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*«The impact of oil price on National Fund reserves:  
The case of Kazakhstan and Norway»*

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**Nur-Sultan, 2020**

**THE IMPACT OF OIL PRICE ON NATIONAL FUND RESERVES: THE CASE OF KAZAKHSTAN AND  
NORWAY**

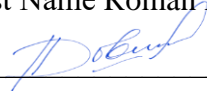
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## **List of abbreviations**

NF RK - National Fund of the Republic of Kazakhstan

NB RK – National Bank of the Republic of Kazakhstan

GPIFG - Government Pension Fund Global

NBIM - Norges Bank Investment Management

COVID-19 - COronaVIRus Disease 2019

SWF - Sovereign Wealth Fund

OECD - Organization for Economic Cooperation and Development

GDP - Gross Domestic Product

ICE - London Intercontinental Exchange

OPEC - Organization of the Petroleum Exporting Countries

FTSE - Financial Times Stock Exchange

APFC - Alaska Permanent Fund Corporation

WTI - West Texas Intermediate

DRI - Data Resources Inc.

OSF - Oil Stabilization Fund

ETF - Exchange-Traded Fund

IMF - International Monetary Fund

WB - World Bank

NGO - Non-governmental organization

*Abstract of «The impact of oil price on National Fund reserves: The case of Kazakhstan and Norway»,*

*by Akhambayeva Nazira, Nurbatchanova Assel*

The objective of this research project is to develop proposals for the National Fund of the Republic of Kazakhstan to increase profitability as well as the possible use of its resources based on international experience. For this investigation linear regression analysis model will be used. This analysis helps to find out main dependent variables which have the highest influence on the National Fund reserves. Methodology of research work consists of several main steps.

The first step is to understand basic theoretical information, to review empirical studies related to analysis of Kazakh and foreign literature on the functioning of the Fund and similar funds abroad by different authors and analyze their results and conclusions. This step is viewed in Literature review part.

The second is analysis of statistical data on the work of the Fund, analysis of the legislation regulating the activities of the Fund. The study population consists of the National Fund functioning nineteen years. Data was collected from published annual financial reports, annual reports of the Sovereign Funds, statistical agencies and other open resources (Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan, the Ministry of National Economy of the Republic of Kazakhstan, the Ministry of Finance of the Republic of Kazakhstan, the National Bank of the Republic of Kazakhstan).

Third stage is to analyze relationships between the National Fund reserves, its investment income, tax revenues, withdrawals and oil price, oil production, republican budget, exchange rate, returns of S&P 500, investment returns of GPFG, inflation rate. For this investigation linear regression analysis model is used. This analysis helps to find out main dependent variables which have the highest influence on the National Fund reserves.

The last stage is to summarize findings and answer main question whether the oil price do influence to the National Fund reserves or not. The results of the accepted hypotheses show that apart from the ineffective management and use of the National Fund revenues, which is highly dependent on oil prices, the Fund's current investment strategy also exacerbates its current state in the long run. Thus, investment strategy of the Fund is subject to be diversified in the long-term perspective into a well-balanced portfolio in order to minimize dependence on oil revenues and maintain the priority function - savings of the National Fund reserves and their enhancing.

Keywords: Sovereign wealth funds, National fund, tax revenues, investment strategy.

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## Introduction

**The relevance of the topic of the master thesis.** An important strategy for users of natural resources is their conservation and growth for the further economic development of the country. However, Richard Auti (1993) used the term «resource curse» to describe a situation in which resource-rich countries could not use this wealth to develop their economies.

In the Republic of Kazakhstan, the oil industry occupies a leading position in the structure of the national economy. In 2000, in order to create savings for future generations (the function of savings) and reduce the dependence of the republican budget on the situation on world commodity markets (the function of stabilization), the National Fund was created and operates, which is managed by the National Bank of Kazakhstan. The activities of this financial institution include asset protection and helps to avoid unforeseen economic consequences, such as the Dutch disease.

Global trends are of great interest in the functioning of such a lever of state macroeconomic regulation as sovereign funds and their consideration in relation to Kazakhstan practice.

Due to tax revenues, the National Fund makes the largest contribution to the revenue side of the republican budget and, therefore, determines the possibilities of financial support for non-exported sectors of the economy and social sphere, as well as the standard of living of the population (Syrlybaeva, 2010).

The objective of the Fund is also to «prevent the replacement of the accumulation of revenues of the National Fund by state loans».

Baunsgaard, Poplawski-Ribeiro, Richmond and Villafuerte (2012) found the permanent income hypothesis is used for consolidation of long-term budget stability and the equitable distribution of oil wealth between generations.

There are altered approaches to the fixed income hypothesis, which take into account some of the shortcomings of the standard model. So, one of the variations is the «bird in the hand» approach, which involves the consumption of only a percentage of the income from investing in oil and the complete saving of all revenues. The model also implies that the non-oil deficit should not exceed the real income from oil accumulations and the increase in expenses for future consumption.

One example of countries applying this rule is Norway, which saves oil revenues for future generations (Kudrin, 2006).

However, in the context of modern macroeconomic challenges and shocks, the goals and mechanisms of the formation, investment and use of the National Fund are being modified, which necessitates the determination of trends in these budget reserves as the basis for developing long-term budget strategies and determining the parameter of budget forecasts.

At the moment, the problem of insufficient control over the use of the Fund's funds remains relevant. Its importance has especially increased in connection with the manifestation of signs of a systemic crisis in the current model of socio-economic development of Kazakhstan.

As world experience shows, the most successful funds exist in countries where systems for the distribution of functions for monitoring the activities of funds have been developed.

The change in the National Fund's revenues takes place against the background of relatively high fluctuations in oil prices, as well as growth in oil production and export. This suggests the effect of oil price volatility on the rate of savings.

So, when comparing the development stages of the National funds with the dynamics of oil prices, it becomes obvious that each time an increase in the number and volume of such funds was accompanied by an oil crisis, as well as an increase in oil prices: the 2000s and at the beginning of the current decade.

This pattern, first, can be traced due to the fact that most sovereign funds were (and still are) raw materials, i.e. are formed at the expense of income from the export of mainly oil and oil products.

U.S. Department of Energy Information Agency estimates Energy Information Administration, on the forecast horizon, the growth rate of world oil reserves will slowly slow down. At the same time, a significant reduction is not expected due to high volumes of oil production and a slower increase in its consumption in the world. The oil market is expected to approach the balance sheet by the end of the forecast period.

Starting in mid-July 2019, world oil prices began to fall due to weak demand and high production in the United States, which together led to an increase in world oil reserves. Additional pressure was exerted by the escalation of trade confrontation between the United States and China, as well as rising concerns about a further decline in oil consumption.

The sharp decline in oil prices resulting from the global economic crisis due to coronavirus, as well as price wars between Saudi Arabia and Russia, could deprive Kazakhstan of significant revenues in 2020. Even before COVID-19 the Fund had become a vital regulator for the state budget because state oil incomes had not restored from the 2015 oil price fall before the new one hit.

Therefore, the **research hypothesis** is to prove the importance of the National fund investment strategies for growing and strengthening of Kazakhstan's economy.

**The goals and objectives of the research. The goal of the research** is to provide quantitative and qualitative analysis of the fund and to develop proposals for the National Fund of the Republic of Kazakhstan to increase profitability as well as well as the possible use of its resources based on international experience.



**The objectives of the research are:**

- analysis of international experience in the formation, functioning and managing sovereign funds;
- analysis of the structure, fund management and the main problems and development path; of the National Fund;
- identify elements of investment strategies that are characteristic of the more successful largest sovereign funds;
- substantiate a set of measures on possible ways of developing the National Fund and develop proposals for the application of the most effective model for creating long-term investment strategies.

**The object of the research is** National fund of Kazakhstan and GPFG.

**The subject of the research is** the formation of a set of measures for possible development paths of the National Fund and the development of proposals for the application of the most effective model for creating long-term investment strategies.

**Theoretical and practical significance of the research. The theoretical significance** of the research lies in the fact that the main conclusions and provisions of the thesis develop the methodological foundations of the management of the National fund, form modern approaches to the formation, investment and use of reserves of the National fund, determine the conditions for the successful management of the National fund.

**The practical significance** of the study lies in the fact that the theoretical provisions developed in the thesis, recommendations, proposals for amending and supplementing normative legal management are aimed at improving the efficiency of the National fund as instruments of state financial regulation and can be used by state authorities to clarify organizational -legal and methodological foundations of sovereign wealth management.

**Methodology and research methods.** For this investigation linear regression analysis model is used. This analysis helps to find out main dependent variables which have the highest influence on the National Fund reserves.

**Approbation of work.** The results of the work were reported at the VI International Scientific Conference «SCIENCE AND EDUCATION IN THE MODERN WORLD: CHALLENGES OF THE XXI CENTURY» (Nur-Sultan, 2020).

**Key words:** Sovereign wealth funds, National fund, tax revenues.

# 1. THE PRACTICE OF FORMATION AND USE THE SOVEREIGN FUNDS IN THE WORLD

## 1.1 World practice of setting up sovereign funds in different countries

There are about 70 sovereign (reserve) funds in the world, about 70% of which are in countries with developing economies and 30% are in countries with developed markets.

In the countries discussed below, special sovereign funds have been created to manage oil wealth. In addition, various budget rules have been introduced that allow the efficient use of income from raw materials and ensure long-term budget stability. An analysis of the dependence of the budget on oil revenues and the horizon of oil reserves allows us to determine the future prospects for the development of budgetary and macroeconomic policies.

Fund of Norway in its form is an account (deposit) with a central bank and does not have the status of a separate legal entity. Central bank is the actual investment asset manager of this fund. For these purposes, a special unit has been created in the structure of the Bank of Norway - the Investment Department (Norges Bank Investment Management).

In contrast to the above fund, the Fund of Alaska is legal organization in its structure and is independent in matters of investment management.

Various fiscal rules have been introduced to efficiently use the income from raw materials and ensure long-term budget stability. If the share of oil revenues is more than 25% of the total budget, then the country is dependent on natural resources.

In Norway, there is a budget rule according to which no more than 3% of the expected profitability of the Norwegian Fund (until 2016 - 4%) can be additionally sent to the state budget by decision of the Norwegian Parliament (The Storting) in order to cover its non-oil deficit (The Internet resource of the Government Pension Fund Global Norway). In 2013, the structural non-oil deficit amounted to 3.1% of the assets of the Pension Fund (target indicator) (OECD, 2011; IMF Country Report, 2014). As of April 2020, Norway's GPFG was the largest SWF in the world with more than 10.5 trillion Norwegian kroner.

However, it is anticipated in the future that the accumulated revenues of the Norwegian Fund will be used to finance the expected increase in spending on state pensions due to increased life expectancy, although the final decision has not yet been made by the Norwegian Parliament. This possibility is underlined by the renaming in 2006 to the Government Pension Fund Global.

The uniqueness of the use of funds is highlighted by the Alaska Fund, which currently has a direct dividend program, which is an integral tool of state social and economic policy. Dividends can be previously convicted residents who have been resident in Alaska for at least one year. The average annual amount of the dividend for the entire duration of the program

amounted to \$ 1,145 per resident (Internet resource of the Permanent Oil Fund of Alaska). According to Alaska law, the amount of dividends is determined on the basis of the total net income of the Fund for the previous five years. The total amount is multiplied by 21% and divided by 2. However, in 2016-2017, the amount of dividends on the initiative of the Governor of Alaska, who approves the final amount, was halved due to a decrease in revenues to the Alaska Fund against the background of falling oil prices. It should be noted that the government is currently reviewing the mechanism for determining dividends. The Alaska Permanent Fund volume exceeded more than \$60 billion as of 31 March 2020.

In the mid-1970s, Venezuela created the Venezuela Investment Fund (IFV) as a repository for its unexpectedly high oil revenues. Its resources were soon directed to the acquisition of shares in state-owned enterprises (included in the manufacturing sector), many of which, as it turned out, were unprofitable. Low oil prices during the 1980s and 1990s halted further revenues from oil production to the Fund.

In 1998 the Venezuelan Macroeconomic Stabilization Fund (MSF) was established. The purpose of the Fund is to protect the economy and the state budget from fluctuations in oil prices. The Fund became part of the Venezuelan government's program to stabilize public finances and modernize the management of state property (state oil company, *Petroleos de Venezuela*). The main channels for using the fund's assets are transfers to the budget based on basic values, and arbitrary transfers also take place. Withdrawals were initially tied to debt repayments and capital expenditures. After 1999, these exemptions are tied to social and investment spending and debt payments. The balance of the fund at the end of the fiscal year shall not be less than 1/3 of the balance of the previous year. Initially, the criteria for filling the fund were formulated quite harshly: if the world oil price exceeds the standard (\$ 14.7 per barrel), then every dollar goes to the fund in excess of this. In the future, the rules for transferring funds to the fund changed, and the state budget was reduced with a constant deficit. The use of reserves was carried out with the permission of the parliament, and the fund was managed by the Central Fund of Venezuela. Today the fund is practically not functioning. The negative side of the fund's functioning is the dependence of the fund's income on basic values based on the average level of oil prices, untimely use of the fund's assets by investing accumulated funds in large projects, which led to the inability to return during the crisis (Pernebaev and Sagyndykova, 2007).

World Bank experts in their report note that in Kazakhstan the rule «Bird in the Hand» is not applicable in the current Kazakhstan economy. Since Kazakhstan is at an early stage of oil production, the restriction of transfers will lead to a decrease in economic growth. According to forecasts of the World Bank, the yearly transfer from the National Fund will

reach the size of investment income only by 2025. The application of this approach in Kazakhstan will limit current consumption, since the rule presumes saving to a greater extent, a low level of transfers to the budget.

The application of the rule of the structural balance of the budget in Kazakhstan is also possible according to the World Bank, but at the same time, the complexity of the application and the lack of transparency of this rule are noted (IMF, 2012).

Most studies of sovereign funds focus on sovereign wealth management discussions, including their capital allocation and governance. That focus is motivated by the rapid climb in amount and size of SWFs and by the emergence of non-oil funds, since some countries have been able to accumulate very impressive worldwide reserves through their exports of non-natural resource products.

Responsibility for the strategic management of the assets of the foundations of Norway rests with the ministry of finance, which regularly provide information on the results of the management to the parliament of its country. Accordingly, the issues of the strategic distribution of assets by types of currencies and financial instruments are the responsibility of the ministry of finance.

Strategic management and currency allocation for the Alaska Fund is the responsibility of the Board of Trustees.

In the above funds, strategic allocation is subject to review once a year. There is a ban on investing funds from Norway, Alaska in financial instruments of the domestic market in order to avoid its overheating. Sovereign funds support a high degree of transparency. Foundations in Norway and Alaska have separate websites. Moreover, the funds of Norway and Alaska have the maximum amount of information.

Fund of Norway in its form is an account (deposit) with a central bank and does not have the status of a separate legal entity. Central bank is the actual investment asset manager of this fund. For these purposes, a special unit has been created in the structure of the Bank of Norway - the Investment Department (NBIM).

In contrast to the above fund, Alaska Fund is by its structure legal organization and is independent in matters of investment management. As for external investment management, the funds attract foreign asset managers of companies. Norway Fund's investments are managed by 91 mandates of about 75 companies, Alaska - about 20-30 companies.

The base currency of the Norwegian Fund is a basket of 36 currencies, but the Fund intends to diminish their number. The return coefficients for this Fund are also calculated in US dollars.

**Table 1. Comparative return on sovereign funds, in% per annum**

<b>year</b>	<b>The Norwegian Fund (in USD)</b>	<b>The Alaska Fund (in USD)</b>	<b>The National Fund (in USD)</b>
2007	10,20	8,81	9,92
2008	-27,62	-24,67	-2,28
2009	30,77	18,87	7,31
2010	8,81	11,92	3,02
2011	-3,96	0,33	1,37
2012	14,42	12,58	3,33
2013	14,77	12,65	3,36
2014	0,52	7,80	-1,19
2015	-2,13	0,85	-2,44
2016	4,83	1,02	0,84
2017	19,92	12,57	7,61
for 11 years	77,0	71,5	34,5
Average year	5,3	5,0	2,7

*Source: internet resources of funds, ministries of finance*

The higher return on assets in Norway and Alaska over the past 10 years is due to a crucial share in the strategic dissemination.

At the same time, considerable volatility in the return on these funds should be noted.

The garnered return on assets of the National Fund from the beginning of its establishment to December 31, 2017 amounted to 81.0%, the average annual return amounted to 3.59%.

## **1.2 General principles and main directions of the use receipt of financial resources of the National Fund of Kazakhstan**

The National Fund of the Republic of Kazakhstan was established in 2000 by Decree of the President of the Republic of Kazakhstan dated August 23, 2000 No. 402 «On the National Fund of the Republic of Kazakhstan» (Saparova, 2015).

The purpose of creating the National Fund is to save financial resources for future generations, reduce the dependence of the republican budget on the situation on world commodity markets and ensure the socio-economic development of the state.

The activities of this financial institution include asset protection and helps to avoid unforeseen economic consequences, such as the Dutch disease.

The normative legal acts regulating the legal, economic and organizational basis of the functioning of the National Fund are the following documents: Decree of the President of the Republic of Kazakhstan dated January 29, 2001 No. 543 «On Certain Issues of the National Fund of the Republic of Kazakhstan»; Budget Code of the Republic of Kazakhstan; The concept of the formation and use of funds of the National Fund of the Republic of Kazakhstan, approved by Decree of the President of the Republic of Kazakhstan dated April 2, 2010 No. 962.

According to the mentioned Concept, as well as in accordance with the Budget Code of the Republic of Kazakhstan, the following functions of the National Fund are defined:

- savings - provided by the accumulation of financial assets and other property, with the exception of intangible assets, for future generations by establishing an irreducible balance in the total assets of the National Fund (30% of the forecast value of gross domestic product (GDP), as well as ensuring the return on assets of this fund in long term with moderate risk;
- stabilization - involves ensuring a guaranteed transfer to the republican budget and maintaining a sufficient level of liquidity of the assets of the National Fund.

The sovereign (reserve) fund in the Republic of Kazakhstan is defined as part of the state's reserves, the accumulation of which is carried out on specialized accounts of the central government.

According to the Budget Code of the Republic of Kazakhstan, the National Fund represents the financial assets of the state, concentrated on the account of the Government in the National Bank of the Republic of Kazakhstan, as well as in the form of other property, with the exception of intangible assets.

It should be noted that the sovereign (reserve) fund of the Republic of Kazakhstan is not an independent legal entity, does not conduct financial and economic activities and does not have an independent balance.

The sources of the National Fund are the following types of mandatory contributions:

- 1) direct taxes from organizations of the oil sector, including: corporate income tax, excess profit tax, bonuses, mineral extraction tax, rental export tax, share for the division of products under concluded contracts, additional payment of a subsoil user carrying out activities under a production sharing contract; other revenues from operations carried out by organizations of the oil sector,
- 2) proceeds from the privatization of state property owned by the republic and related to mining and manufacturing industries;

- 3) proceeds from the sale of agricultural land;
- 4) investment income from the management of the National Fund, generated from the placement of assets in financial instruments, with the exception of intangible assets.

The list of organizations in the oil sector is approved annually by the central authorized body for budget execution and the state body that carries out state regulation in the field of oil operations, conclusion and execution of contracts (The code of the Republic of Kazakhstan № 120-VI, 2017).

Accounting of the National Fund is carried out on the account of the Government of the Republic of Kazakhstan, opened in the National Bank of the Republic of Kazakhstan. The procedure for crediting assets to the National Fund and using the assets of the fund is carried out on the account of the Government of the Republic of Kazakhstan.

The management of the assets of the National Fund and the preparation of financial statements based on the management results is carried out by the National Bank of the Republic of Kazakhstan. The objectives of the National Fund's asset management are: preservation of the fund's assets, maintaining a sufficient level of liquidity and a high level of profitability of the National Fund in the long term with a moderate level of risk and obtaining investment income in the long term.

In the Republic of Kazakhstan, the assets of the fund are formed from taxes on the export of raw materials, as well as other obligatory types of payments, investment income, as well as the sale of non-financial assets. The assets of the fund are spent exclusively on financing a guaranteed transfer and covering the costs associated with managing the fund.

The use of revenues of the National Fund is provided for the following purposes:

- ensuring a guaranteed transfer from the National Fund to the republican budget (non-repayable receipts to the republican budget from the specified fund);
- covering the costs associated with managing the National Fund and conducting an annual external audit.

The involvement of external managers or external transit managers in portfolio management of the National Fund of the Republic of Kazakhstan can be carried out by the National Bank of the Republic of Kazakhstan on the basis and in accordance with the Rules for the selection of external managers of the assets of the National Fund of the Republic of Kazakhstan, approved by Resolution No. 66 of the Board of the National Bank of the Republic of Kazakhstan dated July 25, 2006 (amended as of August 21, 2019). External portfolio managers, custodians (in different years they were such companies as BNY Mellon, BNP Paribas, UBS and others).

ABN Amro Mellon is a custodian of NF RK and maintains consolidated financial statements for various portfolios. It provides custodial services and collects income, evaluates portfolios, including daily valuation and monthly calculation, monitors, and borrows securities.

The investment strategy of the NF RK provides for the investment of 75% of the fund's assets in the savings and 25% in the stabilization portfolio. The assets of the stabilization fund are invested in liquid and short-term mechanisms so that they can be used for stabilization purposes. The savings portfolio includes 70% of bonds and 25% of shares with a rating of A or higher (Table 4). The securities of the savings portfolio become legal after 1-3 years. The assets of both portfolios are fully invested abroad, thereby sterilizing foreign currency and protecting the national currency from exchange rate appreciation. About 60% of investments are held in the USA, and the rest are distributed between European countries, Japan and Canada (Bagirov, Akmedov, Tsalik & Stiglitz Joseph, 2003). The Ministry of Finance sets interest income levels for savings and stabilization investment portfolios, and the National Bank reports to the Ministry of Finance on the performance of the NF RK according to these levels.

The main share of revenues to the National Fund comes from direct taxes from enterprises in the oil sector. Moreover, each separate type of tax sent to the NF of the Republic of Kazakhstan has its own characteristics in terms of the amount of assigned rates and the rules for the timing of payment in accordance with the Tax Code of the Republic of Kazakhstan.

The oil sector of Kazakhstan is the most important segment of the country's economy. The oil and gas sector accounts for almost 25% of the total GDP. According to various expert estimates, the horizon of oil reserves in Kazakhstan is 40-50 years, gas - 65-85 years (BP Statistical Review of World Energy, 2014).

Basically, the National Fund accumulates direct taxes from oil and gas sector - 74% of all state budget revenues. In recent years, there has been a tendency to increase the dependence of the budget on oil revenues.

The Appendix 1 presents the structure of revenues to the National Fund of the Republic of Kazakhstan, which defines the value of taxes and payments from subsoil users (enterprises of the oil and gas sector) in the formation of the «treasury» of the state (Report on receipts and use of the National Fund of the Republic of Kazakhstan, 2001-2019).

The National Fund fully accumulates the share of the Republic of Kazakhstan under Production Sharing Agreements, almost entirely - export rental tax (96%), bonuses (88%), revenues from nature users in claims for compensation for harm by organizations in the oil sector (90%), excess profit tax (96%), the lion's share of mineral extraction tax (85%) (National report 2012, 2013).

The share of transfers in state budget revenues in the period from 2014 to 2018 increased from 71% to 91%.



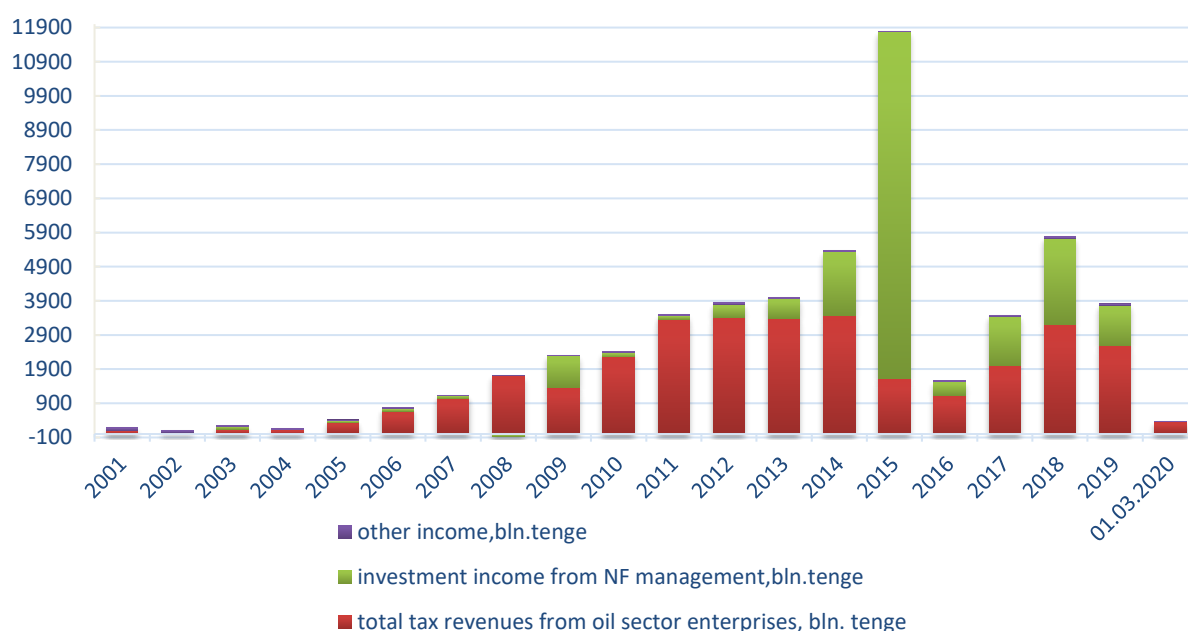
According to the Appendix 1, we can conclude that the dynamics of total tax revenues from oil sector enterprises increase since 2001, in 2002 there are breakaways in the downward direction by about 50%, further we see a sharp decline in 2015-2016 compared to the last four years.

The values of tax revenue in relation to total income to the National Fund remained stable during the period from 2001 to 2018 by reaching more than 98%, but in 2002 it halved to only 44,7%. However, if we consider the first five-year period, we can note that in 2001 and 2005 taxes and payments from subsoil users amounted to 100 % of the total fund revenues, reaching the largest level in the share for the analyzed period, in the next 13 years, we can mark the highest peak in 2006-2011 and 2017.

As the Chart 1 illustrates, the dynamics of total tax revenues from the oil sector enterprises have a gradual increase, but in 2015-2016 there is a slow decline and then next years a steady rising with following dramatic shrinkage in 2020 due to oil crisis and pandemic consequences.

The highest value of investment returns is observed in 2015 by reaching about 12 billion tenge, but in 2016 we see the opposite dynamics. In general, a steady increase can be noted in total revenues in the National fund from its foundation.

Also, during the first month of spring, the assets of the National Fund of Kazakhstan decreased by 4.2% to \$57 billion 462 million, and in absolute terms by \$2 billion 536 million. Since the beginning of 2020, a decrease of 6.9% or \$4 billion 288 million.



**Chart 1. Dynamics of change of the amount of revenues accumulated in the National Fund since the foundation in 2001**

The following Chart 2 shows the dynamics of changes in the main tax revenues from enterprises in the oil and gas sector.

As can be seen from the Chart 2, the most significant among those presented is the corporate tax from enterprises of subsoil users. It fluctuated during 2001-2018 and reached its peak in 2002 by 88.17%.

The share of the mineral extraction tax starts calculating in 2009. In 2010 it had the maximum value of 34.4% and the comparatively lowest one compared to the periods under review was 14.51% in 2018 from the total mass of tax revenues.

At least 0.036% of rental tax on export was paid by subsurface users in 2006. However, the rental tax on the export of crude oil and gas condensate had significantly increased to 24.5% in 2011.

According to Appendix 2, the share of excess profit tax began to turn on in 2006, having unstable fluctuations. The highest peak occurred in 2009 equals 17%, further we can note a sharp decline to 1.76% in 2018.

The highest growth rate was seen in the share of Republic of Kazakhstan in the division of production under concluded contracts, corporate income tax.

The increase in oil prices is a factor that positively affects the change in the volume of the National Fund of the Republic of Kazakhstan, as it accumulates tax revenues from enterprises in the oil sector.

In terms of tax revenues, the largest increase was observed for corporate income tax - plus 594.5 billion tenge or 75.6%.

Also note the increase in the share of Kazakhstan in the division of production by 523.3 billion tenge to 809.2 billion tenge.

At the end of 2018, direct tax revenues to the National Fund of the Republic of Kazakhstan amounted to 3 200.8 billion tenge, exceeding total tax revenues for 2017 by 1 199.7 billion tenge or 59.9%. Thus, the gross increase in assets of the National Fund for 2018 amounted to five trillion tenge. Such a significant increase in revenues in 2018 occurred against the background of relatively high oil prices, as well as growth in oil production and export.

We can see decrease of investment income in 2019 by 0.57% from previous year and in direct taxes by 14.2% respectively.

Summing up the structure of tax revenues, we can draw the following conclusions: the main components of these revenues were corporate tax, rental tax and mineral extraction tax. In total, they occupied 91% of the total tax revenue in the National Fund.

However, not all received incomes remained in the accounts of the National Fund.



**Chart 2. Dynamics of changes in the main tax revenues from enterprises in the oil and gas sector**

The National Fund also has a savings function. The share of annual savings in the National Fund for 2011-2013 averaged 58% of revenues. In 2008, due to falling oil prices and the global financial crisis, the share of savings amounted to only 6% of total revenues. In 2016, due to falling oil prices and devaluation, revenues to the National Fund fell by 12 times.

This suggests the effect of oil price volatility on the rate of savings.

The first transfer to the republican budget from the National Fund was carried out for the seventh year of operation - in 2007 in the amount of 258 billion tenge (Chart 3). In the following crisis years, guaranteed transfers were larger in 2009 and accounted for 65% of the republican budget revenues of Kazakhstan.

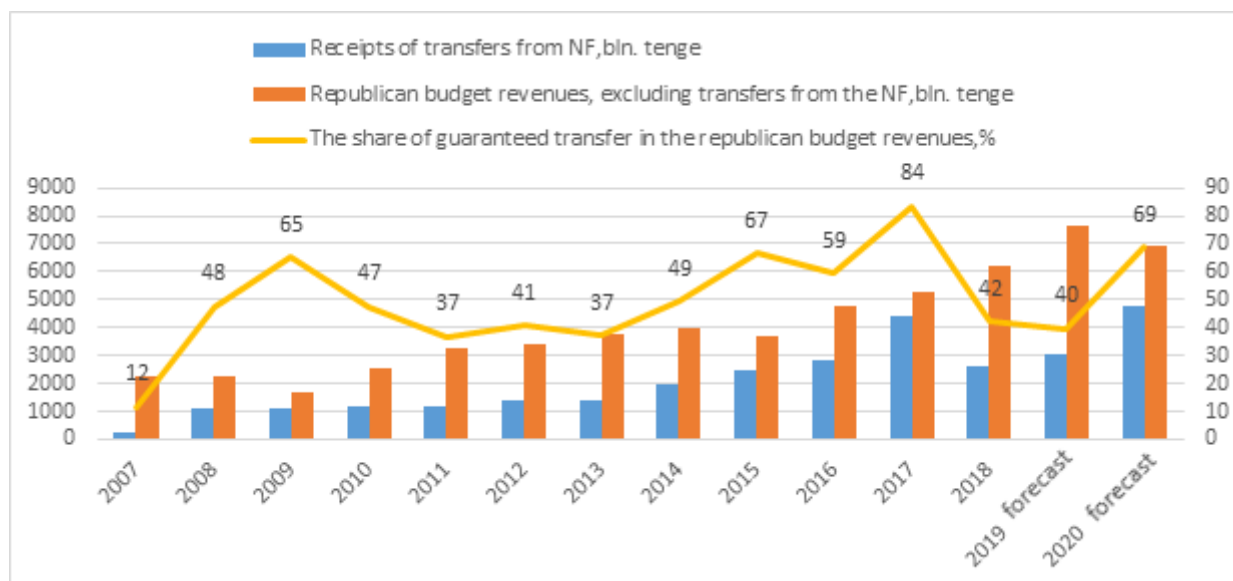
In the republican budget, transfers are generated from: transfers from the regional budgets, budgets of Almaty and Nur-Sultan, as well as transfers from the National Fund to the republican budget.

As it may be seen from the Chart 3, the share of transfers in republican budget revenues in the period from 2009 to 2016 continued an upward trend with some fluctuations. This was followed by significant increase from 59% in 2016 to 84% or 4.4 trillion tenge in 2017 out of total volume of budget revenues.

In addition to the guaranteed transfer of National Fund of the RK sent for the rescue of banks of the second level which lasts at least since 2008, when the country was hit by the mortgage crisis. On October 13, 2008, at an expanded meeting of the government, it was announced that \$ 10 billion was allocated from the National Fund, of which about \$ 4 billion or 476 billion tenge was allocated to finance the four largest banks (Halyk, Kazkommertsbank, Alliance Bank and BTA).

In General, according to some data, 14 billion dollars have been allocated from the National Fund for anti-crisis purposes since 2008

(Total.kz.



**Chart 3. Dynamics of transfers from the National Fund in the structure of republican budget revenues for the period from 2007 to 2020**

The volumes of guaranteed transfers for 2019 and 2020 are given in accordance with the law «On a guaranteed transfer from the National Fund of the Republic of Kazakhstan for 2018-2020» (Decree of the President of the Republic of Kazakhstan No.641 of August 29, 2019).

The decision on the allocation and appointment of such transfers can only be made by the President of the country.

Guaranteed transfer laws have approved the following guaranteed transfer sizes from the National Fund: 2014 - 1.48 trillion tenge, 2015 - 1.7 trillion tenge, in 2016 there is a jump of 146% to 2.48 trillion tenge.

According to the concept of budget policy adopted in 2013, by 2020, it was planned to reduce the guaranteed transfer to 1.2 trillion tenge. But in 2017 and in 2018 they amounted to 2.8 and 2.6 trillion tenge, the indicator is no longer fulfilled (see Chart 3).

So, 2 600 billion tenge were transferred to the republican budget in the form of guaranteed transfers, while 18.1 billion tenge were additionally allocated to cover the costs associated with managing the Fund. Taking into account all income and expenses, the assets of the National Fund for 2018 increased by 2 461.9 billion tenge to 25 386.5 billion tenge.

In 2019, it can be noted that guaranteed transfers were allocated 2 700 billion tenge, as well as targeted transfers of 370 billion tenge and covering expenses related to the management of the Fund and the annual external audit of 13.9 billion tenge.

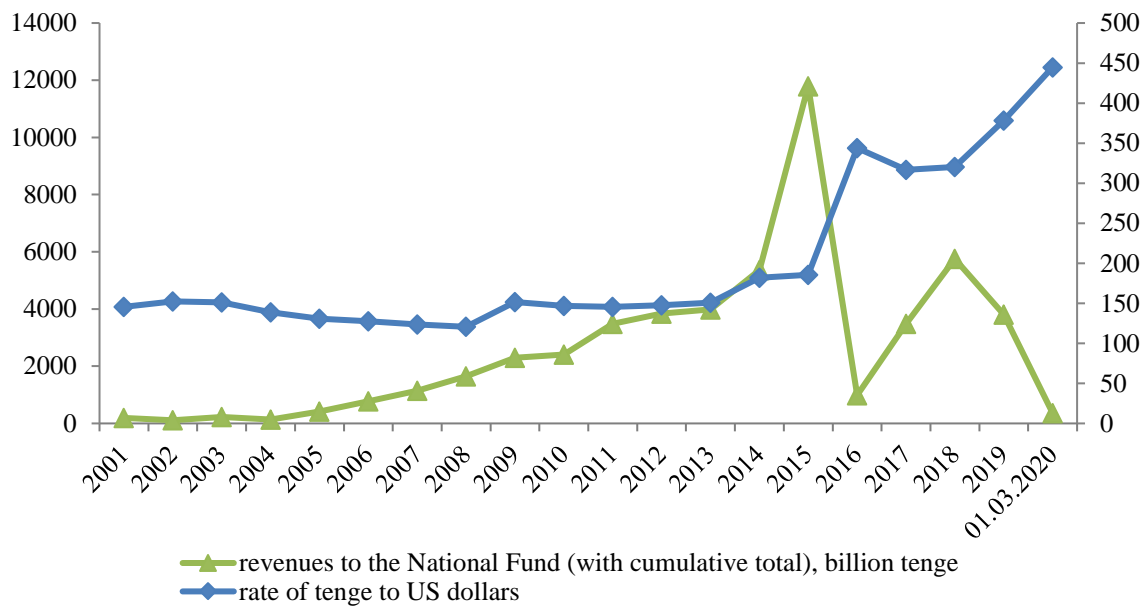
According to Minister of Information and Communications of the Republic of Kazakhstan, regarding anti-crisis measures that arose as a result of the global COVID-19 pandemic and crisis, in 2020 the guaranteed transfer from the National Fund will be increased by 1 trillion 825 billion tenge (Mamyshev, 2020). Thus, it is expected to allocate a guaranteed transfer of 4.525 million tenge in 2020.

Since 2011, the transfer amount is determined in an absolute fixed value of \$ 8 billion. Moreover, the indicated size can be adjusted in the direction of decreasing or increasing up to 15% depending on the situation in the economy.

With a decrease in economic growth rates against the planned level for the medium term, the size of the guaranteed transfer to the republican budget can be increased to \$ 9.2 billion in order to maintain economic growth. With economic growth above the planned level for the medium term, the guaranteed transfer to the republican budget can be reduced to 6.8 billion US dollars in order to ensure the savings function of the National Fund.

As noted in the OECD Comprehensive Country Survey of Kazakhstan (2016), «The annual guaranteed transfers from the National Fund to the central government budget are \$ 8 billion, plus or minus 15%, depending on the stage of the economic cycle. In addition, directed transfers can be made by presidential decree on socially significant projects if alternative sources of financing are not enough. For example, in 2014-2015 \$5.4 billion in targeted transfers were mainly aimed at supporting the rehabilitation of the banking sector, bank lending to small and medium enterprises (SMEs) and financing of infrastructure projects. Between 2015 and 2017, annual transfers of \$ 3 billion provided sustainable economic growth and employment under the new State Infrastructure Development Program (Nurly Zhol). Transfers from NFs are possible as long as their assets remain above 30% of GDP at the end of each fiscal year, and the annual cost of servicing public debt does not exceed 4.5% of the managed assets» (OECD, 2016; World Bank, 2013).

In 2016 and 2017, the fund's resources were used 2.5 times more than in the same years it was received. For 2018, we see a sharp increase of 3 times, one of the reasons for the decline in the share of NF RK that in recent years, the fund operates more in the expenditure mode than in the accumulative.



**Chart 4. The change in rate of tenge to US dollars and revenues to the National Fund for the years 2001-2020**

The increase in oil prices is a factor that positively affects the change in the volume of the National Fund of the Republic of Kazakhstan, as it accumulates tax revenues from enterprises in the oil sector.

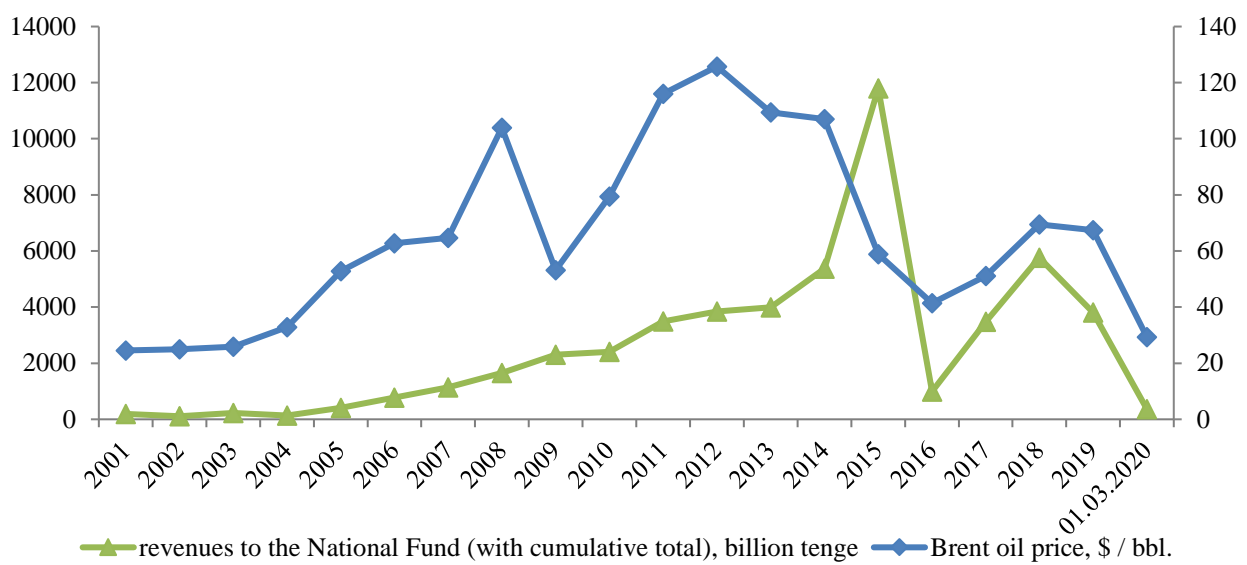
As shown in the Chart 4 causes of previous devaluations of the tenge were external factors. In 2008-2009, it was caused by the collapse of the construction sector due to a real estate credit bubble, which in turn was associated with the 2008 global crisis and a sharp drop in oil prices. In 2015, devaluation also came to us from the outside, when international sanctions were introduced against Russia.

This imbalance was corrected by a sharp devaluation and the subsequent gradual weakening of the tenge. At the same time, if we talk about previous fluctuations in the exchange rate, the Kazakhstan tenge has an inverse correlation with oil quotes.

The depreciation of the Kazakh currency is taking place against the backdrop of low oil prices, which dropped to \$24.75 per barrel as of March 16, 2020 of the Brent brand on the London Intercontinental Exchange (ICE) for the first time since January 2016.

Oil began to rapidly fall in price and led to a collapse in world markets amid news that OPEC and OPEC + countries were unable to agree (the refusal of Russia and Saudi Arabia) on an additional reduction in production following talks in Vienna.

Oil prices continue to decline due to fears of falling demand for raw materials due to quarantine worldwide due to the COVID-19 pandemic.



**Chart 5. The change in world oil prices and revenues to the National Fund over the period from 2001 to 2020**

The Chart 5 presents data showing the change in world oil prices in relation to the revenues of the National Fund that take place in 2001 – 1 quarter 2020. It may be concluded from the Chart 5 the highest amount of revenues was in 2015, oil quotes reached a level of 58.86 \$/bbl. and value of revenues of the fund is approximately 12 000 billion tenge. It was found that value of revenues of the National Fund grew from approximately 449.45 U.S. dollars in 2001 to approximately 26.86 billion U.S. dollars in 2015.

As the Chart 5 illustrates there was a sharp fall of oil price which led to dramatic shrinkage of the National Fund from the second half of 2019.

For the 3d month of 2020, the monthly price of Brent crude oil was \$21.58 per barrel, whereas in the corresponding period of the previous year, the price of oil was recorded at around \$71.13 per barrel.

Thus, the National Fund is highly dependent on oil revenues. At the same time, the Government should take measures to diversify the investment policy of the National Fund in order to reduce dependence on oil revenues. It is impossible to endlessly increase the tax burden on the oil sector, the profitability of which falls amid falling oil prices.

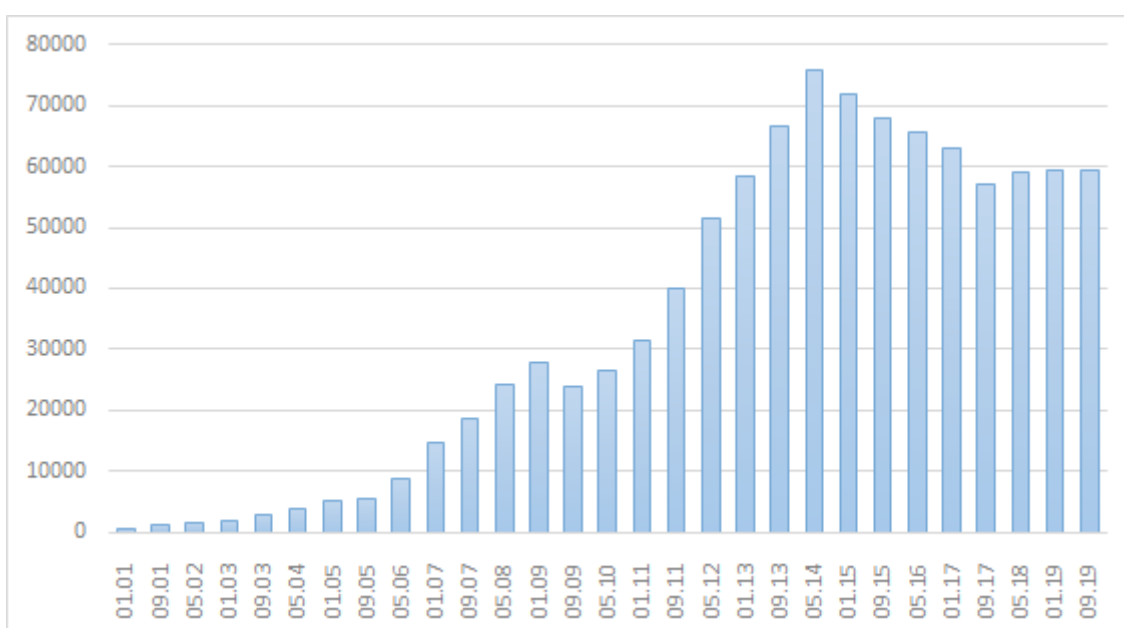
So, summarizing the foregoing, we can conclude that the development of sovereign funds is subject to a number of laws, among which are: the transformation of approaches to the formation of their assets, increasing their volumes as a guarantee of diversification of investments, changing directions of investment, etc.

In particular, it is necessary to increase the amount of incomes of the National Fund used to finance the growth of the economy of Kazakhstan. However, first of all, it is advisable to increase its assets.

The accumulated return on assets of the National Fund from the beginning of its creation to December 31, 2017 amounted to 81.0%, the average annual return was 3.59%.

Since 2014, the volume of assets of the National Fund began to decline, and this decline has taken on the character of a steady trend, which has been going on for the sixth year.

Given the reduction in the volume of the National Fund, the task of increasing the efficiency of managing the assets accumulated in it, which currently amounts to almost \$ 60 billion, is becoming even more urgent (see Chart 6). Moreover, the current situation in the global financial markets, which host most of these funds, is extremely unstable and the approximation the new financial crisis actualizes the problem of not just improving the efficiency of their management, but a significant change in investment policy (Dodonov, 2019).



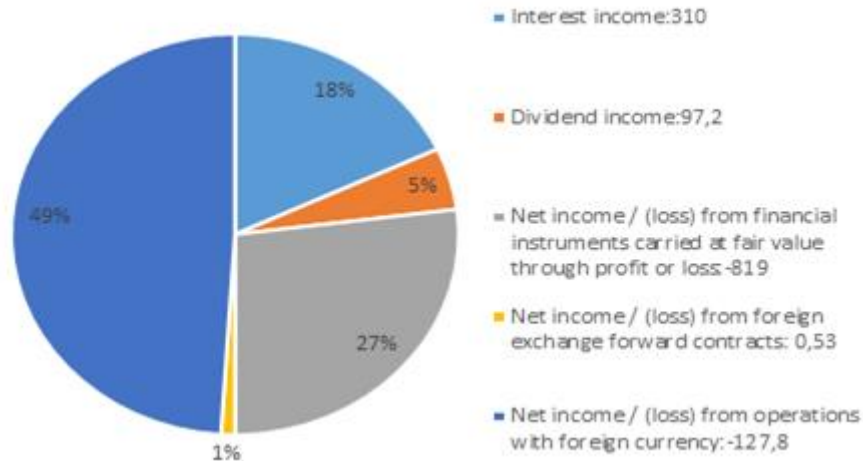
**Chart 6. Dynamics of assets of the National Fund of the Republic of Kazakhstan, million US dollars**

*Source: International Reserves and Assets of the National Fund of the Republic of Kazakhstan. National Bank of the Republic of Kazakhstan, an official Internet resource*

In this regard, it should be noted that the situation with the yield of the National Fund is not very favorable. In 2018, it became the lowest in the history of this institution, amounting to 2.64% in dollars. Thus, to reduce the assets of the fund due to the excess of transfers allocated to it to the budget over revenues, a reduction due to investment losses, which are quite significant, is added. So, 2.64% of negative profitability for 2018 in absolute terms is equivalent to about \$ 1.6 billion in a decrease in its volume.

The actual return on assets of the National Fund is calculated in the base currency (US dollars), since most of these assets, about 94%, are placed in foreign financial instruments. The income of the National Fund consists of income in the form of remuneration; dividend income; net income / (loss) from financial instruments carried at fair value through profit or loss, excluding forward currency contracts; net income / (loss) from forward foreign exchange contracts; net income / (loss) from operations with foreign currency. The structure of these revenues for 2018 is shown in Chart 7.





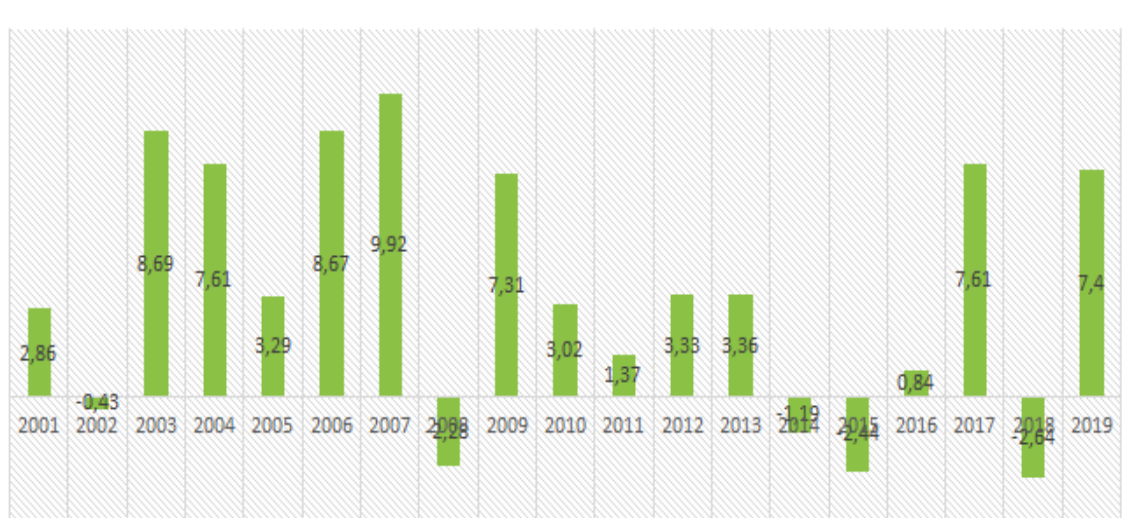
**Chart 7. The volume and structure of revenues of the National Fund in 2018, billion tenge; %**

Source: Report on the formation and use of the National Fund of the Republic of Kazakhstan for 2018, Ministry of Finance of the Republic of Kazakhstan

In just 18 full years of the National Fund's existence, the average return on its assets in the base currency was 3.28% (see Chart 8).

Thus, there is a tendency towards a gradual decrease in profitability, which has sharply increased in the last five years.

This negative was largely due to the unfavorable situation on world markets during this period, which is also noted in the comments of the National Bank, which manages most of the assets of the National Fund.



**Chart 8. Historical return on the portfolio of the National Fund of the Republic of Kazakhstan (US \$)**

Source: Report of the National Bank of the Republic of Kazakhstan for 2018

At the same time, it is natural that the impact on the profitability of the assets of the National Fund is proportional to the structure of their placement in certain financial instruments.

In August 2019, by Decree of the President, changes were made to the structure of the savings portfolio, which accounts for the bulk of its assets (about 85%), to increase the diversification of assets, which «involves a transition from a conservative propagation (80% in bonds by 20% in shares) to a balanced distribution (60% of bonds, 30% of shares, up to

5% of alternative instruments and up to 5% of gold), aimed at increasing long-term expected returns.» (Decree of the President of the Republic of Kazakhstan No. 86 of August 2,2019).

The dependence of the yield of the National Fund on trends in global financial markets is objective, but there are subjective factors associated with the quality of the management of the fund's portfolio, which does not always correspond to the current market situation. In the conditions of declining markets, effective portfolio management should minimize losses, even if they cannot be avoided due to objective circumstances, and in the conditions of growing markets - to outrun this growth and maximize profitability.

However, the asset managers of the National Fund do not always succeed. It should be noted that although the National Bank manages most of the fund's incomes, it also attracts external managers who invest.

**Table 2. The results of asset management of the savings portfolio of the National Fund by external managers in comparison with the benchmark return in 2016-2018, % per annum**

	2016		2017		2018	
	result	reference	result	reference	result	reference
Global Stock Mandate	7,92	8,17	22,81	23,08	-10,13	-8,21
Global Tactical Asset Allocation Mandate	0,54	1,07	10,43	8,87	-3,32	-2,29

In 2018, external managers managed part of the capitals of the savings portfolio according to the Global Bonds mandate type (27% of the portfolio), assets of the savings portfolio according to the Global Shares mandate (five external managers) and savings portfolio assets according to the Global Tactical Distribution mandate type assets (one external manager). This practice is traditional for managing the assets of the National Fund, has a long history, however, it is often external managers who show returns on funds entrusted to them at a level lower than the so-called reference portfolio, which for each mandate serves as a guideline for expected returns.

Table 2 shows the results of managing the funds of the National Fund for two mandates of the savings portfolio, which is carried out only by external managers.

So, in the National Bank report for 2018, among the reasons that caused negative returns, are named «negative correction in the stock market, as well as the strengthening of the US dollar relative to most currencies in which the assets of the National Fund are also invested» (Annual report of the National Bank of the Republic of Kazakhstan for 2018, 2019, p. 102).

Obviously, a systematic demonstration of negative excess profitability should be the basis for changing external managers, or generally for refusing the services of external managers and transferring the corresponding mandates of the savings portfolio to the National Bank itself. In addition to the subjective factor associated with operational shortcomings in portfolio management, reflected in lost profitability, in our opinion, there is also a more general problem of miscalculations in forecasting world market conditions for the medium term, which is typical, first of all, for investments in stocks and leads to «failures» of profitability during periods of crisis in these markets.

**Table 3. Asset Allocation of the National Fund as of December 31, 2018**

	Stabilization	Savings
Fixed Income Securities	12,89%	71,79%
Stocks	0%	20,96%
Money and money market instruments	87,11%	7,24%
Total	100%	100%

The largest share as of December 31, 2018 in the distribution of assets of the National Fund's savings portfolio in the country ratio is accounted for: the USA (45.88%), the Eurozone countries (15.71%), the UK (7.77%), Japan (7.61 %), Canada (5.97%), South Korea (5.99%), Australia (4.76%) and other countries (6.31%).

The prevalence of the formal approach to ensuring the given structure of the savings portfolio in the proportions of about 80% of bonds and 20% of shares means that a 20% share of the shares remains even in the face of approaching collapses in highly volatile stock markets and dooms the fund to losses for this part of the portfolio, which are quite could have been avoided. Confirmation of this assumption is the dynamics of the structure of the savings portfolio of the National Fund (tab. 4).

**Table 4. Investment structure of the savings portfolio of the National Fund in 2013-2018, %**

Savings portfolio						
Asset classes	2013	2014	2015	2016	2017	2018
Fixed Income Securities	67,6	71,3	79,0	77,2	75,1	71,79
Stocks	22,7	24,1	19,9	21,2	23,5	20,96
Money and money market instruments	9,7	4,6	1,1	1,6	1,5	7,24

The share of shares in this portfolio did not change significantly even during periods of high tension in world markets preceding their falls (2013, 2014, 2017), which led to a significant decrease, up to negative values of the yield and savings

portfolio, and assets of the National Fund in overall in 2014, 2015 and 2018. In 2018, due to a fall in stock markets under the Global Shares mandate, a loss of more than 10% was received.

This negative result largely led to a loss of the savings portfolio of 3.13% and a record negative return on the assets of the fund as a whole. In connection with the growth of volatility in world markets and the severe financial crisis, the policy on managing the savings portfolio needs to be reviewed urgently in order to increase its efficiency and the ability to quickly change the structure of investments.

### **1.3 Application of Norway experience in the functioning of the National Fund of Kazakhstan**

At the moment, the problem of insufficient control over the use of the Fund's incomes remains relevant. Its importance has especially increased in connection with the manifestation of signs of a systemic crisis in the current model of socio-economic development of Kazakhstan. All assets allocated from the Fund pass through the republican budget and become the subject of control by the Accounts Committee for Monitoring the Implementation of the Republican Budget.

At the same time, the capabilities of the Accounts Committee for independent control over the legality of using the Fund's assets remain limited (Kapparov, 2015; Shapagatova, 2011).

The international practice of monitoring the activities of welfare funds is based on the «Principles of Santiago» (generally accepted principles and practices of managing national welfare funds). This document is the main reference document released in 2008 by the International Working Group of Sovereign Wealth Funds. Kazakhstan is not a member of this profile group. As a result, the current legislation governing the activities of the Fund contradicts the Santiago Principles (IWG Sovereign Wealth Funds, 2008).

Since the foundation of the Fund and throughout its activities, all the main issues of its creation and activities were determined not by laws, but by acts of the president and executive bodies accountable to him. Thus, the president has practically unlimited possibilities for managing the Fund's funds (up to its abolition) without the need for coordination with other authorities and society. It is important to note that the great and almost unlimited opportunities for political interference on the part of the Fund by the president are due to the lack of control over the activities of the Fund by the parliament and the public and are a risk factor for the misuse of the funds of the Fund (Zlotnikova, 2004, p. 128).

The objective reality of the economic and political development of Kazakhstan at the current stage leads to a low probability of changing the above order of things in the short term and makes attempts to change the basic provisions of the formation and use of the Fund's funds inappropriate.

In 2004, the Presidential National Fund Management Council (hereinafter referred to as the Council) was formed, which consists of 10 senior officials, including the president who heads the Council. The functions of the Council are to develop proposals to improve the efficiency of the formation and employ of the Fund, consider and develop proposals on the volume and areas of use of the Fund, as well as on the list of permitted financial assets and other property (excluding intangible assets) for the placement of the Fund (Decree of the President of the Republic of Kazakhstan No. 1509 of December 28, 2004).

In 2014, the President of the Republic of Kazakhstan created the Commission to control the expenditure of funds allocated from the Fund (hereinafter referred to as the Commission), the chairman of which was appointed the chairman of the National Bank (with the consent of the Senate of the Parliament). The Commission included 8 senior officials in charge of economic and law enforcement areas, 2 deputies from the Senate and the Mazhilis of the parliament, 2 representatives of public organizations The National Chamber of Entrepreneurs and the Association of Financiers of Kazakhstan are organizations protecting the interests of the business community and the financial sector and a representative of the state fund Samruk-Kazyna (Decree of the President of the Republic of Kazakhstan No. 281 of April 14, 2014).

At the same time, the Commission does not include representatives of the non-governmental sector representing the interests of the general population. The body closest in functions to the declared Board of Trustees is the Commission for Monitoring the Spending of Funds Allocated from the Fund, established in 2014. Thus, the creation of a body to control the spending of funds allocated from the Fund took 14 years. At the same time, the practice of an annual report and discussion on the receipt and expenditure of the Fund's funds in parliament is still absent.

Global trends are of great interest in the functioning of such a lever of state macroeconomic regulation as sovereign wealth funds and their consideration in relation to Kazakhstan practice.

The purpose of modern SWFs goes far beyond simply saving money and redistributing them in favor of future generations (Panova, 2008).

Let us consider how the process of active increase in assets of sovereign funds affects the efficiency of using their funds in the framework of the state economic policy, in particular, maintaining a stable national currency rate.

And so, for comparison, consider the state of the SWF in Kazakhstan and Norway. Norwegian public finance is characterized by the fact that the Global State Pension Fund is the largest sovereign fund in the world. The volume of its funds is growing steadily and since 2009 exceeds the value of the country's gross domestic product. As of 2018, its assets

account for 317% of Norway's GDP. The dynamics of the Norwegian krone exchange rate against the US dollar shows that the national currency of Norway maintains a rather high degree of stability.

If we draw a parallel to the volumes of funds of national sovereign funds discussed above, it turns out that the domestic fund has small assets relative to Kazakhstan's GDP and is periodically depleted due to the active use of funds after each crisis. At the same time, the tenge rate in recent years is subject to significant fluctuations. Thus, the current volume of the National Fund of the Republic of Kazakhstan does not allow it to become a full-fledged «airbag» for the economy. The study allows us to conclude that a significant amount of funds of sovereign funds gives the state the opportunity to ensure greater stability of the national currency.

In this work, the Global Pension Fund Global was selected not only because Norway is on the first place in the list of the largest sovereign funds, but also because GPFG and the National Fund have some similarities.

For example, according to the organizational and legal management system, sovereign funds of Kazakhstan and Norway exist without creating separate legal entities, in the form of separate cash accounts. Thus, we can say that Global represents the account of the Ministry of Finance in Norway in the central bank of the country, and in Kazakhstan the account of the Government of the Republic of Kazakhstan in the National Bank of Kazakhstan. The main sources of the formation of these funds are oil and gas budget revenues.

GPFN Global is quite resistant to changes in oil prices. Consider the specific features of the formation of the Global Fund for the Protection of the Global Fund. The fund was founded in 1990. Despite its name, Global has no formal pension obligations. No policy decisions have been made as to when the fund could be used to cover future retirement expenses, and the probability of large amounts being withdrawn from the fund is limited. From this we can conclude that this fund is long-term.

The two principal objectives of the GPFG are to:

- 1) Support the long-term management of spending the government's proceeds from oil reserves, so the Fund helps the government hedge against the "Dutch disease", as well as keep the value of oil assets for future generations.
- 2) Under the National Insurance System promote savings to Finance pension expenses

The Ministry of Finance is responsible for the management of Global (in fact, they are managed by the central bank of Norway), however, it cannot manage its funds without the decision of the Norwegian parliament. The Ministry regularly transfers oil income to the fund, capital is invested abroad to avoid overheating of the Norwegian economy and protect it from the influences of fluctuations in oil prices.

Other major issues of the functioning of sovereign funds is their investment strategy (Elyakova, Moskvitina & Barahova, 2014).

The fund invests in international markets for stocks, bonds and real estate abroad. The goal is to compose a diversified investment portfolio. Managing such a portfolio implies the art of managing a set of different types of securities so that they not only maintain their value, but also bring in a steady income that does not depend on any risks.

As of April 2020, Norway's GPFG was the largest SWF in the world with more than 10,5 trillion Norwegian kroner (The Internet resource of the Government Pension Fund Global Norway).

GPFG is an investor in about 9,000 companies worldwide, whose management has been in the hands of Norges Bank Investment since 1998. Due to the established investment concepts, the Fund promotes good corporate governance standards and contributes to the modernization of the enterprise to the introduction of reliable environmental and social standards.

Since the 1970s, approximately 50% of Norway's oil reserves have been used up since the beginning of oil production; it is estimated that the remaining reserves will last for at least another 50 years. However, in 1996, the first transfer of Norwegian kroner for the sum 1.98 million was made and the value of the Fund increased to Norwegian kroner 10.5 billion as of April 2020, exceeding all expectations for the first 24 years of its existence. Overall, GPFG allowed revenues generated from oil to be more stable and long-term, while the value of the asset base was maintained rather than simply spent.

One of the key factors for the success of the GPFG is largely due to political restrictions and strict ethical concepts. All income from oil activities is invested in the Fund. The government will only have to manage the expected annual return of the Fund, which was limited to 4% by its 2001 budget policy, reduced to 3% in 2017.

Most SWFs are used to increase returns, regardless of the impact of their investment. Instead, the Norwegian GPFG follows the rules set by the ethics Council, a group of specialists in international law, Economics, human rights and environmental policy. The Fund will not invest in corporations that do not meet its social and environmental standards, regardless of their profitability.

The GPFG uses indices from Bloomberg Barclays and FTSE Group as benchmark indices. The actual benchmark index is based on the benchmark indices presented, with some modifications. Also, the GPFG invests in the equity markets of twenty countries not included in the GEISAC index, such as local Chinese equity (China A), Croatia, Saudi Arabia and Morocco.

Finally, the Government Pension Fund Global cannot invest in companies and sectors in violation of the ethical/environmental guidelines for the fund. This includes tobacco, coal and oil-sand companies.

Due to sudden movements in the market the GPFG can deviate from the strategic benchmark decided by the Ministry of Finance with a maximum deviation of an expected relative volatility of 1.25 percentage points.

The expected realized volatility is a measurement on how much the return on the GPFG is expected to deviate from the benchmark index return in a normal year (NBIM. Investment strategy, 2019).

Therefore, the GPFG in 2016 eliminated 73 companies from its investment portfolio founded on ethical perspectives. The group of blacklisted companies included great enterprises such as Philip Morris, Wal-Mart, Daewoo International, and Rio Tinto.

As for the management of the Fund, it can be noted that the work and prospects of the three state entities make it possible to ensure constant growth and efficiency of the Fund:

- On behalf of the Ministry of Finance, Norges Bank controls and manages the Fund's activities;
- The Ministry of Finance owns the Fund, making decisions on investment policy and ethical principles;
- All important changes and additions to the Fund's investment strategy are agreed and approved by the Storting.

The scheme of management of the petroleum Fund implies the existence of a clear mandate from the political authorities.

The management of the oil Fund is based on a law passed by the Parliament and an investment mandate issued by the Ministry of Finance. As the owner of the Fund, the Ministry of Finance has a separate asset management Department that is generally responsible for managing the Fund. Their responsibilities include: setting strategic asset allocation, both benchmarks and risk limits, monitoring and evaluating operations management, also responsible for investment practices and reporting to Parliament. Unlike, the Central Bank, as the operational Manager of the Fund, has a separate structure in its organizational pattern (Norges Bank Investment Management), which is assigned this responsibility. Its responsibilities are to implement the investment strategy and actively manage part of the Fund to achieve excess returns (Arezki, Gylfason & Sy, 2011). It is also responsible for risk control and reporting, and exercises the Fund's ownership rights. For oil revenue management, the main key factors are accountability and transparency, which help to build support . The Ministry of Finance reports to Parliament on all important issues related to the Fund and publishes all recommendations it receives from external consultants in an annual white paper. Every quarter, the results of operations, risks and costs are published on the Central Bank's website. These reports focus on the contribution to value creation in operational management. After



the official meeting with the Ministry of Finance, press conferences are held quarterly. Also, an annual report is published in the public domain, which lists all investments, both shares and fixed income.

Profit from oil and gas is transmitted to the fund, these deposits accounts for less than half the value of the fund. Most of it has been earned by putting in equities, fixed income and real estate.

The strategic distribution of assets in the investment portfolio of the Global Fund for Fundamental Funds is shown in Table 5.

Restrictions established by the Ministry of Finance on assets as of December 31, 2018:

- 1) shares - 50-70% of the market value of the fund;
- 2) real estate - 0-5% of the market value of the fund.

**Table 5. Data on the current distribution of portfolios in the Global Fund for the Management of Public Funds (as of 12/31/2018), %**

Portfolio class	Reference portfolio	Actual portfolio
Fixed Income	30	32.72
Equity	70	67.28
Total	100	100

At the end of 2019, the Fund was invested in 9,202 companies. Its average holding in global listed companies was 1.5% (Annual report of Norges Bank. Government Pension Fund Global, 2019).

Norway also benefits from rental income from buildings owned by the Fund in several of the world's leading cities. Income from lending to countries and companies. By spreading out its investments, it reduces the risk that the Fund will lose money. At the end of 2019, the Fund's investments covered about 74 countries and 50 currencies. 43.9% of the Fund's funds were invested in North America, compared to 43.0% a year earlier, 33.7% in Europe, compared to 34.1%, and 19.2% in the Asia-Pacific region, compared to 19.3%. The fixed income Fund's investments as of 2019 consisted of 4,608 securities from 1,777 issuers. These investments were distributed across 26 currencies.

**Table 6. The fund's largest holdings by country as at 31 December 2019, %**

Country	Total	Equity	Fixed income	Unlisted real estate
US	39.8	27.8	10.8	1.2
Japan	8.7	5.9	2.8	0.0
UK	8.1	6.1	1.4	0.6
Germany	5.7	3.4	2.2	0.1

France	5.6	3.6	1.5	0.5
Switzerland	3.7	3.2	0.4	0.1
Canada	2.6	1.5	1.1	-
China	3.1	3.0	0.1	-
Australia	2.0	1.4	0.6	-
Spain	1.9	1.2	0.7	0.0

At the end of 2019, GPFG had 1 024 billion kroner invested in equities and fixed-income stocks in emerging markets, down from 813 billion a year earlier. Investments in equities in frontier markets amounted to 13.3 billion kroner, against 21.8 billion kroner at the end of 2018.

Also has investments in five countries which not included in the FTSE index: Iceland, Moldova, Saudi Arabia, Tanzania and Ukraine. Some of these investments are in equities listed on exchanges in other countries.

2019 brought substantial volatility in equity markets and ended weakly. The fund's investments in progressed markets returned - 26,5%, while those in emerging markets returned -22.4%.

**Table 7. Return on the fund's largest equity investments in 2018 by country, %**

Country	Return in international currency	Return in local currency	Share of equity investments
US	31.1	31.4	39.8
UK	24.3	19.7	8.8
Japan	19.4	18.5	8.5
France	27	29.6	5.2
Germany	21.6	24.1	4.8
Switzerland	32.9	30.9	4.7
China	27.6	29.7	4.3
Canada	29.5	23.2	2.2
Australia	22	22.5	2.0
Netherlands	28.2	30.9	1.9

Source: NBIM annual report 2019

**Table 8. Return on the fund's equity investments in 2019 by sector. International currency. %**

Sector	Return	Share of equity investments
Financials	23.7	23.6
Technology	42.3	14.6

Industrials	30.3	13.4
Consumer goods	23.6	11.5
Health care	24.3	11.3
Consumer services	25.1	10.7
Oil and gas	12.9	5.0
Basic materials	18.3	4.4
Utilities	26.9	2.8
Telecommunications	13.9	2.7

*Source: NBIM annual report 2019*

All sectors delivered a positive return in 2019. Health care companies performed best with a return in 2018.

The investment in the technology company Microsoft Corp and Apple Inc. contributed the most to the fund's return in 2019, followed by consumer goods company Nestlé SA.

The largest investment was made in Apple Inc. These investments accounted for 1.6% of the Fund's equity portfolio and had a market value of 117 billion kronor at the end of the year. The rest of the Fund's top ten joint-stock holdings consisted of two consumer services corporations, three technology companies, two medical companies, an oil and gas company and a consumer goods company.

The mandate issued by the Ministry of Finance to Norges Bank expresses the long-term investment strategy for the Fund, including the strategic benchmark index and appurtenant provisions on the execution of the management assignment.

In 2017, the Parliament supported the government's proposal to increase the share of equity to 70%. Once implementation is complete, the fixed income portfolio will account for 30% of the strategic base index. Based on a long-term compromise between expected return and risk, the share of equity was selected.

The underlying index is based on the main global indices of leading suppliers, which largely reflect investment opportunities in the global equity and fixed income markets. Thus, the overall risk of the Fund is mainly the result of changes in the basic index established by the Ministry in the Fund's management.

The benchmark index adopted for the Fund's equity investments is prepared by FTSE Russell and includes all countries, with the exception of Norway, classified by the index provider as developed markets and secondary emerging markets.

Based on the principle of market weighting for stocks and corporate bonds, The distribution of the base index by country and geographical region is based. While for government bonds, it is based on the relative size of a country's economy as measured by gross domestic product (GDP weights).

The world's largest fund already owns shares in companies operating in the field of renewable energy. In recent years, the fund has become increasingly environmentally friendly - steps welcomed by the environmental lobby, although the changes are usually based solely on financial considerations.

Based on the overall assessment, the government suggests that companies classified as exploration and production companies should be excluded from the core GPFG's index and the investment universe. This will help to weaken the overall risk of absorption associated with these categories of activities in the Norwegian economy. Like Norges Bank's proposals, this analysis does not represent any certain opinion on the oil price, future stability of the oil sector.

The Government furthermore intends to assess, through accumulated experience, the accuracy of excluding exploration and production companies from the GPFG in terms of reducing oil price risk, based on developments in the composition of the energy sector over time.

The key contrast between GPFG and other analogous funds is that it permits you to effectively transform oil assets into an investment portfolio, so it resolves you to systematically manage funds and live not by the usual practice of spending the value of the asset itself, but by the return on investment. Recently the Norwegian State Pension Fund (GPFN), also known as the Norwegian Oil Fund, whose assets are valued at \$ 1 trillion, received permission from official Oslo to sell its oil and gas reserves totaling \$ 5.9 billion. Thus, the largest in the world, the oil fund, which aims to ensure the welfare of future generations of citizens of 5 millionth Norway, has confirmed its intention announced several years ago to gradually reduce investment in oil and gas companies in the world to a moderate level.

**Table 9 - History returns of fund's investments (Norway), %**

<b>Year</b>	<b>Fund</b>	<b>Equity investments</b>	<b>Fixed-income investments</b>	<b>Unlisted real estate investments</b>
2019	19.95	26.02	7.56	6.84
2018	-6.12	-9.49	0.56	7.53
2017	13.66	19.44	3.31	7.52
2016	6.92	8.72	4.32	0.78
2015	2.74	3.83	0.33	9.99
2014	7.58	7.90	6.88	10.42
2013	15.95	26.28	0.10	11.79
2012	13.42	18.06	6.68	5.77
2011	-2.54	-8.84	7.03	-4.37
2010	9.62	13.34	4.11	-

2009	25.62	34.27	12.49	-
2008	-23.31	-40.71	-0.54	-
2007	4.26	6.82	2.96	-
2006	7.92	17.04	1.93	-
2005	11.09	22.49	3.82	-
2004	8.94	13.00	6.10	-
2003	12.59	22.84	5.26	-
2002	-4.74	-24.39	9.90	-
2001	-2.47	-14.60	5.04	-
2000	2.49	-5.82	8.41	-
1999	12.44	34.81	-0.99	-
1998	9.26	-	9.31	-

*Source: NBIM annual report 2019*

One can see a decrease in interest in the purchase of shares in oil and gas companies by the GPFG and in its annually published reports. If in 2014 the Norwegian fund owned blocks of shares of 477 companies from this sector of the economy, then in 2018 their number dropped to 350. From the last annual report on the current state of affairs in the State Fund for Fundamental Investigation published on February 27, 2019, it follows that investments brought the greatest income in financial operations, high technology, consumer goods manufacturing, healthcare and consumer services, and only then in the oil and gas sector, building materials and telecommunications. The purchase of real estate abroad was also beneficial. The top five income earners in Norway are Microsoft, Apple, Amazon, Nestle, Alphabet Inc. If we expand this list to 10, then only one company from it is related to the oil and gas sector.

This is Royal Dutch Shell Plc Corporation. Followed by pharmaceutical giants Roche Holding and Novartis International, Facebook and Warren Buffett's Berkshire Hathaway.

According to the fund's reporting, the market value increased by 1.832 billion kroner to 10.088 billion kroner at the end of 2019.

At the same time, the investment income of the National Fund of Kazakhstan, created on the model and likeness of the Norwegian fund, for 2019 amounted to slightly more than \$ 4.2 billion, or 7.4%.

In conclusion, this chapter mentions the success of the Norwegian GPFG is largely due to the sufficient development of the entire economy of the country, the relatively low population, a disciplined legislative body and the separation of powers in controlling the activities of the fund. The fund helped the government maintain a non-cyclical financial rate by avoiding

high costs at high prices in order to avoid inflation, and providing money at low prices to avoid subsequent sharp cuts in spending. Although the advantages that Norway had at the time of the creation of the GPFG limited the acceptability of the Norwegian model of the fund in other countries, most of its success was achieved through the sharing of power, transparency and accountability, which are key components of its activities. These qualities must be applied in the oil fund of Kazakhstan. The transparency of spending contributes to public trust, professionalism and the strength of any natural resource fund.

In the next chapter we will review articles in which researchers show the positive dynamics of the Norwegian Fund, proving this using various econometric models and calculations. Also, examples of Alaska and Venezuelan funds were taken for comparison. After collating the funds of the three countries we were again convinced that the Norwegian Fund is the best practice for Kazakhstan.

## **2. LITERATURE REVIEW: MODELING TECHNIQUE OF SOVEREIGN FUNDS RESERVES CALCULATION**

Nowadays a sufficient number of works has been devoted to the study of the activities of sovereign wealth funds in world financial markets, including the structure and characteristics of their investment policies, among which the works of R. Beck & M. Fidora (2008), K. Balding (2009), S. Jen (2007), L. Bindelli (2008), S. Bershtein (2009), T. Sana'a (2009). Meanwhile, a deeper analysis regarding the impact of sovereign wealth investments on the value of financial assets can be found in the works of B. Borlotti, V. Fotak & W. J. Megginson (2008), J. Kotter & U. Lel (2008), C. Dewenter and others (2009).

The theory of sovereign fund management is based on the principles laid down in the middle of the last century by Harry Markowitz, the 1990 Nobel Prize laureate, in his main article of 1952 and subsequent work on portfolio investments in 1959 (The Journal of Finance, 1952, Vol. 7., No. 1; John Wiley & Sons, 1959, p. 344). Over the past 60 years, various authors have periodically revised the ideas presented by Markowitz (Roberts, 1981). And the Markowitz portfolio theory is still considered a key approach to the study of the effects of investment distribution risk, correlation and diversification of expected investment income. Although there are attempts to use a more advanced model for the formation of investment portfolios (Zopounidis, Doumpos & Fabozzi, 2014; Mainik, Mitov & Rüschenndorf, 2015).

Today there is no consensus on the optimal investment strategy for managing sovereign fund assets, including in terms of choosing the proportions of the allocation of funds by classes and types of assets. The choice of the optimal investment structure of the assets of these funds is to find a balance between the restrictions in force in the regulatory system and the features of the sovereign fund itself. In addition, the professional skills of investors and companies (in the case of external management) have a certain impact on this structure (Rambaud, Pérez, Granero & Segovia, 2009). Thus, sovereign wealth managers must determine an acceptable level of risk. So, the preference for one or another choice of the optimal risk level can be the maximum permissible deviation of the real financial result from the expected one, estimated at the end point of the investment horizon at the time of withdrawal of funds from the market. However, often the managers of newly created sovereign funds seek in every possible way to preserve the value of assets under management in real or nominal terms, which in fact means zero value of acceptable risk. Subsequently, upon receipt of at least any significant positive result, thereby reducing reputation risk, the managers of such funds allow themselves to increase the acceptable level of risk. Nevertheless, it is worth considering that sovereign wealth funds are primarily long-term institutional investors, and the daily (relatively low) volatility of investment income should not be a cause for concern. In order to assess and calculate profitability and risk targets, sovereign wealth fund managers use indicators and tools such as the minimum rate of return,

the maximum duration of the portfolio (bond duration), the limit value of the tracking error (tracking error), and the cost measure of risk (value-at-risk models), credit ratings (credit ratings), etc.

On the basis of R. Ibraev research (2014), the passive management (investment in indices) is the basis of the investment strategy of sovereign funds. Passive control means that the fund's investment portfolio is formed by investing in indices, and it's not so important how this strategy is implemented - through the purchase of all shares included in the index (with appropriate weights), through investments in the index mutual fund or through the acquisition of exchange-traded investment funds (ETFs).

According to some researchers, the optimal portfolio of sovereign funds should consist of a combination of financial assets that are minimally or negatively correlated with oil prices, especially for funds formed primarily through the sale of oil resources (Scherer, 2009). Therefore, often in order to maximize the diversification of the fund's investment portfolio, after agreeing with the main macroeconomic forecasts and benchmarks, various options for combining asset classes with the lowest or negative correlation are evaluated.

As it becomes clear, the final result of the strategic distribution of assets is the determination of the share (weight) of various asset classes, mainly corresponding to the key goals and objectives of the fund. In addition, it should be noted that the strategic distribution of assets is based on forecasts in the long term and does not include forecasts formed during the tactical distribution of assets (English tactical asset allocation), focused primarily on adjusting the weights of certain types of assets taking into account the ever-changing financial market conditions.

In practice, the formation of a long-term investment strategy among sovereign funds occurs in different ways. So, stabilization funds are characterized by a more conservative management because of its main purpose - to perform the function of hedging obligations that were adopted by budgets of different levels. In this regard, the asset management of such funds is carried out mainly with the aim of ensuring maximum safety and liquidity of invested funds, which is identical to the management of foreign exchange reserves of central banks with severe restrictions. In other words, the investment strategy is implemented in such a way that, first of all, the fund is characterized by the availability of the necessary liquidity in the case when it is necessary (IMF, 2004). Thus, the traditional types of investments managed by reserve (stabilization) funds are highly reliable bank deposits and high-quality government bonds (for example, the USA), as well as money market instruments and treasury bills with a repayment of one year.

According to one of the leaders of Global Insight (The Internet resource of Global Insight, 2020), sovereign funds are the newest leading force in the global financial market, replacing central banks as the largest lenders.



M.V. Danilina (2004), having analyzed the seven-level diversification of investments by the State financial pension fund, came to the conclusion that the investment risk is reduced and the probability of not receiving the planned income. Danilina uses the basic macroeconomic indicators such as GDP, GNF, budget, and export volume for construction. The main method for calculating the profitability of the fund's portfolio was the «monetary value» method. The State Bank checks the market value of the portfolio and calculates the weighted average income only at the end of the month. To do this, she used the weighted average monetary valuation method (modified Dietz method) determined using a special formula.

It can be suggested that Norway's experience in creating a stabilization fund can be useful in Kazakhstan. In particular, the funds of the Kazakhstan stabilization fund can also be invested in securities taking into account several levels of diversification.

N.D. Vasilyeva, A.V. Pakhomov, E.A. Pakhomova & O.N. Parkhovnik (2016) applied the classical theory of G. Markowitz, which describes the process of forming an optimal investment portfolio, to verify the correctness of the strategy used to manage the portfolio of Norway's state-owned Pension Fund Global. According to the G. Markowitz model, the expected return is calculated as the mathematical expectation of relative returns. Given the leading position of Norway in the ranking of the largest sovereign wealth funds, the calculations performed can help to understand the structure of sustainable economies with the aim of adapting this experience to the conditions of Kazakhstan.

According to M.M. Alektorskaya, A.V. Pakhomov & E. A. Pakhomova (2013), macroparameters can be affected by many factors, use the basic Y-Global indicators to construct their model, the dynamics of the Norwegian Pension Fund volumes and the X-oil prices, the period under review is from 2002-2020 (forecast). However, the reliability of the SF as a tool to reduce risk should mean that the volumes of its funds are not dependent on oil prices. They identified a model of the following form by using the Koyk model, which assumed the existence of a tempo  $\lambda$  ( $0 < \lambda < 1$ ). The resulting model describes the dynamics of the Norwegian SF volume and oil prices. The tempo  $\lambda$  is close to 1, this suggests that the lag effects of the factor on the result in time decrease to a small extent. So, oil prices practically do not affect the volume of revenues of the Norwegian Sovereign Fund, therefore, it can be called reliable. They conclude that with an increase in the period of the fund's activity, it is less subject to the influence of oil prices of the current period: possible risks are diversified throughout the period, and, therefore, knowledge of the object under consideration is close to the truth with a high degree of reliability.

According to findings of A. Ficova (2015), savings funds invest 1.97% in cash, and the most part of assets holds 54.12% in public equities. Stabilization and savings funds invest 39% in fixed income, pension reserve funds invest 42.80% in state

shares, and reserve investment funds own 41% in state shares. Savings funds have a different share of government shares in their portfolios, monetary indicators are excluded, with the exception of the Botswana pool Fund. Funds from the stabilization Fund are usually invested more in fixed-income instruments. Pension reserve funds had the most assets in cash, and on the other hand, reserve investment funds hold assets in the form of fixed income.

Michael G. Papaioannou and Bayasgalan Rentsendorj's (2015) introduced more information about the strategic capital allocation of the GPFG that extensively conforms with that of a Markowitz efficient frontier; a countercyclical valid asset management scope or elasticity in benchmark errors has worked well in the case of a large SWF that aimed to intensify long-term returns over time; and socially accountable investments have not apparently distorted the asset allocation returns and efficient frontier over time.

The GPFG's case has illustrated that countercyclical portfolio rebalancing has played an essential role in committing the set portfolio objectives, e.g., impedance of risk-adjusted returns over time (Ang, Goetzmann & Schaefer, 2009).

Authors Emami Karim and Adibpour Mehdi (2012) studied the relationship between oil shock and production growth in Iran using the SVAR model for the period 1959-2008. The results of the study show that favourable and adverse shocks of oil revenues significantly affect production growth both positively and negatively and are asymmetric. While the negative shock of oil revenues adversely affects economic growth, the resource curse hinders the expected affirmative effects of oil shocks. In overcoming the detrimental effects of the oil booms and downturns in the development of the Iranian economy, the creation of a stable situation in the oil sector and cost savings, diversification of the economy, elimination of the interdependence of government spending on oil revenues, and the introduction of fiscal rules for the state budget will be crucial.

Kim Dong Hyun (2012) explores the non-linear relationship between changes in oil prices and GDP growth, focusing on panel data from various industrialized countries. Countries included in this study: Australia, Canada, Germany, Netherlands, Great Britain and the USA. To this end, a flexible nonlinear derivation was performed for the analysis of panel data, where random error components are included in a flexible approach. The article presents clear evidence of the non-linearity of the panel and confirms the previously identified provisions on the statistical and economic significance of the increase in oil prices. The results of the study indicate that nonlinear oil-macroeconomic relations are usually observed in more industrialized countries, the author recommends using the nonlinear function of changing oil prices in forecasting GDP.

SWFs have become an essential class of institutional investors in term of their asset under management (AUM) (Boubakri, Cosset & Grira, 2017).

The term between the 2000s and 2018 experienced the formation of more than 80 SWFs, whereas their AUM has increased sharply from the \$1 trillion in the early 2000s to nearly \$7.97 trillion in 2018 (SWFI, 2018).

E. V. Morgunov (2002) provided background of the essence, content, experience and principles of functioning of the most successfully and stably operating fund - the Alaska Permanent Fund.

APFC uses both active and passive forms of management to minimize risk and maximize revenue. The Fund's portfolio of stocks is widely diverse, in terms of geography, management and investment approaches, which help reduce investment risks.

With growing experience, APFC's real estate strategy is changing. Today, APFC redeems 100% of the shares of the property in order to have it in full ownership. This ensures the control necessary to maximize the rate of return. APFC is also increasingly focusing on Real Estate Trust Investment (REIT) to increase the rate of return. The strategic plan of the Fund in the field of real estate has led to an increase in fully owned real estate up to 40%, partially owned real estate up to 10% and its REIT portfolio up to 20%. The stock portfolio of the Fund consists of shares of some of the most famous national and multinational companies. For example, AT&T, which in turn made a \$ 330 million investment in Alaska (Annual Report of Alaska Permanent Fund Corporation, 2018).

The permanent Fund consists of fixed capital that is not subject to write-off and a reserve income account that is subject to expenditure, which are invested using the same asset allocation. The Alaskan Constitution clearly States that the principal should only be used for income-generating investments. The reserve revenue account established in the Alaska Charter is available for appropriations.

The ERA is available for assignment; the Alaska state legislature and the Governor decide whether to use the era. Funds allocated to the ERA include: legislative net income (SNI) and unfulfilled receives or losses accruing from the investment of funds in the ERA.

First, APFC calculates the «income available for distribution» (a rolling 5-year average of the fund's SNI); half of that amount is appropriated for dividends each year.

Second, «an amount sufficient to offset the effect of inflation on the principal of the fund» is transferred from the ERA back to the principal.

The cost of managing the fund and its investments are also paid from the ERA each year.

All remaining income has remained in the ERA. This practice has ensured that funds remain available for the dividend and inflation proofing even in years when the fund realizes significant investment losses.

Statutes set out additional guidance for the Board, including direction regarding borrowing money, diversification, and attract investments. The Board's long-term investment goal is an average annual real (after accounting for inflation) rate of return of 5%.

The Fund's portfolio is measured against three benchmarks that are incorporated into APFC's Investment Policy:

- inactive index benchmark - the short-term productivity parameter for the Fund is based on a combination of passive indices reflecting a traditional portfolio of public stocks, fixed income and real estate investments;
- blended performance benchmark – the indicator is a blend of indices reflective of the target asset allocation and is used to assess the Fund's performance against peer investor results;
- total fund return objective - the Board's long-term investment goal for the Fund is to reach an average real rate of return of 5% per year, CPI/Inflation +5%, at risk levels consistent with large public and private funds.

Following the Board's policy direction, APFC's internal and external asset managers invest the fund under the supervision of APFC's executive director. External managers are generally used for investing globally in all asset classes, especially for specialized targeted investments. Internal management has historically focused on fixed income, but has been broadening into other areas over time.

For periods exceeding one year, all revenue is calculated on an annualized basis and provided by Callan Associates, Inc. The PESO portfolio is invested 79% in North America, 12% in Europe, 5% in Asia, and 4% in other geographies. PESO investments also span company lifecycles, from venture capital to growth equity and large buyouts (Annual Report of Alaska Permanent Fund Corporation, 2019). The PESO portfolio is diversified across industries, with particular emphasis on investing in software, healthcare, and financial services. The 2019 return was the highest achieved by any asset class for any year in APFC's history.

Overall, the Absolute Return portfolio generated a positive return in seven of the last 12 months and a 1.94% return for 2019 (Annual Report of Alaska Permanent Fund Corporation, 2019).

The Real Estate portfolio is invested across all property types: Industrial, Multifamily, Retail, Office, and Hotels.

The Alaska Permanent Fund Corp. reported that as of December 31 2019 had a total market value of \$66.3 billion and had returned 6.32% on its investments (Annual Report of Alaska Permanent Fund Corporation, 2019).

APFC employees will assist the Board in conducting an examine on the distribution of the Fund's assets at least once every five years. The key objective of the asset allocation study is to create a diversified portfolio using statistical modeling approach that defines scale of reasonable portfolio risks and a "long-term target" position for each asset class. The dividend program provided the Fund with broad support among Alaskans.

As of 2019, Alaskans who were registered consist of 631 000 people got their dividends in amount of \$1 606 (Alaska Department of Revenue / Permanent Fund Dividend Division, 2020). Already, oil revenues have declined significantly. However, through the fund's 43-year policy of transforming rents, primarily into financial quasi-rents, for the first time in 1998, the income of the Permanent Fund exceeded all state oil revenues.

In the mid-1970s, Venezuela established the Venezuelan Investment Fund (IFV) as a storehouse for its unexpectedly high revenues from oil production. Its resources were soon directed to the acquisition of a block of shares in state enterprises (included in the manufacturing sector), many of which, as it turned out, were unprofitable. Low oil prices during the 1980s and 1990s suspended further oil revenues from the Fund.

Stijn Claessens and Panos Varangis in the article of «Oil Price Instability, Hedging, and an Oil Stabilization Fund: The Case of Venezuela» (1994), they analyzed crisis situations faced by the Venezuelan fund, the risks of price changes have led to the strategy of using short-term hedging tools such as options , as well as for some long-term hedging using mainly over-the-counter options.

Stijn Claessens and Panos Varangis evaluated by a premium according to the Black model, estimates of the volatility of oil prices of futures prices implied by premiums for options on contracts quoted on that day. The WTI spot price received from DRI on a weekly base was used.

This simulation has shown that options can be helpful for steadying oil values in Venezuela.

The main advantage of using the optional algorithm in combining OSF is allows to avoid the major reductions and conglomeration of OSF. This shows the effectiveness of the joint strategy.

In this study, their aim to illustrate that the symptoms of the Dutch disease were especially caused by the influence of the market exchange rate and were further exacerbated by a weak monetary policy that was very contrary to market forces.

Falling oil prices, lowering tax rates, and slowing business activity affected the decrease in budget revenues in 2009, when expenses were supported by large injections from the National Fund of the Republic of Kazakhstan (NF RK), which receives all income from operations related to the oil sector, proceeds from privatization state ownership, as well as income from the sale of agricultural land.

In the article «Modeling of fiscal system development in Kazakhstan» published by Sh.A. Smagulova and N.Radko (2014), investigated the dependence of the state budget revenue on oil price volatility by conducting a correlation and regression analysis using the multiple regression model, the Granger test and the White test. The authors believe that Kazakhstan is highly dependent on the situation in world markets in general and the markets for fuel and raw materials, in particular. And since world prices for raw materials, especially oil and metals, are highly volatile, the development of the economy of Kazakhstan is becoming increasingly unstable, subject to the influence of foreign markets.

Having examined the various econometric models of the three countries, we can conclude that in most cases, many use the regression model to build the model. If talk about the National Fund of Kazakhstan, the most suitable model for application is the model applicable for Norway, one of which was considered by Pakhomova and Pakhomov. Also, in our methodology, using these variables, would like to build this model by analyzing the dependence of the fund's profitability on oil prices. Why the Norwegian model, since the custom of oil in Norway is under strict state control and the presence of strict long-term regulations, contributes to the reorientation of the Norwegian economy to the format of the knowledge economy. This experience should be claimed by Kazakhstan for the construction of a knowledge economy and the proper management of fund assets, for which, at a minimum, it is necessary to eliminate the raw material nature of the existing economic structure.

### CHAPTER 3. THE KEY CHALLENGES AND FUTURE DEVELOPMENT PATHS OF NATIONAL FUND

In 2000, when oil prices soared to \$ 28 per barrel, the problem of using unexpectedly increased revenues arose. The US Justice Department opened an investigation against an oil consultant James Giffen in relation to his alleged involvement in bribery schemes connected to high-ranking Kazakh officials and foreign oil companies (Tskhay, 2020). This investigation implicated then Kazakh President Nursultan Nazarbayev as well and was subsequently named «Kazakhgate». The arrest of James Giffen in April 2003 on charges of channeling millions of dollars to the bank accounts of senior officials of Kazakhstan finally emphasized the need to improve the transparency of oil and gas payments and Kazakhstan's income. The government developed the concept of creating an oil fund. The President issued a decree in August 2000, and in January 2001, the Fund's Regulations were adopted.

Oil revenues were deposited in a secret account in a Swiss bank. The account was opened in 1996 with a contribution of \$ 1 billion from the sale by Kazakhstan of its 20% stake in the Tengiz field to Mobil. To date, neither the Parliament nor the company has been provided with a financial audit report on the use of funds in these accounts. The first transfer to the NF RK in the amount of \$ 660 million was made after the sale of a 5% stake in the Tengiz Chevroil consortium and the corresponding bonus.

In March 2002, a coalition of members of Parliament representing the country's western oil-producing region, journalists, and the opposition organized the People's Oil Fund initiative and sent an open letter to the Ernst & Young audit company, which was published in the Wall Street Journal. In a letter to the audit company, it was proposed to publish the performances of its audit of the NF RK and demand the inclusion of independent observers in the Fund Management Council the following was recommended: transfer part of oil revenues to a separate fund for the development of oil producing regions, ensure transparency of oil and gas agreements, eliminate all secret foreign accounts and establish parliamentary control over the activities of the fund (Bagirov et.al., 2003).

As the NF grows, it is likely that the opposition will also grow if citizens are not given a share in it. At a meeting of the World Economic Forum on revenue transparency, Ernst & Young's managing partner for the CIS, Hans Jochum Horn, cited Norwegian experience, saying that public support was an essential link to support the national oil fund.

Kazakhstan has received notable technical assistance from the Norwegian State Oil Fund regarding investment strategies. However, despite this, the further economic development of our country depends in part on how successfully Kazakhstan can restructure the mechanism of the functioning of the National Fund in accordance with new development trends.

### **3.1 Ineffective management of the National Fund resources**

#### **3.1.1 Unlimited executive power in spending fund reserves**

The president has the following powers:

- the exclusive right to make decisions on the activities of the NF RK;
- the right to determine the target costs of the NF RK;
- the right to give binding instructions to the Government, the Fund Management Council and the National Bank on issues related to the NF RK;
- the right to approve the annual report of the Ministry of Finance and independent audits;
- the right to exercise control over activities related to the management of funds of the NF RK.

Perhaps the President's most important authority is his right to completely liquidate the NF RK. Since the fund was created by a presidential decree, all that is needed to greatly modify its position or to completely eliminate it is another presidential decree.

An analysis of the National Fund's activities by the World Bank said: «When an executive official is at the head of the oil fund, decisions to use the fund's income become political» (Petersen & Budina, 2002).

When creating the Fund, President Nazarbayev also promised to create a Board of Trustees consisting of representatives of the Government and NGOs, but in the end, a Board for managing the Fund was created, which is not independent.

The Council, headed by the President (which also has a casting vote), consists almost entirely of people appointed by him, including the Prime Minister, the head of the Presidential Administration, the Chairman of the National Bank, the Deputy Prime Minister, the Minister of Finance, and the speakers of both houses Parliament and Chairman of the Accounts Committee for Monitoring the Implementation of the Republican Budget. The Chairman of the National Bank and the Minister of Finance are members of the Fund Management Council, although both are already responsible for managing the fund. Only two speakers of the Parliament are not accountable to the President. However, they are also unlikely to be able to exercise independent control. The provisions of the fund do not specify the scope of inspections of the Council, do not make its decisions binding or authorize to request any information or to hold meetings to discuss disputed issues.

-To be effective, the Council must have a regular schedule of meetings and its powers must be clearly delineated. To improve accountability and public confidence, the Fund's management Board should include representatives of civil society and independent financiers. If we take for example, the Board of Trustees of the Permanent Foundation of Alaska, it includes two representatives of the Governor, but not the Governor himself. The other four Trustees cannot hold public



office and must have a recognized reputation and extensive experience in dealing with Finance and investment. Strict financial disclosure rules eliminate the risk of conflicts of interest.

### **3.1.2 Transparency issues**

Unlike the Norwegian, Azerbaijani and dozens of other sovereign funds, our National Fund, which has been operating for 20 years, does not have its own website, and there is no annual report. According to the analysis of the level of transparency, the National Fund received 2 points out of the maximum possible 10 points on the Linaburg-Madwell index. Information on the activities of the National Fund is scattered across the resources of the National Bank (the volume of the fund's assets, as well as brief information about managing the fund in the NB RK annual report) and the Ministry of Finance of the Republic of Kazakhstan (income and use report, the National Bank's balance sheet on trust management of the National Fund's funds) - a few pages of text and tables, several graphs. Appendix 5 compares the principles of disclosure of the NF RK of Kazakhstan and the funds of Alaska, Norway and Azerbaijan.

Of great concern is the possibility of appropriating oil revenues even before they get into the fund. Oil exchange transactions with neighboring countries, lower-than-market crude oil exports to Russia, transfer price transactions, oil sales through a tax-free zone in the Caribbean and other similar operations can lead to income that does not fall into the NF RK.

In order to solve this problem following steps should be approved:

- to introduce the practice of an annual report and discussion on the amount of revenues, expenditures of the Fund and its investment returns in parliament, as well as an annual independent external audit and publication of its results on the web-site;
- within the framework of international cooperation, Kazakhstan should become a full member of the Santiago Principles international organization and increase the transparency and accountability of the Fund in accordance with the recommendations of this organization;
- to ensure public access to quarterly and annual reports that disclose information on payments made by each company, estimated income and expenses, market value and contents of investment portfolios, investment methodology, as well as the financial report of the auditor in the same way as they are published by Global Pension Fund Global and the Permanent Fund Alaska.

### **3.1.3 Non-involvement of the Parliament in the activities of the National Fund**

Opposition to Government policy regarding NF RK is intensifying. The Parliament is especially dissatisfied with such a policy because of its non-involvement in the activities of the fund and its control (Kvyatkovskaya, 2001). Critics in both

Parliament and the press put forward the following three main arguments. The Fund should not exist in its current form. Proponents of this opinion argue that the oil funds of Norway and Alaska were created when these territories reached a high standard of living and resolved their pressing social problems. Kazakhstan, however, is plagued by high levels of poverty and a crisis in the fields of education, health and the environment. At the current level of spending, critics say the NF's stabilization function serves to institutionalize poverty, as it cannot be used to subsidize government spending. Critics believe that the Government must first solve primary social problems, and then create an oil fund that serves the accumulation and stabilization (Makalkin, 2001).

The IMF report on fiscal transparency in Kazakhstan notes the need for full integration of NFs into the budget system. In particular, the IMF proposes to open an article in the republican budget according to which all receipts to the NF RK and payments from it will be reflected in a consolidated form. It is also proposed to reflect this information in the annual audit report of the Accounts Committee, as well as in the report on the implementation of the republican budget. These measures would allow monitoring the effectiveness of the stabilization and savings functions of the NF RK.

The NF RK does not provide enough verification procedures. In Norway, diverse regulatory bodies are accountable to parliament, while in Kazakhstan, Parliament plays a minor role. In Norway, an oil fund was created by the legislature, and an oil fund in Alaska as a result of a referendum. In Kazakhstan, neither Parliament nor the public took part in the creation of the fund.

Unlike the Norwegian fund, according to the model of which it was created, the NF RK does not disclose the specific geographical distribution of its investments. It does not disclose in which companies NF has an equity participation and what is the market value of this participation. However, the experience of Norway has shown that a significant amount of funds provides greater efficiency in their placement.

Recommends related to the above-mentioned problem are:

- to delegate authority to manage the funds of the National Fund to the Parliament of the Republic of Kazakhstan. To improve reporting, Parliament needs to start by adopting a law on the creation of NFs. A foundation established by law is much harder to change than a foundation founded by presidential decree. Such a law should provide for more audits of the fund. For instance, it should provide for a medium- and long-term spending policy of the NF RK, which would establish annual limits for the allowable costs of the fund. The Law on NFs should also authorize the supervisory authority to establish conditional investment levels, determine the schedule of its meetings, conduct its investigations, request information and conduct interviews with experts, as well as publish its findings;

- it seems advisable that the Accounts Committee for monitoring the implementation of the republican budget should become directly subordinate and accountable to the Parliament of the Republic of Kazakhstan and be vested with a wider range of powers;
- provide public access to oil revenue forecast data. IMF / WB forecasts of expected oil revenues based on different price scenarios must be made available to citizens so that they have a clear picture of the government's expected revenues;
- provide information about the specific geographical distribution of its investments and market value of equity participation of invested companies.

### **3.1.4 Investments issues**

Unlike the Norwegian fund, according to the model of which it was created, the NF RK does not disclose the specific geographical distribution of its investments. It does not disclose in which companies NF has an equity participation and what is the market value of this participation. However, the experience of Norway has shown that a significant amount of funds provides greater efficiency in their placement.

The investment strategy of the National Fund should be improved by using the following rigorous recommendations:

- to revise investment strategy in terms of conservatism;
- to diversify the investment strategies of the National Fund by investing in technologies and renewable energy like GPFG, since any drop in oil prices will lead to negative consequences;
- in view of the unsatisfactory results demonstrated by the external managers under the Global Shares and Global Tactical Asset Allocation mandates, it is advisable either to refuse the external management services or to replace the external managers after they receive negative excess profit for one year;
- in order to reduce the impact of changes in the exchange rate of the US dollar on the investment return on assets, increase the currency diversification of the portfolio by reducing the share of assets in US dollars and increasing the share of assets in other currencies of developed countries.

### **3.2 Past research of the Kazakh public on the use of reserves of the National Fund of the Republic of Kazakhstan**

It should be noted that the issues of using the funds of the National Fund of the Republic of Kazakhstan were raised by the Kazakh public earlier.

So, for example, the famous economist A. Koshanov (2010) posed the question: why not use part of the Fund for internal accumulation purposes, to develop the manufacturing sector, which will bring a steady, stable income to the budget? «Industrial assets equipped with new technology, the latest equipment, and modern vehicles, education and healthcare

systems - all this, in his opinion, is a tremendous impulse for the country's own development, which does not cause inflation».

According to K. Berentaev (2013), the main result of a methodological error in creating the National Fund is the deprivation of its investment function, which has a depressing effect on the development of the Kazakhstan economy. In this regard, it becomes fundamentally important to give the fund an investment function and legislatively consolidate the directions for investing the National Fund in innovative projects. Another negative consequence of this methodological error is the wrong choice of macroeconomic policy priorities and, as a result, the fight against the imaginary threat of the «Dutch disease», which led to the freezing of national investment resources abroad instead of using them to modernize the Kazakhstan economy.

A. Ustimenko (2013), senior analyst at the Investment Profitability Research Agency, writes that «it seems important to partially reorient the National Fund of the Republic of Kazakhstan to the long-term goals of national development as soon as possible. Despite a number of potential risks, including those related to the growth of corruption opportunities and the misuse of part of the Fund's resources, this will significantly expand the state's ability to pursue a balanced development and diversification policy for the real sector of the economy, and in the future, increase the state budget revenues and improve the quality of Kazakhstan's lives , etc.».

A number of Russian scientists adhere to this position.

This position is shared by S. Glazyev (2013) «Being in its essence a form of capital export,» he writes, «an excessive reserve fund indicates the insufficient investment potential of the economy and cannot in any way stimulate the attraction of borrowed resources on «favorable» conditions. These conditions will obviously be less favorable than those on which Russian reserves are placed. The cessation of this self-ruinous policy will allow breaking the existing vicious circle of nonequivalent foreign economic exchange».

Thus, most researchers believe that the funds of the sovereign stabilization fund should be invested in innovative projects, to ensure sustainable economic growth in the long term.

According to economists S. Afontsev and N. Zubarevich (2012), one of the challenges that impede the achievement of long-term development priorities and radical improvement of Kazakhstan's position in global competition is a strong dependence on commodity exports, which in a period of high conjuncture increases the likelihood of developing a «Dutch disease», and a low period deprives the budget of a key source of revenue.

Given these circumstances, S. Afontsev & N. Zubarevich (2012) believe that it is advisable for Kazakhstan to choose a development strategy based on taking advantage of traditional (raw) specialization. «The emphasis should be on increasing the degree of processing of raw materials («diversification of the first type»), as well as on promoting the spread of growth impulses of services («diversification of the second type»).

The presence of accumulated funds in the country in the National Fund of the Republic of Kazakhstan creates a unique opportunity to give impetus to high-tech industries through internal investment.

However, it should be borne in mind that sectoral shifts in favor of high-tech industries are possible only with the corresponding development of scientific potential. Therefore, part of the income of the National Fund of the Republic of Kazakhstan should be directed to improving the level of education and science, the formation and improvement of research and development.

The National Fund of Kazakhstan, like most stabilization funds of other countries of the world, plays the role of a «safety cushion» during a crisis. Now Kazakhstan is faced with the task of finding new effective ways of investing the fund, to determine the direction of further development of the country. At the same time, the political risks associated with the opacity of the National Fund should be eliminated (Interfax Agency, 2020).

Financing of state programs is carried out not only from the National Fund, but also due to external debt. The Accounts Committee is worried that government debt and the debt of the quasi-public sector in 2017 amounted to 96.2% of the assets of the National Fund.

At the same time, the state's efforts to control and monitor the external debt of the quasi-public sector are not effective, as the debt of the local executive authorities and debt servicing costs continue to grow. The World Bank report also notes that the increase in debt of quasi-public sector entities (CGS) presents significant fiscal risks. These risks will increase in connection with the planned implementation of the gasification project of the national oil and gas company KazMunayGas, which will be financed mainly by attracting funds from international financial institutions (the total cost of the two stages is about \$ 1.1 billion), as well as the implementation of the government's plans to the construction of the fourth oil refinery (SKGS is supposed to be implemented).

The Spiegel magazine recently published the opinion of economist Henrik Müller. He is sure that the situation is worse now than in 2008, as the debts of the G20 countries rose from 200 to 240% of GDP. These data are provided with reference to the Bank for International Settlements in Basel. As a result, Muller and other economists fear a collapse in the banking sector, which will be greater than at the time of the ruin of Lehman Brothers.

The sharp decline in oil prices resulting from the global economic crisis due to coronavirus, as well as price wars between Saudi Arabia and Russia, could deprive Kazakhstan of significant revenues in 2020.

First Deputy Minister of Finance of Kazakhstan Shorpankulov said at a briefing on April 2 this year that, given the decline in world oil prices, it is expected that he will enter the National Fund of Kazakhstan in 2020 (Porokhova, 2014). Income from crude oil exports is about 1 trillion tenge.

Currently, the reserve balance of the national fund is 57 billion US dollars. According to the Ministry of Finance of Kazakhstan, in 2019, the income of the national fund of Kazakhstan amounted to 2.6 trillion tenge (excluding investment income). To fill the budget gap and raise funds for anti-crisis measures, the government of Kazakhstan intends to adopt a budget amendment to increase the amount of guaranteed transfer payments from the National Fund in 2020 by 2 trillion tenge to 4.7 trillion tenge.

Thus, the current crisis in economy clearly shows that National Fund is highly dependent on oil revenues. The current volume of the National Fund of the Republic of Kazakhstan allows it to become a full-fledged «airbag» for the economy. However, the Government, in the framework of reducing dependence on oil revenues, needs to take measures to diversify the country's economy as well as the investment strategy of investing of the National Fund. It is impossible to endlessly increase the tax burden on the oil sector, the profitability of which falls amid falling oil prices.

## **4. METHODOLOGY**

### **4.1. Methodology and limitations**

This part of research shows empirical research and results of changes in the National Fund assets during its functioning.

Population, sample size, data used, techniques for analysis will be shown at this part as well.

The main limitation of the study is the lack of access to materials with up-to-date information on the development, implementation and evaluation of policies on the research topic. The list of such materials includes the following:

- analytical documents of relevant government agencies;
- detailed information on the sources of formation, investment and use of the Fund's resources, including criteria for making decisions on the allocation of funds in the form of targeted transfers;
- conclusions of external consultants on budget policy;
- the results of an independent assessment of the effectiveness of the Fund (including investment policy, legislative regulation, asset management quality).

The study offers only institutional recommendations of state policy on the use of the Fund in the form of diversification the investment policy in order to minimize dependence on oil revenues.

### **4.2. Population Size**

The study population consists of statistical data of the National Fund, chosen for the nineteen years period.

### **4.3. Collection of Data**

To perform this study data was collected from published annual reports, open official sources (Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan, Ministry of National Economy, Ministry of Finance, National Bank of the Republic of Kazakhstan) of the National Fund for both dependent and open international sources (international organizations - World Bank, International Monetary Fund) for independent variables for the study.

For the study, the following data analysis methods were used:

- comparative analysis of statistical data;
- institutional analysis of the activities of the Fund;
- time series econometric modeling (linear regression).

The main indicators and research variables are the following:

- fund revenues in billions of US dollars,
- tax revenues in billions of US dollars,

- investment income to the Fund in billion US dollars, %,
- withdrawals from the Fund in billion US dollars,
- guaranteed transfers in billions of US dollars and tenge,
- oil production with gas condensate, mln. tonnes,
- surplus/deficit of the republican budget in billions of US dollars and tenge,
- KZT/USD exchange rate,
- investment returns of the GPFG Norway, %,
- annual returns of S&P 500 index, %,
- inflation rate, in %.

The following work was carried out as part of the study:

- analysis of statistical data on the work of the Fund;
- analysis of the legislation regulating the activities of the Fund;
- analysis of Kazakh and foreign literature on the functioning of the Fund and similar funds abroad.

### **Linear regression model**

Linear regression is a model of the dependence of variable  $x$  on one or more other variables (factors, regressors, independent variables) with a linear dependence function.

### **Fitting the regression line**

Suppose that there are  $n$  data points  $\{(x_i, y_i), i = 1, \dots, n\}$ . The function characterizing  $x$  and  $y$  is:

$$y_i = \alpha + \beta x_i + \varepsilon_i.$$

The goal of linear regression is to find the line that best matches these points:

$$y = \alpha + \beta x,$$

The “best” way to understand linear regression is to calculate its coefficients using the least squares method. In other words,

$\alpha$ ( $y$ -intercept) and  $\beta$  (slope) solve the following minimization problem:

$$\text{Find } \min_{\alpha, \beta} Q(\alpha, \beta), \quad \text{for } Q(\alpha, \beta) = \sum_{i=1}^n \varepsilon_i^2 = \sum_{i=1}^n (y_i - \alpha - \beta x_i)^2$$

By using either calculation, the geometry of internal product area, or simply expanding to get a quadratic expression in  $\alpha$  and  $\beta$ , it can be presented that the values of  $\alpha$  and  $\beta$  that minimize the objective function  $Q$  are



$$\begin{aligned}
\hat{\beta} &= \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sum_{i=1}^n (x_i - \bar{x})^2} \\
&= \frac{\sum_{i=1}^n x_i y_i - \frac{1}{n} \sum_{i=1}^n x_i \sum_{j=1}^n y_j}{\sum_{i=1}^n x_i^2 - \frac{1}{n} (\sum_{i=1}^n x_i)^2} \\
&= \frac{\overline{xy} - \bar{x}\bar{y}}{\overline{x^2} - \bar{x}^2} = \frac{\text{Cov}[x, y]}{\text{Var}[x]} \\
&= r_{xy} \frac{s_y}{s_x}, \\
\hat{\alpha} &= \bar{y} - \hat{\beta} \bar{x},
\end{aligned}$$

where  $r_{xy}$  is the sample correlation coefficient among  $x$  and  $y$ ; and  $s_x$  and  $s_y$  are the sample standard deviation of  $x$  and  $y$ .

A horizontal bar above a quantity means the average amount of that quantity.

For instance:

$$\overline{xy} = \frac{1}{n} \sum_{i=1}^n x_i y_i.$$

Substituting the above expressions for and into

$$y = \alpha + \beta x,$$

yields

$$\frac{f - \bar{y}}{s_y} = r_{xy} \frac{x - \bar{x}}{s_x}$$

This shows that  $r_{xy}$  is the slant of the regression line of the normalized information points.

Also can to count  $r_{xy}$  from the data independently by this formula:

$$r_{xy} = \frac{\overline{xy} - \bar{x}\bar{y}}{\sqrt{(\overline{x^2} - \bar{x}^2)(\overline{y^2} - \bar{y}^2)}}$$

The coefficient of determination is equivalent to when the pattern is linear with an individual free parameter.

#### 4.5. Proposition testing:

P 1: Tax revenues have predominantly influence to the amount of National Fund reserves.

P2: The tax revenues of oil companies depend on the price of oil.

P3: Higher volume of oil production and gas condensate shows increase of the National Fund.

P4: The size of guaranteed transfers from the National Fund depends on the surplus/deficit of the republican budget, oil prices, KZT/USD exchange rate.

P5: The yield of the national Fund's portfolio depends on the trend of global financial markets.

### 4.6 Analysis and Findings

Description of the econometric model. The methodology used a linear regression model to assess the internal relationships between certain factors. A number of hypotheses are put forward, which are checked statistically.

**P 1. Tax revenues have predominantly influence to the amount of National Fund reserves.**

Explained variable (Y) - annual revenues to the Fund in billions of US dollars. As an explanatory variables (X) are the tax revenues in billions of US dollars, investment income in billions of US dollars and withdrawals in billions of US dollars, since they determine the key role in the amount of income to the Fund. The period based on historical data for 2001-2019.

$$Y = 6.86 - 2.153 X_1 + 1.067 X_2 + 0.75 X_3$$

**Regression**

**Variables Entered/Removed<sup>a</sup>**

Mode 1	Variables Entered	Variables Removed	Method
1	Tax revenues in bln. \$, Investment income, in bln. \$, Withdrawals, in bln. \$	.	Enter

a. Dependent Variable: The Fund revenues, in bln. \$  
b. All requested variables entered.

**Model Summary**

Mode 1	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,837 <sup>a</sup>	,700	,640	15,99942

a. Predictors: (Constant), Tax revenues in bln. \$, Investment income, in bln. \$, Exemptions, in bln. \$

**ANOVA<sup>a</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8988,448831	3	2996,15	11,70455	,000 <sup>b</sup>
	Residual	3839,723148	15	255,9815		
	Total	12828,17198	18			

a. Dependent Variable: The Fund revenues, in bln. \$

**Coefficients<sup>a</sup>**

Unstandardized Coefficients		T	Sig.
B	Std. Error		
6,864	6,270	1,095	0,290
-2,154	0,658	-3,274	0,005
1,067	0,525	2,034	0,060
0,757	0,378	1,997	0,064

a. Dependent Variable: The Fund revenues, in bln. \$

Results prove the hypothesis. R square is 0.700. It means tax revenues as opposed to investment income and withdrawals have a significant influence to the Fund revenues amount. It can be noted that the highest coefficient of tax revenues shows that they make up the lion's share of the volume of the National Fund.

## P 2. The tax revenues of oil companies depend on the price of oil.

Explained variable (Y) - annual tax revenues to the Fund in billions of US dollars. As an explanatory variable (X) is the price of oil (in US dollars per barrel of Brent crude oil), since almost the entire amount of income to the Fund is formed from tax deductions of oil companies. The period based on historical data for 2001-2019.

$$Y = -8.268 + 0.264 * X$$

In the constructed model, the oil price describes 92% (adjusted R-square) of the dynamics of tax income to the Fund, which indicates the statistical significance of the model. Interpretation of simulation result: change in the price of oil by \$ 1 leads to an increase in income to the Fund in the amount of \$ 264 million.

Proposition 2 should be accepted, because tax revenues could potentially bring both increase and decrease in fund revenues.

Results of analysis is shown below.

### Regression

Variables Entered/Removed<sup>a</sup>

Model	Variables Entered	Variables Removed	Method
1	Tax revenues in bln. \$, Oil price, in \$/bbl.	.	Enter

a. Dependent Variable: Tax revenues, in bln. \$

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,962 <sup>a</sup>	,927	,922	2,18943

a. Predictors: (Constant), Oil price, in \$/bbl.

ANOVA<sup>a</sup>

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1033,132	1	1033,13	215,5228	,000 <sup>b</sup>
	Residual	81,491	17	4,7936		
	Total	1114,623	18			

a. Dependent Variable: Tax revenues, in bln. \$

Coefficients<sup>a</sup>

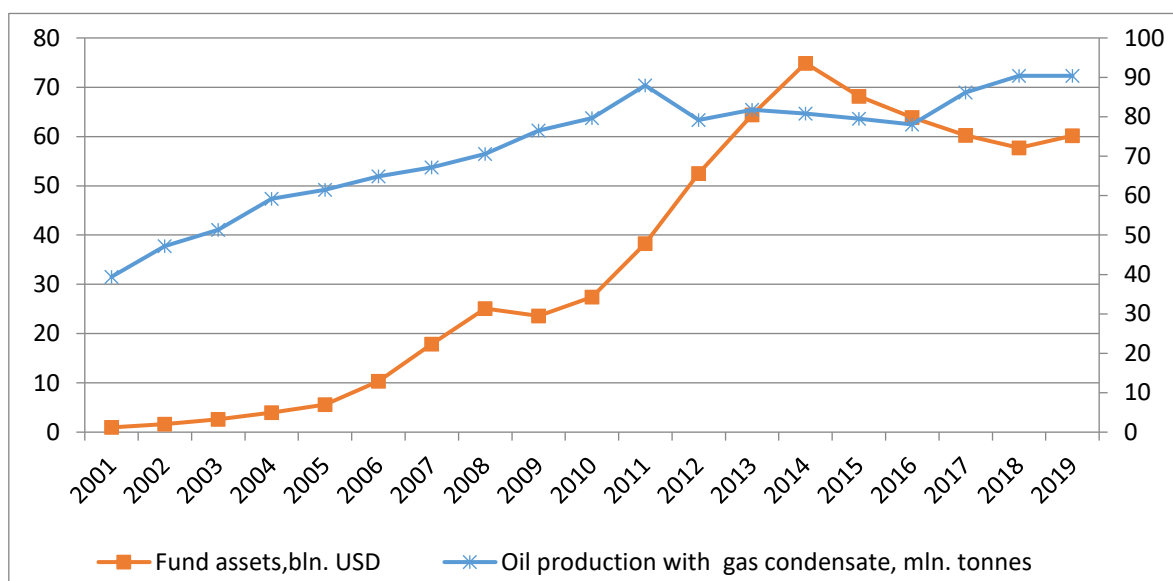
Unstandardized Coefficients		T	Sig.
B	Std. Error		
-8,268	1,304	-6,340	0,000
0,264	0,0179	14,680	0,000

a. Dependent Variable: Tax revenues, in bln. \$

## P 3. Higher volume of oil production and gas condensate shows increase of the National Fund.

Explained variable (Y) - annual revenues to the Fund in billions of US dollars. As an explanatory variable (X) is the oil production with gas condensate in millions of tons. The period based on historical data for 2001-2019.

To describe the strength of the relationship between the Fund and the volume of production, the correlation coefficient was used, which is also called the Pearson correlation coefficient. It ranges from -1 to 1 and in our case is equal to 0,83.



**Chart 9. The dependence of the National Fund on oil production with gas condensate**

The final result of calculating the correlation matrix is presented in the figure below.

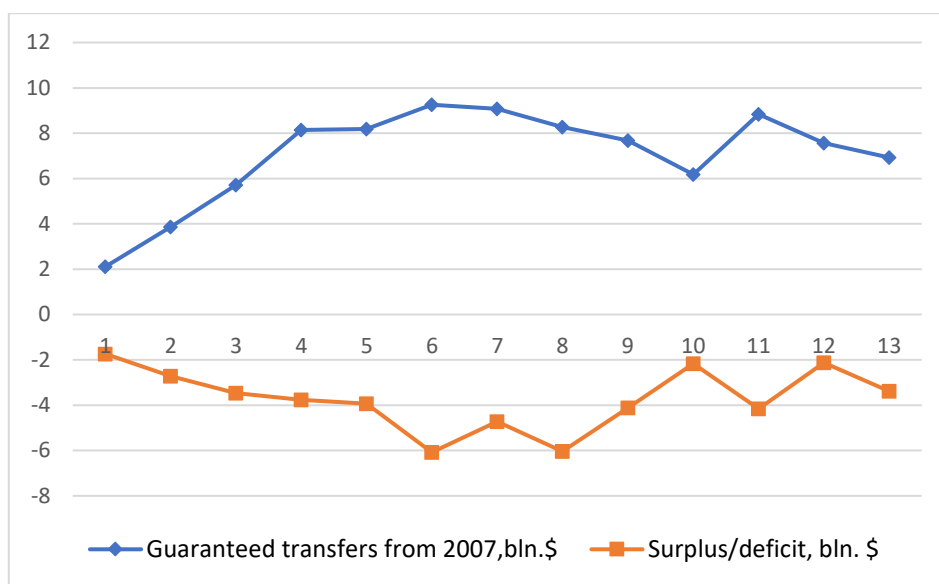
	<i>Fund assets, bln. USD</i>	<i>Oil production with gas condensate, mln. tonnes</i>
Fund assets, bln. USD	1	
Oil production with gas condensate, mln. tonnes	<b>0,832994208</b>	1

Fund's assets have a direct close relationship with the oil production with gas condensate volume, i.e. the higher the volume of oil and gas condensate produced, the more revenue is observed in the Fund.

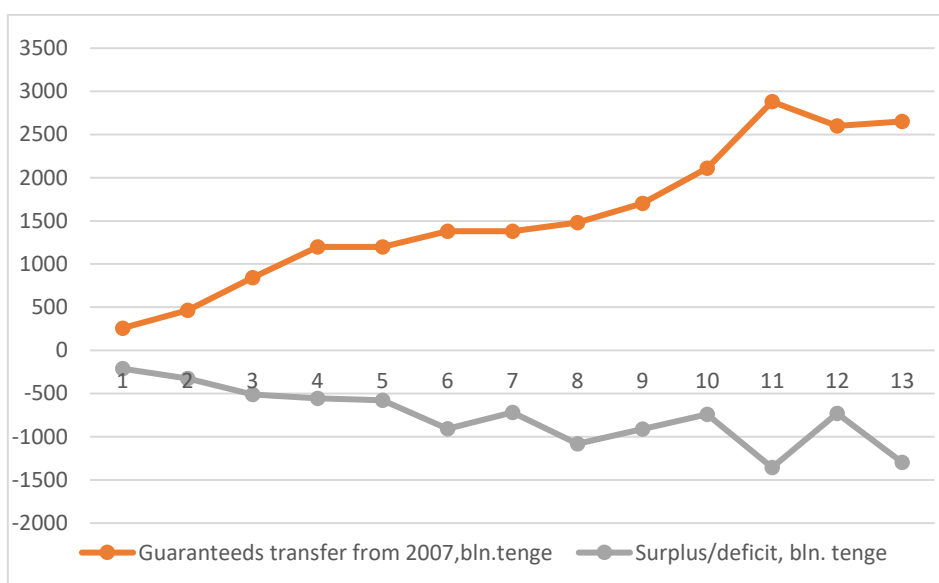
Proposition 3 should be accepted, because oil with gas condensate production growth illustrates increase in amount of the Fund.

**P 4. The size of guaranteed transfers from the National Fund depends on the surplus/deficit of the Republican budget, oil prices, KZT/USD exchange rate.**

Explained variable (Y) – guaranteed transfers from the Fund in billions of US dollars. As an explanatory variables (X) are the surplus/deficit of Republican budget in billions of US dollars, price of oil (in US dollars per barrel of Brent crude oil) and KZT/USD exchange rate. The period based on historical data for 2007-2019 since the first transfer amount was carried out to the Republican budget from the National Fund in the seventh year of operation - in 2007.



**Chart 10. The dependence of guaranteed transfers on the surplus / deficit of the Republican budget, bln. \$**



**Chart 11. The dependence of guaranteed transfers on the surplus / deficit of the Republican budget, bln. tenge**

Correlation coefficient is equal to - 0,72 which indicates there is an inverse proportional dependence of the surplus/deficit of the Republican budget and guaranteed transfers from the National Fund (see Chart 10 and Chart 11).

### Regression

#### Variables Entered/Removed<sup>a</sup>

Mode	Variables Entered	Variables Removed	Method
1	Surplus/deficit, in bln. \$, Oil price, in \$/bbl., KZT/USD	.	Enter

- a. Dependent Variable: Guaranteed transfers, in bln. \$  
b. All requested variables entered.

#### Model Summary

Mode	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,848 <sup>a</sup>	,720	,627	1,293

- a. Predictors: (Constant), Surplus/deficit, in bln. \$, Oil price, in \$/bbl., KZT/USD

ANOVA<sup>a</sup>

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	38,78786	3	12,92929	7,730207	,007 <sup>b</sup>
	Residual	15,0531	9	1,672567		
	Total	53,84096	12			

a. Dependent Variable: Guaranteed transfers, in bln. \$

Coefficients<sup>a</sup>

Unstandardized Coefficients		T	Sig.
B	Std. Error		
-1,21223	2,500	-0,4847	0,63941
-1,19649	0,326	-3,669	0,00516
0,016635	0,023	0,702	0,49991
0,011648	0,005	2,311	0,04610

a. Dependent Variable: Guaranteed transfers, in bln. \$

Results prove the hypothesis. R square is 72% which indicates the selected factors have significant influence on the model.

It should be noted that through legislative changes at the initiative of the Government, the surplus / deficit of the Republican budget can be periodically reviewed. When the surplus/deficit of the budget increases, the volume of guaranteed transfers increases.

Such relationship are the result of external shocks caused by ongoing adjustment of the budget policy in terms of the National Fund without any justification, as well as the uneven payment of guaranteed transfers (the average KZT/USD exchange rate during the year does not always correspond to the moment of devaluation). Also, oil prices have an inverse correlation with the exchange rate (i.e. the lower the price of oil, the higher the rate of \$ to Kazakhstan tenge).

It is expected to allocate a guaranteed transfer of 4.525 million tenge in 2020 regarding anti-crisis measures that arose as a result of the global COVID-19 pandemic and crisis.

This underscores the increasing role and importance of guaranteed transfers in financing the country's socio-economic development.

It is important to mention that if increasing the volume of guaranteed and targeted transfers keep continuing, which make up to 100% of the total expenses of the fund, then in aggregate this will create the risks of spending not only the profitable part, but also the accumulations of the National Fund themselves in the current mode.

#### **P 5. The investment income of the national Fund's portfolio depends on the trend of global financial markets.**

In the analysis, the independent variables were taken as the investment income of GPFNG Norway and the annual returns of S&P 500 index.

The result of calculating the correlation matrix is presented in the figure below.

	<i>Investment income of the National fund of Kazakhstan, %</i>	<i>Investment income of the GPFNG Norway, %</i>	<i>S&amp;P 500</i>
Investment income of the National fund of Kazakhstan, %	1		
Investment income of the GPFNG Norway, %	<b>0,6288668</b>	1	
S&P 500	<b>0,618156418</b>	0,925908563	1

Investment strategies of both Kazakhstan and Norway's oil funds have a direct relationship, as well as the S&P 500 index which represents the indicator of financial market. The average investment return of the National Fund for 20 years amounted to 3,5%, while for the Norwegian fund it amounted to 7,9 exceeding the yield of stock markets with average returns 6,4% for the corresponding period. The current profitability indicators illustrate the conservativeness of the portfolio, i.e. the profitability of the assets of the National Fund is proportional to the structure of their placement in certain financial instruments. The main classes of financial instruments in the structure of the National Fund's assets were bonds and stocks, which is why the situation on the global stock markets and bond markets has a major impact on the fund's profitability. Also, important the influence of government bonds of developing countries, which make up 60% of the savings portfolio (up to 2019 - 70%) whose yield is lower than the inflation rate in the country.

It indicates that the current strategy of the Fund is subject to be diversified in the long-term perspective into a well-balanced portfolio in order to maintain the priority function - savings of the National Fund reserves and their enhancing. Hypothesis is proved.

## Conclusion

Kazakhstan faced such simultaneous challenges as the COVID-19 and the rapid fall in the oil price for the first time. The effect of sharp decline in oil prices, resulting from the global economic crisis on oil revenue fund which is ought to stabilize the state expenditure showed structural weaknesses associated with inefficient management and opacity.

In this regard, the issue of preserving the Fund's reserves and their effective use remains relevant.

Kazakhstan will further overcome consequences of the global financial and economic crisis and successfully evolve if the Kazakhstan wealth fund is effectively managed and reasonably invested within the nearest years. The fund was previously involved in saving the economy and banks in previous years of financial crises. From the beginning of the formation of the NF RK to 2020, assets in the NF RK were conservatively accumulating, which turned out to be useful to limit the impact of the current crisis.

However, despite this, the further economic development of our country depends in part on how successfully Kazakhstan can restructure the mechanism of the functioning of the National Fund in accordance with new development trends.

Moreover, current thesis was aimed to provide proposals to increase profitability of its reserves in order to reduce the National Fund dependence on oil price.

Summing up the results of the thesis research the following conclusions and recommendations were determined:

At first, analysis of statistical data on the Fund activities and the legislation regulating of its activities for 19 years. To develop options for solving the problems, international experience on the mechanisms for using the reserves of similar funds in different countries was analyzed. Investigating the same funds in Norway, Alaska and Venezuela some recommendations for improving the fund's effectiveness were defined. The main ones are the practice of full annual report and website, discussion on the amount of revenues and expenditures in Parliament in order to increase the transparency of the Fund, diversification of its investment strategy, as well as an access to results of annual independent external audit.

At second the following propositions were tested to analyze the influence of each factor on the National Fund:

P 1: Tax revenues have predominantly influence to the amount of National Fund reserves.

P2: The tax revenues of oil companies depend on the price of oil.

P3: Higher volume of oil production and gas condensate shows increase of the National Fund.

P4: The size of guaranteed transfers from the National Fund depends on the surplus/deficit of the republican budget, oil prices, KZT/USD exchange rate.

P5: The yield of the national Fund's portfolio depends on the trend of global financial markets.



Proposition testing showed results that are present below:

1. Tax revenues as opposed to investment income and withdrawals have a significant influence to the Fund revenues amount, so Proposition 1 was accepted, tax revenues gives the higher amount of the Fund reserves.
2. Change in the price of oil leads to change of tax revenues which could potentially bring both increase and decrease in fund revenues.
3. Oil with gas condensate production growth illustrates increase in amount of the Fund, so Proposition 3 should be accepted.
4. The increase in surplus/deficit of the Republican budget, oil price and KZT/USD exchange rate leads to guaranteed transfers growth from the National Fund, so Proposition 4 was accepted, higher amount of surplus/deficit in budget and devaluation gives increase in overall guaranteed transfer amount.
5. The threat of maintaining the loss-making of the fund's investment activities for 20 years has grown significantly due to the conservative structure of the NF RK portfolios, which are consist of low-yield government bonds, so Proposition 5 was accepted. The current investment strategy reduces reserves in the long run and should be diversified into a well-balanced portfolio in order to save and enhance the National Fund reserves.

To conclude all the information presented above, it is important to mention that all these data, unfortunately, indicate that the oil dependence of the budget is not decreasing, but growing. In our opinion, in aggregate, this creates the risks of spending not only the revenue side, but also the accumulations of the National Fund themselves in the current mode.

The new rules of the National Fund's activities are an important step, and ensuring the transparency of arbitrary sampling of its reserves is necessary to prevent the depletion of its assets in the long term.

Kazakhstan may also consider developing a practice that would allow the Fund to invest in assets that are inversely related to oil prices. On the basis of the emerging experience of other large national welfare funds, in particular, Norway, the state could contribute to the development of sectors strategically important for investments (high-tech industries, for example) and related to the «green» economy. Thus, we will create conditions for the development of the country not as a raw materials appendage of the whole world, but as a highly developed country with a developed processing, knowledge-intensive industry.

Therefore, we strongly believe that taking into consideration above mentioned reasons and using recent provided data our master thesis research will be considered a new contribution to the research in this field.

Some difficulties were faced by us during the whole investigation, and the main obstacle was lack of information about the specific geographical distribution of the Fund investments and market value of equity participation of invested companies.

## References

1. Afontsev, S., Zubarevich, N. (2012). Prostranstvennoe razvitie kak mehanizm modernizacii Respubliki Kazakhstan. [Spatial development as a mechanism of modernization of the Republic of Kazakhstan]. Economic issue, 5, 54. [in Russian].
2. Alaska Department of Revenue / Permanent Fund Dividend Division (2020). Retrieved from <https://pfd.alaska.gov/Division-Info/Summary-of-Applications-and-Payments>.
3. Alektorskaya, M., Pakhomov, A., Pakhomova, E. (2013). Suverennyj fond v ekonomike znaniy [Sovereign wealth Fund in the knowledge economy]. Collection of scientific papers SWorld, 2, 30, 63-65. [in Russian].
4. Ang, A., Goetzmann W., and Schaefer, S. (2009). Evaluation of Active Management of the Norwegian Government Pension Fund Global. Retrieved from: <http://www.regjeringen.no>.
5. Annual report (2019) of the National Bank of the Republic of Kazakhstan for 2018, 102. [in Russian].
6. Annual Report of Alaska Permanent Fund Corporation (2018). Retrieved from <https://apfc.org/fund-news/2018-annual-report/>.
7. Annual Report of Alaska Permanent Fund Corporation (2019). Retrieved from [file:///C:/Users/Lenovo/Downloads/2019-APFC-Annual-Report%20\(1\).pdf](file:///C:/Users/Lenovo/Downloads/2019-APFC-Annual-Report%20(1).pdf).
8. Annual report of Norges Bank (2019). Government Pension Fund Global.
9. Arezki, R., Gylfason, T., Sy A. (2011). Beyond the curse: policies to harness the power of natural resources. Washington, DC: International Monetary Fund.
10. Auty, R. M. (1993). Sustaining Development in Mineral Economies: The Resource Curse Thesis. London: Routledge.
11. Bagirov, S., Akmedov, I., Tsalik, S., Stiglitz Joseph E. (2003). *Caspian Oil Windfalls: Who Will Benefit?* New York: Caspian Revenue Watch.
12. Balding, C. (2009). Framing Sovereign Wealth Funds: What We Know and Need to Know // University of California, Irvine.
13. Beck, R., Fidora, M. (2008). The Impact of Sovereign Wealth Funds on Global Financial Markets // European Central Bank Occasional Paper, 91.
14. Berentaev, K. (2013). Kogda kopija huzhe originala. [When the copy is worse than the original]. Central Asia Monitor. p. 6.[in Russian].

15. Bernstein, S., Lerner, J., Schoar, A. (2009). The Investment Strategies of Sovereign Wealth Funds. Working Paper // Harvard Business School.
16. Borlotti, B., Fotak, V., Megginson, W. (2008). The financial Impact of SWF Investments in Listed Companies / University of Oklahoma, FEEM.
17. Boubakri, N., Cosset, J., Gira, J. (2017). «Sovereign wealth funds investment effects on target firms' competitors». *Emerging Markets Review*, 30, 96-112.
18. BP Statistical Review of World Energy (2014).
19. Claessens, S., Varangis, P. (1994). Oil price instability, hedging and an oil stabilization fund: The case of Venezuela. International Economics Department The World Bank.
20. Coelho, P., McClure, J. (1998). Social Context and the Utility of Wealth: Addressing the Markowitz Challenge. *Journal of Economic Behavior & Organization*. 37, 3, 305–314.
21. Danilina, M. (2004). Funkcionirovanie gosudarstvennogo neftjanogo stabilizacionnogo fonda (opyt Norvegii). [The functioning of the state oil stabilization fund (the experience of Norway)]. *Problems of forecasting*, 4, 59-69. Retrieved from <http://ecfor.ru/publication/funktsionirovanie-gosudarstvennogo-neftyanogo-stabilizatsionnogofonda>. [in Russian].
22. Decree of the President of the Republic of Kazakhstan of December 28, 2004 No. 1509 «On Certain Issues of the Council for the management of the National Fund of the Republic of Kazakhstan».
23. Decree of the President of April 18, 2014 No. 281 «On the Commission for monitoring the spending of reserves allocated from the National Fund of the Republic of Kazakhstan».
24. Decree of the President of the Republic of Kazakhstan of April 2, 2010 No. 962 «On the concept of formation and use of the National Fund of the Republic of Kazakhstan». [in Russian].
25. Decree of the President of the Republic of Kazakhstan of August 29, 2019 No. 641 «On a guaranteed transfer from the National Fund of the Republic of Kazakhstan». [in Russian].
26. Decree of the President of the Republic of Kazakhstan of August 2, 2019 No. 86 "On amendments to the Decree of the President of the Republic of Kazakhstan of December 8, 2016 No. 385 «On the Concept of the formation and use of funds of the National Fund of the Republic of Kazakhstan».[in Russian].
27. Decree of the President of the Republic of Kazakhstan of January 29, 2001 No. 543 "On Certain Issues of the Council for the Management of the National Fund of the Republic of Kazakhstan". [in Russian].

28. Dewenter, K., Han, X., Malatesta, P. (2009). Firm Values and Sovereign Wealth Fund Investments. University of Washington, USA.
29. Dodonov, V. (2019). The effectiveness of asset management of the national fund of the Republic of Kazakhstan: the main factors and challenges. *Kazakhstan-Spectrum Journal*, 92, 7-18. [in Russian].
30. Elyakova, I., Moskvitina E., Barahova V. (2014). Evaluation of the implementation of investment strategies of sovereign funds of Russia and Norway. *Concept*, 20:4581–4585. [in Russian].
31. Emami, K., Adibpour, M. (2012). Oil income shocks and economic growth in Iran. *Economic Modelling*, 29 (5):1774-1779.
32. Ficova, A. (2015). *Analysis of Sovereign Wealth Funds: From Asset Allocations to Growth*.
33. Glazyev, S. (2013). O celjah, problemah i merah gosudarstvennoj politiki razvitija i integracii. [About the goals, problems and measures of the state policy of development and integration]. Retrieved from <http://www.glazev.ru/scienexpert/305/>. [in Russian].
34. Global Insight (2020). Retrieved from [www.ihs.com](http://www.ihs.com);
35. Guidelines for foreign exchange reserve management (2004). Washington, D.C.: International Monetary Fund.
36. Ibraev, R. (2014). Investicionnye strategii suverennyh fondov: Analiz struktury upravlenija [Investment strategies of sovereign funds: management structure analysis]. [in Russian].
37. IMF (2012). *Macroeconomic policy frameworks for resource-rich developing countries*.
38. IMF Country Report No. 14/259 (2014). *2014 Article IV Consultation – Staff report; Staff Supplement: Press Release: And Statement by the executive Director for Norway*. Retrieved from <https://www.imf.org/external/pubs/ft/scr/2014/cr14259.pdf>.
39. IMF Staff Discussion Note SDN/12/0 (2012). *Fiscal Frameworks for Resource Rich Developing Countries*.
40. Interfax Agency, Nur-Sultan. (2020). Business section of the Embassy in Kazakhstan.
41. IWG Sovereign Wealth Funds (2008). *Generally Accepted Principles and Practices («Santiago Principles»)*, 7. Retrieved from [https://www.ifswf.org/sites/default/files/santiagoprinciples\\_0\\_0.pdf](https://www.ifswf.org/sites/default/files/santiagoprinciples_0_0.pdf).
42. Jen, S. (2007). *How Big Could SWFs Be by 2015?* // Morgan Stanley.; Jen, S., Bindelli, L. (2008). *SWF's Impact on Financial Assets* // Morgan Stanley.
43. Kapparov, K. (2015). Target transfers from the National fund of Kazakhstan: short-term concessions to the detriment of long-term development? *Soros Foundation-Kazakhstan*. [in Russian].

44. Kim, D. (2012). What is an oil shock? Panel data evidence. *Empirical Economics*, 43(1): 121-143.
45. Koshanov, A. (2010). Nacional'nye ekonomicheskie interesy i otnosheniya sobstvennosti. [National economic interests and property relations]. Almaty: Daik-Press, 2, 223. [in Russian].
46. Kotter, J., Lel, U. (2008). Friends or Foes? The Stock Price Impact of Sovereign Wealth Fund Investments and the Price of Keeping Secrets. *International Finance Discussion Papers*, 940. Board of Governors of the Federal Reserve System.
47. Kudrin, A. (2006). Mechanisms for the formation of non-oil and gas balance of the budget of Russia. *Journal of Economics*, 8, 4-16. [in Russian].
48. Kvyatkovskaya, T. (2001). Delovoe obozrenie Respublika. [Business review of the Republic]. [in Russian].
49. Mainik, G., Mitov, G., Rüschenndorf, L. (2015). Portfolio Optimization for Heavy-Tailed Assets: Extreme Risk Index vs. Markowitz. *Journal of Empirical Finance*. 32, 115–134.
50. Makalkin, V. (2001). Interview in the publication "To A society without corruption". [in Russian];
51. Mamyshev Zh. (2020). Kursiv.kz. Retrieved from <https://kursiv.kz/news/finansy/2020-03/na-borbu-s-posledstviyami-koronavirusa-vozmot-dengi-iz-nacfonda>. [in Russian].
52. Markowitz H. (1959). *Portfolio Selection: Efficient Diversification of Investments*. New York, John Wiley & Sons. p. 344.
53. Markowitz, H. (1952). Portfolio Selection. *The Journal of Finance*. 7, 1.
54. Morgunov, E. (2002). Fond Budushhih Pokolenij: sushhnost' i sodержanie (na primere postojannogo fonda Aljaski). [Foundation for Future Generations: the essence and content (on the example of the Permanent Fund of Alaska)]. Thesis of reports. *GUU Bulletin, series "Institutional Economics"*, 3, 179-186. [in Russian].
55. National report (2012, 2013) «On the implementation of the Extractive Industries Transparency Initiative in the Republic of Kazakhstan» (short version).
56. NBIM (2019). Investment strategy. Retrieved from <https://www.nbim.no/en/the-fund/how-we-invest/investmentstrategy/>.
57. OECD (2011). *Russian Federation: Economic Surveys*.
58. OECD (2016). *Multi-dimensional Review of Kazakhstan: Volume 1. Initial Assessment*, OECD Development Pathways. OECD Publishing, Paris. Retrieved from <http://dx.doi.org/10.1787/9789264246768-en>.
59. Panova, G. (2008). Sovereign Funds of the Russian Federation: Issues of formation, placement and use. *Vestnik Finansovoj akademii*, (2):43–56. [in Russian].

60. Papaioannou, M., Rentsendorj's, B. (2015). Sovereign Wealth Fund Asset Allocations—some stylized facts on the Norway Pension Fund Global.
61. Pernebaev, K., Sagyndykova, Zh. (2007). International experience in the development of National funds. Retrieved from <http://www.spik.kz/articles/profit/2007-11-07/mezhdunarodnyy-opyt-razvitiya-nacionalnyh-fondov>. [in Russian].
62. Petersen, C., Budina. N. (2002). Management Fund of Oil Funds: Examples of Azerbaijan and Kazakhstan. Report at the WB Workshop on Oil Revenue Management, Washington.
63. Porokhov, E. (2014). Ustojchivoe razvitie strany i pravovye mehanizmy realizacii principa transparentnosti pri ispol'zovanii sredstv nacional'nogo fonda respubliki Kazakhstan. [Sustainable development of the country and legal mechanisms for implementing the principle of transparency in the use of funds of the national Fund of the Republic of Kazakhstan]. p. 176. [in Russian].
64. Rambaud, S., Pérez, J., Granero, M., Segovia, J. (2009). Markowitz's Model with Euclidean Vector Spaces. *European Journal of Operational Research*. 196, 3, 1245–1248.
65. Report on receipts and use of the National Fund of the Republic of Kazakhstan for 2001-2019. The official Internet resource of the Ministry of Finance of the Republic of Kazakhstan. URL: <http://www.minfin.gov.kz/> (2020, May 15). [in Russian].
66. Resolution of the Board of the National Bank of the Republic of Kazakhstan of July 25, 2006 No. 65 on approval of the Rules for the implementation of investment operations of the National Fund of the Republic of Kazakhstan. (amended as of August 21, 2019).
67. Roberts, G. (1981). Portfolio Theory, 25 Years Later: Essays in Honor of Harry Markowitz:. Elton, E. and Gruber, M., eds. *Journal of Banking & Finance*. 5, 2, 286–288.
68. San, T., Hesse, H. (2009). Sovereign Wealth Funds and Financial Stability // IMF Working Paper.
69. Saparova, K. (2015). Review of the press release of the Ministry of Finance of the Republic of Kazakhstan No. 24 on the Agreement «On trust Management of the National Fund of the Republic of Kazakhstan» dated May 30, 2001. [in Russian].
70. Scherer, B. (2009). A Note on Portfolio Choice for Sovereign Wealth Funds . *Financial Markets and Portfolio Management*. 23, 3.
71. Shapagatova, B. (2011). National Fund of the Republic of Kazakhstan: investments in sustainable development. *Soros Foundation-Kazakhstan*, 31. [in Russian].

72. Smagulova, Sh., Radko, N. (2014). Modelirovanie razvitiya bjudzhetno-nalogovoj sistemy Kazakhstana [Modeling of fiscal system development in Kazakhstan]. KazEU Bulletin, 3(98), 143-157. [in Russian].
73. SWFI (2018). Sovereign Wealth Fund Rankings, Sovereign Wealth Fund Institute. Retrieved from [www.swfinstitute.org/sovereign-wealth-fund-rankings/](http://www.swfinstitute.org/sovereign-wealth-fund-rankings/).
74. Syrlybaeva, N. (2010). Tax policy at oil enterprises. Extended abstract of candidate's thesis of economic sciences. [in Russian].
75. The code of the Republic of Kazakhstan of December 25, 2017 No. 120-VI about taxes and other mandatory payments to the budget of the Republic of Kazakhstan. [in Russian].
76. The internet resource of the Government Pension Fund Global Norway. URL: <[www.nbim.no](http://www.nbim.no)> (2020, May 1).
77. The internet resource of the Government Pension Fund Global Norway. URL: <[www.nbim.no](http://www.nbim.no)> (2020, May 1).
78. The internet resource of the Permanent Oil Fund of Alaska (USA). URL: <[apfc.org](http://apfc.org)> (2020, May 10).
79. The internet web-site: Total.kz. Retrieved from [https://total.kz/ru/news/ekonomika\\_sobitiya/skolko\\_videljeno\\_iz\\_natsfonda\\_i\\_enpf\\_na\\_podderzhku\\_bankov\\_s\\_2008\\_goda\\_zapros\\_date\\_2019\\_11\\_19\\_11\\_52\\_42](https://total.kz/ru/news/ekonomika_sobitiya/skolko_videljeno_iz_natsfonda_i_enpf_na_podderzhku_bankov_s_2008_goda_zapros_date_2019_11_19_11_52_42). [in Russian].
80. Tskhay, A. (2020). Global Norm Compliance: A study on implementation of the Extractive Industries Transparency Initiative. EITI implementation in Kazakhstan: Overcoming hurdles to reach compliance: Springer; 1, 211.
81. Ustimenko, A. (2013). Nacional'nyj fond RK: izmeneniya nazreli. [National Fund of the Republic of Kazakhstan: changes are overdue], 3(58). Retrieved from <http://www.kazenergy.com/ru/3-58-2013/9597.html>. [in Russian].
82. Vasilyeva, N., Pakhomov, A., Pakhomova, E., Parkhovnuk, O. (2016). Zarubezhnyj opyt upravleniya investicionnym portfelem suverennoogo fonda. [Foreign experience of managing the investment portfolio of the sovereign fund]. [in Russian].
83. World Bank (2013). Kazakhstan - Oil rules: Kazakhstan's policy options in a downturn. Joint Economic Research Program.
84. Zlotnikova, S. (2004). Problems and prospects of the National Fund of the Republic of Kazakhstan. Materials of research. Almaty: PF Transparency Kazakhstan. [in Russian].
85. Zopounidis, C., Doumpos, M., Fabozzi, F. (2014). Preface to the Special Issue: 60 Years Following Harry Markowitz's Contributions in Portfolio Theory and Operations Research. European Journal of Operational Research. 234, 2, 343–345.



**Appendix 1**
**The structure of revenues to the National Fund of Kazakhstan for the period from 2001-2019**

<b>Revenues in the NF RK</b>	<b>Total tax revenues from oil sector enterprises, thousand tenge</b>	<b>Other income, thousand tenge</b>	<b>Investment income, thousand tenge</b>	<b>Total income to the National Fund, thousand tenge</b>	<b>The proportion of tax revenue, %</b>	<b>The proportion of other income, %</b>	<b>The proportion of investment income, %</b>	<b>The proportion of all revenues in the NF RK, %</b>
2001	88 528 743	98 729 023	10 096 227	197 353 993	44,8	50,02	5,11	100
2002	39 781 113	61 691 613	8 074 548	109 547 274	36,3	56,3	7,37	100
2003	123 615 342	101 892 310	4 043 647	229 551 299	53,8	44,38	1,76	100
2004	120 792 925	32 046 505	-13 526 459	139 312 971	86,7	23,003	-9,70	100
2005	343 635 415	25 622 861	44 455 468	413 713 744	83,06	6,19	10,74	100
2006	672 113 949	27 157 129	75 035 594	774 306 672	86,8	3,5	9,69	100
2007	1 037 094 009	6 255 349	95 920 984	1 139 270 342	91,03	0,54	8,41	100
2008	1 700 475 542	18 289 262	-66 237 514	1 652 527 290	102,9	1,106	-4,008	100
2009	1 371 362 802	6 737 612	919 317 487	2 297 417 901	59,6	0,29	40,015	100
2010	2 256 345 640	17 204 111	134 173 641	2 407 723 392	93,7	0,71	5,57	100
2011	3 360 214 852	15 026 223	112 802 527	3 488 043 602	96,3	0,43	3,23	100

2012	3 411 930 969	48 294 150	383 659 598	3 843 884 717	88,7	1,25	9,98	100
2013	3 396 515 722	35 828 607	559 259 992	3 991 604 321	85,09	0,89	14,01	100
2014	3 467 394 959	37 252 200	1 862 203 663	5 366 850 822	64,6	0,69	34,69	100
2015	1 613 152 949	17 851 643	10 162 625 919	11 793 630 511	13,6	0,15	86,17	100
2016	1 130 056 792	10 661 378	-155 070 646	985 647 524	114,6	1,08	-15,73	100
2017	2 001 135 951	49 676 348	1 429 000 167	3 479 812 466	57,5	1,42	41,06	100
2018	3 200 814 177	32 457 815	2 522 315 717	575 5587 709	55,6	0,56	43,82	100
2019	2 837 206 845	46 227 294	1 179 047 511	4 062 481 650	69,8	1,13	29,02	100

## Appendix 2

### The structure of tax revenues of the NF RK

<b>Tax revenues from oil and gas companies</b>	<b>Corporate income tax</b>	<b>Excess profit tax</b>	<b>Value added tax</b>	<b>Bonuses from oil sector organizations</b>	<b>Royalty</b>	<b>Mineral extraction tax</b>	<b>Rental tax on exports, crude oil, gas condensate</b>	<b>Share of RK in the division of production under concluded contracts</b>	<b>Additional payment of a subsoil user operating under a production sharing contract from the organization of the oil sector</b>	<b>Total tax revenue</b>
2001	76,5	-	0,019	0,08	23,3	-	-	-	-	100
2002	88,17	-	0,4	-	2,78	-	-	8,6	-	100
2003	58,09	-	-	0,24	31,4	-	-	9,18	-	100
2004	86,39	-	-	-	11,1	-	-	2,4	-	100
2005	79,56	-	-	-	20,4	-	-	4,04	-	100
2006	70,00	0,011	-	0,046	26,4	-	0,03	3,41	-	100
2007	66,82	11,25	-	1,057	16,5	-	0,05	4,29	0,0001	100
2008	60,07	11,67	-	1,40	21,5	-	0,05	5,20	-	100
2009	40,79	17,01	-	0,33	-	23,1	14,9	3,83	-	100
2010	35,76	4,69	-	0,159	-	34,3	20,8	4,16	-	100
2011	35,52	3,25	-	1,45	-	29,4	24,5	5,82	-	100
2012	34,83	4,3	-	0,89	-	29,8	23,6	6,43	-	100
2013	38,49	2,39	-	0,88	-	28,1	21,6	10,52	-	100
2014	37,71	2,35	-	0,86	-	27,5	21,1	10,31	-	100
2015	35,15	4,06	-	1,99	-	28,5	14,0	16,18	-	100

2016	38,75	3,14	-	12,08	-	24,6	10,5	10,8	-	100
2017	39,11	2,52	-	0,25	-	31,2	12,5	14,28	-	100
2018	42,9	1,76	-	0,28	-	14,5	15,2	22,65	2,62	100
2019	44	3,86	-	0,25	-	11,9	15,1	22,7	2,2	100

**Appendix 3****Income and Exemptions of National Fund during the period from 2001-2019, thousand tenge**

<b>Years</b>	<b>Income</b>	<b>Exemptions</b>
2001	197 353 993	7 546 324
2002	109 547 274	244 287
2003	229 551 299	428 434
2004	139 312 971	524 247
2005	413 713 744	724 981
2006	774 306 672	918 912
2007	1 139 270 342	259 317 396
2008	1 652 527 290	1 075 095 373
2009	2 297 417 901	1 107 498 030
2010	2 407 723 392	1 203 982 229
2011	3 488 043 602	1 204 132 712
2012	3 843 884 717	1 385 701 111
2013	3 991 604 321	1 412 035 945
2014	5 366 850 822	1 963 658 571
2015	11 793 630 511	2 468 570 853
2016	985 647 524	2 874 382 751
2017	3 479 812 466	8 841 822 998
2018	5 755 587 709	2 618 074 427
2019	4 062 481 650	3 083 987 307

## Appendix 4

Schedule of provision of information materials and financial statements by the National Bank of the Republic of Kazakhstan on activities related to the trust management of the National Fund of the Republic of Kazakhstan

Approved by the decree of the government of the Republic of Kazakhstan No. 1045, dated August 9, 2001.

<b>Name of the report / content of the report</b>	<b>Frequency of submission</b>	<b>Deadline for submission</b>	<b>to whom it is submitted</b>
1. Distribution of assets in the National Fund of the Republic of Kazakhstan by classes and types of currencies at the end of the reporting quarter	On quarterly basis	Within 30 (thirty) calendar days following the reporting period	Government of the Republic of Kazakhstan
2. Composition of the portfolio of the National Fund of the Republic of Kazakhstan at the end of the reporting quarter	On quarterly basis	Within 30 (thirty) calendar days following the reporting period	Government of the Republic of Kazakhstan
3. Report on concluded transactions with assets of the National Fund of the Republic of Kazakhstan for the reporting period	On quarterly basis	Within 30 (thirty) calendar days following the reporting period	Government of the Republic of Kazakhstan
4. Analysis of the results of portfolio management of the National Fund of the Republic of Kazakhstan for the reporting period	On quarterly basis	Within 30 (thirty) calendar days following the reporting period	Government of the Republic of Kazakhstan
5. Statement of reconciliation of the movement of money of the National Fund of the Republic of Kazakhstan as of the 1st day	monthly	After receiving the report from the Treasury Committee of the Ministry of Finance to the Treasury Committee of the Ministry of Finance of RK	Government of the Republic of Kazakhstan
6. Report on the results of trust management of the National Fund of the Republic of Kazakhstan on the 1st day	monthly and yearly	as of the first day	Government of the Republic of Kazakhstan

7. A report on the results of trust management by National Fund of Kazakhstan approved by the resolution of Board of National Bank of Kazakhstan	quarterly and annually	Within 30 (thirty) calendar days following the reporting period	Government of the Republic of Kazakhstan
8. Written report on the state of financial markets and their impact on the portfolio, economic overview	annually	Within 30 (thirty) calendar days following the reporting period	Government of the Republic of Kazakhstan
9. Overview of the strategy and explanation of the most important changes in the portfolio structure, current investment strategy	annually	Within 30 (thirty) calendar days following the reporting period	Government of the Republic of Kazakhstan

## Appendix 5

### Comparison of Internet sites of four National Funds

<b>Type of information offered</b>	<b>Norway</b>	<b>Alaska</b>	<b>Kazakhstan</b>
Annual report published in full	Yes	Yes	No
External auditor's report	Yes	Yes	No
Companies/ indexes where the Fund's funds are placed	Yes	Yes	No
Market value of the amount of assets in each company	Yes	Yes	No
The source of profit.	Yes	Yes	No
Risk-based investment and management methodology	Yes	Yes	No +2
Announcement of tenders.	Yes	No	Partially +3
Decisions, laws, and rules for managing the oil Fund.	Yes	Yes	Yes
Income on the securities portfolio.	Yes	Yes	No
Forecast of the Fund size.	Yes	Yes	
Capital inflow	Yes	Yes	Yes
Capital inflows, with a division at the source.	No	Yes	Yes +1
Expenses.	Yes	Yes	Yes
Expenses with a division by their types. Statement of principles for publishing information	No +1	Yes	Yes
Statement of principles for publishing information.	Yes	Yes	No
External asset managers.	Yes	Yes	No
Reports and recommendations provided to the Government by NF managers.	Yes	No	No
Daily position of the Fund	No	Yes	No