

Foreign trade in petroleum products has a different feature. The leading role in the trade of petroleum products is played by industrially developed countries with oil developed refineries techniques. By the scale of foreign trade operations within the oil trade, territories of Persian Gulf, Western Europe, Caribbean, Southeast Asia can be pointed out. There is a difference between commodity markets for crude oil and petroleum products. The crude oil market has a very high degree of monopolization, which are represented by national monopoly companies and multinational companies.

Major oil exporters can be distributed by region as follows:

- Asia and Middle East: Saudi Arabia, United United Arab Emirates, Iran, Iraq, Qatar, Kazakhstan.
- Europe: Norway, Russia, Great Britain.
- America: Canada, Mexico, Venezuela.
- Africa: Nigeria, Angola, Algeria.

The largest oil exporters today remain Russia and Saudi Arabia. Below is the table with 15 countries that exported the highest dollar value worth of crude oil during 2019.

Table 4: Top 15 Oil Exporters, as of 2019

| No | Country | Yearly Export value, bil. USD |
|----|--------------|-------------------------------|
| 1 | Saudi Arabia | 133.6 |
| 2 | Russia | 121.4 |
| 3 | Iraq | 83.3 |
| 4 | Canada | 68.1 |
| 5 | UAB | 66.1 |
| 6 | USA | 65.3 |
| 7 | Kuwait | 42 |
| 8 | Nigeria | 41 |
| 9 | Kazakhstan | 33.6 |
| 10 | Angola | 32.3 |
| 11 | Norway | 28.8 |
| 12 | Libya | 24.8 |
| 13 | Brazil | 24 |
| 14 | UK | 23.7 |
| 15 | Mexico | 22.6 |

Source: compiled by author base on the data from World's Top Exports Online Database (World's Top Exports Online Database, 2019)

In the follow rating Kazakhstan is placed on the 9th spot and accounted for 3.3% of total global oil export. Saudi Arabia, which is leader in the follow rating accounts for 13.3 of total exposed crude oil. Among the top exporters, the fastest-growing exporters of crude oil since year 2015 were: United States with decrease up to 640.5%, Libya - 267.9%, United Arab Emirates - 109.4% and Brazil with total decrease up to up 103.7%. While Angola experienced a decrease with 26.4% reduction over the 5-year period. (World's Top Exports Online Database, 2019)

3.2.2 Oil Industry main current categories

The nowadays oil industry is divided into three sectors:

- Upstream. This segment includes activities that are directly involved in the exploration, drilling and production of oil. The term Exploration & Production (E&P) is closely related to the following category. Usually, the activities of the companies in the upstream segment are the search for new underground or subsea fields, drilling and operation of wells, as well as the direct production of oil

- Midstream. This category includes intermediate stage enterprises that transport hydrocarbons through pipelines, as well as serve sea terminals for receiving / loading oil.
- Downstream. This segment includes refineries and petrochemical enterprises and companies that sell oil products to end consumers. In this cycle, crude oil is processed into gasoline, kerosene, fuel oil, aviation fuel, diesel fuel and other petroleum products. Profit at this stage is formed due to the so-called „crack-spread“ - the difference in price between crude oil and oil products. It is worth noting, that low oil prices are not necessarily a negative factor for companies in this segment, unlike production companies. Crude oil in this cycle is a component of the cost price and its reduction in price may not immediately be reflected in the cost of the final product, but lead to an expansion of the crack spread due to regulatory or economic considerations as, for example, high demand for certain oil products. (Gabrielson G., 2015)

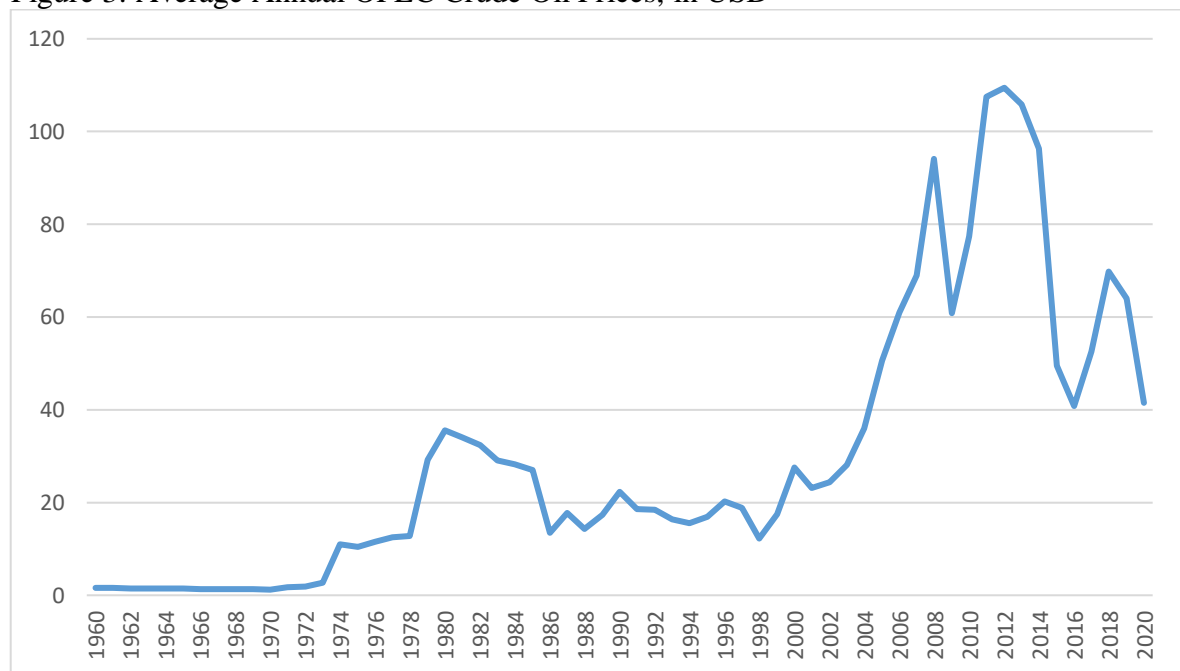
3.3 Price Dynamics in Era of Globalization

Until the early 1970s, the global oil market was one of the most monopolized throughout the world economy, meaning that everything worked and all operations performed from prospecting and exploration of mineral resources to oil sales and production of petroleum products to end users was almost completely under control of the vertically integrated companies or so called, International Petroleum Cartels (MNCs). (Carollo S., 2012) In this case other companies were forced to adapt policies from those cartels. Oil production costs were low, which helped to accelerated development of the oil sector of the economy. And the impetuous improvement of technologies for oil production, refining, use and transportation led the oil companies to obtain cost advantage over other energy companies. In the 60s and 70s, serious changes began. Real crude oil prices in the global oil market have declined on average by 0.1% per year, while prices for oil products on the world market decreased by an average of 1% per year. (Carollo S., 2012) This happened due to the fact that the costs of oil production and refining were decreasing. Improvement of equipment and technologies for extraction and processing allowed the cost reduction, as wel also increased the share of low-cost developing countries factors of production.

In the 70s, the oil market experienced a major fracture. With the increase in the amount of oil produced in the Persian Gulf, the influence of the Arab countries, which in 1960 created OPEC

- Organization of Petroleum Exporting Countries got a stronger position. (Carollo S., 2012)
 The countries that entered OPEC have fought for 10-15 years breaking concession agreements with Western companies, which allowed them to control their profits by themselves and participate in the formation of global oil prices. After that, a bipolar market structure was formed: OPEC members controlled operations at the stages of oil production and sale, and oil corporations were managing transport, refining and marketing operations of petroleum products. (Carollo S., 2012)

Figure 3: Average Annual OPEC Crude Oil Prices, in USD



Source: compiled by author based on data from Statista Online Database (Statista Online Database , 2020)

In the graph above the OPEC crude oil prices dynamics is presented. Throughout the whole period, starting from the year 1960, oil prices were fluctuating severely. The biggest boom happened at the beginning of the 21st century: the oil prices almost doubled and were increasing until the year 2008, when the global economic crisis occurred.

Almost all the oil entering the market was purchased on a commercial basis - and the prices were dictated by OPEC member countries. Starting from this period, the OPEC countries became to form a “basket of prices” that have received the status of world prices. (Carollo S., 2012) In the late 70s, stock exchanges began to develop rapidly and it involved operations with liquid fuels. At first, such operations began to be performed on The New York stocks

exchange, and then from the mid-eighties to London International Petroleum Exchange. (Carollo S., 2012)

The influence on the change in the ratio of prices for different varieties changes in the technological structure oil refineries. Also, worth to mention that, an important factor in the differences in prices for different grades of oil is the degree of remoteness of the place of the extraction point from the main centers of oil refining. The dynamics of oil prices is affected by several number of factors, which includes, first of all, the situation in the financial markets should be highlighted, balance of supply and demand, macroeconomic and geopolitical position, dollar rate. (Carollo S., 2012)

With the development of technology, it becomes possible to involve in production of more and more resources. As an example USA can be considered: country faced a sharp increase in the production of unconventional resources with the help of developed technological techniques. Oil price, or more correctly, oil quotes are the most important indicator for the Russian or Kazakh stock markets, where dynamics of oil quotes is dictated mainly by the economic situation in the United States.

The value of prices for oil and petroleum products depends on the amount of the follow components:

- stock oil prices;
- US dollar exchange rate;
- transport tariff from the point / port of oil delivery to oil refinery;
- the trade mark of the refinery and distribution network;
- taxes and government fees on oil and oil products. (Carollo S., 2012)

3.3.1 Oil Prices Shaping Factors

The level of oil prices is determined by the interaction of mechanisms of their formation with a combination of factors affecting the relationship between demand and supply of liquid fuels on the world market. These factors are usually are subdivided into 2 groups: traditional and relatively recent created ones. The first include the following factors:

- the phase of the world economy cycle (recovery or recession);
- the value of oil production costs in the most expensive and developed fields;
- the geopolitical situation in the main areas of the world oil production and extraction; information on the timing of the depletion of the planet's oil resources;

- the level of reserve capacities of countries producing oil and commodity oil reserves in importing countries;
- OPEC statements regarding production quotas of its members and price landmarks;
- natural and „human made“ disasters for oil infrastructure;
- seasonal meteorological conditions;
- problems associated with the mismatch of supply and demand of various oil qualities; environmental problems and others. (Carollo S., 2012)

The second group of factors may include:

- deregulation of financial markets which are allowing to oil markets to open for financializing and excessive speculation;
- the rapid growth of oil demand in new market economies;
- change in the exchange rate of the US dollar against the euro. (Carollo S., 2012)

These are the factors that each have their own specific weight and influence for impacting on supply and demand within the oil markets. Their role can increase with multidirectional interaction. The effect of the influence on the value of prices of a shrinking supply with a growing demand or, conversely, a growing supply with a decreasing demand for much higher than when one of the variables remains unchanged.

Currently, there are various participants in the oil market, who are tend to affect the global oil prices:

Importers and Exporters, who are interested in the purchase of oil necessary agreed quality and quantity in order to meet their needs for some period of time and obtain objective information on prices, based on which can make objective decisions.

Hedgers. This group of market participants includes the same producers and consumers, but they enter the market not with the aim of buying and selling oil, but in order to insure their business in case of unfavourable events.

Brokers. Brokers are professional intermediaries, which represent in the modern world market specific interests of consumers and producers of oil.

Energy dealers. This market participants group include companies that enter into oil transactions at their own expense and petroleum products on the exchange or over-the-counter markets. They also provide services related to position and risk management for manufacturers and energy consumers. (Clo A., 2014)

While analyzing the structure of the global oil market, usually attention is concentrated on standard parameters of real commodity flows: changes in demand, dynamics of oil production

by the main producing countries, volumes of strategic and commercial stocks in importing countries. However, for a long time, oil prices have not been determined in the same way as for classical product market, i.e. the ratio of real demand and offers. Oil pricing is not determined on the physical market goods, but on stock exchanges. (Carollo S., 2012) Stock exchange is a legal entity that provides the regular functioning of an organized market for goods. The role of the stock exchanges is an organization of control and regulation on the market. Exchange traded contracts for energy commodities differ depending on the needs of the participants in the transactions. However, they all consist of the same basic types of contracts that apply to commodity and financial markets for other goods. They allow build complex strategies that insure the complex risks of exporters and importers.

The main disadvantage of oil as an asset for long-term investments is a very high dependence of the prices on seasonal factors, natural and political cataclysms. This allows speculators to play on the unpredictability of the oil market.

3.3.2 Oil Prices and its impact on Economy

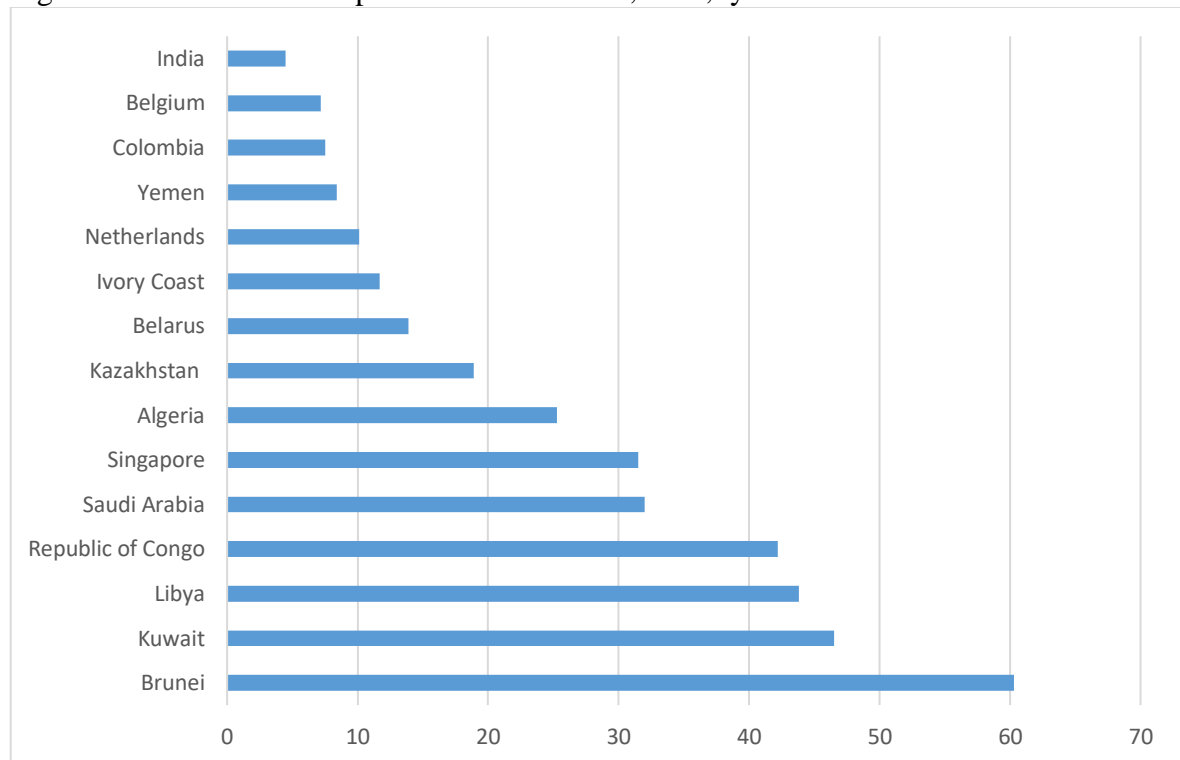
Economies of countries producing "black gold" significantly depend on oil prices. In total, there are three main reference grades in the world, on which the price of oil in the world depends. These are BRENT, WTI and Dubai Crude:

- **BRENT** (Broom, Rannoch, Etieve, Ness, Tarbat) is mined in the North Sea and used by markets in Europe and Asia. This is the main benchmark, on the price of which the price of raw materials depends by 70%.
- **WTI** (West Texas Intermediate) is older than BRENT and was originally the only benchmark. It is mined in the USA and used in the Western Hemisphere (USA).
- **Dubai Crude** from the UAE is sourced from the Gulf countries. (Carollo S., 2012)

Oil revenues vary from country to country. Where it is higher, the change in the oil price will hit the country's economy more, affect the GDP and change the budget structure.

Below is the table which illustrates which countries are the most affected and dependent on oil export in year 2018.

Figure 4: Estimated Oil Exports as a GDP Share, in %, year 2018



Source: compiled by author based on the data from Statista Online Database (Statista Online Database, 2018)

According to the table, Brunei and its economy is the most dependent on oil exports, then Kuwait and Libya. Kazakhstan is in the middle of this rating. There is a tendency that the developing countries and their economy are very dependent on the oil exports. For example, USA, who is one of the leaders among the biggest oil exporters, is not included in this list at all.

Due to the fact, that oil exports play a significant role in the economy of this countries, could be stated that the economies of these countries are very dependent on the worldwide oil prices, meaning that if the global prices will go down, economy of such countries will also be affected negatively.

There is a specific economic term to call such situation, named Dutch disease.

3.3.3 Dutch disease

"Dutch disease" is a negative effect of the strengthening of the real exchange rate of the national currency on economic development as a result of the boom in the extractive sector. The boom

can be triggered by the discovery of mineral deposits or the rise in prices for the export of extractive industries. (Canuto O., 2010)

This effect got its name after the discovery of natural gas by the Netherlands in 1959. (Canuto O., 2010) Growth in gas exports led to an increase in inflation and unemployment, a drop in exports of manufactured products and the rate of income growth in the 70s. The rise in oil prices in the mid 70s and early 80s. caused a similar effect in Saudi Arabia, Nigeria, Mexico. (Canuto O., 2010)

This term, nowadays, is used today to refer to a situation when the strengthening of the national currency, caused by the growth of export supplies of raw materials, leads to stagnation of industrial production and other sectors of the national economy.

The principle of the development of the "Dutch disease" can be described using a simple model in which the country's economy consists of three sectors of the resources, experiencing a boom; all goods traded on the world market (except for raw materials) and non-tradable goods (for example, services). When the price of the products of the resource sector rises for a long time, under the influence of the growth of wages in the raw materials sector, there is an outflow of labor and capital resources from the tradable sector. Due to the influx of foreign exchange earnings into the country, the real rate of national earnings is growing, making the products of this sector less competitive, which, in turn, entails a number of negative consequences. In particular, the output of manufacturing industries is decreasing, leading to an increase in unemployment, an increase in imports, and, consequently, to a decrease in net exports, and, ultimately, in gross domestic product. In the domestic market, the resource sector loses to the services sector, the prices of which are weakly linked to world prices. Besides the mentioned above factors, phenomena of the "Dutch disease" also increases the dependence of the national currency on the situation in the world market for exported raw materials, which in the event of a long period of low prices may cause a systemic economic crisis.

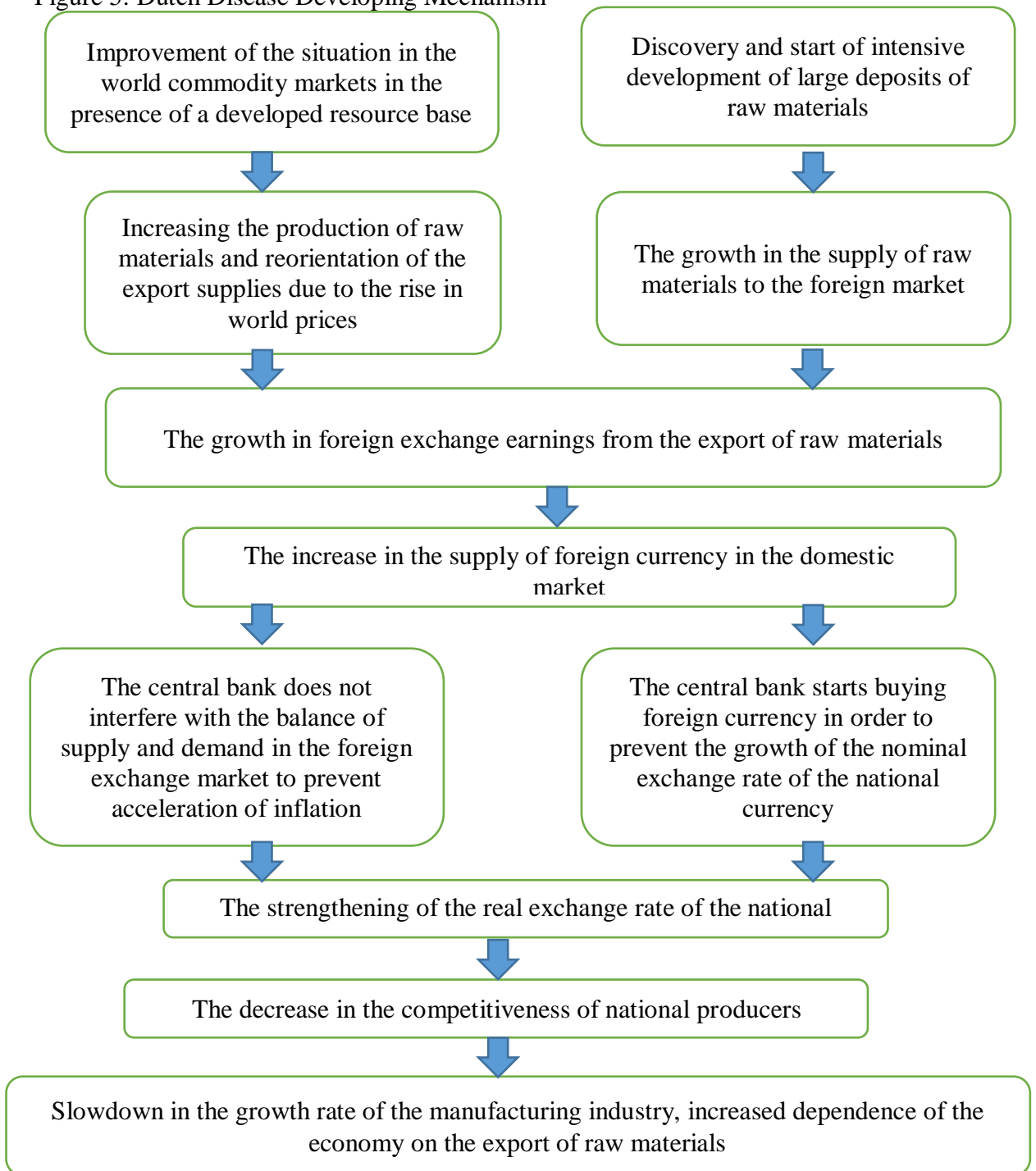
An increase in export earnings as a result of a shock in the extractive sector of the economy leads to an additional inflow of foreign exchange into the country. As a result, the nominal exchange rate of the national currency rises, and the foreign one falls. Thus, the real exchange rate is growing, which means the strengthening of the national currency. In addition, the sharp rise in income creates additional demand for both exchangeable and non-exchangeable goods. Since the exchanged goods participate in international competition, their internal price is assumed to be fixed at the world level (provided that the country is small relative to the world economy). Therefore, additional demand does not affect the price of the goods exchanged. However, the price of non-exchangeable goods is determined by the equilibrium in the domestic

market (equality of supply and demand). Therefore, a sharp increase in demand for them leads to an increase in prices. The result of these processes is the rise in inflation and further strengthening of the real exchange rate.

As a result of the Dutch disease, the problem of income appropriation by the owners of the deposits arises, which leads to the high income differentiation and social inequality. An important aspect of the Dutch Disease is its deployment in time. (Canuto O., 2010) A sharp decline in the production of a tradable product and employment in the sector of tradable goods means the emergence of loss and bankruptcy of manufacturing enterprises, agriculture, as well as high-tech sectors of the economy, which leads to high structural unemployment and lower wages for many categories of employees, especially in knowledge-intensive industries with high qualifications. In addition, commodity markets are characterized by severe price volatility. This generates severe macroeconomic instability.

The following scheme explains how the Dutch disease is developing.

Figure 5: Dutch Disease Developing Mechanism



Source: compiled by author based on the research paper by O. Canuto, M. Brahmhatt, E. Vostrokhunova (Canuto O., 2010)

The economic development of resource-rich countries over the past decade has depended on the use of resource wealth and the resolution of the accompanying problems. On the one hand, due to the proceeds from the sale of raw materials, huge budgetary funds were at the disposal

of the governments. On the other hand, the export of raw materials and the growth of foreign investment in the extractive industries contributed to a large-scale inflow of funds in foreign currency, which complicated the process of managing the economy at the macro level and made these countries vulnerable to sharp fluctuations in raw material prices. (Czech K., 2018) In the late 1970s, Mexico experienced unexpected windfall profits from oil. “Oil is what ensures our independence and compensates for our shortcomings,” declared President Jose Lopez Portillo, and the government began to build up public debt, apparently hoping that oil prices would never fall. (Czech K., 2018). In 1981 alone, the national debt grew one and a half times, from \$ 55 billion to \$ 80 billion. In 1982, prices fell, it was necessary to declare a default, devalue the pesos and nationalize banks, after which the president, having completed his term, was forced to leave the country, and the next painful reforms had to be carried out. (Czech K., 2018) The consequences of shocks in resource prices depend on economic institutions. If they are already sufficiently developed, as in Norway or Holland, the matter is limited to structural distortion and stagnation, if not (as in Nigeria), it ends in a major crisis and recession. (Czech K., 2018) So to conclude, Dutch disease is the de-industrialization of the economy as a result of the discovery of a new source of natural resources. Its mechanism is the growth of the national currency of the country due to the improvement of the trade balance, which makes the products of the manufacturing industries less competitive. In the long term, Dutch disease leads to a movement of resources from the manufacturing sector to the extractive sector, which creates less value added. In addition, the long-term dependence of the economy on the export of raw materials weakens incentives for the development of manufacturing industries and the creation of new technologies. The “Dutch disease” makes the economy much more volatile: both the resource sector and the nontradable sector, which relies on the demand generated by exporters of raw materials, are entirely dependent on world prices for the resource. which negatively affects investment activity, especially in countries with underdeveloped financial institutions. But the main problem is that in conditions of high resource rent, the elites have an incentive to seek personal gain, and not to create institutions to support economic growth. The “raw material” model of the domestic economy is not able to ensure its sustainable development, if only because the reserves of profitable oil and gas fields will be depleted relatively soon, and the development of new fields will most likely be extremely capital intensive. In addition, it is the development of oil fields in hard-to-reach areas that requires the creation and use of high technologies. So Kazakstanm adopting such model and keepi on going without the transition to a "high-tech" model, may lose a "non-resource", but also a "raw" future.

4. Practical Part

4.1 Analysis of Kazakhstan's economic performance

The economy of Kazakhstan is the largest economy on the territory of Central Asia. The country possesses huge reserves of oil, as well as minerals and metals. Kazakhstan also has significant agricultural potential with its vast steppe lands accommodating both livestock and grain production, as well as a developed space infrastructure that allows spacecraft to be launched to the International Space Station. The mountains in the south provide an excellent environment for growing apples and walnuts; both species grow there even in the wild. The industrial sector in Kazakhstan relies on the extraction and processing of natural resources, as well as a relatively large engineering sector specializing in construction machinery, tractors, agricultural machinery and some military products. The collapse of the USSR and the collapse of demand for Kazakhstan's traditional heavy industry products have resulted in a sharp contraction of the economy since 1991, with the sharpest annual decline in 1994. In 1995-1997, government economic reform and privatization programs revived Kazakhstan's economy and led to a significant shift of assets to the private sector. (Nathan J., 2014)

Nowadays, the Republic of Kazakhstan is an agro-industrial country. In 2019, the gross domestic product per capita was \$ 9812 per year (The World Bank, 2019). The monetary unit of the Republic of Kazakhstan is Tenge. The most difficult problem is the final restructuring of the economy in order to increase the final phases of the production process in it. The fact is that under the USSR, Kazakhstan specialized in raw materials and semi-finished products, which were then used at enterprises in Russia and other republics. The feasibility of creating a complete production test is due, first of all, to the high profitability of exporting finished products with raw materials. Therefore, the restructuring of the economy of Kazakhstan is an inevitable phenomenon, this process requires large investments. Foreign investors, however, prefer to invest in the extractive industry (oil, gas, non-ferrous metals, etc.). In order to stimulate the development of the manufacturing industry slowly, while optimizing the structure of the economy, it can take several decades. And as a result, Kazakhstan will adhere to the raw material profile of its specialization for a long time.

Kazakhstan has achieved stable positions in many sectors of the economy, the question arises about the development of high-quality competitiveness based on the modernization of the economy, the process of globalization of national economies and the development of a socially oriented society. Today, it is important for Kazakhstan not only to achieve good positions in

various international ratings, but also to ensure sustainable growth of our economy and the welfare of our society. In this regard, the Government of the Republic of Kazakhstan adopted Resolution No. 1332 dated December 28, 2007 "On the Concept of Achieving a Qualitatively New Level of Competitiveness and Export Opportunities for the Economy of the Republic of Kazakhstan for 2008-2015". (Agency of Legal information system regulations Republic of Kazakhstan, 2015) According to this Concept, the following six priorities are identified:

- competitive mindset on the international economic area;
- macroeconomic, institutional and legal environment;
- innovativeness and manufacturability;
- vertical and horizontal aspects of competitiveness;
- effective business;
- sustainable development, high quality of life of the population, modern education system. (Agency of Legal information system regulations Republic of Kazakhstan, 2015)

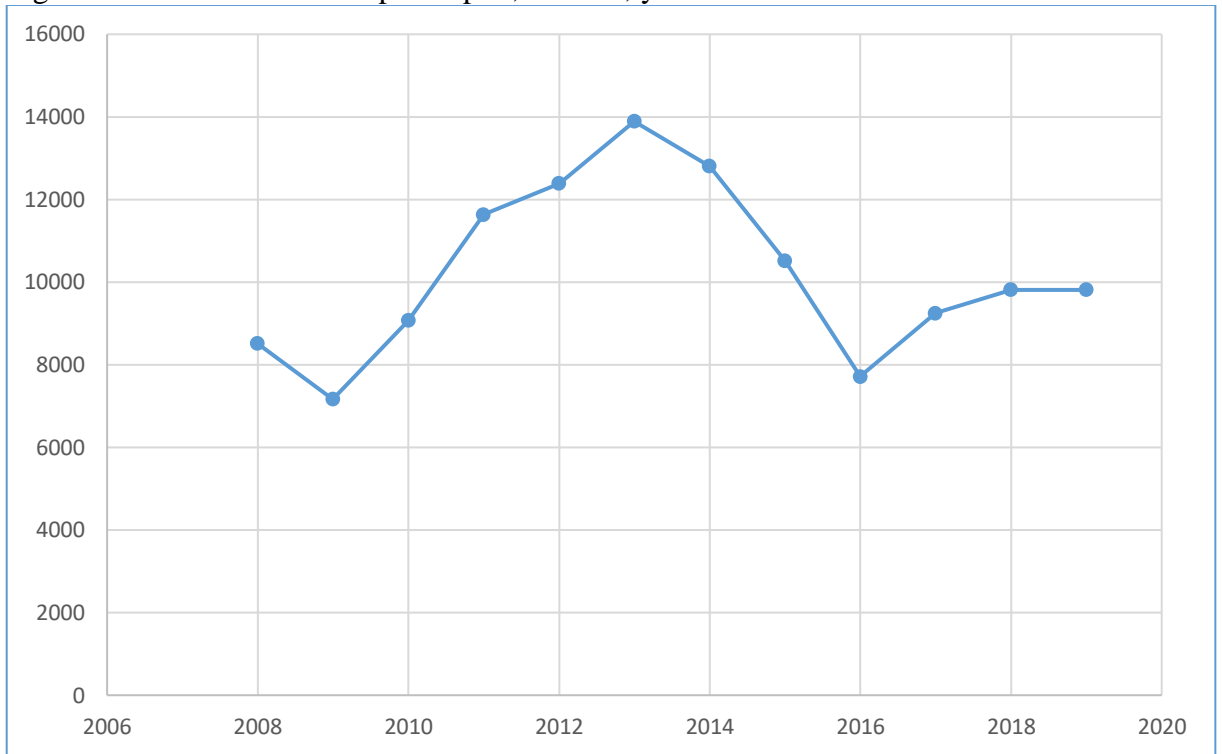
Macroeconomic situation one of the main aspects which are necessary for consideration for analyzing the process of achieving a qualitative level of competitiveness, which in its turn shows the real situation of the economy.

4.1.1 GDP per Capita

During the years of independence in Kazakhstan, the basis of a market infrastructure has been formed in the economy of the republic, including a network of banks, investment and insurance companies, stock exchanges, auditing firms and other facilities designed to serve business entities, help them sell their products, increase the reliability of functioning and reduce commercial risks. The legislation governing relations in the labor, capital and goods markets were expanded and improved. The development of trade, financial, credit and other institutions of a market economy has led to corresponding shifts in the structure of the country's gross domestic product production, where the share of the cost of services has been consistently growing.

As was mentioned above, the latest update on Kazakhstan's GDP was in 2019 and accounted \$9812.

Figure 6: Kazakhstan's GDP per Capita, in USD, year 2019



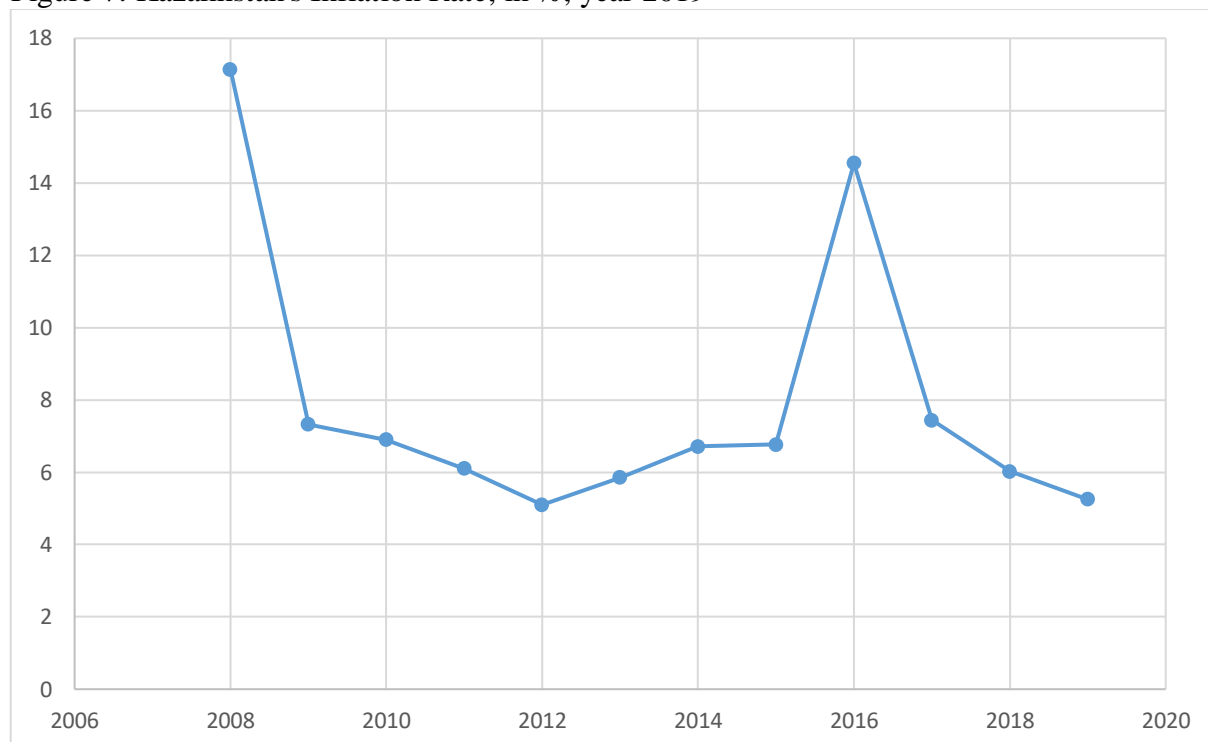
Source: compiled by author based on data from World Bank Databases (The World Bank, 2019)

For the past several years significant changes occurred. The most recent and lowest indicator was in the year 2016. The same year happened the Tenge's – national currency's devaluation. However, for the past 3 years Kazakhstan's GDP increased and was slowly growing (in comparison with year 2016).

4.1.2 Inflation Rate

Despite the fact that for the past years inflation rate in Kazakhstan was decreasing (starting year 2016) the current pandemic situation worsened all positions and according to the expert inflation rate in Kazakhstan will be again increasing in the future.

Figure 7: Kazakhstan's Inflation Rate, in %, year 2019



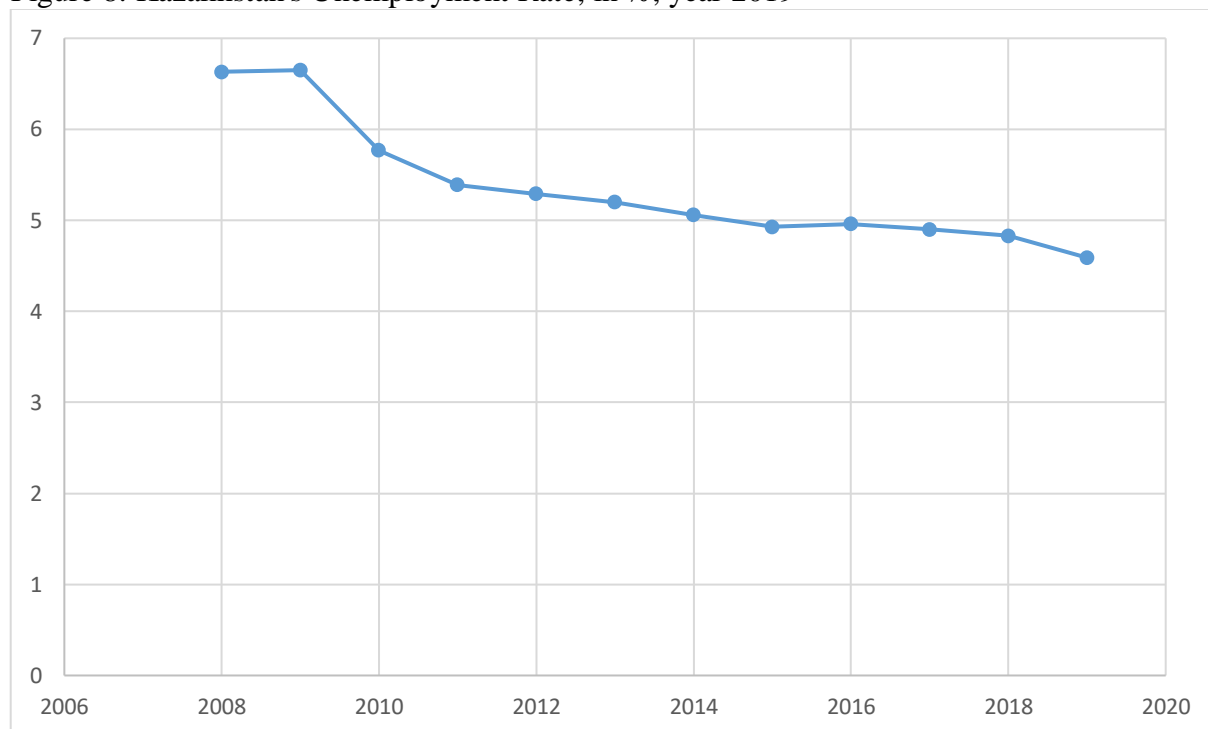
Source: compiled by author based on data from Trading Economics Databases (Trading Economics, 2019)

4.1.3 Unemployment Rate

According to the below statistics, the situation with unemployment in Kazakhstan at first glance is relatively favorable in comparison with other post-Soviet countries and non-CIS countries: in the last 5 years, its level has stabilized in the corridor of 5.06% - 4.59%.

However, each region has a unique labor market under the influence of various factors, such as the sectoral structure of the economy, population density, migration processes, the level of professional training, the activity of enterprises, and the activities of the public sector. So it could happen that in some regions the situation with unemployment is in a very bad condition and at the expense of other, more successful regions, the overall indicators of unemployment rate remain more or less stable.

Figure 8: Kazakhstan's Unemployment Rate, in %, year 2019



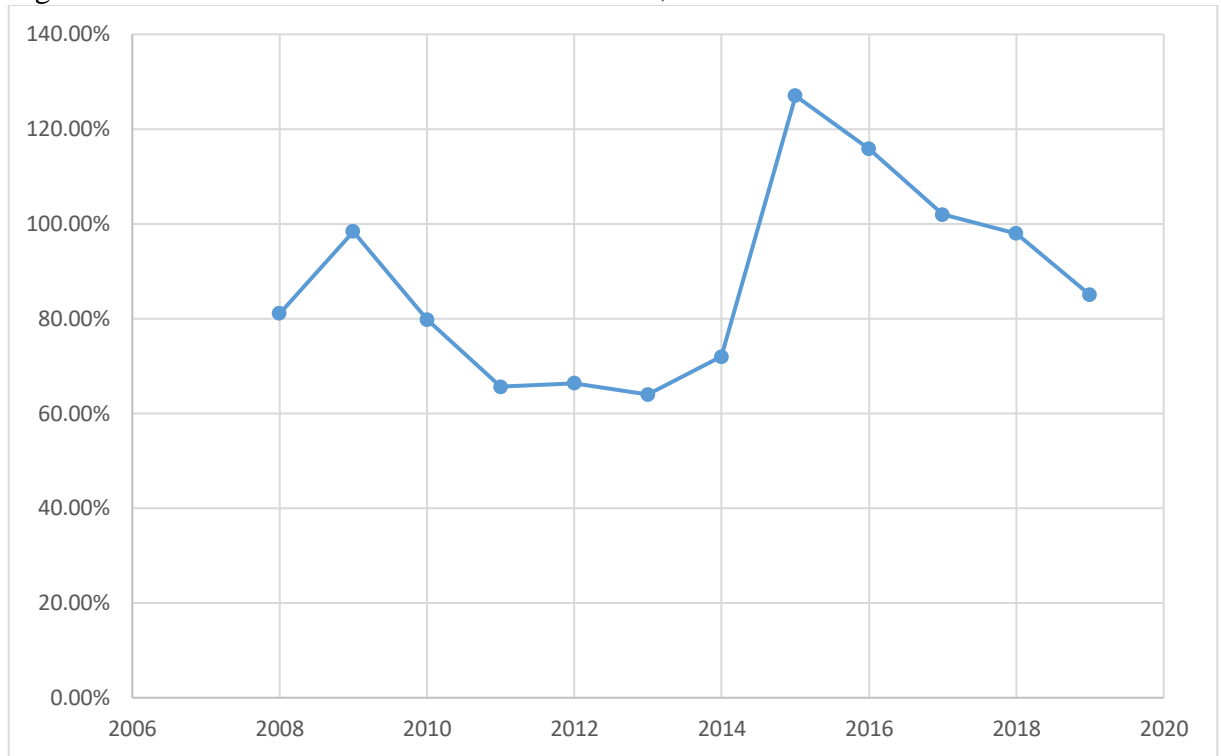
Source: compiled by author based on data from Statista Databases (Statista Online Database, 2019)

4.1.4 External Debt to GDP Ratio

In 2019, the total external debt of Kazakhstan was \$157 billion or 85% of GDP. Half of this debt is intercompany debt of Kazakhstan's residents to affiliated non-residents. Most of it is made up of three large projects with foreign participation: Kashagan, Tengizchevroil and Karachaganak – all are oil companies. To implement such projects, foreign investors finance their group companies located in Kazakhstan. According to international methodology, such investments are also considered the country's external debt. (National Bank of Kazakhstan Online Database, 2019)

In general, until the year 2015 the Kazakhstan's external debt was more or less stable and didn't exceed the GDP ratio. However, in the years 2015-2017 the Republic's external debt was more than 100% - the GDP ratio.

Figure 9: Kazakhstan's External Debt to GDP ratio, in %



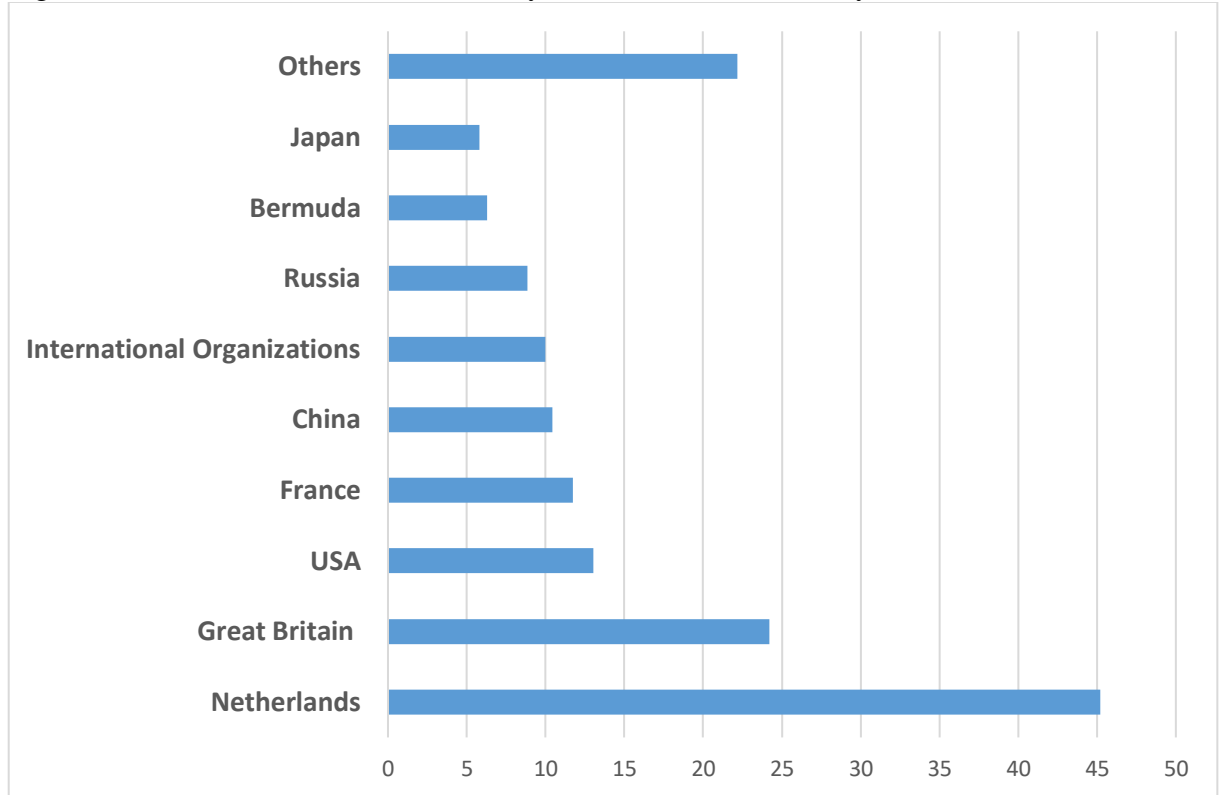
Source: compiled by author based on data from Federal Reserve Bank of St. Louis Online Economic Data (FRED Economic Data, 2019)

The largest amount of government debt among investor countries is owned to Great Britain - \$ 6.47 billion, the total amount of external debt to the country amounted to \$ 24.22 billion. Over the year, the figure increased by \$ 2.83 billion. Liabilities to Bermuda (overseas territory of Great Britain) also increased from \$ 2.12 billion up to \$ 6.3 billion. (The Agency of the Republic of Kazakhstan for Regulation and Development of Financial Market, 2019)

The top three largest Kazakhstan's creditors also include the United States. At the beginning of October 2019, the debt to the United States amounted to \$ 13.03 billion, mainly the liabilities of domestic enterprises to foreign companies. (The Agency of the Republic of Kazakhstan for Regulation and Development of Financial Market, 2019)

Next come France and China, to which Kazakhstan owes \$ 11.74 and \$ 10.45 billion, respectively. At the same time, the debt to France is mainly a corporate debt. The top ten creditors of the country also include international organizations, the Russian Federation, Japan and Hong Kong.

Figure 10: Kazakhstan's External Debt by Countries, in bil. USD, year 2019

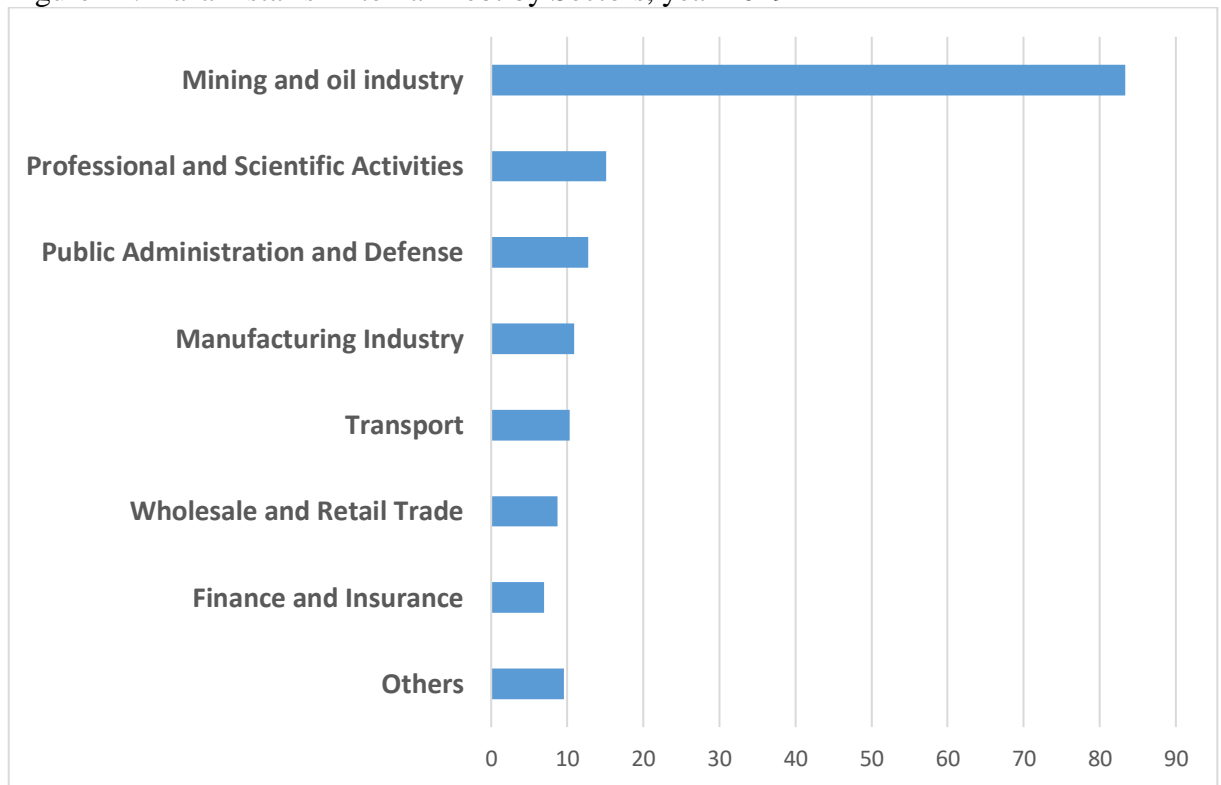


Source: compiled by author based on data from National Bank of Kazakhstan Online Database (National Bank of Kazakhstan Online Database, 2019)

The mining and oil industries are accounting for the most of the external debt. Both industries are also main players and have huge importance on the economy of Kazakhstan. Kazakhstan's natural resources are rich and varied. The country creates competition in the world market for the extraction of oil and minerals. Therefore, in terms of reserves and variety of minerals, Kazakhstan is one of the richest regions in the world. Mineral resources are represented by almost all elements of the Mendeleev's periodic table. The republic ranks first in the world in proven reserves of zinc, tungsten and barite; second in reserves of silver, lead and chromite, third in copper and fluorite, fourth in molybdenum, and sixth in gold. Among the CIS countries, Kazakhstan accounts for 90% of the total reserves of chromite, 60% of tungsten, 50% of lead, 40% of zinc and copper, 30% of bauxite, 25% of phosphorites, 15% of iron ore, more than 10% of coal. (Geoportal of Kazakhstan, 2019) Significant reserves of oil and gas are concentrated in the Western region, which makes Kazakhstan one of the ten largest oil-producing states in the world, which have a significant impact on the formation of the world energy market. At present, the country is competitive on the international market in the field of extraction and

export of fuel, energy resources (oil, gas, coal) and metals (iron, chromium, ferroalloys, steel, copper, aluminium, zinc and lead).

Figure 11: Kazakhstan's External Debt by Sectors, year 2019



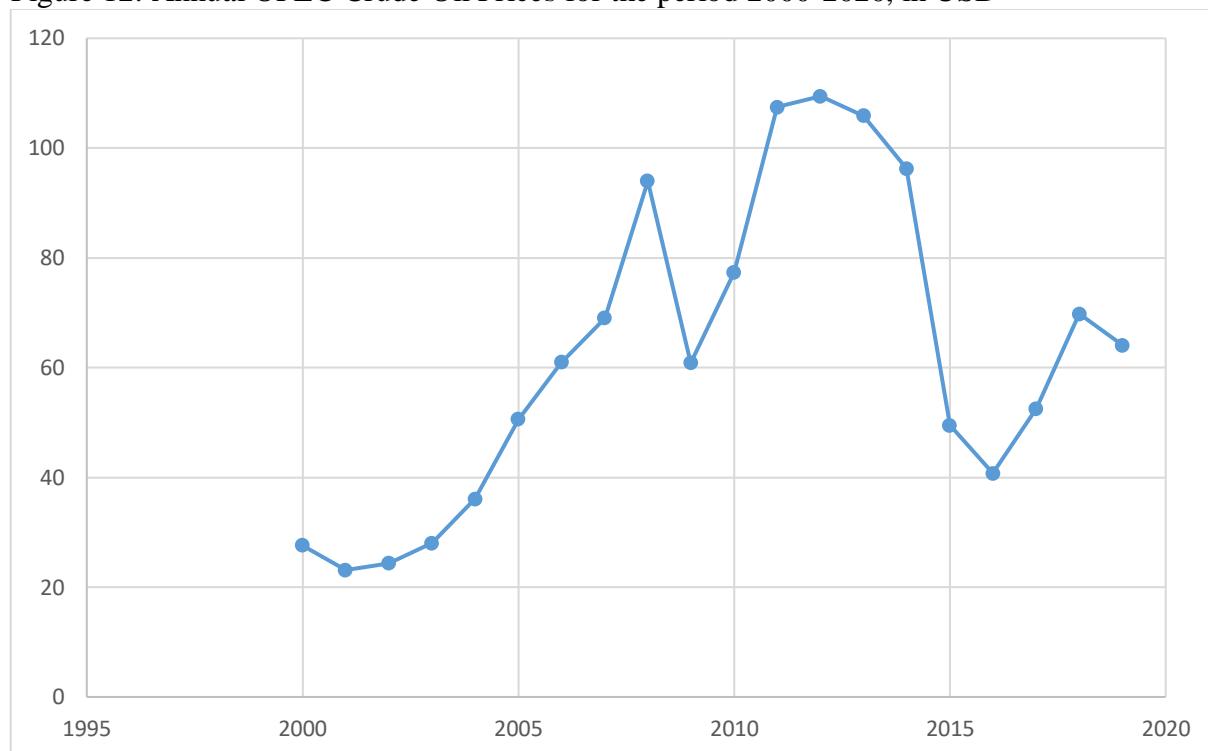
Source: compiled by author based on data from National Bank of Kazakhstan Online Database (National Bank of Kazakhstan Online Database, 2019)

4.1.5 Oil prices affection

During the years of independence of Kazakhstan, the oil and gas industry has grown, strengthened and occupied a leading position in the economy. In terms of the volume of commercial production, the oil and gas complex in the republic is one of the priority sectors among other industries. Theoretically, the level of oil production fully meets the needs of Kazakhstan.

Being an important part of industry, international oil production and prices can affect overall Kazakhstan's economy. Presented below oil prices graph can be compared with the upper mentioned graph with GDP per capita.

Figure 12: Annual OPEC Crude Oil Prices for the period 2000-2020, in USD



Source: compiled by author based on data from Statista Online Database (Statista Online Database, 2020)

Besides the international crisis occurred in 2008, years 2015-2016 were also difficult for Kazakh economy. Official crude oil prices fell and negatively affected the volume of Kazakhstan's GDP. Same years was national currency devaluation: in year 2014 1 USD was 182.5 Tenge, in year 2016 1 USD increased to almost 330 Tenge. Nowadays, 1 USD is equal to 425 Tenge and the Kazakh currency continuing to fluctuate. (World Currency Exchange Rates, 2020)

4.1.6 Import and Export

Over the years of independence, Kazakhstan has achieved significant results in the liberalization of the legislative framework and state support for exporters. In order for the country to pass from a regime of strict control over foreign trade to significant liberalization, several mechanisms were implied:

- the mechanism of quotas for the export of goods was cancelled;
- regular improvements are carried in order to reduce the list of licensed goods;
- duties on almost all export goods were lifted;
- 6 free economic zones were created in different sectors of the economy;

- a flexible scheme of preferences has been developed for certain strategic industries and companies;
- the system of technical, sanitary, phytosanitary and other control is being improved in order to prevent the import of low-quality goods into the Republic,
- within the framework of the Customs Union, different conditions are created for the free trade between member countries.

As for today, there is a high commodity concentration of Kazakhstan's exports. Domestic production in most cases is uncompetitive, in this regard, the major share of exports still falls on raw materials, such as oil and gas condensate, metals, grain, etc. At the same time, the relatively low diversification of trade flows in the structure of export of goods creates additional risks. On the other hand, there is a significant diversification of goods in terms of imports of goods, with the bulk of imports being investment and intermediate goods, i.e. goods practically not produced in Kazakhstan. In addition, a significant proportion of consumer goods also come from abroad.

For the past 5 years Kazakhstan's export of goods didn't exceed import, while imports of services exceeded export of the services.

Table 5: Foreign Trade Values

| Foreign Trade Values | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|--------|--------|--------|--------|--------|
| Imports of Goods (<i>mil USD</i>) | 30.186 | 25.175 | 29.266 | 32.534 | 37.757 |
| Exports of Goods (<i>mil USD</i>) | 45.726 | 36.776 | 48.304 | 60.956 | 57.309 |
| Imports of Services (<i>mil USD</i>) | 11.489 | 10.997 | 9.949 | 11.848 | 11.297 |
| Exports of Services (<i>mil USD</i>) | 5.941 | 6.255 | 6.261 | 7.07 | 7.495 |

Source: compiled by author based on the data from World Integrated Trade Solution Online Database (World Integrated Trade Solution, 2019)

Main exported products are oil, petroleum gas, metals. Main imported products are electrical equipment, machinery, medicaments, cars and motor vehicles. Below is the table with main products which were imported and exported in 2019. The total value of exported products was 57.7 billion USD, imported products – 38.4 billion USD. (World Integrated Trade Solution, 2019)

Table 6: Kazakhstan's Export and Import Insides, as of 2019

| Products exported | Share, % of total exported products | Products imported | Share, % of total imported products |
|---|--|--|--|
| Petroleum oil and oils obtained from bituminous | 58.1% | Electrical apparatus for the telephony | 2.4% |
| Petroleum gas and other gaseous hydrocarbons | 6.0% | Medicaments consisting of mixed/unmixed | 2.2% |
| Refined copper | 4.3% | Taps, cocks, valves and similar appliances | 2.1% |
| Ferro-alloys | 3.3% | Machinery, plant, laboratory equipment | 1.9% |
| Radioactive chemical elements | 2.7% | Motor cars and other motor vehicles | 1.9% |
| Copper ores and concentrates | 2.0% | Centrifuges | 1.8% |
| Wheat and meslin | 1.7% | Powered aircraft | 1.6% |
| Iron ores and concentrates | 1.2% | Air and vacuum pumps | 1.6% |
| Precious metal ores and concentrates | 1.0% | Petroleum gas and other gaseous hydrocarbons | 1.6% |

Source: table compiled by author based on the data from World Integrated Trade Solution Online Database (World Integrated Trade Solution, 2019)

Despite the fact, that Kazakhstan's main export is oil and gas products, the country imports petroleum gas and other gaseous hydrocarbons. It happens due the country's sizes: sometimes it's cheaper to import gas from Russia rather than transport it from the main oil and gas deposits' territories.

Thus, it can be seen that Kazakhstan is not yet able to achieve its goals for economic development and will depend on prices that are formed outside the country. Therefore, the well-

being of each of the Kazakhstan's citizen depends on the situation in London or New York, where the main commodity exchanges are located. In fact, this is a digital expression of the consumer model of the economy formed in Kazakhstan. All the successes are based not on the work performed, but on the extraction of minerals.

Kazakhstan's key partners e.g. main customers are: Italy, China and Russia. Majority of the products imported into the country are from: Russia, China and South Korea. Below is the table with main exporters and importers for the year 2019.

Table 7: Kazakhstan's Main Foreign trade partners, as of 2019

| Export Partners | Share of Export | Import Partners | Share of Import |
|------------------------|------------------------|------------------------|------------------------|
| Italy | 14.5% | Russia | 36.7% |
| China | 13.6% | China | 17.1% |
| Russia | 9.7% | South Korea | 8.9% |
| Netherlands | 7.6% | Italy | 4.1% |
| France | 6.3% | Germany | 3.9% |
| South Korea | 5.3% | United States | 3.5% |
| Switzerland | 4.6% | Turkey | 2.1% |
| Turkey | 4.0% | Uzbekistan | 2.0% |
| Spain | 3.8% | France | 1.8% |
| Uzbekistan | 3.4% | Belarus | 1.7% |

Source: compiled by author based on the data from World Integrated Trade Solution Online Database (World Integrated Trade Solution, 2019)

4.2 Oil Producing Industry in Kazakhstan

The oil and gas industry in Kazakhstan is traditionally considered as the leading industry that determines the main trends in the development and growth of the economy in the country and has one of the greatest impacts on the welfare of Kazakhstan's population in general. This state of affairs is explained by the presence of large reserves of oil and gas in Kazakhstan, a high level of production of these types of raw materials in the country and the corresponding volumes of exports. Thus, according to various estimates, the total oil and gas reserves in Kazakhstan are estimated at 11-12 billion tons, while from 1997 to 2019 the daily volume of oil and gas condensate production in the country increased from 0.52 million barrels (0.7% world supply) to 1.97 million barrels (1.9% of world supply). At the same time, from 1999 to 2018, the volume

of exports of Kazakhstan's oil and gas condensate increased from 47.1 million to 69.8 million tons. (Bureau of National Statistics of the Republic of Kazakhstan, 2019)

The oil and gas industry is broadly divided into three sectors:

- 1) exploration and production of hydrocarbons (upstream);
- 2) transportation of hydrocarbons by main pipelines and other transport (midstream);
- 3) processing of hydrocarbons and sale of products of their processing (downstream).

The activities of some of the largest companies include all 3 sector and such companies are called vertically integrated companies. The hydrocarbon exploration and production sector includes exploration, appraisal and trial field exploitation, field development and hydrocarbon production. Such activities include the following:

- geological and geophysical work (including those carried out directly in wells);
- drilling of oil and gas wells (including parametric, mapping, injection, etc.);
- mining of oil and gas;
- operations related to the maintenance of ground equipment, repair wells, oil and gas treatment (separation, cleaning, storage, etc.).

The transportation sector includes all operations related to service main pipelines and directly control the transportation of hydrocarbons. Transportation is also carried out by rail and sea.

4.2.1 History of the developing of oil industry in Kazakhstan

In 1899, the first oil field was obtained at the Karashungul area being developed in Kazakhstan. The countdown of the history of national oil production began with this event.

With gaining independence, in the beginning of the 90-s in the oil and gas production and processing industry of Kazakhstan was marked by a technical decline. Mainly due to the collapse of the USSR and the severing of economic ties with traditional suppliers and consumers of raw materials. 1993 is characterized by a lack of investment. By the end of 1995, the total indebtedness of consumers of oil and oil products by industry enterprises reached its peak. (Cherdabayev, 2010) The absence of practically oil and gas machine building, as well as the unsatisfactory state of the industrial infrastructure and branch science significantly complicated the solution of the problems Kazakhstan faced in terms of energy independence. The modernization of the oil industry required significant annual investments, which was only possible with the participation of large foreign investors who could acquire controlling stakes in oil producing enterprises. The main objects of the oil and gas industry were privatized in 1996, the state controlling stakes were sold to foreign investors. (Cherdabayev, 2010) The state

in the oil and gas sector of the republic was represented by only two national oil companies: KazTransGaz and KazMunaiGas. And despite certain shortcomings of the privatization process, this policy helped to prevent the collapse of the most meaningful and profitable industry for the country. The bonuses received by the state played an important role in the country's budget. And to this day, the potential resources of the oil and gas sector of Kazakhstan continue to arouse the keen interest of the world's leading oil companies. In general, the investment climate in the oil and gas industry in Kazakhstan was and remaining quite favourable and even the risks, despite some imperfections of the legislative framework of the Republic, are quite acceptable for investors, in comparison with other CIS countries.

The oil and gas regions of the republic, where 172 oil fields and 42 condensate fields are located (including more than 80 are being developed), occupy an area of about 62% of the territory of Kazakhstan. (Information Analytical Centre of Oil and Gas, 2018) The main oil reserves in Kazakhstan (over 90%) are concentrated in 15 largest fields - Tengiz, Kashagan, Karachaganak, Uzen, Zhetybai, Zhanazhol, Kalamkas, Kenkiyak, Karazhanbas, Kumkol, Buzachi Severnye, Alibekmola, Prorva Central and Vostochnaya, Kenbai, half - in the two giant oil fields Kashagan and Tengiz. (Anderson K., 2018) The deposits are located on the territory of six out of fourteen regions of Kazakhstan. These are: Aktobe, Atyrau, West Kazakhstan, Karaganda, Kyzylorda and Mangistau regions. At the same time, approximately 70% of hydrocarbon reserves are concentrated in the west of Kazakhstan. The most explored oil reserves are in the Atyrau region, on the territory of which more than 75 fields have been discovered with industrial grade reserves of 930 million tons. The largest field in the region is Tengiz with initial recoverable reserves - 781.1 million tons. The share of the remaining deposits of the region is about 150 million tons. More than half of these reserves are accounted for by two deposits – Korolevskoye which accounted for more than 55.1 million tons and Kenbai with a value of 30.9 million tons. More than 70 fields have been discovered on the territory of the Mangistau region with recoverable reserves of industrial grade oil of 725 million tons, condensate - 5.6 million tons. Less than half of the fields are in operation. (Information Analytical Centre of Oil and Gas, 2018) Most of them are in the later stages of development. The overwhelming majority of the remaining reserves are classified as hard-to-recover. The largest deposits are Uzen, Zhetybai, Kalamkas, Karazhanbas. Over 15 hydrocarbon deposits are located in the West Kazakhstan region. The undisputed leader among them is the Karachaganak oil and gas condensate field with recoverable reserves of liquid hydrocarbon raw materials of about 320 million tons and gas over 450 billion cubic meters. In September 2005, it was announced that hydrocarbons were discovered in the Fedorovsky block adjacent to Karachaganak; oil and gas

condensate reserves are estimated at 200 million tons. (Cherdabayev, 2010) Another promising region in terms of oil and gas potential is the Aktobe region. About 25 deposits have been discovered here. The most significant geological cover in this region is the Zhanazhol group of fields with recoverable oil and condensate reserves of about 170 million tons. In 2005, CNPC-Aktobemunaigas announced the discovery of a new Umit field in the central block of the eastern part of the Caspian basin. (Chervinsky, 2017) The basis of the oil-extracting industry of the Kyzylorda and Karaganda regions is the Kumkol group of fields - the fifth most important oil and gas province in Kazakhstan. In the summer of 2005, the PetroKazakhstan company operating in this region announced the discovery of commercial oil reserves in the Kolzhan license area, which is adjacent to the northern border of the Kyzylkiya field. (Chervinsky, 2017) A further increase in the resource potential of the oil and gas industry of Kazakhstan will be facilitated by the large-scale study of subsoil areas in the Caspian and Aral Seas conducted by the republic. The discovery in 2000 of the Kashagan field in the north of the Caspian Sea with projected recoverable reserves of 2.02 billion tons has already been called the most significant event in world practice over the past 30 years. (Chervinsky, 2017) Prospects for prospecting for oil and gas are also associated with unexplored deeply submerged structures in the Caspian Basin, the Aral Sea region, as well as with the objects identified and the result of regional seismic works in North, Central and South Kazakhstan. In the oil and gas sector, work is underway to further develop the country's oil and gas complex, to predict and identify new promising oil and gas fields, accelerate their exploration, development and commissioning. In general, the dynamics of developing of oil industry can be relatively connected to the GDP growth in Kazakhstan and can be divided into three separate periods:

- from 1990 to 1999 and characterised as almost zero growth;
- the period from 2000 to 2014, when the positive dynamics of oil prices, investment inflow and growth production contributed to the annual increase in Kazakhstan's GDP by an average of 7-8% (except for the period the world crisis in 2007-2009);
- the period 2015–2017, characterized by a steady and sharp drop in oil prices, a decrease in production and investment in the sector. (Chervinsky, 2017)

4.2.2 Current state of oil industry in Kazakhstan

First and foremost, it should be noted that from 2000 to 2004, despite rather low oil prices, the inflow of foreign investment in the oil and gas industry ensured a rapid increase in oil

production in the country and an increase in export supplies. (Cherdabayev, 2010) Over those 4 years, gross direct investment in the sector increased by almost 2 times which boosted the oil industry in the country. The inflow of foreign investments in subsequent years increased geological exploration and the growth oil production, which helped to the Kazakhstan’s economy to stabilize. In general, during the entire period of independence of Kazakhstan the main catalyst for strong economic growth was the oil and gas sector. Growth factors sectors were price, direct investment and oil production growth. Other sectors of the economy have failed to ensure such a strong and sustainable GDP growth. The rapid development of the country's oil and gas industry over the past decade has led to a significant dependence of the economy on oil exports and the volatility of the price of the “black gold”. The share of the oil sector in GDP reached 25.9% in 2012. (Chervinsky, 2017)

The indicators of the oil industry of the Republic of Kazakhstan in percentage ratio varies from 17.3 to 25.9%, and the rest accounts for the non-oil industries in the share of gross value added of sectors in GDP for the period 2010–2017. When for example, the share of direct investment in the oil and gas industry has accounted for just over half of the gross inflow of foreign investment in the country, falling from a record levels in earlier periods. (Bureau of National Statistics of the Republic of Kazakhstan, 2019)

Table 8: GDP share by oil and non-oil sectors, year 2019

| Industry | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Oil industry | 25.3% | 25.2% | 25.9% | 21.2% | 19.9% | 17.3% | 18.2% | 18.6% |
| Upstream | 16.5% | 14.9% | 14.4% | 12.8% | 12.7% | 10.3% | 10.4% | 11.1% |
| Midstream | 2.2% | 1.9% | 2.3% | 2% | 1.5% | 1.6% | 2.2% | 1.8% |
| Downstream | 6.6% | 8.4% | 9.2% | 6.4% | 5.7% | 5.6% | 5.6% | 5.7% |
| Other industries | 71.5% | 65.9% | 66.1% | 70.2% | 72.5% | 77.6% | 76.2% | 76% |
| Primary sector | 24% | 22.7% | 21.3% | 19.7% | 19.6% | 17.4% | 17.4% | 18% |
| Non-raw materials sector | 72% | 68.4% | 70.7% | 71.7% | 72.8% | 77.5% | 77% | 76% |

Source: compiled by author based on data from Bureau of National Statistics of the Republic of Kazakhstan Online Database (Bureau of National Statistics of the Republic of Kazakhstan, 2019)

In the past few years, on average, the share of direct investment in the oil industry has accounted for just over half of the gross inflow of foreign investment in the country, falling from a record levels in earlier periods. In connection with joining the Customs Union and the Eurasian Economic Union (EAEU), Kazakhstan has ratified a number of agreements on trade and economic cooperation in the oil and gas sector.

Table below includes value presented of share of GDP within oil and other industries in Kazakhstan. Only oil industry's share in Kazakhstan's GDP is accumulated around 20%. This allows to conclude that oil industry is an important sector of Kazakhstan's economy, which adds significant value to its GDP. So in year 2017 only oil industry itself contributed to Kazakhstan's GDP around 23.3 million USD and accounted for almost 19% of overall GDP value. However, the dynamics of oil industry contributing in GDP is decreasing: when in year 2010 it accumulated for over 25%, in year 2017 the share was 18.6%. (Bureau of National Statistics of the Republic of Kazakhstan, 2019) Strengthening of the environmental requirements will push the integration of the oil and gas industry, energy and construction in the development of individual thermal power plants. Predictions for the future states, that production of crude oil will account for a decreasing share of Kazakhstan's GDP. The cost of oil production will increase. In order to maintain their presence in the market, companies will have to go into the oil and gas processing industry. Petroleum products will gradually lose their positions as fuel, as well as energy carriers - due to the development of alternative energy and electricity. Simultaneously with the reduction of the impact of oil, the importance of natural gas will increase. In addition to using gas as a fuel and energy carriers, the product line of products obtained by processing natural gas will expand and the depth of its processing will increase.

Table 9: GDP value and share by oil and non-oil sectors, year 2019

| Industry | Indicator | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|-----------------|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Oil | Value, mil USD | 12.9 | 16.9 | 18.9 | 17.8 | 18.7 | 16.8 | 20 | 23.3 |
| Industry | % share of GDP | 25.3% | 25.2% | 25.9% | 21.2% | 19.9% | 17.3% | 18.2% | 18.6% |
| Other | Value, mil USD | 36.8 | 43.8 | 48.4 | 59.8 | 67.8 | 74.7 | 84.6 | 94.5 |
| Industries | % share of GDP | 71.5% | 65.9% | 66.1% | 70.2% | 72.5% | 77.6% | 76.2% | 76% |

Source: compiled by author based on data from Bureau of National Statistics of the Republic of Kazakhstan Online Database (Bureau of National Statistics of the Republic of Kazakhstan, 2019)

4.2.3 Key Players of Oil Industry in Kazakhstan

There is a high concentration of producer forces in the oil market. Three largest companies provide 62% of the total oil production in Kazakhstan. A third of the hydrocarbon market is occupied by **Tengizchevroil LLP**, followed by **KazMunayGas EP JSC**, which occupies about 18.10%. In third place in terms of production is **Karachaganak Petroleum Operating B.V. (KPO)** with a market share of 14.20%. (Ministry of Energy of the Republic of Kazakhstan, 2020) All companies operate on the territory of Atyrau oblast. Indeed this region of Kazakhstan, located in the west part of the Republic has most fields with the oil deposits and considered as the most explored oil reserves territory in Kazakhstan. There are more than 75 fields have been discovered with industrial grade reserves of 930 million tons. The largest field in the region is Tengiz (initial recoverable reserves - 781.1 million tons.) (Ministry of Energy of the Republic of Kazakhstan, 2020)

KazMunaiGaz

KazMunaiGaz is represented in 2 forms. Firstly, National Company KazMunayGas (NC KMG) is the Kazakh national operator for exploration, production, processing and transportation of hydrocarbons, representing the interests of the state in the oil and gas industry of Kazakhstan. NC KMG holds approximately 63% of the outstanding ordinary shares of KMG EP. 100% of shares of JSC NC KazMunayGas belong to JSC National Welfare Fund Samruk-Kazyna. (Ministry of Energy of the Republic of Kazakhstan, 2020) Secondly, KazMunayGas Exploration Production (KMG EP), which is a subsidiary of the National Company KazMunayGas. KMG EP is one of the three leaders in terms of oil production in Kazakhstan. The volume of production of the Company, taking into account the shares in the companies "Kazgermunai" and CCEL ("Karazhanbasmunai") and in the past year accounted for up to 11.5 million tons (232 thousand barrels per day). (Ministry of Energy of the Republic of Kazakhstan, 2020) KMG EP's proved and probable reserves at the end of 2019 were 234 million tonnes (1.7 billion barrels); and taking into account the shares in affiliated companies, about 2.2 billion barrels. The Company's common and preferred shares were listed on the Kazakhstan Stock Exchange, and global depository receipts - on the London Stock Exchange. (Ministry of Energy of the Republic of Kazakhstan, 2020) KMG EP is developing 44 onshore fields in western Kazakhstan. The key production assets of the company are its two production branches: Uzenmunaigas and Embamunaigas, with a total production of 181 thousand barrels of oil per day in 2019. The Uzen field is the largest in the portfolio of KMG EP's main assets, accounting

for 75% of all reserves and 70% of the total volume of production. (Ministry of Energy of the Republic of Kazakhstan, 2020) The main competitive advantage of the Company is guaranteed economic and political support from the state represented by the Government of the Republic of Kazakhstan. Under these conditions, the state's legal norms allow KMG EP to have more rights in the acquisition of alienated territories of oil and gas regions. This provision enables KMG EP to implement the company's development strategy to increase its assets' portfolio by acquiring deposits. Having secured access to oil trunk routes is an important aspect of KMG EP's competitive advantage. The company has entered into a number of agreements, the terms of which guarantee KMG EP direct access to the Uzen-Atyrau-Samara pipeline, through which most of the exports to the near and far abroad and the Caspian Pipeline Consortium (CPC) oil pipeline are carried out.

Tengizchevroil

Tengizchevroil LLP (TCO) was established in 1993 based on an agreement between Republic of Kazakhstan and US largest integrated energy company - Chevron.

Currently, the owners of TCO are:

- Chevron - 50%,
- NC KazMunayGas JSC - 20%,
- ExxonMobil Kazakhstan Ventures Inc. - 25%,
- LukArco - 5%. (Ministry of Energy of the Republic of Kazakhstan, 2020)

TCO direct payments to Kazakhstan between the period since the creation of the company, from 1993 till 2020, accounted up to 151 billion US dollars. (Tengizchevroil Official Website, 2020)

One of the key advantages of TCO is its technological equipment. TCO is working to expand production as part of the Future Growth Project 6 using sour gas re-injection technology, which helps maintain the required reservoir pressure and will result in higher oil recovery. This technology is more environmentally friendly and allows to extend the life of the field. For the past 3rd quarter of the year 2020, Tengizchevroil produced around 20.16 million tonnes of crude oil. (Tengizchevroil Official Website, 2020)

Karachaganak Petroleum Operating B.V.

Karachaganak Petroleum Operating B.V. (KPO) was founded in 1997 with the participation of foreign companies such as:

- Eni SPa – 29.25%,
- Shell – 29.25%,

- Chevron Corporation – 18,
- Lukoil – 13.5%,
- KazMunaiGaz – 10%. (Karachaganak Official Website, 2020)

“Eni” and “Shell” (through 100% affiliated company BG Karachaganak Limited) are joint operators of the Karachaganak field, and both companies have equal participation interests - 29.25% each. “Chevron” and “LUKOIL” own 18% and 13.5%, respectively. On July 1, 2012, the national company KazMunayGas became a part of the joint venture, whose share in the project is 10%. (Karachaganak Official Website, 2020)

The total volume of investments made by KPO in the development of the project for the development of the Karachaganak field has so far amounted to USD 14 billion. Oil production and refining is carried out at the Karachaganak field at three technological units. The production principle allows the company to respond flexibly to changes in the market conditions for the export of oil and gas. KPO's technological equipment is an important aspect of the Company's advantage over its competitors. In addition, the Company has experience in drilling deep and technologically complex multilateral wells in Kazakhstan.

Karachaganak Petroleum Operating B.V. implemented a new fiber-optic technology, which is capable of responding to ground vibrations around export pipelines and transmitting information to the company's operator service and significantly reducing the likelihood of illegal tapping. Western Europe is the main export destination for KPO oil. Oil is exported via the pipelines to the port of Yuzhnaya Ozereevka and via the Uzen - Atyrau - Samara oil pipeline to the port of Primorsk for further sale in other European directions. (Karachaganak Official Website, 2020)

AktobeMunaiGaz

Another company of the oil and gas industry of the Republic of Kazakhstan is CNPC-Aktobemunaigas, which is consistently among the top-five leading oil and gas operators in Kazakhstan. The company operates in oil and gas fields geographically located within the administrative boundaries of the Aktobe region. These licensed areas are:

- Zhanazhol oil and gas condensate field;
- oil and gas field Kenkiyak-subsalt;
- Kenkiyak-post-salt oil field;
- the central territory of the Eastern part of the Caspian depression (exploration block with an area of 3,262 sq. Km).

Over the last 23 years, since the creation of the company in 1997, AktobeMunaiGaz has produced in cumulative terms over 105 million tons of oil with the total investments, which are exceeded 14.4 billion USD. (CNPC AktobeMunaiGaz Official Website, 2020)

Like other oil and gas companies in Kazakhstan, CNPC-Aktobemunaigas faced market problems associated with a significant drop in market oil prices and the forced optimization of capital investment programs. Faced with the forced decline in the volume of drilling and field org-technical activities, the team discovered the hidden potential of the fields and more clearly outlined the concept of effective production management. Thus, convincing results were achieved in field development programs and organization of production operation, increasing the productivity and operation of the old well stock, increasing the intensity of water injection into the reservoir and controlling the natural production decline rate at the fields. Therefore, taking into account the dynamics of development of companies in the oil industry, it can be concluded that the competitive environment will intensify. In the current conditions, competitive advantages will determine the willingness of companies to implement investment projects and develop oil and gas fields. In addition, technical equipment and human resource potential can become a key aspect of the development of companies in the Republic of Kazakhstan in order to outstand the market difficulties and changes.

4.3 Key trade partners of Kazakhstan's crude oil

Oil is the main product of Kazakhstan's exports terms. It should be noted that 70% of the total volume of oil produced in Kazakhstan, oil production is carried out by foreign investors (European countries, the USA and Russia), represented by a number of transnational companies, including mentioned above: ExxonMobil, Chevron, Agip, Shell, LUKoil, Eni, etc. It could be stated, that thanks to oil the total Kazakhstan's export has grown over the years of independence. A \$ 1.4 billion increase in sales helped offset the decline in copper, gas, uranium, wheat and other commodities. European countries remain the main buyer of Kazakhstani oil: in 2019 exports of oil to Italy achieved almost 1 million USD and to France more than a half million USD. Kazakhstan, basically, sells its oil almost to the whole world, accounting 25 countries. Below is the map of Republic's oil buyers which include European countries, USA and partially some Asian countries.

Figure 13: Map of Kazakhstan's oil buyers, year 2019



Source: compiled by author based on the data from Documentation of Ministry of Energy of the Republic of Kazakhstan (Ministry of Energy of the Republic of Kazakhstan, 2020)

Despite the vary range of Kazakhstan's oil buyers, European countries remain as the key consumers of county's oil. Top 4 buyers are: Italy, which is accounted for more than 29% of total oil being sold; then France with almost 16%; Switzerland – 10.2% and Netherlands with 7%. For the past several years, Italy has been a leading importer of oil and for several years, exports to Italy have exceeded imports, representing mostly crude oil export to the country. Main buyers outside the European Union are Korea with value exceeded 200 thousand USD, Malaysia with revenue more than 140 thousand USD, China – 118 thousand USD and Turkey with more than 90 thousand USD.

Table 10: Main buyers of Kazakhstan’s oil, as of 2019

| No. | Country | Amount, thousand USD | Share, % |
|-----|-------------|----------------------|----------|
| 1 | Italy | 981,870.1 | 29.4% |
| 2 | France | 527,622.1 | 15.8% |
| 3 | Switzerland | 340,309.4 | 10.2% |
| 4 | Netherlands | 237,741.6 | 7.1% |
| 5 | Korea | 227,928.3 | 6.8% |
| 6 | Spain | 191,291.2 | 5.7% |
| 7 | Malaysia | 142,079.2 | 4.3% |
| 8 | China | 118,364.1 | 3.5% |
| 9 | Greece | 92,443.6 | 2.8% |
| 10 | Turkey | 90,702.6 | 2.7% |

Source: compiled by author based on the data from Online Database of Bureau of National Statistics of the Republic of Kazakhstan (Bureau of National Statistics of the Republic of Kazakhstan, 2019)

Oil shipment for export is carried out mainly by pipeline transport. Over 70% of all Kazakhstan’s oil exports are transported by the Caspian Pipeline Consortium (CPC), through which raw materials from the fields of Western Kazakhstan are delivered to the Black Sea port of Novorossiysk (Russia), where they are poured into tankers. (Kaztransoil, 2019) According to the Kaztransoil 2019 Yearly Report, the volume of oil shipped through this pipeline (with a throughput of up to 67 million tons of oil per year) in 2018 amounted to 61.1 million (including 54.3 million of Kazakhstan’s oil). The largest volumes of oil came from the Tengiz, Karachaganak, Kashagan fields - 28.7 million, 10.3 million and 13.2 million tons of oil, respectively. (Kaztransoil, 2019)

Another 25% of Kazakhstan’s oil exports go through the territory of the Russian Federation via another road – Atyrau - Samara and Uzen – Atyrau - Samara oil pipelines, transported by rail. (Kaztransoil, 2019) The Uzen – Atyrau - Samara pipeline (design capacity 17.5 million tons) was commissioned back in 1970. Heavy, low-quality oil produced in the Mangystau region is transported through it to Russia, where it is mixed with higher quality Russian oil and is exported to Europe through the Transneft pipeline system. The volume of transportation via this pipeline in 2018 amounted to 14.8 million tons. (Kaztransoil, 2019)

Another road, the Atasu - Alashankou highway is intended for the transportation of oil from the West Kazakhstan, Aktobe and Kumkol fields, as well as transit Russian oil to China and other

Asian countries. For the full loading of this pipe, the produced oil is not enough yet, and hopes for its filling are associated with Russian oil. The volume of oil transshipment to the Atasu - Alashankou oil pipeline last year amounted to 11.4 million tons, including the transit of Russian oil. These three routes can provide export of up to 90-100 million tons of Kazakh oil per year. (Kaztransoil, 2019)

Exported oil is also shipped through the seaport of Aktau. Its throughput capacity is 10 million tons. However, in 2018 the volume of exports amounted to 2 million tons of oil against 9 million in 2008 and 5.5 million in 2014. (Kaztransoil, 2019) The main sea transporter is Kazmortransflot LLP (KMTF), established in 1998. The fleet has 8 tankers with a total tonnage of 305 thousand tons. (KazMorTransFlot Official Website , 2020)

4.4 Evaluation of the importance of the oil industry in the Republic

4.4.1 Econometric analysis

For identifying the affection and importance of the oil industry role in Kazakhstan's economic, was performed an econometric model. GDP was identified as the main endogenous variable and other indicators such as: total investments inflow, export, import, inflation rate, OPEC crude oil prices, international copper prices, oil production, direct foreign investments within oil and metal industries – were identified as exogenous variables. International oil and copper prices were implemented in order to identify by which industry the Kazakhstan's GDP is driven mostly. Because beside the oil industry, metal industry is considered as another source of profit for country's economy.

In order to build the econometric model, the follow table with data within period 2000-2019 was taken, the table divided into 2 parts due the amount of the exogenous variables. So to generalise:

Y1t – endogenous variable – Kazakhstan's GDP per capita (in USD);

X1t – exogenous variable – Kazakhstan's Export (in million USD);

X2t – exogenous variable – Kazakhstan's Import (in million USD);

X3t – exogenous variable – OPEC Oil Prices (in USD per barrel);

X4t – exogenous variable – Foreign Direct Investments Inflow to Kazakhstan's Oil Industry (in million USD);

X5t – exogenous variable – London Metal Exchange (LME) Copper Prices (in USD per pound);

X6t – exogenous variable – Foreign Direct Investments Inflow to Kazakhstan’s Metal Industry (in million USD).

Table 11: Econometric model’s data observations (2000-2019)

| Year | GDP | Exp | Imp | Oil Prices | FDI oil | Copper Prices | FDI metal |
|------|----------|-----------|-----------|------------|---------|---------------|-----------|
| 2000 | 1229 | 8 812,20 | 5 040,00 | 28,5 | 591,7 | 0,89 | 80,7 |
| 2001 | 1490,9 | 8 639,10 | 6 446,00 | 24,44 | 612,3 | 0,73 | 94,4 |
| 2002 | 1658,03 | 9 670,30 | 6 584,00 | 25,02 | 698,3 | 0,95 | 96,7 |
| 2003 | 2068,12 | 12 926,70 | 8 408,70 | 28,83 | 977,5 | 1,41 | 104,3 |
| 2004 | 2874,28 | 20 096,20 | 12 781,30 | 38,27 | 1298,2 | 2,08 | 115,9 |
| 2005 | 3771,27 | 27 849,00 | 17 352,20 | 54,52 | 1615,5 | 3,15 | 130,9 |
| 2006 | 5291,57 | 38 250,30 | 23 676,90 | 65,14 | 3153,8 | 3,09 | 400,9 |
| 2007 | 6771,41 | 47 755,30 | 32 756,40 | 72,39 | 5558,7 | 2,91 | 384 |
| 2008 | 8513,56 | 71183,5 | 37889 | 94,01 | 3129,4 | 2,16 | 347,2 |
| 2009 | 7165,22 | 43195,7 | 28408 | 60,86 | 4483,6 | 3,77 | 659,3 |
| 2010 | 9070,48 | 60270,8 | 31126,7 | 77,38 | 4739,8 | 3,47 | 875,7 |
| 2011 | 11634 | 84335,9 | 36905,8 | 107,56 | 3534,3 | 3,4 | 1442,7 |
| 2012 | 12386,7 | 86448,8 | 46358,4 | 109,45 | 5440 | 3,19 | 633,6 |
| 2013 | 13890,63 | 84700,4 | 48805,6 | 105,87 | 5715,4 | 2,86 | 1044,4 |
| 2014 | 12807,26 | 79459,8 | 41295,5 | 96,29 | 7302,2 | 2,09 | 580,4 |
| 2015 | 10410,77 | 45955,8 | 30567,7 | 49,49 | 2709,3 | 2,2 | 372,1 |
| 2016 | 7714,84 | 36736,9 | 25376,7 | 40,76 | 5740,1 | 2,9 | 882,8 |
| 2017 | 9247,5 | 48503,3 | 29599,6 | 52,51 | 9614,3 | 2,69 | 347,3 |
| 2018 | 9812,6 | 61111,2 | 33658,5 | 69,78 | 12082,4 | 2,65 | 814,1 |
| 2019 | 9812,3 | 52390,1 | 34290,4 | 64,05 | 12971,3 | 2,53 | 1265,8 |

Source: compiled by author based on data from several resources: Online Database of Bureau of National Statistics of the Republic of Kazakhstan (Bureau of National Statistics of the Republic of Kazakhstan, 2019); Statista Online Database (Statista Online Database, 2019); Trading Economics Online Database (Trading Economics Online Database, 2019)

Figure 14: Correlation Matrix

Correlation Coefficients, using the observations 2000 - 2019
 5% critical value (two-tailed) = 0.4438 for n = 20

| | | | | |
|--------------|--------|--------|-----------|--------|
| | Exp | Imp | OilPrices | FDIoil |
| | 1.0000 | 0.9692 | 0.9669 | 0.5340 |
| | | 1.0000 | 0.9173 | 0.6161 |
| | | | 1.0000 | 0.3941 |
| | | | | 1.0000 |
| CopperPrices | 0.6251 | 0.7166 | 0.6451 | 0.6177 |
| | 0.6635 | 0.6982 | 0.6129 | 0.6129 |
| | 0.6279 | 0.6451 | 0.6177 | 0.6177 |
| | 0.4114 | 0.6177 | 0.6177 | 0.6177 |
| | 1.0000 | 1.0000 | 1.0000 | 1.0000 |

Source: compiled by author based via Gretl system

Firstly, the correlation matrix was performed. The result showed that Import variable highly correlates with Export variable. The correlation coefficient is up to 0.9, therefore the import variable was excluded from the model.

Figure 15: Correlation Matrix with excluded Import variable

Correlation Coefficients, using the observations 2000 - 2019
 5% critical value (two-tailed) = 0.4438 for n = 20

| | | | | |
|----------|--------|-----------|--------|--------------|
| | Exp | OilPrices | FDIoil | CopperPrices |
| | 1.0000 | 0.9669 | 0.5340 | 0.6251 |
| | | 1.0000 | 0.3941 | 0.6279 |
| | | | 1.0000 | 0.4114 |
| | | | | 1.0000 |
| FDImetal | 0.7166 | 0.6451 | 0.6177 | 0.6129 |
| | 0.6451 | 0.6177 | 0.6129 | 0.6129 |
| | 0.6177 | 0.6177 | 0.6177 | 0.6177 |
| | 0.6129 | 0.6177 | 0.6177 | 0.6177 |
| | 1.0000 | 1.0000 | 1.0000 | 1.0000 |

Source: compiled by author via Gretl system

In the follow correlation matrix, Export variable is still highly correlated with Oil Prices variable. Such correlation can negatively affect the final econometric model and result interpretation.

Figure 16: Correlation Matrix with difference added to Export variable

Correlation Coefficients, using the observations 2001 - 2019
 5% critical value (two-tailed) = 0.4555 for n = 19

| | | | |
|----------|-----------|---------|--------------|
| d_Exp | OilPrices | FDIoil | CopperPrices |
| 1.0000 | 0.2933 | -0.0129 | 0.0602 |
| | 1.0000 | 0.3451 | 0.5830 |
| | | 1.0000 | 0.3457 |
| | | | 1.0000 |
| FDImetal | | | |
| 0.0393 | | | |
| 0.6166 | | | |
| 0.5901 | | | |
| 0.5750 | | | |
| 1.0000 | | | |

Source: compiled by author via Gretl system

In the follow correlation matrix there's no correlation between variables. All correlation coefficients don't exceed 0.8.

Figure 17: Gretl's results

Model 1: OLS, using observations 2001-2019 (T = 19)
 Dependent variable: GDP

| | coefficient | std. error | t-ratio | p-value | |
|--------------------|-------------|--------------------|----------|----------|-----|
| const | -567.092 | 1175.47 | -0.4824 | 0.6375 | |
| d_Exp | -0.0751271 | 0.0241297 | -3.113 | 0.0082 | *** |
| OilPrices | 111.112 | 17.6430 | 6.298 | 2.75e-05 | *** |
| FDIoil | 0.303221 | 0.116043 | 2.613 | 0.0215 | ** |
| CopperPrices | -381.281 | 534.989 | -0.7127 | 0.4886 | |
| FDImetal | 1.29514 | 1.28475 | 1.008 | 0.3318 | |
| Mean dependent var | 7704.813 | S.D. dependent var | 3912.267 | | |
| Sum squared resid | 26731644 | S.E. of regression | 1433.974 | | |
| R-squared | 0.902972 | Adjusted R-squared | 0.865654 | | |
| F(5, 13) | 24.19644 | P-value(F) | 3.69e-06 | | |
| Log-likelihood | -161.4506 | Akaike criterion | 334.9011 | | |
| Schwarz criterion | 340.5678 | Hannan-Quinn | 335.8602 | | |
| rho | 0.319655 | Durbin-Watson | 1.288354 | | |

Excluding the constant, p-value was highest for variable 6 (CopperPrices)

Source: compiled by author via Gretl system

The econometric model was performed with the help of the Gretl system and the final result is:

$$y_{1t} = -567.092 - 0.075x_{1t} + 111.112x_{3t} + 0.303x_{4t} - 381.281x_{5t} + 1.295x_{6t} + u_{1t}$$

(2)

Results interpretation:

Model's p-value is $3.69e-05$ in comparison with level of significance 95% resulting that the model is statistically significant: $3.69e-05 < 0.05 \Rightarrow$ model is statistically significant.

Adjusted R-squared is 0.90 therefore the model is described by 90%.

Statistical verification of parameters:

Table 12: Parameter's interpretation

| Parameter | Coefficient | p-value | | Statistical significance | |
|-----------|-------------|------------|-----|--------------------------|---------------|
| x1t | -0.075 | 0.0082 | *** | $p < 0.05$ | Significant |
| x3t | 111.112 | $2.75e-05$ | *** | $p < 0.05$ | Significant |
| x4t | 0.303 | 0.0215 | ** | $p < 0.05$ | Significant |
| x5t | -381.281 | 0.4886 | | $p > 0.05$ | Insignificant |
| x6t | 1.295 | 0.3318 | | $p > 0.05$ | Insignificant |

Source: compiled by author based on Gretl's results

Significant parameters are related to coefficients: Export, OPEC oil prices and Foreign Direct investments inflow to oil industry. The most important coefficient and variable within this diploma thesis is OPEC Oil Prices. Performed econometric model shows that this variable is affected the most and the follow could be stated: if the oil prices decrease by 1 unit, the Kazakhstan's GDP will increase by 111.112 units. Therefore, also could be stated that international oil prices and oil trade are main components of Kazakhstan's economy. With regard of other significant coefficients such as Export and FDI oil the follow affection could be stated: if the export increases by 1 unit, the Kazakhstan's GDP will decrease by 0.075 units; if FDI oil will increase by 1 unit, the Kazakhstan's GDP will increase by 0.303 units.

Econometric model verification:

Table 13: Autocorrelation Test

| Test of autocorrelation |
|--|
| Breusch-Godfrey test for first-order autocorrelation |
| OLS, using observations 2000-2019 (T = 20) |
| Test statistic: LMF = 1.62689, |
| with p-value = $P(F(1,12) > 1.62689) = 0.226$ |
| No autocorrelation (P-value>0.05) |

Source: compiled by author based on the Gretl's results

In regression analysis, autocorrelation of regression residuals can occur if the model does not fit well with the data. Usually, autocorrelation of residuals signals that some factors are not

taken into account in the model (for example, the model needs to take into account lagged variables), which, in turn, indicates the problem of missing variables. Also, the autocorrelation of residuals may indicate that the researcher is faced with non-stationary time series, which, according to all the canons of econometrics, must be preliminarily brought to a stationary form by taking differences (we again come to the conclusion that all these problems, again, are reduced to the researcher's errors). There's no autocorrelation in this model, therefore the presence of the mentioned errors is missing

Table 14: Heteroskedasticity Test

| |
|---|
| <p><u>Test of heteroskedasticity</u></p> <p>White's test for heteroskedasticity</p> <p>OLS, using observations 2000-2019 (T = 20)</p> <p>Test statistic: $TR^2 = 15.3789$,</p> <p>with p-value = $P(\text{Chi-square}(10) > 15.3789) = 0.118$</p> <p style="text-align: right;">No heteroskedasticity (P-value>0.05)</p> |
|---|

Source: compiled by author based on the Gretl's results

The existence of heteroscedasticity is a serious problem in regression analysis and analysis of variance because it invalidates statistical significance tests that assume that all modeling errors have the same variance. P-value showed that there is no heteroscedasticity in this model.

Table 15: Normality Test

| |
|--|
| <p><u>Test of normality</u></p> <p>Frequency distribution for uhat1, obs 1-20</p> <p>Test for null hypothesis of normal distribution:</p> <p>Chi-square (2) = 1.7416 with p-value 0.418</p> <p style="text-align: right;">Parameters are normally distributed (P-value>0.05)</p> |
|--|

Source: compiled by author based on the Gretl's results

In this case, normality of the residuals is an assumption of running a linear model. Since the p-value showed that parameters in this model are normally distributed, meaning that the residuals are normal, we can state that assumption is valid and model inference should also be valid.

4.4.2 Future driven by Global “Green” Economy

Given the importance of oil to the country’s economy, there is an obvious link between the global fossil fuel markets and the state of a country's budget. After the fall in oil prices in 2015, Kazakhstan applied an adaptive fiscal policy to support economic activity, involving broader financing of expenditures and multi-year expenditure obligations from government revenues from oil production. In the last decade, the state has experienced a non-oil budget deficit equal to about 8% of GDP. But in 2015 and 2016, it was 12% and 10%, respectively, as a result of Kazakhstan's adoption of a number of economic support measures. (KazMunaiGaz, 2017)

Given the potential for shifts in global fossil fuel markets, it is important that Kazakhstan has a plan for a wide range of consequences for the domestic economy. And that opportunity will continue for the next ten years before public finances are likely to feel the huge impact of the transition to a “green” economy in the world. Due to the fact, that Kazakhstan’s overall economy is dependent on oil production and export. It’s important for the country to plan and begin orderly change in domestic policy, rather than adjusting it in the wake of a shock.

For Kazakhstan, as an exporter, conditions in the international oil and gas markets directly affect its budget. These markets will be significantly influenced by the global transition to a “green: economy in accordance with the Paris Agreement and the Sustainable Development Goals. In the medium to long term, this is likely to cause downward pressure on global oil prices, which can have a significant impact on the budget of Kazakhstan, which can hit Kazakhstan’s economy within the follow directions:

- **Government revenues.** A decline in world prices for oil may lead to a reduction in production in monetary terms in the oil sector. No production response (i.e. increased oil production) or fiscal policy (i.e. increasing the tax rate), government revenues will decline. And if fossil fuel prices fall significantly, fossil fuel assets could be depreciated and mining is no longer profitable.
- **Government spending.** Fiscal rules in relation to the National Fund are aimed at ensuring sustainable financial and public policy. In the long term, the decline in income will necessitate the search for alternative sources of financing and further structural changes. Without these changes, falling prices will force the government to support the sector, for example, by protecting jobs or supporting a strategic level of domestic production.
- **State debt and Assets.** Assuming that the government will not change its fiscal policy in order to cope with the consequences of the global transition to a “green” global

economy, the income shortfall and changing spending needs will be financed by raising funds and reducing assets. For example, a significant decline in oil and gas revenues could increase the cost of borrowing and limit the government's ability to respond to subsequent shocks by borrowing.

Experience shows that many countries that have lost their investment grade ratings over the past 20 years have been commodity exporters that have experienced price spikes, stating the dependency between commodity prices on world markets and fiscal indicators to be significant. (Nita, 2019) The lower the susceptibility to surges in prices for raw materials in world markets and the less the instability of the channels for the receipt of state revenues from mining, the more stable the state revenues are considered. And this subjective idea is broadcast in strengthening the position in the ranking in all sectors. Higher ranks mean more predictable and stable revenue streams. That's why it's vital for Kazakhstan to take into the consideration the global transitioning in order to be able to correspond to the external changes and keep the country's economy stable in the future.

5. Results and discussion

Is oil industry crucial to Kazakhstan's economy?

The economic state and development of the Republic of Kazakhstan is largely determined by the development of the industry that dominates the economic structure of the country - the oil industry. Oil for Kazakhstan is not only an export product. This is the most important foundation of stability, which is associated with the economic prospects for the development of the state and society as a whole. The oil industry currently occupies a leading position in the system of the national economy of Kazakhstan. The oil industry of the country has its own internal structure, which includes the following constituent elements: production, transportation, oil processing, which are categorized into the above mentioned categories: upstream, midstream, downstream.

An increase in oil production ensures an increase in tax revenues to the country's budget, it is oil production that makes the greatest contribution to the budget revenues and, therefore, guarantees financial support to other sectors of the economy and social sphere, and also contributes to improving quality standards and raising the standard of living of the population. Oil industry was and remains for many years as the main and rapidly developing sector of the Kazakhstan's economy, which provides a significant part of GDP, budget revenues and foreign exchange earnings of the country.

Performed regression analysis confirmed that Kazakhstan's GDP is affected by OPEC oil prices so the fluctuations in oil prices affect country's economy: for the period 2014-2015, when OPEC oil prices dropped significantly, Kazakhstan faced difficult times – the national currency devaluated rapidly and economic situation was more or less fixed once the oil prices were stabilized. Such affection makes Kazakhstan to be very dependent, therefore country needs to develop and invest in other industries.

Why does the move to “Greener” global economy affect interests of Kazakhstan?

Over the past decades, most of the developed and developing countries have prioritized sustainable economic growth, expanding their resource use opportunities and reducing environmental impact. Green growth, which aims to achieve sustainable growth through the efficient and responsible use of natural resources, has become an integral part of economic policy for numerous governments since its inception.

A “Green” economy is needed to conserve natural capital, ecosystems and biodiversity while generating income and employment growth. This concept emerged as part of the concept of

sustainable development. And sustainable development is called development, in which the satisfaction of the needs of present generations occurs without prejudice to the possibilities of future generations.

For Kazakhstan – country which, for over the past 10 years has achieved high economic results obtained from the oil sector, it's vital to move towards sustainability. The country has significant fossil fuel reserves that form the basis of its economics and energy, but possessed resources are limited, therefore country needs to invest in other “greener” sectors of the economy and try to keep the resources for the future generations. Also, the government has to be prepared for any global changes within the moving to “Greener” economy. Nowadays, many countries and governments are aware of sustainability goals implementation and there's a probability that oil could be substituted with other eco-friendlier product. Kazakhstan should be also aware of such implementation. Country has to be prepared for any global changes and develop other sectors in order not to be dependent on the oil production and export.

6. Conclusion

The economic state and development of the Republic of Kazakhstan is largely determined by the development of the industry that dominates the economic structure of the country - the oil and gas complex. Oil for Kazakhstan is not only an export product. This is the most important foundation of stability, which is associated with economic prospects for the development of the state and society as a whole. The oil industry currently occupies a leading position in the system of the national economy of Kazakhstan. The oil and gas complex of the country has its own internal structure, which includes the following constituent elements: production, transportation, oil and gas processing. Kazakhstan's oil extraction started a long period of time ago and since that oil industry plays a significant role of economy's welfare.

As known, the growth in oil production provides an increase in tax revenues to the country's budget, it is oil production that makes the greatest contribution to the budget revenues and, therefore, guarantees financial support to other sectors of the economy and social sphere, and also contributes to improving quality standards and raising the standard of living of the population. Throughout the years of independency, oil industry was and remains the main and rapidly developing sector of the Kazakhstan's economy, which provides a significant part of the GDP, budget revenues and foreign exchange earnings in the country.

Any fluctuations happening on the global oil market affect Kazakhstan's economy. Period of 2014-2016 was crucial for the country: the local currency devaluated in a very short period of time and Kazakhstan's economy was facing difficult times. Thus, it's important for the government try to move away from such economic model and try to invest and develop other industries, especially improve country's secondary sector, so Kazakhstan would be able to offer not only raw materials' retrieval and production within the export, but also be involved in transformation of raw materials into goods. Also, despite the fact that the situation on the world oil market and the real interests of its main participants make it possible to predict a consistently high level of oil demand in the nearest future and a favourable situation is expected for oil producers and exporters, such factors as tightening of environmental requirements, the development of scientific and technological progress could gradually replace the oil with other more environmental friendly alternative resource. Therefore, undoubtedly, Kazakhstan's dependence on the oil industry should force its government to move towards other alternatives, in order to avoid economic crisis in the country.

7. References

- Canuto O., B. M. (2010). *WorldBank: Dealing with Dutch Disease*. Retrieved from https://www.researchgate.net/publication/227641128_Dealing_with_Dutch_Disease
- Carollo S. (2012). *Understanding Oil Prices : A Guide to What Drives the Price of Oil in Today's Markets*. New York: John Wiley & Sons Inc.
- Cherdabayev. (2010). *Kazakhstan Oil: A century long history*. Moscow: Alpina Business School.
- Chervinsky, O. (2017). *Black blood of Kazakhstan*. Almaty: Meloman Publishing.
- Clo A. (2014). *Oil Economics and Policy*. Springer.
- CNPC AktobeMunaiGaz Official Website. (2020). *CNPC AktobeMunaiGaz in Numbers* . Retrieved from <http://cnpc-amg.kz/?p=gl>
- Craig J., G. F. (2018). *History of the European Oil and Gas Industry*. London: Geological Society of London.
- Czech K. (2018). *DUTCH DISEASE IN OIL-EXPORTING COUNTRIES: A SURVEY OF THEORY AND EVIDENCE*. Retrieved from https://www.researchgate.net/publication/328816359_DUTCH_DISEASE_IN_OIL-EXPORTING_COUNTRIES_A_SURVEY_OF_THEORY_AND_EVIDENCE
- Anderson K., C. G. (2018). *Kazakhstan Accelerating Economic Diversification*. Mandaluyong: Asian Development Bank.
- BP. (2020). *BP Statistical Review of World Energy: 69th Edition* . BP.
- Bureau of National Statistics of the Republic of Kazakhstan. (2019). *Agency for Strategic planning and reforms of the Republic of Kazakhstan, Bureau of National Statistics*. Retrieved from <https://stat.gov.kz/official/industry/11/statistic/6>
- Dalvi S. (2015). *Fundamentals of Oil & Gas Industry for Beginners*. Notion Press.
- Eurostat. (2019). *Eurostat Archive:EU-Commonwealth of Independent States (CIS) - statistics on GDP* . Retrieved from [https://ec.europa.eu/eurostat/statistics-explained/index.php/Archive:EU-Commonwealth_of_Independent_States_\(CIS\)_-_statistics_on_GDP#:~:text=Russia%2C%20Kazakhstan%2C%20Belarus%20and%20Azerbaijan,the%20CIS%20countries%20\(33\)](https://ec.europa.eu/eurostat/statistics-explained/index.php/Archive:EU-Commonwealth_of_Independent_States_(CIS)_-_statistics_on_GDP#:~:text=Russia%2C%20Kazakhstan%2C%20Belarus%20and%20Azerbaijan,the%20CIS%20countries%20(33)).
- FRED Economic Data. (2019). *Federal Reserve Bank of St. Louis*. Retrieved from <https://fred.stlouisfed.org/series/KAZDGDGPDPPT>
- Frey John W., C. H. (2005). *History of the Petroleum Administration for War*. University Press of the Pacific.

- Geoportal of Kazakhstan. (2019). *Central Asian Countries: Geoportal of Kazakstan*. Retrieved from <http://geoportal-kz.org/index.php/en/>
- IndexMundi Online Database. (2019). *IndexMundi Online Database: Worlwide Oil Reserves by Country*. Retrieved from <https://www.indexmundi.com/energy/?product=oil&graph=reserves&display=rank>
- Information Analytical Centre of Oil and Gas. (2018). *Oil Companies Activities in the Republic of Kazakhstan*. Astana: Information Analytical Centre of Oil and Gas.
- International Energy Agency . (2020). *International Energy Agency: Key World Energy Statistics 2020*. Retrieved from <https://www.iea.org/reports/key-world-energy-statistics-2020>
- Karachaganak Official Website. (2020). *Karachganak: About KPO*. Retrieved from <https://www.kpo.kz/>
- Karl Fink, J. (2012). *Petroleum Engineer's Guide to Oil Field Chemicals and Fluids*. Gulf Professional Publishing.
- KazMorTransFlot Official Website . (2020). *KazMorTransFlot: Tanker Fleet*. Retrieved from <https://www.kmtf.kz/en/fleet/>
- KazMunaiGaz. (2017). *KazMunaiGaz: Yearly Report 2016*. Atyrau: KazMunaiGaz.
- Kaztransoil. (2019). *Kaztransoil Yearly Report*. Atyrau: Kaztransoil .
- Ministry of Energy of the Republic of Kazakhstan. (2020). *Ministry of Energy of the Republic of Kazakhstan: Documents*. Retrieved from <https://www.gov.kz/memleket/entities/energo/documents/2?lang=en>
- Ministry of Energy of the Republic of Kazakhstan. (2020). *Ministry of Energy of the Republic of Kazakstan: Oil Indusrty*. Retrieved from <https://www.gov.kz/memleket/entities/energo/activities/179?lang=en>
- Nathan J. (2014). *Kazakhstan's New Economy: Post-Soviet, Central Asian Industries in Global Era*. Scranton: University of Scranton Press.
- National Bank of Kazakhstan Online Database. (2019). *National Bank of Kazakstan*. Retrieved from <https://nationalbank.kz/en/page/statistika>
- Nita, V. G. (2019). *Country-level data and indicators of trade in raw materials*. Luxembourg: JRC Technical Reports.
- Organization of the Petroleum Exporting Countries. (2021). *Organization of the Petroleum Exporting Countries*. Retrieved from https://www.opec.org/opec_web/en/index.htm
- Raymond S. M. (2017). *Oil & Gas Production in Nontechnical Language, 2nd Edition*. (P. Books, Ed.)

- Simanzhenkov V., I. R. (2013). *Crude Oil Chemistry*. CRC Press.
- Statista Online Database. (2018). *The Economies most Dependent on Oil* . Retrieved from <https://www.statista.com/chart/4284/the-economies-most-dependent-on-oil/>
- Statista Online Database. (2019). *Average annual OPEC crude oil price*. Retrieved from <https://www.statista.com/statistics/262858/change-in-opec-crude-oil-prices-since-1960/>
- Statista Online Database. (2019). *Kazakhstan: Unemployment Rate*. Retrieved from <https://www.statista.com/statistics/436179/unemployment-rate-in-kazakhstan/>
- Statista Online Database. (2019). *Oil production worldwide from 1998 to 2019*. Retrieved from <https://www.statista.com/statistics/265203/global-oil-production-since-in-barrels-per-day/>
- Statista Online Database. (2020). *Average annual OPEC crude oil prices*. Retrieved from <https://www.statista.com/statistics/262858/change-in-opec-crude-oil-prices-since-1960/#:~:text=OPEC%20oil%20price%20annually%201960%2D2020,-Published%20by%20N&text=The%20preliminary%20average%20annual%20OPEC,barrel%20as%20of%20November%202020>.
- Tengizchevroil Official Website. (2020). *Tengizchevroil in numbers*. Retrieved from <http://www.tengizchevroil.com/>
- The Agency of the Republic of Kazakhstan for Regulation and Development of Financial Market. (2019). *The Agency of the Republic of Kazakhstan for Regulation and Development of Financial Market: Statistics and Analytics*. Retrieved from <https://www.finreg.kz/?docid=469&switch=english>
- The World Bank. (2019). *The World Bank Data*. Retrieved from GDP per capita in Kazakhstan: <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=KZ>
- Trading Economics. (2019). *Kazakhstan Inflation Rate*. Retrieved from <https://tradingeconomics.com/kazakhstan/inflation-cpi>
- Trading Economics Online Database. (2019). *International Copper Prices*. Retrieved from <https://tradingeconomics.com/commodity/copper>
- World Currency Exchange Rates. (2020). *World Currency Exchange Rates and Currency Exchange Rate History*. Retrieved from <https://www.exchange-rates.org/>
- World Integrated Trade Solution. (2019). *WITS: Kazakhstan Trade Statistics* . Retrieved from <https://wits.worldbank.org/countryprofile/en/kaz>

World's Top Exports Online Database. (2019). *World's Top Exports Online Database: Crude Oil Exports* . Retrieved from <http://www.worldstopexports.com/worlds-top-oil-exports-country/>