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«Pension provision of Kazakhstan: problems and perspectives»

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Written by Zhansaya Zholdasbay

Supervisor: Roman Dovolnov

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M. Narikbayev KAZGUU University

«PENSION PROVISION OF KAZAKHSTAN: PROBLEMS AND PERSPECTIVES»

Zhansaya Zholdasbay

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«Approved»

Supervisor's First and Last Name _____

Supervisor's Signature _____

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List of Abbreviations

ADB- Asian Development Bank

AFS- Agency of the Republic of Kazakhstan for Regulation and Supervision of the Financial

Market and Financial Organizations

AMCs- Asset Management Companies

AOW- The Algemene Ouderdomswet

CIS- Commonwealth of Independent States

DB- Defined-Benefit Pension Schemes

DC- Defined-Contribution Pension Schemes

GDP- Gross Domestic Product

IIT- Individual Income Tax

ILR- International Labor Organization

KASE- Kazakhstan Stock Exchange

KZT- Kazakh tenge

MLSP- Ministry of Labour and Social Protection

MPC- Mandatory Pension Contributions

MPPC- Mandatory Professional Pension Contributions

NBK- National Bank of Kazakhstan

NDC- Notional Defined Contribution

NSAF- Non-State Savings Funds

PAYGO- Pay-As-You-Go Pension

PF- Pension Fund

SAF- State Accumulative Fund

SSF- The State Savings Fund

UAPF- JSC «Unified Accumulative Pension Fund»

USA- The United States of America

USAID- United States Agency for International Development

USD- United States dollar

USSR- Union of Soviet Socialist Republics

VPC- Voluntary Pension Contributions

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Abstract

Pension provision for a certain category of the population is one of the priority directions of the social policy of any modern state. The background of this study is that the pension reform began in 1998 in Kazakhstan, which continues at this stage. During the years of independence, in difficult socio-economic and socio-political conditions, an independent pension system of the Republic of Kazakhstan has been formed, which is constantly being modernized taking into account the current socio-economic conditions. In this regard, it is important to understand the essence of the institutional pension reform, to determine the current principles of pension provision and the immediate prospects for the development of this institution. The paper analyzes the formation, development and current state of the independent pension system of the Republic of Kazakhstan. The chronological scope of the study covers the period from 1998 to 2021.

The work is structured in the following areas:

- the main directions of pension reform are identified and studied; the advantages and disadvantages of the existing pension system are structured;
- the world practices of pension provision are considered;
- the factors influencing the change in the state of the fund are identified; the directions of further development of the pension provision institute are determined.

The methodological basis of the research is, first of all, the theoretical position of the general scientific systematization of complex processes (in this case, social), as well as the idea of the interconnectedness and interdependence between the identified factors that determine the development of the pension system. The general scientific principles used in this work include such methods as analysis and synthesis, induction and deduction, structural, historical, statistical and logical methods.

The following main results should be highlighted: the classification of the reasons and conditions for the start of the pension reform is developed; the concept of the development mechanism and prospects for the development of the pension system is defined; the level of impact of such factors as the number

of working-age population, the number of people of retirement age, average wages, etc. on the change in the fund is determined.

The practical significance of the study lies in the fact that its results can be used for further study of social processes taking place in Kazakhstan.

Introduction

The modern pension system of Kazakhstan dates back to 1997, when the Government of the Republic of Kazakhstan approved the Concept of reforming the pension system in the country, and the Law of the Republic of Kazakhstan "On Pension Provision in the Republic of Kazakhstan" was adopted. The innovations consisted in creating the foundations of a funded pension system with a gradual abandonment of the solidarity system.

Currently, the total pension assets in Kazakhstan have exceeded the total banking capital, domestic non-state accumulative pension funds have turned into large domestic institutional investors.

The financial resources of pension funds represent a huge potential, which is strategically important both for the state and for individual domestic enterprises. Pension assets today are long-term and inexpensive sources of financing, which are primarily aimed at ensuring the future of our citizens.

Along with the performance of its core functions: conservation savings of depositors, task participants of the pension system are - augmentation of the pension assets and investments of the national economy. Therefore, one of the main criteria for the operation of pension funds is to become effective management of pension assets and a qualified investment strategy based on creating an optimal portfolio structure, taking into account the reduction and distribution of risks and ensuring a stable investment income. Achieving these goals is impossible without state control and supervision over the functioning of the funded pension system.

At the end of the last century, the problems of pension provision became especially acute. The reason for this was, on the one hand, the transition to the mechanisms of a market economy, on the other, the socio-demographic factors inherent in Kazakhstan in the 90s of the last century. In the context of the existing solidarity pension system, high rates of inflation and unemployment among the population, a drop in GDP, an acute budget deficit caused the emergence and increase of arrears in the payment of pensions and the impossibility of providing even a minimum level of social guarantees. Thus, it becomes apparent instability of the distribution pension system based on solidarity between generations. Demographic problems were layered on the problems associated with insufficient funding of necessary

pension expenditures. Some of them were associated with the deformation of the age structure of the population and the acceleration of the aging processes of the population as a result of a decrease in the birth rate against the background of an increase in the average life expectancy of Kazakhstanis.

Kazakhstan became the first country on the territory of the CIS, which in 1998 began a systematic transition to a system of accumulative pension provision based on the principles of personal pension contributions. The main goal of the pension reform was to build a financially stable and fair system that takes into account economic growth, commensurate labor input with pension through personalized accounting of pension contributions. In addition, the funded pension system was designed to solve a number of problems: to alleviate social tensions, to gradually release the budget from the burden of pension payments, to encourage citizens to become interested in earning a lot and legally. As a result of the pension reform, future pensions should have been preserved and increased, and the economy should have received another institutional investor - pension funds.

But, despite the significant and positive results of reforming the funded pension system, many of its problems remain unresolved. Among them are the insufficiency of the accumulated funds of pensioners to ensure normal living conditions in the post-working period, the unresolved gender problems (different life expectancy, inequality in wages and, as a consequence, in the amount of pensions for men and women), problems of industrial disability, etc. But at the same time, the state envisages measures to improve the problems of pension provision.

The relevance of this topic lies in the fact that today one of the main institutional investors of the Republic of Kazakhstan, represented by accumulative pension funds, has problems in ensuring a sufficient volume of a decent level of pension payments at the onset of old age. Since there is a need to improve the efficiency of pension assets management, which would serve as a factor not only for the growth of the population's savings, but also as a stimulating factor for economic growth. The topic is especially relevant in the context of the problems associated with the existing shortage of effective financial instruments and restrictions in the structure of the investment portfolio of pension funds. Since it is still difficult to find answers to the questions of what should be an investment portfolio that would

ensure the profitability of a pension fund; how to solve the problem associated with the shortage of financial instruments for pension funds; how to reduce financial risks when managing pension funds.

The purpose of the study is to study the current state of accumulative pension funds in the Republic of Kazakhstan; to reveal the main aspects of the formation and development, as well as the peculiarities of the functioning of the Kazakhstani pension system. Particular attention is paid to the problems of the functioning of pension funds in Kazakhstan at the present stage, as well as ways of solving these problems were proposed and further prospects for the development of pension funds were considered.

To achieve this goal, it is necessary to solve the following tasks:

- Substantiation of theoretical and methodological approaches to clarifying the content of the pension reform and identifying the features of its implementation in the republic
- Analysis and assessment of the efficiency of the funded pension system of the republic and identification of the degree of its compliance with the state of the national economy
- Determination of the main directions of development of accumulative pension funds in a market economy and their role in the activation of internal savings
- Identification of factors that determine the choice of a particular strategy in the development of the republic's pension system
- Assessment of the possibilities of accumulative pension funds in enhancing the role of the stock market, including the securities market.

The subject of the research was the pension provision in the Republic of Kazakhstan, as well as the organization of the activity of accumulative pension funds.

The research hypothesis is to prove the importance of the National Pension Fund of the Republic of Kazakhstan for comparative regression analysis and benchmark adaptation.

The sources of the study were the works of domestic and foreign scientists on the problems of pension reform in general and the development of a funded pension system, in particular, materials from

international and republican scientific and practical conferences, materials from periodicals, monographs, and textbooks.

The legal and informational support of the thesis was the legislative and normative acts of the Republic of Kazakhstan regulating the activities of accumulative pension funds in the securities market, statistical materials of the Agency on Statistics of the Republic of Kazakhstan.

The structure of the work consists of an introduction, list of abbreviations, list of tables, literature review, four chapters, a conclusion, a list of references and appendix.

Literature Review

As noted by Merton (1983), the main purpose of the pension system is to provide a standard of living in retirement. Although the modern pension system only emerged after World War II, and pension provisions have become an increasingly relevant topic in the last decade, research on pensions as a social and economic problem in society began in 1889. In 1897, a year after the creation of the world's first sociological journal, the American Journal of Sociology, Monroe (1897) addressed the issues of labor pensions and insurance.

Baldwin (1910) grouped the various old-age pension, insurance, or annuity plans at the time into six main types. These included universal non-contributory pension schemes, partial non-contributory schemes, compulsory insurance with a government subsidy, voluntary insurance with a government subsidy, annuity schemes under public administration, and voluntary insurance under private administration.

Professors of Kingston University P. Wang, M. Zhang, R. Shand, K.E. Howell (2014) reviewed and compared models of pension systems. As the authors note, due to the shortage of pension reserves, various additional funds have been proposed in addition to state pension and professional pension schemes. Given this development trend, a number of organizations, including the World Bank, the International Labor Organization (ILR) and the Geneva Association, advocate a multidimensional approach to retirement. The models of pension systems offered by these organizations are somewhat similar, but somewhat different. This article compares and evaluates three models of pension systems.

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Davis (2000) examined the various intermediary roles performed by pension funds according to criteria established by Merton and Bodie (1995). According to his research, pension funds should be viewed as financial intermediaries in a number of ways:

Firstly, they indirectly affect the “clearing and settlement of payments” in the economy to improve the efficiency of the entire financial system in general and securities markets in particular, as they are often considered to be one of the largest institutional investors in the capital markets.

Secondly, they provide for a “mechanism for pooling funds and splitting shares”, since by collecting contributions from thousands and millions of contributors, pension funds perform exactly this function.

Thirdly, pension funds have “ways of transferring economic resources” over time, as they end up dealing with different phases of the life of the participants and the space, as they help the participants by diversifying with the inclusion of international securities in their portfolios.

Fourthly, they demonstrate “ways and means of managing uncertainty and controlling risk” by providing insured retirement income to households and by diversifying investment decisions.

Fifthly, pension funds help “provide price information” by requiring companies to adhere to strict disclosures.

Finally, pension funds also “provide solutions to incentive problems” by gaining an edge over individual investors through voice and professional competence. Since pension funds meet all the criteria put forward by Merton and Bodie (1995), they should rightfully be recognized as financial intermediaries.

The World Bank's approaches to the construction of pension systems in the countries of the world (compulsory, voluntary and individual pension insurance) from the standpoint of macroeconomics, microeconomics and political economy were considered by the Nobel laureate in economics J. Stiglitz (1999). Subsequently, R. Holzmann (2008) investigated these approaches, developing criteria for their assessment.

Among the studies of pension systems in the countries of the world, depending on the level of their economic development, one can note the work of D. Bloom and R. McKinnon (2013), who

considered the main aspects of the construction and implementation of public pension insurance systems in developing countries and countries with economies in transition, taking into account the main goals of such systems aimed at reducing poverty, ensuring an adequate level of income for pensioners, regardless of gender differences; reducing the risks of underfunding. According to the authors, the optimal pension policy should include a set of measures aimed at optimizing insurance premiums, insurance payments and financing, taking into account the demographic, historical, political and fiscal situation in the country, the established practice of supporting pensioners, as well as the situation on the labor market.

The social aspects of the institutional construction of the pension system, the implementation of social and pension forms of protection of the population in some countries were analyzed by G. Hughes and J. Stewart (2011), D. Franco (2002), M. Weil (1999).

A.Börsch-Supan (2012) studied the main problems of reforming state pension provision (in particular, solidarity pension insurance systems) in European countries from the point of view of high costs and aging of the population. Continuing these studies, M. Wong (2015) analyzed the main shortcomings of the solidarity pension system, taking into account the problems of its stability in an economy with an aging population, distortions of incentives to work, the accumulation of implicit pension debt, as well as the main features of pension reforms in the countries of the world. in particular, full or partial transition from a system of fixed payments to a system of fixed contributions.

E. Andrews (2001) in his research examines the reform adopted by the Republic of Kazakhstan in 1998, gives a brief overview of the ideas underlying its development, including the events that led to it, and the shortcomings of the PAYGO system. The author also describes the administrative, business and regulatory structures created by the legislation on pension reform. Assesses the progress of these organizations in achieving reform goals, in particular, in terms of the regulatory framework and financial market performance. The author notes that for the reform to be sustainable, more progress is needed in the area of regulation and portfolio diversification. The government's commitment to building a strong private sector economy will be critical in determining whether government efforts are focused on regulation rather than control.

The pressure exerted by the extensive pension system in the former Soviet Republic of Kazakhstan was investigated by C. Becker and D. Urzhumova (1998). Using a combined set of regional time series data for the pre - and post-Soviet eras, the article also examines the determinants of the retirement population and the level of economic activity. German economist W. Herkelrath (1910) in his work "Current Awareness of the Defined Contribution Pension System in Kazakhstan" examines in detail the state of the pension fund in Kazakhstan before and after the pension reform, the knowledge of the population about the activities of pension provision.

Kazakhstan's pension reform system was based on the implementation of the Chilean experience of Chile, so the writing of this work led to the study of works on the evaluation of the effectiveness of the Chilean pension system, described in R. Holzmann (1997), S. Edwards (1998), A.A.de Mesa and C. Mesa-Lago (2006).

As the authors of C. Mesa-Lago and write A.A.de Mesa (2006) the main objective of the model, which was reformed in 1980, was to eliminate the influence of the state and politics on the pension system. It is designed for 40 years and by the end of this period, the pension should reach \$ 400. Chile's pension system is considered the best in terms of pension financing. But as the authors note, the main drawback is considered to be too high dependence on fluctuations in the financial markets. The article assesses Chile's compliance with the International Labour Organization guidelines on social security: social dialogue, inclusiveness, equal treatment, social solidarity, gender equality, adequacy of benefits, efficiency and affordable administrative costs, social participation in governance, the role of the State and oversight, and financial sustainability.

Twenty-five years after the reform in 1980, the Chilean model is being reassessed in terms of coverage, contributions, investments and pension benefits. D. Bravo (2006) discusses this in his research. This paper presents a developed longitudinal survey of individual respondents in Chile, the Social Protection Survey (or Encuesta de Previsión Social, EPS), and illustrates some of the uses of this survey for microeconomic analysis of key aspects of the Chilean system.

Despite the ongoing reforms, coverage in Chile has not improved and has actually declined since the transition to individual accounts, as the informal sector has remained consistently large. Ribe, Walker, and Robalino (2010) argued that the reality of Latin America with large informal sectors should be directly countered by introducing social insurance programs (e.g. pensions, health insurance, unemployment insurance) into the informal sectors, as a matter of course, with financial and institutional incentives. They argued that behavioral models suggest that moving from a minimum pension guarantee to matching contributions could increase contribution density and reduce budget spending. Given the limited international experience of using such pre-grants, the authors encouraged Governments to implement pilot programs and offered financial incentives and sub-contracting of fee collection to aggregators to increase participation.

The authors B. Kritzer, S. Kay, and T. Sinha (2012) analyze the key elements of the pension reform in Chile related to individual accounts: system coverage, fees, competition, investment, gender impact on benefits, financial education, voluntary savings, and payments. According to the authors, the region's pension system was heavily criticized for high fees and weak competition, despite the fact that the pension fund industry itself was very profitable.

Because defined contribution systems expose pensions to a number of risks, reforming governments often tightly regulate the structure, performance and investment of pension funds. P.Srinivas, E. Whitehouse and J. Yermo (2000) compare the rules in the new systems of Latin America and Eastern Europe and some TMD countries with the richer OECD countries. The authors argue that the benefits of competing pension funds and individual choice can only be achieved if regulation is relaxed over the medium term.

It is also important to compare the pension system of Kazakhstan with foreign countries in order to further identify the advantages of the world practice in favor of the domestic system. Authors G.Hughes, J. Stewart (2000) show how flexible old-age pension systems are in the European Union (Germany, the Netherlands), mainly distributional. They argue that old-age pension systems in the European Union, funded from current income, are able to successfully adapt to economic and social

changes, provided that they do not take on too many non-insurance risks. Old-age pension systems, regardless of how they are structured or financed, cannot address the problems of the labor market and control the direction and extent of economic development.

According to Gerard (2019), thanks to the favorable tax regime, self-employment in Europe has increased in recent years and is now one of the highest. However, the further transition of the younger generation to self-employment can put significant pressure on the long-term solvency of collective schemes and poses a risk of termination of the social contract.

H. Verbon (2009) describes and defines the pillars of the Dutch pension system. As the author notes, the state pension as we know it today was introduced in 1957 to combat poverty among the elderly. The Algemene Ouderdomswet (AOW) provides a basic pension for all Dutch citizens over 65. Over the years, the Dutch pension system has developed into one of the best pension systems in the world. The authors V. Nimwegen (2012) and V. Dam (2013) investigated in their works the prosperity and shortcomings of pension provision, the change in the age composition of the country's population.

Bovenberg and Nijman (2017), while describing the Dutch three-pillar pension system, note that the characteristics that make the Dutch pension system attractive also identify some of its weaknesses, which have led to increased complexity and opacity of transfers. Uniform accrual rates imply the transition from young to old from generation to generation due to the time value of money and from less educated to more educated. However, the authors argue that this implicit subsidy is partially offset by redistribution, as rights accumulated in the past with higher real returns subsidize annuities that are priced at a risk-free rate.

Parlevliet (2017), who analyzed the public acceptance of raising the retirement age in the Netherlands, explores people's preferences in the pension system and their choice of employment contract.

Axel Börsch-Supan and Christina B. Wilke (2004) examine the reform process in Germany that began in 1992 and continues to this day. The German pension scheme is listed as a system based on a strong state pension administration, with three components. According to the source, after a noticeable

expansion of the German pension system after 1972, the pension reform process in Germany was marked by four dates: in 1992 and 2001, two major pension reforms were made, with a further strengthening of the 2001 reform in 2004. There were also reforms during 2016-2019. The paper assesses how these reform steps will solve the problems of the system of providing for the elderly. Pension reforms in Germany are also devoted to the work of the author Hinrichs Karl «New century- new paradigm: Pension reforms in Germany» (2005).

Along with the European experience, the pension system of the Russian Federation was considered. O. Sinjavaskaya (2004) examines the dynamics of the effective retirement age in Russia and, in particular, the role of special preferential early retirement programs in the increase in the number of pensioners in recent decades.

J. Yermo (2012) examines with the help of demographic tools, the causes and consequences of the reform of the distributive pension system in Russia. He notes that Russia has large-scale alternative resources for solving the pension problem, which include, among other things, increasing the collection of pension contributions, labor productivity and employment of the population, as well as the development of accumulative forms of pension insurance.

F. Eich, C. Gust and M. Soto (2012) conclude that a gradual increase in the statutory retirement age for men and women to 63 by 2030 and 65 by 2050 will significantly constrain public pension spending while maintaining a replacement rate of about 40 percent. According to the authors, the increase in the retirement age should be accompanied by measures that protect the income of those who cannot continue to work.

METHODOLOGY

Different factors influence Kazakhstani pension fund performance and in this part of the research aims to study the level of such influence. In this regard the regression method seems to be the most suitable for studying the influence of certain factors on the operation of a pension fund. Regression method is a statistical method that helps to assess the relationship between so-called «independent variables» and one «dependent variable». The independent variable is a variable that is believed to have some influence over a dependent variable. So, the purpose of the method to assess such relationships and influence.

R squared is used to measure how well the studied model explains variance of the studied dependent variables. Generally, R Squared of 95% or more is considered a good fit. In this research a minimum 70% is used as a threshold to accept or reject a model. After that P-value is important to show whether the observed results have a statistical significance and not turned out by pure chance. Stars are usually used to show the strength of such significance, where * - $< .1$, ** $> .05$, *** $< .01$.

This research proposes the following hypotheses to be tested:

The volume of replenishment of the national pension fund with pension contributions in the Republic of Kazakhstan directly depends on two main factors: the number of working-age population and the average salary in the country. 3 main hypotheses were identified for testing:

- Pension contributions does not depend on the quantity of able-bodied active population;
- Pension contributions does not grow according to average salary in Kazakhstan;
- Pension contributions depends on quantity of able-bodied active population as well as average salary in Kazakhstan.

The amount of reduction of the pension fund by pension payments of the population who have reached retirement age depends on the number of people of retirement age and the average size of the pension. For testing the following hypothesis was selected:

- Pension payments have no relationship with the quantity of retired people in Kazakhstan.

Due to the dependence of investment income on certain market behavior, it was decided to conduct a test of the S&P 500 and KASE index. 2 main hypotheses were identified for testing:

- Investment income does not grow according to the growth of USD/KZT currency rate;
- Investment income has no relationship to popular S&P500 and KASE index return rates.

Also it is essential to test internal and external macroeconomic factors such as oil price, level of GDP and exchange rate, because there Kazakhstan is currently oil-dependent country with the huge influence of the US Dollar on economy changes:

- Pension savings directly tied to the price of oil;
- Pension savings directly tied to GDP of Kazakhstan;
- Pension savings directly tied to USD/KZT currency rate;

Four variables were chosen as dependent variables for simple linear regression. Namely, they are investment income from pension savings, pension savings, pension contributions, and pension payments.

A comparative analysis of the advantages of the pension system of Kazakhstan and a number of European countries, which, according to the leading rating agencies, are the most developed, was carried out. In particular, the pension system of Kazakhstan is compared with countries such as Germany and the Netherlands. Also, the domestic system is compared with the pension provision of the Russian Federation, the development of which is close to ours. At the end of the research, a SWOT analysis was compiled, thereby identifying the strengths and weaknesses, opportunities and risks of each of the pension systems.

Main Body

Data Analysis (Qualitative Analysis)

1-Chapter. Pension system in Kazakhstan and prerequisites for its development

1.1 Establishment, development and stages of reform of the pension system in the Republic of Kazakhstan

The problem of material security of decent old age is a relevant for all countries of the world, including the economically prosperous countries. This is due to the natural increase in the proportion of elderly citizens in the total population, as well as the evolution of social and economic relations between the citizens, employers, workers, parents and children.

The birth of pensions has deep historical roots, in each country it happened in accordance with specific conditions. Despite certain differences in approaches, methods, as well as in organizational design, there is much in common in the basis of its formation in all countries. For a long time, mankind was aware of the need to provide assistance to everyone who is in need due to illness, weakness, old age. For example, in the Roman Empire, since the reign of Emperor Augustus, Roman legionnaires were awarded a monetary pension of 12 000 sesterces at the end of their service, which was equal to a 13-year salary. This stimulated peace and tranquility in the empire, since veterans were no longer forced for rob to avoid poverty. Pension payments were a significant element of the Roman imperial budget. As in many modern pension systems, effective organization and sustainable financing system proved to be a major problem. August established a separate treasury for this pension system and capitalized it with 170 million sesterces from its property. Nevertheless, in the following decades, the pension system repeatedly witnessed serious underfunding, which forced subsequent Roman emperors to expand the legionnaire service in order to reduce the number of beneficiaries, or even take unorthodox measures - for example, sell palace furniture - to pay pensions (Franco, 2002).

Since the time of the Roman Empire, significant changes have taken place in the organization and structure of pension systems, and different models have been developed. Currently, most pension systems worldwide consist of three components, of which the public pension systems constitute the first tier and

the second and third layers consist of funded pension schemes and private pension savings accounts, respectively. The most predominant models are solidarity and savings (Barbara, Stephen & Sinha, 2012). They can also be combined in different versions.

The distribution model establishes the dependence of the pension from seniority, the level of remuneration, the amount of insurance premiums, etc. The pension itself is formed on the following principle: the subsequent generation finances the previous one, i.e., on the principle of «working pays for a pensioner» (Bravo, 2006). The collected insurance contributions paid by employers and citizens, all available financial resources received in the pension fund in the corresponding period which spent entirely on the payment of pensions at the current time. Consequently, the level of well-being of pensioners depends entirely on the economic well-being of this generation, which they can no longer influence. The pension in distribution systems is a social nature and necessarily guaranteed by the state (Merton & Bodie, 1995). In such system, the level of pension does not depend on previous earnings and entirely depends on the financial security of the pension fund. If funds are not enough, it is necessary to either reduce the amount of payments, or increase contributions to the fund, or raise the retirement age.

Radical changes in Kazakhstan's economic policy, which began with the republic's independence and were predetermined by the need to create a state with a socially oriented market economy, led to the formation of fundamentally new social relations. The Pension Act was adopted in June 1997 and entered into force in January 1998 (Becker & Urzhumova, 1998).

The adopted reform transformed the pension system from an expensive distribution system (PAYGO) into one of the fully funded defined contribution accounts. The previous system had 3 main problems: (1) the structure of Soviet-style benefits, characterized by early retirement age, special benefits and high replacement rates, especially for short-term workers; (2) excessively high payroll taxes for pensions amounting to 25.5 percent of the payroll; and (3) a continually shrinking income base, resulting in about two thirds of the projected revenue collected from state-owned enterprises and corporate employers, and most about one percent of the income from small businesses in the private sector. In addition, all attempts at a more limited reform of the payout system ended in failure - without increasing

revenues or reducing costs. The investment-based savings system is designed to promote self-sufficiency instead dependence on government (Edwards, 1998).

As mentioned above, from 1 January 1998, a new pension system has entered into force, converted into one of the fully funded individual accounts with defined contributions, mandatory for all employees on an immediate basis. However, the accumulated entitlements to old pensions were retained so that, upon reaching retirement age, employees would receive seniority pensions before 1 January 1998 under the old system and seniority benefits after 1 January 1998 from their individual accounts (Becker & Urzhumova, 1998). Unlike reforms in other transition economies, the new system covered all workers of all ages. Kazakhstan took the Chilean model as the basis for pension reform, and not the more cautious approaches of Poland, Hungary or Latvia, other countries with economies in transition which almost simultaneously reformed their pension systems.

Financing. Current PAYGO pensions and future partial PAYGO pensions were originally funded by a 15 percent payroll tax paid by employers which is less than the 1997 contribution rate of 25.5 percent. This funding form was selected from the Chilean model. As obligations under the old system were phased out over time, the 15 per cent payroll tax was also to be reduced. However, as of 1 January 1999, payroll taxes for social programmes (pensions, unemployment insurance and health insurance) were combined into a single 21 per cent payroll tax for local authorities (Andrews, 2001).

Investments. The placement of investment by pension funds through asset managers was strictly limited. Both state and non-state funds had to invest at least 50 percent of their assets in government securities. The State Savings Fund (SSF), by law, could invest up to 40 percent of assets in certain national (state) bank deposits and up to 10 percent in issues of international institutions such as the World Bank. Non-State savings funds (NSAF) had greater flexibility in their investments. In addition to investments in bank deposits, they could place up to 30 percent of Class A corporate securities. Class A securities are listed on the Kazakhstan Stock Exchange (KASE) and must have at least one year of financial statements audited in accordance with international standards.

Public information. The Government has been aware of the need to inform the public about these significant changes in the pension system and has responded in part to national efforts to ensure that key reform officials, personally and through the media, provide information on reform to the public at the highest level. Sustained focused public information efforts were needed to build public confidence and ensure mandatory pension contributions.

The strategy to build public confidence was supported by the Asian Development Bank (ADB), which allocated about \$900,000 million to research knowledge and attitudes towards pension reform. The findings of the study were channelled to further technical assistance from the United States Agency for International Development (USAID) in the form of about \$800,000 million dollars in grant funding (Andrews, 2001). USAID assistance included seminars for the press, trade unions, employers' organizations and government officials throughout the country. Despite the widespread distribution of posters (about 1,500 copies) and leaflets (about 600,000 copies), the most innovative approach was to include a number of episodes on pension reform in the extremely popular television series Crossroads. The association of pension funds distributed leaflets called «Questions and Answers», informing the population about the new pension system.

Financial implications. The pension reform program incurred significant short-term fiscal expenses. As a result of the pension reform, an additional income loss of 1.7 percent of GDP, or \$395 million dollars was estimated in 1998. In order to offset the transition costs, the Government has adjusted the budget of 0.7 percent of GDP for 1998 to (Andrews, 2001). These reductions were to finance about 40 percent of the transition deficit.

However, in 1998, income from payroll taxes was only about two thirds of income in 1997. But as an experts explained, this deficit was not the result of the reform itself. Due to the reduction in income tax, the tax base on which the payroll tax was levied was reduced. In addition, the responsibility for collecting 15 percent payroll tax was transferred from the regions to the tax administration. As a result, local authorities had no incentive to encourage businesses pay. Also, equally important in 1998 and 1999, tax revenues were badly affected by the domino effect of the Russian crisis and falling commodity prices.

Reasons for the need for ambitious pension reform. The government decided on ambitious pension reform, primarily due to the serious debt on pension payments in conditions that made more moderate importable reform. Problems with the old system were manifold (Table 1). Firstly, the retirement age based on the former Soviet system was extremely low: 55 years for women and 60 years for men (Becker & Urzhumova,1998). Although the 1996 legislation required this age to be raised by a step of 6 months, this increase was unusual because employees could still retire at an earlier age with reduced benefits, which would later be increased to full value upon reaching the normal retirement age. In fact, this meant that people continued to retire at the same age. The usual pension formula was extremely generous, accounting for 60 percent of the highest wages in the past, on average for 12 months for full-time employees (20 years for women and 25 years for men). In addition, the base was increased by one per cent for each year of service above the minimum level. In many professions, more than one year was accrued for each year of service.

Table 1: Pre-Reform System, 1996

Retirement Ages	55years for women, 60years for men
Pension Formula	60% highest wage, 1% extra per year of service for service Over 25 years for men, 20 years for women
Pensioners	2.8 million pensioners
Contributors	5 million contributors
Actual Replacement Rate	36 percent of average wage
Arrears	5 months of pension payments
Note: Compiled by the author	

In mid-1996, pensions were paid to 2.8 million people. Of these, old-age pensions amounted to about 2.1 million people. About 19 percent of old-age pensioners received pensions on preferential terms with additional years of accrued service. In addition, these pensioners received above average pensions, as they accounted for 23 percent of all old-age payments. Although, the replacement rates established by law were very high, the actual average replacement rates were much lower than the formula suggested, since indexation lagged behind wage growth. In July 1996, the average pension was 36 percent of the

average wage. In fact, throughout the 1980s and 1990s, the replacement rate of pensions ranged from 24 percent of the average wage in 1992 to 42 percent in 1991 (Andrews, 2001).

Collection. In mid-1996, employers contributed approximately 5 million employees. This meant that 1.8 workers were paid for each pensioner, which was an extremely low indicator compared to the population demographics. In other words, the dependency ratio of the system, that is, the ratio of pensioners to investors, was 0.56 in 1995, while the dependence ratio for old age, that is, the ratio of people aged 60 years and older to the population of working age (age 20-59 years.) was 0.18. For comparison, in the USA, these coefficients were 0.31 and 0.30 respectively (Andrews, 2001). Kazakhstan, a country with favorable demographic indicators for the distribution pension scheme, had a high burden on the system and accordingly high taxes on wages due to inefficient collection procedures and early retirement. In fact, the growth of the informal sector and the development of wage arrears led to a relatively small tax base in relation to the actual share of labor income in the economy. In fact, less than half of all potential contributions were estimated. This problem affects not only Kazakhstan, but also all CIS countries, since the deficit in tax collection in the CIS is much more serious than in Central and Eastern Europe.

The collection and payment system under the old pension system was ineffective. The Ministry of Labour and Social Protection (MLSP) and local social protection departments were responsible for collecting pension income and providing benefits. Each «district» social protection department had a pension fund department, which was responsible for auditing and monitoring the collection of contributions. Monthly contributions were received in two accounts (Herkehrath, 1999). 70 percent of the charges went to the district account and the remaining 30 per cent was to be deposited in the central account for redeployment to the area. Funds remained at the district level until all local pensioners received payments. While the system's fund-raising was based on local interests, the ineffective allocation of funds required administrative reform. Local authorities actually used the income of the pension fund to pay family benefits, on the assumption that these funds would be reimbursed by local budgets. Since local funds, as a rule, were not enough, these costs often did not pay off.

Indebtedness. Under the previous system of remuneration by contributors, significant collection arrears were accumulated, while the duration of chargeback's differed from region to region. Before the reform, the accumulation of arrears in both payments and contributions grow. As of January 1, 1996, the outstanding contributions of enterprises amounted to 40 billion tenge, which is 26 billion tenge more than a year earlier. Arrears of contributions of local and republican ministries and organizations amounted to 2.3 billion tenge. By July 1, 1996, the outstanding contributions of enterprises amounted to 49.6 billion tenge, which is equivalent to five months of pension payments. In addition, even if this debt could be repaid, the pension fund collected taxes from only 5 million of the estimated labor force of 7.8 million people (Herkeleth, 1999). Moreover, due to the understatement of wages, fees amounted to only 45-52 percent of potential income.

Outstanding contributions and the general state of non-compliance resulted in a significant backlog in the payment of pensions. Pension arrears peaked at 32 billion tenge (2.5 percent of GDP) by the end of June 1996. In order to solve this situation, the Government transferred 36 billion tenge from the state budget to the pension fund in 1997 to cover payments, including arrears, cover the deficit for the rest of the year and pay for other administrative expenses. The accumulation of unpaid pensions has become a center of social unrest and opened a window of opportunity for the introduction of a new pension reform in Kazakhstan.

On this basis, the President appointed a task force to develop a pension reform plan in the first half of 1997 in order to completely restructure the system, since partial measures did not lead to any reduction in costs. As a result, the concept of reform was outlined in early 1997, and legislation was developed by a committee of experts during an April retreat outside the capital of Almaty. According to one of the intellectual leaders of the reform, «pension reform is an integral part of a tripartite economic development strategy that covers privatization, the development of capital markets and pension reform». Thus, the success of reform must be measured by this goal.

The institutional structure of the pension system. Several new institutions played a key role in the functioning of the new system: NSAF (private pension funds), asset management companies (AMCs),

custodian banks and the state accumulative fund (SAF). In this regard, the new regulatory responsibilities have resulted in a three-tier regulatory structure. The main reason is to ensure that funds and AMCs provide a transparent investment process based on business practices that are not associated with corruption, mafia control, or otherwise questionable activities. As a result of the pension reform, the regulation of financial institutions has been strengthened, which in turn has reduced the potential for fraud and abuse. Many pension regulators have benefited from the initial experience of working with the NBK, as the National Bank of Kazakhstan was one of the most authoritative institutions in the country.

NSAF and AMC have had a positive impact on the development of the new pension fund. As of October 1, 2000, total pension assets increased to 97.2 billion tenge (or 681.9 million US dollars) in less than 3 years (Andrews, 2001). In the pension system, 59 percent of all assets were held in NSAF accounts. The NSAF's share has gradually increased as private sector funds have developed over time and individual investors and their employers have preferred the private sector. Each NSAF was required to hire one AMC, while each asset management company could manage assets for multiple funds. While the NSAF directed the overall asset allocation, the fund's AMC was responsible for making day-to-day transaction decisions.

Each fund kept the accumulated assets of the fund's contributors exclusively with one authorized bank custodian (Mesa & Mesa-Lago, 2006), who accounted for and reported on all investment transactions, portfolio allocation, and investment returns. The custodian bank often acts as a broker for transactions. A basic three-tier structure has been established to ensure that accounts and responsibilities are clearly separated so that checks and balances can prevent any fraud and abuse.

Pension funds. Each employee and self-employed employee could become a member of the SAF or NSAF. SAF was proposed as an alternative to private sector funds. At that time, Kazakhstan had a distrust of both public and private financial institutions after problems arose with the initial privatization funds, in particular, with pyramid schemes in which individual investors lost their money, and shares were acquired under pressure or through fraud at low prices in the interests of a few. In addition, Kazakhstan was well informed about the examples of the collapse of investment funds, such as the 3M

fund in Russia. Thus, the SAF was created so that employees who were wary of the NSAF could choose a foundation they trusted more. Based on the original concept of Kazakhstan's pension reform, the SAF was intended to be a residual fund, possibly aimed at the older generation of savers, with the vast majority of employees choosing private funds because of their greater breadth for portfolio diversification and for higher rates of return.

Non-state savings funds. NSAF was created as private, closed-end joint-stock companies and could be managed as funds open to all depositors or as closed-end corporate funds available only to company employees. Kazakhmys was the only closed fund. Initially, open funds required a minimum authorized capital of 55 million tenge (US \$ 385,735) and 10 million tenge (US \$ 70,134) for closed funds. In 1999, the minimum capital requirements were increased to KZT 90 million (US \$ 631,202) for open-ended funds and KZT 20 million (US \$ 140,267) for corporate funds (Srinivas, Whitehouse & Yermo, 2000).

The main function of the NSAF was to collect contributions and administer depositor accounts. These responsibilities include making contributions to AMC, distributing investment income to depositors' accounts, and calculating and paying pensions. In addition, NSAF provides depositors with information about the total value of their accounts, the cost of units, and the rate of return on investment. They are also responsible for setting general investment guidelines for affiliated AMCs.

Legal entities and / or individuals of the Republic of Kazakhstan could be founders and shareholders of corporate and open pension funds. Thus, pension funds could be created by local organizations or international firms with registration in Kazakhstan. Fund managers could be appointed by citizens who passed the qualification exam. Pension funds were entitled to receive commissions and, for reasons of transparency, were required to enter into a contract with one and only one AMC. The contract defined the distribution of fees between NSAF and AMC for the management of the fund's assets, the method of transferring funds for the payment of benefits, and included the rules of the contract for the trust management of the property.

In October 2000, fourteen non-state savings funds were licensed (Table 2). This was three times more than in 1999. The Pension Fund «Halyk Bank» controlled the largest part of the assets of the NPF-32 percent, in turn, «Ular Umit» owned 13 percent of all private pension assets. The eight largest funds accounted for 88 percent of all private fund assets.

Table 2: Non-State Accumulation Funds

Pension Fund	Contributors	Net pension assets
1 Narodny Pension Fund	96,697	1,452,996.685
2 CaspiMunaiGas Pension Fund	41,533	1,639,669.687
3 Nefte-Gas-Dem Pension Fund	53,582	1,909,010.097
4 ABN AMRO Pension Fund	25,266	3,442,657.616
5 Ular Pension Fund	238,474	7,586,884.832
6 Kazakhmys Pension Fund	73,327	3,802,816.513
7 Narodny Bank Pension Fund	563,089	18.215,151.073
8 Umit Pension Fund	271,737	7,426,625.650
9 Kazakhstan Pension Fund	46,010	2,222,825.276
10 Kurmet Pension Fund	90,257	2,266,485.145
11 Valyut Tranzit Pension Fund	80,273	1,266,849.225
12 Kunaev's Pension Fund	24,744	334,321.706
13 Senim Pension Fund	89,353	4,521,364.539
14 Korgau Pension Fund	20,471	378,654.425
SUB TOTAL Private Sector	<i>1,714,813</i>	<i>56.466,312.469</i>

Source: Source: Website of the Unified Accumulative Pension Fund.

In October 2000, fourteen non-state savings funds were licensed (Table 2). This was three times more than in 1999. The Pension Fund «Halyk Bank» controlled the largest part of the assets of the NPF-32 percent, in turn, «Ular Umit» owned 13 percent of all private pension assets. The eight largest funds accounted for 88 percent of all private fund assets.

1.2 Structure of the pension system of the Republic of Kazakhstan in the modern period

As mentioned earlier, on May 12, 1997, the «Concept of reforming the pension system in the Republic of Kazakhstan» was published. In 1998, Kazakhstan became the first state in the commonwealth of independent States (CIS) that began a systematic transition to a funded pension system. To date, there are two systems in the republic:

- solidarity (for current pensioners and those citizens whose work experience as of January 1, 1998 was at least six months);
- accumulative (for those who, since the first of January 1998, began to deduct from their wages ten percent mandatory pension contributions to accumulative pension funds).

Kazakhstan has created a fairly harmonious institutional structure of its participants, including accumulative pension funds, investment management companies and pension assets, custodian banks, securities brokerage companies, second-tier deposit banks, a stock exchange, a central depository, and government regulatory bodies.

The role of the state regulator is carried out by the Agency of the Republic of Kazakhstan for Regulation and Supervision of the Financial Market and Financial Organizations (AFS). The Agency for Regulation and Supervision of the Financial Market and Financial Organizations (AFS), on its website, provides information on equity, liabilities and assets on a monthly basis, the interagency settlement center for social payments, the interdepartmental settlement center for social payments, on pension savings and the number of pension accounts contributors to the interdepartmental settlement center for social payments, on interest, credit, stock and currency risks, the investment structure of portfolios of social payments, as well as the current state of funds. Also, its work includes the preparation of summary reports on the balance sheet and the profit and loss report of the interdepartmental settlement center for social benefits. In accordance with the Law of the Republic of Kazakhstan of July 4, 2003 «On State regulation and supervision of the financial market and financial organizations», the list of functions of the AFS includes:

- 1) in cases provided for by the legislative acts of the Republic of Kazakhstan, issue and revoke permits for the opening (creation) of financial organizations, their voluntary reorganization and liquidation, give consent to the opening of divisions of financial organizations, as well as determine the procedure for issuing these permits and consent;
- 2) in the cases provided for by the legislative acts of the Republic of Kazakhstan, give consent or refuse to give consent to the election (appointment) of persons to the positions of executives of financial organizations, as well as determine the procedure for giving said consent or refusing to give consent;
- 3) establish the procedure for issuing, suspending and revoking licenses for professional activities in the financial market in cases provided for by legislative acts of the Republic of Kazakhstan, issue, suspend and revoke these licenses;
- 4) issue regulatory legal acts that are binding on financial organizations, consumers of financial services, and other individuals and legal entities in the territory of the Republic of Kazakhstan;
- 5) approve prudential standards and other mandatory standards and limits for financial institutions, including on a consolidated basis;
- 6) establish the list, forms, terms and procedure for reporting (with the exception of financial and statistical reporting) by financial organizations and their affiliates;
- 7) monitor the compliance of financial organizations with the legislation of the Republic of Kazakhstan on accounting and financial reporting and accounting standards, except for cases provided for by legislative acts of the Republic of Kazakhstan;
- 8) 7–1) send a representative to participate in the general meeting of shareholders of financial organizations;
- 9) audit the activities of financial organizations and their affiliates in the cases and within the limits provided for by the legislative acts of the Republic of Kazakhstan, including with the involvement of an audit organization;

- 10) determine the procedure for applying and apply to financial organizations the limited measures of influence and sanctions provided for by the legislative acts of the Republic of Kazakhstan;
- 11) in consultation with the Government of the Republic of Kazakhstan, make a decision on the forced repurchase of shares of financial organizations in cases provided for by the legislative acts of the Republic of Kazakhstan;
- 12) to exercise control over the activities of liquidation commissions of financial organizations in cases stipulated by the legislative acts of the Republic of Kazakhstan;
- 13) publish in the mass media information about financial organizations (with the exception of information that constitutes official, commercial, banking or other secrets protected by law), including information about the measures taken against them (adilet.zan.kz).

One of the tasks of the state in the field of pension reform is to help established pensioners to be able to maintain the standard of living that they had during the period of active participation in social production. The solution to this problem is achieved by a set of measures. Among them, a special place is occupied by the Unified Accumulative Pension Fund-through which pensions are paid to established pensioners. Unified Accumulative Pension Fund - is the legal successor of the State Accumulative Pension Fund of the Republic of Kazakhstan. The current law in the Republic of Kazakhstan is the norms of the Constitution, the laws corresponding to it, other normative legal acts, international contractual and other obligations, as well as normative decisions of the Constitutional Council and the Supreme Court of the Republic.

JSC «Unified Accumulative Pension Fund» (UAPF) - was established on August 22, 2013 during the next pension reform in Kazakhstan. The fund was founded on the basis of the State National Pension Fund, and combined all the existing pension funds in the country at that time. The founder and shareholder of UAPF JSC is the Government of the Republic of Kazakhstan represented by the State Property and Privatization Committee of the Ministry of Finance of the Republic of Kazakhstan. The state block of

shares of UAPF JSC is in the trust management of the National Bank of the Republic of Kazakhstan (enpf.kz).

Pension assets of UAPF JSC are managed by the National Bank of the Republic of Kazakhstan together with the Council for Pension Assets Management under the President of the Republic of Kazakhstan. From January 1, 2016, according to the Decree of the President of the Republic of Kazakhstan, the functions of developing proposals to improve the efficiency of pension assets management were transferred to the Council for the Management of the National Fund, which is headed by the President of the Republic of Kazakhstan.

The enterprise is headed by a general director appointed by the Ministry of Labor and Social Protection of the Population of the Republic of Kazakhstan. The persons authorized to perform managerial functions are the First Deputy General Director and the Deputy General Directors. The person authorized to conduct accounting is the chief accountant, who heads the accounting and planning and budget services. The UAPF accepts 3 types of contributions — mandatory pension contributions (MPC), mandatory professional pension contributions (MPPC) and voluntary pension contributions.

According to the Law of the Republic of Kazakhstan «On Pension Provision in the Republic of Kazakhstan», the rate of mandatory pension contributions is set at 10 percent of the monthly income accepted for calculating mandatory pension contributions; the rate of mandatory professional pension contributions is set at 5 percent of the monthly income (online.zakon.kz).

The company is registered as a taxpayer and payer of 10 percent mandatory pension contributions in the State Revenue Committee of the cities of Almaty and Nur-Sultan. The company consists of 14 regional and 2 city (Almaty, Astana) branches.

Table 3: The number of individual pension accounts of contributors (recipients) of the unified accumulative pension fund

Number of contributors (recipients)	01.04.20	01.04.21	Growth, %
in favor of which mandatory pension contributions have been made	9 897 948	10 986 723	11
in favor of which voluntary pension contributions have been made	55 208	60 177	9

in favor of which compulsory professional pension contributions have been made	512 266	532 757	4
Source: Website of the Unified Accumulative Pension Fund.			

The number of individual pension accounts of contributors (beneficiaries) as of March 1, 2021 compared to March 2020 for mandatory pension contributions increased by 1,088,775 units (11%) and amounted to 10,986,723, for voluntary pension contributions increased by 4,969 units (9 %) and amounted to 60,177, on compulsory professional pension contributions increased by 20,491 units (4%) and amounted to 532,757 (enpf.kz).

The volume of pension savings and payments

Table 4: The number of individual pension savings of contributors (recipients) of the unified accumulative pension fund (thousand tenge)

Indicator	01.03.20	01.03.21	Growth, %
Pension savings, including	11 083 787 540	12 599 073 211	11,7
on MPC	10 824 734 227	12 302 980 132	13,6
on VPC	1 975 199	2 205 839	11,7
on MPPC	257 078 114	314 534 963	22,3
Pension contributions	175 149 176	298 902 047	70
Net investment income	139 887 899	358 157 283	56
Source: Website of the Unified Accumulative Pension Fund.			

Pension savings of contributors (recipients) have increased since the beginning of 2020 by 1,515.2 billion tenge (11.7%) and as of March 1, 2021 amounted to 12,599.0 billion tenge. The increase in net investment income for the year amounted to billion tenge or %.

Table 5: Pension payments (billion tenge)

Indicator	01.03.2020	01.03.2021	Growth,%
Pension payments, including	32 112 877	1 029 637 278	3106
Transfers of pension savings of recipients to insurance organizations in accordance with the pension annuity agreement	5 363 894	25 961 864	384
Source: Website of the Unified Accumulative Pension Fund.			

Pension payments on March 1, 2021 amounted to 1,029,637,278 tenge.

In accordance with Regulation No. 974, 50 percent of the amount of compulsory pension contributions transferred from budget funds before January 01, 2016 in favor of employees (military personnel) is carried out. The total refund amount of 50 percent of the amount of mandatory pension contributions transferred from the republican budget, as of March 1, 2021, amounted to 34,024 billion tenge (enpf.kz).

Macroeconomic indicators:

Table 6: The role of the funded pension system in the economy of the Republic of Kazakhstan

Indicator	01.03.2021
GDP, billion tenge	68956,4
The ratio of pension savings to GDP, in %	15,7%
Source: Website of the Unified Accumulative Pension Fund.	

GDP as of January 01, 2021 68956,4 billion tenge.

The ratio of pension savings as of January 01, 2021 to GDP is 15.7%.

Table 7: Structure of the investment portfolio of the unified accumulative pension fund.

Financial instruments	01.03.20		01.03.21	
	Amount	Fraction (%)	Amount	Fraction (%)
Government securities of the Republic of Kazakhstan, including	4368,0	40,4	5 212,5	43,3
securities of the Ministry of Finance	3 924,3	36,3	5 060,9	42,0
notes of the National Bank	443,7	4,1	151,6	1,3
securities of local executive bodies	0,0	0,0	0,0	0,0
Non-government securities of foreign issuers	301,6	2,8	322,9	2,7
shares	29,0	0,3	26,2	0,2
bonds	272,6	2,5	296,7	2,5
Securities of international financial institutions	361,7	3,3	363,2	3,0
Government securities of foreign issuers	1 235,1	11,4	1 335,5	11,1
Refined gold	0,0	0,0	0,0	0,0
Non-government securities of issuers of the Republic of Kazakhstan, including	3 056,1	28,2	3 195,2	26,4
shares	239,4	2,2	271,1	2,2
bonds including:	2 816,7	26,0	2 924,1	24,2
denominated in foreign currency	231,8	2,1	219,1	1,8
denominated in tenge	2 584,9	23,9	2 705,0	22,4

notes	0,0	0,0	0,0	0,0
Contribution in second-tier banks	721,3	6,7	1 102,7	9,1
Externally managed assets	211,9	2,0	492,2	4,1
Derivative financial instruments	18,4	0,2	0,0	0,0
Cash and other assets	535,1	5,0	37,1	0,3
Total	10809,2	100,0	12061,3	100,0
Source: Website of the Unified Accumulative Pension Fund.				

In accordance with the Law of the Republic of Kazakhstan "On Pension Provision in the Republic of Kazakhstan", trust management of pension assets of JSC "UAPF" is carried out by the National Bank of the Republic of Kazakhstan.

The National Bank makes investment decisions in relation to pension assets in accordance with the Investment Declaration of the Unified Accumulative Pension Fund (approved by the Resolution of the Board of the NB RK dated March 18, 2016 No. 86).

From January 1, 2016, the functions of developing proposals to improve the efficiency of pension assets management were transferred to the Council for the Management of the National Fund, which is headed by the President of the Republic of Kazakhstan.

2-Chapter. Foreign experience in the development of pension funds and their significance

2.1 The Russian Pension System

1 The Russian pension system during the 1990s

In the 1950s and 1960s, the state pension system was finally established as the only source of pension income in the USSR (Eich, Gust & Soto, 2012). The own state pension system, which preserved features of the former Soviet Pension System, was introduced in 1991. The new system covered people working in private firms and those working individually and eliminated differences in pension coverage for urban and rural workers, as well as providing social pensions for those who had never worked.

The system that was introduced in 1991 had two main types of pensions, depending on length of service. People without a sufficient length of service received a social pension. The other part of the population received labor pensions, including old-age, disability, survivor, and seniority pensions.

All persons with at least 20 (25) years of service could retire with full benefits at age 55 (60), women and men respectively. These terms had to provide an old-age replacement rate of 55% of the average individual salary for the last 2 or any best 5 years of service. Each additional year of service increased the pension by 1% to 75% of wages. A person over 55 or 60 years old, however, was eligible to continue working, receiving both pension and wage/salary without any reductions (Sinjavaskaya, 2004).

Preferential early retirement was provided through special arrangements. The most common were early pensions for work in the Far North and for employment in harsh and hazardous conditions (e.g., in the chemical and oil industries, metallurgy, coal mines, transport, etc.). Workers with a certain length of special service (from 7.5 to 15 years) could retire with full benefits at age 45 (50) or 50 (55), women and men, respectively (Sinjavaskaya, 2004). Length of service pensions (for miners, sailors, airmen, air traffic controllers, rescue workers, astronauts, athletes, as well as school teachers, rural health workers, etc.) were similarly available, for which they could claim after a certain period of special service (from 15 to 30 years, depending on the occupation) regardless of age.

Pension rights were acquired on the basis of a previous employment record. Employees as well as employers were obliged to pay contributions to the State Pension Fund, whose funds were allocated from the state budget. During the 1990s, the rate of contributions to the pension system was 29%, including 28% paid for the employee by the employer and 1% paid by the employee himself (Yermo,2012). Farmers and self-employed workers, as well as some professionals (lawyers, notaries) paid less. No additional contributions were made for early retirement schemes.

2. The ongoing pension reform.

The current pension reform in Russia was launched in January 2002. The system of state pension provision is divided into three main groups:

State Pension Provision. The state organization responsible for paying pensions is the Pension Fund of the Russian Federation. Pensions from the state are transferred to citizens from the federal budget, and are distributed to specific segments of the population;

Mandatory Pension Insurance. These are payments from the Pension Fund or a Non-State Pension Company (Rudolph & Holtzer, 2010). This labor pension, is given to most working people. Funds are accumulated from mandatory insurance contributions, which are transferred by the employer to the Russian Pension Fund.

Non-State Pension Provision. This system is run by private Pension Funds and can be individual or corporate. Any person or organization that decides to enter into a separate agreement with a non-state pension fund and ensure a higher standard of living in retirement can be eligible for such benefits. Such a service is paid for by the pension contributions of an individual or a company that provides additional protection for the funds of its employees.

In these three groups, you can establish a number of certain features, each individual benefit functions according to certain principles and is able to provide people with a variety of options for retirement support.

It is worth considering carefully the structure of the system for calculating and issuing pensions in the Russian Federation

Table 8: Pension System Structure of the Russian Federation

Pension insurance	Pension provision	Non-government pension provision
Labor pensions: - advanced age - Loss of a family member responsible for income - disability Insurance Pension Savings Pension	State Pensions: advanced age; disability; loss of breadwinner; seniority; social pension.	supplementary pensions: for the rest of your life; term based.
Funding:		
from insurance premiums paid by the employer to the Russian Pension Fund	From Federal Budget Fund	from voluntary contributions of the employee and the employer
Insurance Organizations		
Russian Pension Fund or Non-state Pensions Fund (only the cumulative part)	Pension Fund	Non-state Fund
Note: Compiled by the author		

The State Pension System consists of two main parts: State Pension Insurance & State Pension Benefits. In the first instance, benefits are earned through previous contributions throughout one's working life. The second type of pension is given to people with insufficient or no employment pension or to certain occupational groups and is financed from the federal budget. Basically, a person can claim only one type of pension, but in some cases it is allowed to obtain a pension from the “State Pension Fund” in addition to the employment pension.

As in previous legislation, occupational pensions cover three groups: old-age, disability, and survivor pensions. Length of service pensions are included in old-age pensions. Old-age and disability pensions consist of three parts - basic, insured (i.e., defined contribution or notional defined contribution (NDC) payments), and contributory. Survivor pensions include only the first two parts.

In accordance with Federal Law No.350-Φ3 dated October 3, 2018, Russia began a gradual increase in the general retirement age, which entitles a person to receive an old-age insurance pension and a state-supported pension (publication.pravo.gov.ru).

The changes will be implemented in stages during a long transition period, which will be 10 years: from 2019 to 2028. As a result, the retirement age in Russia will be raised by 5 years: to 60 years for women, to 65 years for men.

In 2021, there are new requirements regarding length of service and the number of individual pension coefficients: now there must be 12 years of service (in 2020 there were 11) and 21 coefficients (in 2020 - 18.6). The retirement age for women is 56.5 years, and for men 61.5 years.

Table 9: Schedule of raising the retirement age in Russia

Year	The level of increase in the retirement age	Retirement age		Retirement period
		Men	Women	
2019	+0,5	60	55	2019/2020
2020	+0,5	60,5	55,5	2021/2022
2021	+1	61,5	56,5	2024
2022	+2,5	64	59	2026
2023	+1	65	60	2028

Note: Compiled by the author

Table 10: Pension Fund of the Russian Federation SWOT-Analysis

Strengths	Weaknesses
Stable position of the Russian Pension Fund Strong competitive position Wide range of services Qualified personnel Strong legislative framework High awareness of operations	Budget Deficits Lack of technology and automation Lack of modern equipment in IT sphere Lack of specialized educational institutions
Opportunities	Threats
State inter-budget transfers Introduction of modern information technologies Improvement of procedures automation	Changes in pension legislation Structure Optimization of the Russian Pension Fund Authorities Instability of electronic interdepartmental interaction

Note: Compiled by the author

According to the results of the analysis, it should be assumed that the Russian Pension Fund has a stable position in social services. However, to design a strategy for further development it is essential to take into account weaknesses and unfavorable external conditions and, accordingly, to introduce modern information technologies, update automated resources, retain qualified personnel, and develop unique competitive advantages.

2.2 Pension system of the West Europe

Pension schemes are important component of European household income during retirement. Pension funds also play a role in financial markets as institutional investors.

Although Europe's pension schemes vary widely, there are two main types of defined-benefit and defined-contribution pension schemes (Vail,1999). In a defined benefit policy, the future payment to the insured is predetermined or has at least a guaranteed minimum amount. In a defined contribution scheme, the regular contribution (or "premium") paid to the scheme is fixed, and the value of the insured's pension wealth depends on the effectiveness of the investment of pension funds (Hughes & Stewart, 2011).

Pension funds have grown significantly in the eurozone over the past two decades in terms of their financial assets and as a percentage of GDP. Eurozone Pension Fund assets have nearly doubled since 2008, with total assets now standing at around 3 trillion euros and almost doubling against eurozone GDP from 13% in 2008 to 25% in 2020.

Great Britain showed the largest amount of pension fund assets among Western European countries at the end of 2020 (\$3.6 trillion), followed by the Netherlands (\$1.7 trillion) and Switzerland (\$1.1 trillion). -The UK had the largest amount of pension fund assets among western European countries at the end of 2020 (USD 3.6 trillion), followed by the Netherlands (USD 1.7 trillion) and Switzerland (USD 1.1 trillion) (ecb.europa.eu).

Table 11: Assets in 2020 pension funds in Western Europe

Country	Pension funds		
	% change	in USD million	% of GDP
Austria	13,5	27,293	6,1
Belgium	18,0	44,674	8,4
<u>Czech Republic</u>	8,0	22,445	9,0
France	20,5	22,468	0,8
Germany	8,4	285,522	7,4
Ireland	20,8	140,425	36,0
<u>Luxembourg</u>	12,8	2,050	2,9
Netherlands	17,5	1,746,262	191,4
<u>Switzerland</u>	12,6	1,018,080	141,1
<u>United Kingdom</u>	16,1	3,582,910	123,3

Source: European Central Bank website

Table 12: SWOT-analysis of West European pension systems

Strengths	Weaknesses
Attractiveness of hiring and retention Stakeholder engagement Predictability for Employee Collective Risk Sharing Long-term investment strategies and no concentration of market and interest risk at retirement date. Ability to accumulate durability Reduce long-term costs (on a sufficient scale)	Reliance on interest rates Accounting Rules Financing requirements Dependency Problem Financial market volatility Change employee preferences through individualization Evolution of labour markets and work models
Opportunity	Threats
Promotion of pensions Financing of the Capital Markets Union	Regulatory uncertainty EU regulation is not neutral Political risks Transition individual DC
Note: Compiled by the author	

Analyzing the strengths and weaknesses, threats and possibilities of pension provision in Western Europe, it can be concluded that pensions should not completely move from a pure DB system to a pure DC system. The pension system would be more effectively affected by combining the strong elements of the two systems. A good and complete pension agreement should be based on such features as teamwork (while ensuring individual choice), risk sharing (while ensuring that there is no undesirable intergenerational transfer of values) and the provision of certain responsibilities to individuals (if desired). It must also be supported by proper management and disclosure to the extent that a person is in a suitable position to perform any duties. In order to ensure good pensions for natural persons, workplace pensions must be adapted to the various national economic, cultural and historical backgrounds.

German pension system. Germany's pension system is based on strong public pension management. Previously, individuals mainly relied on pension payments provided for by the law on pension insurance.

In the context of demographic changes in Germany towards an aging population and intergenerational contract, pensioners approach their pension planning in different ways, some plan their pension income taking into account the following three components: compulsory state pension, professional pensions and private pension (Börsch-Supan & Wilke,2004).

The first component of the German pension system is statutory pensions, wage contributions to the pension insurance system financed by employees, employers and the state. Statutory pension is calculated on the basis of seniority, average income and retirement age.

The contribution rate is equally distributed between the employee and the employer with a maximum annual contribution of 74.4 thousand euro (West Germany) and 64.8 thousand euro (East Germany) (Dam et al; 2013).

The retirement age under the law is 65.9 years for men and women, but in the transition period until 2030 it should increase to 67 years (Wang et al; 2014). Today, the number of inhabitants of Germany over 65 years of age is 21 percent, according to experts, by 2050 their number will increase to 32 percent. Many politicians and economists insist on further raising the retirement age from 2030 to 70 years.

Table 13: Schedule of raising the retirement age in Germany

Year	The level of increase in the retirement age	Retirement age	
		Men	Women
2019	+0,5	65,67	65,67
2020	+0,08	65,75	65,75
2021	+0,15	65.9	65.9

Note: Compiled by the author

Persons who have made payments to the compulsory pension insurance system for 35 years have the opportunity to retire at the age of 63, but an unearned period of up to 65 years will be deducted from this amount. Upon retirement 48 months before the official retirement age, a deduction of 14.4% will be made.

Occupation pensions (Second Pillar)

In 2019, about 20 million people were active participants in the labor pension system. This system invites employers to choose one of the two financing methods presented below:

1. *Pension promises.* Direct pension promises are usually funded by accrued payments. The employer promises the employee to pay them the agreed amount after his retirement. 4% of the contribution subject to taxation is allocated to external pension systems in the form of pension funds and direct insurance funds (Börsch-Supan, A. & Wilke, 2004). The employer may deduct from the taxable

income some reserve under the annual pension scheme. Benefits received upon retirement are taxed as deferred wages.

2. *External pension provision.*

Direct insurance. In accordance with the direct insurance system, the employer, on behalf of the employee, enters into a life insurance contract and pays obligations under the contract. The employee has the right to receive interest accrued under the contract, which is not taxable.

In Germany, insurance companies are controlled by the Federal Financial Supervision Authority (BaFin). Strict rules of investment apply to direct insurance, for example, the share of investments in capital cannot exceed 35%.

«*Pension Fund*» / «*Pensionskasse*». The pension fund is the main employer-funded pension tool. The pension fund includes special insurance companies that represent one or more employers (Börsch-Supan, A. & Wilke, 2004).

Pension Fund. Pension funds are separate institutions that can be formed in the form of a joint-stock company and a combination of mutual pension funds. They are regulated by the Insurance Act. Pension funds may be established by a single company, financial services provider or by an industry pension scheme funded by an employers' association and trade unions.

Under the new insurance regulation, pension funds do not need 100% funding. Pension funds can be financed in the amount of 10%. In this case, an activity plan for a 10-year period will be required.

Support Fund («*Unterstützungskasse*»). Support funds are separate institutions created in the form of an association, limited liability company or fund (Börsch-Supan, A. & Wilke, 2004). However, the employee has the right to demand support from the employer, not from the fund. Support can be sponsored by a single company, or can be a fund used by several companies.

Contributions to support funds are taxed, both for employers and for employees. Pension payments are taxed as ordinary income. There are no restrictions on investment in assets.

Private pensions (third component). The essence of the third component is the possibility of increasing pension payments by investing in a private pension. There are several mechanisms for investing in private pensions (Berkel & Börsch-Supan, 2003):

1. *Riester Pension Plan* is a lifetime rent plan subsidized by the state to the amount of 2.100€ annually.

Income in the amount of 4 percent is sent to the pension plan, while the government subsidizes 154 € and an additional 185 € per child (300 € if born after 2008), so this pension mechanism is suitable for low-income workers who plan to receive benefits for a long period of time.

The Riester pension plan is available in five investment options: a classic unit-related bank savings plan and two types of construction loan agreements (Wohn-Riester)

2. *Rürup Pension Plan.*

The Rürup pension plan is issued in three investment options: classic, unit-related and immediate annuity. During the contribution period, the contribution to this form of pension scheme is not taxable (Börsch-Supan, A. & Wilke, 2004).

In 2020, the maximum amount of tax deductions that could be invested in this investment mechanism was 23,362 euro per year for single people and 46,724 euro per year for married couples. Savings can be freely divided between wife and husband.

The amount of tax deductions is growing by 2% year-on-year, compared with 60% in 2005 for the first year. In 2020, 84% of this amount is subject to taxation, and by 2025 it should grow by 2%.

When a contributor retires, a certain percentage of pension rights is taxed. In 2020, this figure was 74%, but it is planned to increase the indicator by 2% until 2040. Taxable interest is determined in the first year when a person retires.

The German government, on August 29, 2018, based on a coalition agreement, agreed on a decision of principle: until 2025, the standard pension level in relation to the average salary in the country will not fall below 48 percent. The federal government guarantees in the next seven years to index pensions in accordance with the growth rate of average salaries.

At the same time, the Cabinet of Ministers adopted another law stating that the size of the pension contribution by 2025 will not exceed 20 percent. If necessary, the government is ready to allocate additional funds from the budget to maintain guaranteed borders. Funds will be taken from the «demographic fund», which annually - from 2021 to 2024 - will be replenished by 2 billion euro.

The Netherlands Pension System. More than one generation of politicians in the Netherlands has contributed to the creation of the modern concept of the pension system. The first basic principles of the state pension system were formed back in 1919. From then on, the state paid a pension to every Dutchman who reached the age of 65 (Parlevliet, 2017). In order to do this, the Dutch had to make regular contributions to the state pension fund during their working life.

However, the lack of a mechanism for indexation of pension payments has led to a gradual decline in the real level of pensions. Thus, for the first time in a small European country it became necessary to carry out radical reforms in the field of pensions. In 1956, Parliament passed the General Law of Pensioners (AOW), which established a pay-as-you-go, or PAYG, public pension system (Gerard, 2019). The main difference between the new system and the previous one was that employers were no longer required to make contributions to the pension fund. Under the new law, state pensions were paid to all persons, without exception, when they reached the age of 65, regardless of the contributions amount they made to the state pension fund. The law also provided for indexation of pensions paid by the state.

However, the pay-as-you-go pension system due to the above demographic features of the country could not completely suit the authorities. And already after the end of World War II the state began to actively promote the idea of introducing a non-state pension system, in particular, providing employers participating in occupational pension schemes with significant tax benefits (Davis, 2000). The Occupational Pensions Act, passed by the government in 1949, played an important role in the introduction of the occupational pension system (Bovenberg and Nijman, 2017). Under this law, participation of all economic entities in occupational pension funds became compulsory. Thus, virtually all Dutch employees became participants in the occupational pension system.

According to the Melbourne Mercer Global Pension Index 2020, the Dutch pension system ranked first in a group of 34 countries on a scale of 40 measures of benefit adequacy, sustainability, and financial integrity. The pension system is considered to have achieved high participation rates, ensured adequate pension income, and ensured sustainability through a model that skillfully exploits the advantages inherent in DB- defined-benefit and DC- defined-contributions systems (Verbon, 2009). But pressure points arise from an aging population, low long-term interest rates, and changes in labor market structure that have led to tensions in redistribution, bringing intergenerational tensions to the surface.

The Netherlands currently has a successful three-pillar pension system in place for decades. The first pillar, public, pay-as-you-go, provides a minimum fixed pension to the entire population based on age and residency requirements. Pillar 2 occupational schemes are the predominant type of pension contract, covering more than 90 percent of all workers and providing additional benefits based on lifetime wages. Tier 3 pension schemes are voluntary and tax-free. Tier 3 participation is still limited, accounting for about 10 percent of pension systems' assets, but continues to grow (Bovenberg and Nijman, 2017).

The Netherlands' Tier 2 occupational schemes are known for combining features of DB and DC schemes:

- Contributions are quasi-binding and stem from collective bargaining agreements. Contributions are charged at a flat rate, regardless of age. The rates can be increased if the pension fund falls below the target solvency ratio, but de facto they have been fixed.

- Benefits accrue annually at a maximum rate of 1.875 percent, which provides 75 percent of the average lifetime benefit after 40 years of contributions. However, unlike pure DB schemes, Dutch DB contracts are structured as deferred variable annuities accumulated as part of an investment strategy aimed at stable lifetime income. This makes the system a de facto “hybrid DB,” which displays some features of the DC scheme, since the ultimate benefit can (and indeed does) change over time. Annuities are indexed to wages or inflation, but can be frozen or reduced in nominal terms depending on the funding rate (Wills Towers Watson, 2017).

- Pillar 2 funds are managed by boards composed of employers, unions, retirees and independent professionals who act as trustees and jointly determine investments, contribution levels and indexation. The results of this decision-making lead to decisions that are based on a strong consensus (Bovenberg and Nijman, 2017).

The advantages of this approach are numerous and include a high level of pension coverage, risk pooling and risk sharing, and the long-term sustainability of pension funds. Over a 10-year horizon (set prudentially) the system is self-sufficient, given the ability (and obligation) of the funds to address possible funding gaps through income (contribution) changes, benefit accruals, and payment of earned annuities. In this respect, Dutch professional schemes resemble the DB scheme, where decisions are made collectively and affect all beneficiaries, current and future, while avoiding underfunding like the DC plan. In addition to ensuring sustainability, collective management of savings reduces fears of cognitive constraints and financial illiteracy and strengthens the bargaining power of participants in financial markets. Combining longevity and systemic macro risks is also a desirable feature that brings the system closer to pure DB.

However, the characteristics that make the Dutch pension system attractive also reveal some of its shortcomings, which have led to increased complexity and opaqueness in transfers. Uniform accrual rates imply a generational transition from young to old because of the time value of money and from the less educated to the more educated. However, this implicit subsidy is partially offset by backward redistribution, as entitlements accumulated in the past at higher real rates of return subsidize annuities that are valued at the risk-free rate (Bovenberg and Nijman, 2017). In addition, the indirect relationship between changes in contributions and benefits due to changes in the macro environment and the influx of new enrollees into the system has increased uncertainty. The system has become complex, and as participants increasingly face investment risks, it has become even more important that the distribution of losses and benefits across individuals and generations becomes transparent (Verbon, 2009). Finally, given the governance structure of pension funds, any potential reform is more difficult to negotiate and should satisfy multiple, and sometimes conflicting, interests.

The retirement age in Holland for both men and women is 67 (Wang et al; 2014). When a citizen reaches this age, he or she becomes entitled to a basic state pension. The size of this pension does not depend on the length of service, nor on the contributions amount, which is paid into the state pension fund during the entire period of employment. As a result, any citizen of the country who has reached retirement age, even a housewife, can count on a state pension in Holland (Nimwegen,2012). This uniform approach makes it possible to cover all pensioners in the country.

Table 14: Schedule of raising the retirement age in Netherlands

Year	The level of increase in the retirement age	Retirement age	
		Men	Women
2019	+0,5	66,4	66,4
2020	+0,5	66,8	66,8
2021	+1	67	67
2022	+2,5	67,3	67,3
2023	+1	68	68

Note: Compiled by the author

Differentiation of the size of state pensions is made on the following grounds: single pensioners receive higher pensions compared to married couples. For example, if a single pensioner receives about 70 percent of the salary, he or she received during his or her working life, then each spouse can count on only 50 percent.

It is worth to be noted that since the 1956 pension reform, the Dutch government has already managed to reform the public pension system twice. The acute problem of an aging population, which affected almost all European countries, did not spare the Netherlands. The state has come face to face with a situation where the cost of providing pensions to a growing number of pensioners was beyond its means. Thus, according to one of the forecasts, by the middle of the 21st century the number of Dutch pensioners could almost double. This, in turn, clearly points to the need for further reforms. However, the first attempt to modify the pay-as-you-go pension system proved unsuccessful: in order to reduce the budget deficit of the state pension fund, the government initially intended to freeze the amount of pension contributions to the state pension fund at the level of the 1997 contributions. But then experts calculated

that this would not lead to the desired result: the number of pensioners, and with it the burden of public spending on pensions, would grow inexorably.

For this reason, the government chose another way: it increased the amount of employees' contributions to state pension insurance. Of course, this action reduced government spending. But it also put an enormous burden on the shoulders of taxpayers: everyone who works had to contribute a significant portion of their wages to the pension fund.

The next attempt at reform was more successful: to accumulate additional pension savings, a special trust fund was created, which funds were used in periods of critical growth in the number of pensioners. The new trust fund made it possible to significantly reduce government spending on pensions: the capital of the trust fund was invested in government securities, which made it possible to significantly increase the fund's assets. At the end of 1998, the assets of the fund stood at about 4.3 billion guilders (2.2 billion euros), corresponding to about 0.55 percent of Holland's GDP (Hughes & Stewart, 2000).

There are currently two schemes for calculating the amount of pension benefits in relation to the employee's salary in the Netherlands: on the basis of the employee's final salary at the time of retirement and on the basis of the employee's average salary over the course of his/her employment (Nimwegen, 2012).

According to the first benefit scheme, which is based on the employee's final salary at the time of retirement, the employee's annual savings cannot exceed 2% of his or her salary. Following this calculation, an employee with 35 years of service is entitled to a pension equal to 70% of his or her earnings at the time of retirement. Thus, the employee's pension cannot exceed his/her earnings.

It should be noted that these schemes are the most popular among the Dutch population: more than 73% of the total number of employees that participate in occupational pension schemes prefer this option for calculating their pensions. However, schemes where the size of the pension is calculated by reference to the size of the last salary have a significant drawback: employers try to restrain the growth of wages of employees of pre-retirement age, thus limiting the amount of future pension payments that he or she will receive depending on the size of his or her salary.

According to the second pension calculation scheme, which is based on the employee's average salary for the entire period of employment, the employee's annual savings cannot exceed 2.25% of the salary received, which allows the employee to accumulate a pension equal to 78.75% of the average employee's salary for 35 years of service. According to defined contribution schemes there is no contribution cap, but the pension will not exceed 70% of the employee's 35-year salary at the time of retirement (Nimwegen, 2012).

The third tier of the Dutch pension system, which is private pensions, includes voluntary individual pension insurance.

As a rule, pension insurance is provided by life insurance companies. Any employee can enter into a life insurance contract with the insurance company and receive a personal pension upon the occurrence of an insured event (survival to retirement age). This pension insurance scheme was not very popular in the Netherlands until recently, that is why the Dutch pension system was considered a two-tier system for a long time. Up until the 1990s only 10% of the population were insured under the individual savings scheme. Recently, however, experts have noted a significant interest of the population in individual pensions. This trend is most likely due to the lack of confidence of the Dutch in the reliability of the state pension provision, especially in the context of the rapid aging of the country's population. The growing prosperity of the population should not be disregarded either.

The current social, economic and demographic conditions in Kazakhstan indicate that Kazakhstan needs to reform the pension system in the following key areas:

- improving the sustainability of the pension system;
- increase in the ratio of employed and retired persons (replacement ratio);
- reducing the dependence of the pension system on public financing and distributing the burden of pension payments by sources (from public to private), levels (from public to personal and corporate) and forms (uncertainty about the mandatory funded subsystem, the need to improve the efficiency of the state distribution subsystem and the development of a voluntary funded subsystem);
- introduction of initiatives and measures to improve the ratio of working and retired people;

- increasing the degree of coverage of the working population by the pension system (both within the framework of the mandatory distributive and voluntary funded subsystems);
- optimizing administrative costs within each of the three subsystems of the pension system.

Comparing the necessary directions for reforming the domestic pension system with the world practice of pension reforms in recent years, we can conclude that the transformation of the Kazakhstan pension system should be carried out in the same strategic way as the pension systems of the OECD countries (Germany, the Netherlands).

As for the reform of the state distribution subsystem, we can distinguish such reforms as:

- gradual increase in the retirement age;
- introduction of stabilization mechanisms in the form of automatic; raising the retirement age in accordance with growth; life expectancy after retirement;
- increasing the minimum work experience requirements;
- encouraging late retirement;
- tougher conditions for early retirement and restrictions on; payments to working pensioners.

3-Chapter. Problems and prospects of pension provision development in the Republic of Kazakhstan

3.1 Advantages and disadvantages of the current pension system

The pension system in the Republic of Kazakhstan occupies a leading place in the system of social protection of the population and affects the interests of more than 1.5 million pensioners and about 8 million participants in the funded pension system of the country. At the same time, a number of problems remain, the solution of which will create a stable economic, organizational, and regulatory environment for further improvement of the pension system, ensuring the implementation of its most important principles. In this regard, there is a need to improve the pension system of the Republic of Kazakhstan, its institutional base, as well as a transition to the formation of long-term target indicators for the development of pension provision.

Understanding that in the modern period of economic development the role of the state in the functioning of the country's pension system is increasing under conditions of significant changes in demographic, economic and other factors is a guarantee of stability and well-being of the social sphere.

One of the first problems of accumulative pension funds in the republic is the risk of insufficient coverage of the working population. According to this indicator, the Republic of Kazakhstan is at the average level for its region, but significantly lags behind the developed countries.

Let's consider the structure and dynamics of indicators of the Kazakhstan labor market for 2018-2020.

Table 15: Labor market indicators of Kazakhstan

	2018		2019		2020	
Population in total	18 157 337	100%	18 395 567	100%	18 852 802	100%
Working-age population	10 712 828	59%	10 588 400	57.56%	11 160 858	59.2%
Economically active population	9.1 mln	68,7%	9.2 mln	70.1%	9.2 mln	69.2%
Employed population, including:	8.7 mln	66.6%	8.8 mln	66.7%	8.7 mln	65.95%

- employed	6.6 mln	76%	6.7 mln	76.1%	6.7 mln	76.6%
-self-employed	2.1 mln	24%	2.1 mln	25%	2 mln	23.4%
Unemployed	434 000	4,9%	443 200	4,8%	454 000	4,9%
Economically inactive population	1.6 mln	30%	1.4 mln	29%	1.9 mln	30,9%
Source: Bureau of National Statistics of the Agency for Strategic Planning and Reform of the Republic of Kazakhstan.						

As can be seen from Table 14, the working-age population in Kazakhstan is 59.2%. Thus, the share of participants in the pension system is less than half of the employed population. The reasons for low coverage are the large share of the self-employed in the economy and the unemployment rate. The economically active population is 59-70%. Including the share of employees is 65.95%, but the share of the so-called self-employed is on average about 23.4% (stat.gov).

In Kazakhstan, according to the International Classification of Employment, independent workers are defined as individuals who work alone with one or more partners, engage in self-employment activities and do not hire permanent employees.

The high proportion of the self-employed is indicative of slow job growth in the formal sector and high growth in the informal sector. A country in which a significant proportion of the employed population is unpaid family workers is likely to be underdeveloped and has low employment growth, has widespread poverty, and often lacks manufacturing, with agricultural production predominating instead (Methodological Explanation on Employment). It should be noted that there is a lack of clarity and transparency in the criteria for classifying the working population as self-employed.

According to Table 2, of the total working-age population, only 66% have regular pension contributions, while the remaining 34% (more than 3 million people) they are not covered by the funded pension system of Kazakhstan. In this regard, there is a question about what the rest of the life of this population will look like in retirement age, as well as what finances this category of people will live on and whether they will have enough of a living wage.

One of the central problems of the pension system is the problem of reducing the average level of pensions. Currently, the average level of pensions in Kazakhstan can be estimated as close to the lower limit of the level recommended by the International Labor Organization, which for developing countries

is 40%. It should be noted that each new generation of pensioners in Kazakhstan retires with an increasingly lower (relative to wages) pension.

The downward trend in the relative level of pensions is mainly determined by three factors:

- reduction in the length of service (until 1998) among new generations of pensioners, which leads to a decrease in the «pre-reform» pensions;
- linking the maximum level of the "pre-reform" pension to the MCI, linked to the inflation rate; - linking the basic pension to the subsistence minimum, also linked to inflation (Holzmann, 1997)

The amount of the pension paid from the budget is determined and guaranteed by the State. In a distributed pension system, current taxpayers pay for the pensions of current retirees. The future growth of payments of this part of the pension depends entirely on the growth of tax and other revenues of the state budget. Since the state budget is heavily dependent on the annual transfer of petrodollars from the National Fund, pension payments from the state budget are under strong pressure at a time of low oil prices. In turn, the amount of pension in the UAPF funded system depends on how much money is accumulated in the account of the retiring employee, plus investment income on pension assets. Contributions to the UAPF are entirely the property of the employee. In the event of the death of a pensioner, this money is inherited in accordance with the law. The main restriction on the use of their contribution to the UAPF is that the depositor can only receive money in the form of monthly pension payments.

In the accumulative pension system of Kazakhstan, the state guarantees only that the investment income on pension contributions to the UAPF is not less than the accumulated inflation. In accordance with international practice, the state distributive pension system (payments from the state budget) should provide protection from poverty at retirement age to those who could not, for various reasons, make regular contributions or made too small contributions to the funded pension system.

As for the compulsory funded pension system, it is mainly aimed at workers with middle and higher incomes and is designed to ensure the replacement of labor income with an adequate pension. In developed countries, the pension replacement rate (the ratio of pension to previous income / earnings of

the recipient of a pension) for funded systems is about 70%, and Kazakhstan should strive for precisely this level. For comparison, in the USSR there was only a pay-as-you-go pension system, in which the rate of replacement of an employee's income with pension payments was legally established and strictly observed at the level of 60%.

Today, the state budget plays an overwhelming role in terms of pension payments in Kazakhstan. Thus, the share of the UAPF in 2020 in total pension payments amounted to only 6.3%, decreasing compared to 2019 (6.7%). At the same time, pension expenditures of the budget are growing rapidly, outstripping high inflation in Kazakhstan by 2-3 times. On the other hand, the total expenditures of the republican budget depend on the petrodollars accumulated in the National Fund. The republican budget expenditures in 2019 were financed by 26.8% through transfers from the National Fund. Due to the global economic crisis associated with the spread of COVID-19, oil prices fell in 2020. In order to replenish tax revenues and finance anti-crisis measures, the government increased transfers from the National Fund, in this regard, their share in the expenditures of the republican budget increased to 34.5%. If oil prices remain low for several years, transfers from the National Fund will be reduced and the question of financing the rapidly growing pension expenditures of the state budget will arise. The rapid growth of pension expenditures of the state budget is influenced by long-term demographic trends in Kazakhstan. The key findings of the UAPF based on the results of demographic forecasts in Kazakhstan are presented below.

The expected population by the end of 2050 is 24 million people. As the population increases, the proportion of older people in the country is expected to increase; the proportion of people aged 60 and over will almost double: from 14% in 2020 to 20% by 2050.

the factors of population aging in the country are the gradual decline in the birth rate and the increase in life expectancy. These factors will significantly reduce the potential support ratio (the ratio of the number of people of working age to the number of people aged 65 and older) from 6.45 in 2020 to 3.5 in 2050, which dramatically increases the burden on the state budget under a distributive tax system.

Factors related to demographic trends will gradually increase the already very high burden on the state budget in terms of social and pension provision. In the context of an aging population, the

accumulative pension system of the UAPF is of particular importance, since only this system can reduce the burden on the budget and increase the amount of pensions in the future.

The main disadvantages of the funded pension system.

The current pension system is based on the payment of pensions to established pensioners at the expense of mandatory pension contributions from employees.

The key characteristics of the current pension system are:

- state monopoly on pensions;
- anonymity of mandatory pension contributions due to the lack of personal responsibility of citizens for their own material security in old age;
- redistribution of pension funds within the system.

Such a system was effective in the conditions of a planned directive economy, almost full employment of the able-bodied population, total control by the state apparatus and the existing ratio of pensioners and working citizens. Therefore, the pension system provided a relatively high level of pensions - their size depended on the wages received in recent years of work, seniority and age.

The change in the economic situation has led to a disruption in the functioning of the existing pension system. The pension system has become less capable of meeting the minimum needs of most retirees. The following disadvantages of the current pension system can be listed:

1. Lack of direct connection between the amount of contributions and the amount of pension payments. Contributions to the pension fund are made impersonal, but every employee is entitled to receive a pension, regardless of whether his employer regularly and fully transfers contributions to the pension fund. The state, for its part, must fulfill its pension obligations to a citizen whose employer evades mandatory contributions to the state Pension fund.

2. The low level of collection of pension contributions is due to both general economic reasons and the lack of a proper mechanism to control the receipt of insurance contributions and the lack of interest of employees in supporting state pension provision.

3. A large number of benefits in the appointment of pensions creates a significant burden on the state Pension Fund. The current legislation gives the right to a significant number of people to retire earlier and receive preferential pensions, the amount of which in some cases is higher than old-age pensions. As a result, workers in some industries pay contributions to pay pensions to workers in privileged industries, which violates the principle of social justice.

4. The lack of personal accounting of employees' pension contributions does not create an incentive to increase contributions and accumulate funds on personal accounts of citizens, as well as to exercise control over employers' contributions.

5. Ineffective pension management system, dispersion of functions for collecting and spending pension funds across different organizational structures contributes to their inappropriate use and entails serious financial losses.

The payment of pensions to citizens whose pension provision is carried out in accordance with the Law of the Republic of Kazakhstan «On Pension Provision of Military Personnel, Commanders and Ordinary Personnel of Internal Affairs Bodies and Their Families», taking into account their peculiarities, is carried out at the expense of the republican budget.

The preservation of the existing pension system inevitably leads to an aggravation of its crisis and prolonged delays in the payment of pensions. Therefore, the current pension system in legal, economic and social relations needs fundamental changes. The reform of the pension system can contribute to the development of the state's economy, on the condition of which the improvement of the material security of all pensioners depends.

According to the UAPF, the funded pension system currently provides a replacement rate of 12.4%. Actuarial calculations of the UAPF show that for a depositor participating in a full-cycle Funded Pension System (40 years) with regular monthly contributions of 10% of income (12 per year), the replacement rate will average 30%, which is very far from 70% in developed countries. This means that if the state wants to reach the level of developed countries in terms of the pension replacement rate in the

absence of reforms in the funded pension system, it will have to pay the overwhelming part of each pension from the state budget.

In turn, the level of the replacement coefficient in the UAPF depends on the following parameters:

- the rate of monthly pension contributions from the total income of the employee (now it is 10%);
- the regularity of contributions and the coverage of the population making contributions to the

NPS.

- average pension payment period (the difference between the average life expectancy and the retirement age);

- the level of return on pension savings (assets).

The low rate of pension contributions to the UAPF is also one of the tasks that need to be considered in the country's pension provision. According to calculations, if you regularly make pension contributions for 40 years, then in order to achieve a pension replacement rate of 60%, you need a level of pension contributions from the employee's income of 15% or higher (as opposed to the current 10%). In order for the UAPF to issue an appropriate pension and remove the high pension burden from the state budget, it must increase the amount of contributions to the UAPF. Currently, the government has been instructed to consider the issue of the targeted use of part of their pension savings by working citizens, for example, for buying a home or getting an education.

Discrimination against middle and high income workers. Today, from the point of view of a decent standard of living at retirement age, workers with middle and high incomes are the least protected. Workers with middle and high incomes, due to the low rate of contributions to the UAPF, will not be able to receive an appropriate pension from the fund when they reach retirement age. On the other hand, due to the upper limit on the payment of basic and solidarity pensions from the state budget (restrictions on maximum pension payments), the pension replacement rate from the budget for employees with medium and high incomes is very low. For this group of Kazakhstanis, the pension replacement rate is much lower than the announced 52.7%.

Middle-and high-income workers are the main payers of IIT and social taxes to the budget of Kazakhstan. At the same time, in the state budget, when paying pensions, these contributions are redistributed in favor of low-income workers. According to economists, the planned introduction of the conditional accumulative component in the pension system of Kazakhstan (mandatory pension contributions in the amount of 5% at the expense of the employer) it will further increase discrimination against middle-income workers. The middle class in developed countries is the largest group of the population, and this group is also responsible for the prosperity and growth of the competitiveness of the economy. From this point of view, it is important to direct the pension reform towards obtaining an appropriate pension replacement for middle-and high-income workers.

In the program for reforms in the pension system, it is important to develop measures to close the large gap in the adequacy of pensions (adequacy of the replacement rate) between workers with low and middle income. In the long term, Kazakhstan needs to carry out structural reforms in the economy to maximize the expansion of the middle class in the country. For the successful development of the distribution and funded pension system, it is necessary to strengthen and accelerate the fight against the shadow economy and deal with the status of «self-employed». The need to reduce the gap between the population with low and middle incomes to an acceptable level; coverage of the working population making adequate contributions to the pension system, which should be at least 90%, the average income of the population, which should be at the level of developed countries, are important points for the development of the country's pension provision.

3.2 Prospects for the development of the funded pension system

In the course of a comprehensive study of the pension provision of the Republic of Kazakhstan in the market situation in which the subject operates and assessing the types of opportunities and threats that it may face, a SWOT analysis of the pension system was made.

SWOT - analysis as the main tool for regular strategic management, allows you to identify and structure the strengths and weaknesses of funds, as well as potential opportunities and threats. This is achieved due to the fact that managers must compare the internal strengths and weaknesses of the fund with the opportunities that the market gives them.

Table 16: SWOT-analysis of the Pension System of Kazakhstan

Strengths	Weak
<ul style="list-style-type: none"> -Creation of a multi-level pension system, including both solidary and funded components; -Providing a guaranteed basic pension; -A state guarantee that ensures the safety of pension contributions and their profitability at a level not lower than inflation; -Preservation of benefits for a certain category of citizens; -Accrual of a basic pension depending on the length of service, taking into account pension contributions; -Reducing the size of the commission on pension assets by reducing the administrative and other expenses of the UAPF; -Reduction of problem debts on investment activities of the UAPF; -The distribution of pension assets is carried out in accordance with the UAPF Investment Declaration 	<ul style="list-style-type: none"> -Irregular participation of citizens in the funded pension system (self-employed, rural population and other categories); -Low return on pension savings; -Insufficient level of development of the system of voluntary pension savings; -Lack of attractive financial instruments for investing pension funds; -Lack of mechanisms for investors ' influence on the investment policy of the Unified Accumulative Pension Fund; - Placement of the majority of pension assets in government securities of the Republic of Kazakhstan, which indicates a low return on pension investments
Opportunities	Threats
<ul style="list-style-type: none"> -Introduction of a conditional accumulation system; -Growth of pension savings of the population on individual pension accounts; -Creation of new conditions for providing the economy with long-term resources; -Increasing the transparency of the UAPF will help increase public confidence in the pension system. -Modification of the internal control and risk management system will increase the efficiency of the UAPF 	<ul style="list-style-type: none"> -Decrease in the profitability of the funded pension system; -Social tension in the society; -Reducing the motivation of the population to form pension savings; -Pension savings may not be sufficient to receive a normal pension in the future; -The concentration of pension assets in the UAPF does not contribute to the diversification of risks
Note: Compiled by the author	

In 1998, Kazakhstan, one of the first countries in the CIS, began the transition from a solidary pension system to a funded one. In this regard, as a strong point of the Kazakhstan pension system, it should be noted its three levels, including the funded component, i.e. voluntary and mandatory pension contributions, which helps to offset the risks associated with the aging of the population and the burden on the budget, as well as the distributive component in the form of a basic pension payment from the budget, which provides the main level of support, primarily for low-income citizens.

The state assumes responsibility for the basic level of the pension, the guarantee of the safety of pension savings and the activities of the UAPF. The employer is equally responsible for the timely and complete transfer of mandatory pension contributions and the replenishment of the employee's conditional savings accounts. The development of voluntary pension contributions is an important area of development of the system. Calculations show that even minimal voluntary contributions made on a regular basis can significantly increase pension savings. The amounts of voluntary pension contributions made in their own favor are exempt from taxation when transferred to a pension account.

The weaknesses of the pension system include the low share of pension assets transferred to the management of private managers; the low profitability of pension savings; limited opportunities for depositors to withdraw pension savings after reaching retirement age; and the insufficient level of development of the system of voluntary pension savings.

However, assessing the current model of the pension system in Kazakhstan, we can say with confidence that it corresponds to the best international practices. When reforming the pension system, Kazakhstan used the experience of Sweden, Germany, Norway, Chile and other countries where there was a need to introduce new accumulative components. Today, Kazakhstan has more than 10 million individual pension accounts of depositors, which have accumulated 6.9 trillion tenge of pension savings (enpf.kz). Since the beginning of the functioning of the accumulative pension system, the volume of pension payments has exceeded 900 billion tenge. The share of " net " investment income in the amount of pension savings is about 20%.

The multi-level model of the pension system is successfully functioning and has already confirmed the correctness of the choice made. Therefore, it is important not only to preserve the existing principles of pension diversification, but also to continue their further development. The main goal of the modernization of the pension system is the development of this multi-level system, which is sustainable and allows you to receive adequate pensions.

The objectives of the pension system development are:

- ensuring the replacement rate of the old-age labor pension of up to 40 percent of the lost earnings with the standard insurance length of service and the average salary;

- achieving an acceptable level of pension for the middle class through participation in corporate and private pension systems;

- ensuring the average size of the old-age labor pension of at least 2.5-3 subsistence minimums of the pensioner;

- maintaining an acceptable level of insurance burden for economic entities with a single rate of insurance premiums for all categories of employers;

- ensuring the balance of the formed pension rights with the sources of their financial support;

- development of a three-tier pension system for groups with different incomes (for medium-and high-income categories-based on voluntary pension insurance and non-state pension provision);

- improving the efficiency of the funded component of the pension system.

Currently, the National Bank is preparing amendments to the norms of the current legislation, which provide for the possibility of transferring part of the pension assets to the management of private - Kazakh and foreign-management companies at the choice of the depositor. It is assumed that the management of pension assets will be carried out by private management companies. Working in a competitive environment will require managers to receive even more investment income, since their competitive advantages will be the level of profitability and the quality of financial instruments. The investment of pension assets will be closely monitored by the state authorities. Investors will be able to

independently assess the effectiveness of the pension asset management process and choose the most successful management companies and investment strategies.

The involvement of private managers is part of the ongoing work to diversify the portfolio of pension assets and reduce the overall level of risks associated with asset management. It will also allow you to use the extensive experience of investment asset management in international financial markets. The concept of the future reform of the pension savings management system is being discussed with the Government of the Republic of Kazakhstan.

The proposed reform assumes that the UAPF will remain the accounting center for the volume of pension funds and individual pension accounts. He will also make actuarial calculations on the stability of the funded pension system and, on their basis, put forward proposals for its development. Companies that qualify for asset management will be subject to strict equity requirements, which the company will have to meet in the event of poor management. In this regard, it is assumed that there will be few management companies on the market. Companies that manage pension assets must ensure the level of return on pension assets at the level of the benchmark determined by the National Bank. If the company does not reach the specified level of profitability, the obligation to compensate for the lost difference at the expense of its own funds will be formed. Pension asset managers will compete on three criteria: the level of profitability, the quality of financial instruments and the amount of commission charged.

In turn, the National Bank will continue to manage the pension assets of depositors who have not opted for a management company, as well as the pension savings of persons of retirement and pre-retirement age according to a conservative investment strategy.

The proposed model of reforming the accumulative pension system will allow: to eliminate the conflict of interests of the state in the management of private pension savings; to involve the depositor in the process of managing their pension savings by choosing a company that manages pension assets and investment strategy. In addition, the stock market is expected to revive - new investors will be able to enter it in the form of companies that manage pension assets, private management companies and life

insurance companies. The advantage of this approach is to create a competitive environment under the control of the state.

Taking into account international experience, in order to prevent the poverty of pensioners and stimulate the economic activity of citizens of working age, it is proposed:

1) make the transition to the appointment of a basic pension only when citizens reach the retirement age, as well as depending on the length of service of citizens participation in the pension system;

2) establish a social pension in the amount of 50 % of the subsistence minimum for persons who have less than 10 years of experience in the pension system;

3) determine the basic pension in the amount of 50% of the subsistence minimum for 10 years of participation in the pension system, for each year over 10 years, its size will increase by 2 % and for 35 years of experience or more, it will be equal to the subsistence minimum.

The proposed changes are aimed not only at reducing the poverty of pensioners, but also at strengthening labor motivation and formalizing labor relations of citizens. They meet the interests of both past and future generations of pensioners.

To improve the efficiency and ensure the financial stability of the funded pension system, the following changes should be considered:

1) abolish the one-time principle of withdrawal of pension savings, with the exception of the amounts of pension savings not exceeding 12 minimum pensions;

2) make pension payments from the UAPF only on schedule (monthly) or by purchasing a pension annuity;

3) review the basic framework for the calculation of annuity value;

4) establish the obligation to conclude an agreement providing for lifelong pension payments (pension annuity) only for participants in the funded pension system;

5) introduce a mechanism of joint annuities, which can partially solve the gender problem of lower pensions for women;

- 6) optimize the procedure for paying the state guarantee for the safety of mandatory pension contributions by acquiring the right of citizens to pay it only if they reach retirement age. At the same time, the amounts of the payment of the difference under the state guarantee will have to be credited to individual pension accounts.

In the near and medium term, first of all, it is necessary to note the increase in the coverage of the population by the accumulative pension system by attracting new depositors and increasing the share of active depositors, since pension provision in the future depends on the regularity and completeness of contributions. In addition, a lot of work will be done to develop the culture of pension planning through increasing the financial and legal literacy of the population in the field of pension provision.

To effectively solve the tasks set, the main principles of modernization of the pension system are:

- 1) the sequence and stage-by-stage of transformations;
- 2) balancing the distribution of responsibility for pension provision between the state, the employer and the employee;
- 3) protection of pension rights of citizens;
- 4) transparency of the pension asset management process;
- 5) systematic changes in the pension system and their implementation depending on and in relation to macroeconomic development.

4-Chapter. Quantitative analysis

Data

All the data was derived from official sources as Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan, National Bank of Kazakhstan, JSC «Unified Accumulative Pension Fund» and Yahoo finance.

Data cleaning and preparation

The analysis was carried out on the Jupiter Notebook.

Results

All of the calculation results are stated in Appendix to this research.

This test aimed to test the following hypotheses:

1. The volume of replenishment of the national pension fund with pension contributions in the Republic of Kazakhstan directly depends on two main factors: the number of working-age population and the average salary in the country.

For testing, 3 main factors were identified, which we used according to the following formula:

The replenishment of the pension fund = Able-bodied active pop + Av salary + (Able-bodied active pop) * (Av. salary)

The test results were as follows: R-squared = 0.166

Compared with the standard deviation, small coefficients show that there is no direct relationship between these factors.

2. The amount of reduction of the pension fund by pension payments of the population who have reached retirement age depends on the number of people of retirement age and the average size of the pension.

Pension payments as a dependent variable was tested with the quantity of retired people in Kazakhstan by means of a simple regression method.

The results show that the statistical data is significant, because p-value is very small, and t-statistical is very large. Thus, we can say that the number of people of retirement age really affects the work of the pension fund.

Considering that we have only one independent variable, R-squared = 18.6 is quite normal.

Hypothesis is true.

3. Due to the dependence of investment income on certain market behavior, it was decided to conduct a test of the S&P 500 and currency rate.

To test this hypothesis, the following factors were taken into account: CASE, S&P 500, the price of oil in dollars and the exchange rate of the KZT-USD.

According to the test results, a good t-test indicator is observed in the S&P 500 and the KZT-USD exchange rate. Indicators of other factors are weak. This is reflected in the results of p-value. The currency exchange rate and the oil price in dollars are well contributed. It can be concluded that investment income depends on the oil price in dollars, S&P 500 currency and exchange rate.

Conclusion

Currently, the problems inherent in the pension system of Kazakhstan are the following:

- lack of pension savings for a decent level of pension payments at the onset of old age;
- insufficient coverage of the population with the services of accumulative pension funds, primarily we are talking about the rural and self-employed population;
- low level of financial literacy and investment culture of the population;
- insufficient development of the system of voluntary pension savings; issues of effective investment of pension savings, in conditions of a shortage of reliable and liquid securities, etc.

Kazakhstan's experience in pension reform is already recognized at the world level as one of the most successful. The essence of the reform is the gradual abandonment of the solidarity scheme in favor of the accumulative one. The transition to the funded pension system is being carried out systematically and it is expected that it will be finally completed in the period up to 2038-2040.

Currently, in our state, the pension system is represented by several levels or, as they are otherwise called, pillars:

- first pillar-solidary system;
- the second pillar is a mandatory accumulative system;
- the third pillar is a funded system based on voluntary pension contributions.

The functioning multi-level model of pension provision is designed for the entire population of Kazakhstan. The segmentation of the population by categories that determine the source of pension payments (the state budget and / or pension savings) was based on the age characteristics of Kazakhstanis involved in the pension system.

Thus, the interests of the generation whose labor activity began before the introduction of the accumulative pension system are taken into account by the solidarity system, which operates in parallel with the accumulative system and involves the implementation of pension payments at the expense of social taxes and other revenues to the republican budget (the first pillar).

The deduction of mandatory pension contributions during the period of employment meets the conditions of the second pillar of the pension system and already obliges the younger generation to bear independent responsibility for the level of their income after retirement, since the source of pension payments will be the savings formed by them on individual pension accounts.

In addition, every citizen is offered the opportunity to increase their savings through voluntary pension contributions and thereby secure a higher income after completing their work (third pillar).

The amount of net investment income from investing pension assets distributed to individual pension accounts of depositors amounted to almost 300 billion tenge.

Special attention should also be paid to the current legislative framework that ensures the reliable safety of pension savings and the functioning of the pension system as a whole. Thus, the state has assumed an obligation to guarantee the safety of pension savings in all pension funds, taking into account the level of inflation. This guarantee is based on those legally established requirements and restrictions that are intended for accumulative pension funds and organizations engaged in investment management of pension assets: mandatory licensing of their activities; establishment of prudential standards, norms and limits that ensure their financial stability; restriction on transactions with affiliated entities; differentiated accounting of own and pension assets; mandatory storage of pension assets exclusively in the custodian bank. It is noteworthy that during the operation of the new pension system for Kazakhstan, there was not a single case when there was a need to pay a state guarantee.

In addition, to date, the pension fund has become a major institutional investor that has a significant impact on the development of the Kazakh economy.

In countries where accumulative pension systems already exist, pension assets play a significant socio-economic and sometimes political role in society. The assets of pension funds are of great investment importance for the economic development of their countries, as they are an important component of domestic investment resources. Through pension funds, free cash resources in the form of pension assets are transformed into working capital flows, and since pension assets are placed in various

financial instruments and investment projects for the purpose of long-term investment, they rarely participate in the speculative game in the capital markets.

At the same time, pension assets are a kind of stabilizer of the country's financial system. Suffice it to recall the second half of 1998, when, after the August financial crisis in Russia, many Kazakh banks began to hastily get rid of government securities, a significant part of which moved to investment portfolios of pension funds. Thus, pension assets played a positive role, to some extent preventing the crisis from breaking out in Kazakhstan.

However, it should be noted that the very existence of the interdepartmental settlement center for social payments and the growth of their pension assets do not yet mean the successful operation of the interdepartmental settlement center for social payments as an established social and financial institution. the interdepartmental settlement center for social payments will be successful only when it is able to consistently fulfill its obligations on pension payments, which in a few years will become widespread due to the retirement of a significant part of current depositors. We can not say that in 11 years of existence in the funded pension system Kazakhstan in it there are any positive qualitative changes. Rather, while there is a quantitative growth process, both the system and its individual subjects.

In the course of the study and taking into account the world practice of the pension system, the following conclusions can be made:

- Despite the gradual elimination of the most significant shortcomings in the development of the accumulative pension system, effective methods of managing accumulative pension funds have not yet been developed. This is reflected in the absence of a strategic plan for the development of the accumulative pension system, in the constant change in the number of regulatory bodies and their competence, in the absence of legally established pension schemes for the implementation of pension payments. Thus, there are objective potential opportunities for improving the management of pension savings funds in the Republic of Kazakhstan.

- The pension reform carried out in Kazakhstan has faced a number of difficulties caused by the unstable economic situation due to the global financial crisis, the lack of compliance with legislation, and

demographic problems. To successfully reform the pension system, it is necessary to develop and create a stable economic and regulatory environment in the country, an organizational pool of available intellectual potential to work on draft regulatory acts on improving the funded pension system, maintain macroeconomic indicators (economic growth, inflation), ensure currency stability, low unemployment, etc.

- The study of the specifics of the activities of accumulative pension funds allowed us to identify external and internal factors that affect their stability. The group of external factors included economic, political, and demographic factors that, regardless of the fund's activities, can affect its financial stability. Internal factors directly depend on the fund's activities, management, management policy, capitalization level and development strategy.

Taking into account the consideration of the world practice of the pension system, the following recommendations can be made:

- Gradual increase in the retirement age;
- Introduction of stabilization mechanisms in the form of automatic; raising the retirement age in accordance with growth; life expectancy after retirement;
- Increasing the minimum work experience requirements;
- Encouraging late retirement;
- Tougher conditions for early retirement and restrictions on; payments to working pensioners.

REFERENCES

1. Agency for Strategic planning and reforms of the Republic of Kazakhstan Bureau of National statistics (2021). Retrieved from <https://stat.gov.kz/official/industry/25/statistic/7>
2. Baldwin, F.S. (1910), Old Age Pension Schemes: A Criticism and a Program, Quarterly Journal of Economics, 24(4): 713-742. Retrieved from <https://ideas.repec.org/a/oup/qjecon/v24y1910i4p713-742.html>
3. Barbara, E., Kritzer Stephen, J., and Kay Tapen Sinha (2012) «Next Generation of Individual Account Pension Reforms in Latin America», The Perspective of the World Review, No. 2 Retrieved from file:///C:/Users/Admin/Downloads/82-Texto%20do%20artigo-185-1-10-20191206%20(1).pdf
4. Becker, C. and D. Urzhumova (1998) "Pension Burdens and Labor Force Participation in Kazakstan", World Development, Vol. 26, No. 11, pp. 2087-2103. Retrieved from <https://www.sciencedirect.com/science/article/abs/pii/S0305750X98001077>
5. Berkel, Barbara and Börsch-Supan, Axel, (2004), Pension Reform in Germany: The Impact on Retirement Decisions, FinanzArchiv: Public Finance Analysis, 60, issue 3, p. 393-421 Retrieved from https://www.rand.org/content/dam/rand/www/external/labor/aging/rsi/rsi_papers/2006_axel1.pdf
6. Bovenberg, A. L., and T. Nijman, 2015, Personal Pensions with Risk Sharing: Affordable, Adequate and Stable Private Pensions in Europe, Nepstar Discussion Papers 03/2015- 005, Netspar, The Netherlands. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2577223
7. Bravo, David. 2006. The Chilean pension reform turns 25: Lessons from the social protection survey. Paper presented at the 2006 Atlanta Federal Reserve Conference. Retrieved from

- https://www.researchgate.net/publication/5187230_The_Chilean_Pension_Reform_Turn_s_25_Lessons_From_the_Social_Protection_Survey
8. Börsch-Supan, A. and Wilke, C.B. (2004) The German Public Pension System: How It Was, How It Will Be. NBER Working Paper, 10525. Retrieved from <https://ideas.repec.org/p/nbr/nberwo/10525.html>
 9. Dam, van, F., Daalhuizen f., De Groot, C., Van Middelkoop, M., Peeters, P (2013). Vergrijzing en ruimte: gevolgen voor de woningmarkt, vrijetijdsbesteding, mobiliteit en regionale economie. Planbureau voor de leefomgeving, Den Haag. Retrieved from https://www.pbl.nl/sites/default/files/downloads/PBL_2013_Vergrijzing_en_woningmarkt_1105.pdf
 10. Davis, E. P. (2000). Pension Funds, Financial Intermediation and the New Financial Landscape. (Discussion Paper No. PI-0010). The Pension Institute, CASS Business School. Retrieved from <http://www.ephilipdavis.com/wp0010.pdf>
 11. Edwards, S. (1998). The Chilean pension reform: A pioneering program. In Privatizing social security. Chicago: University of Chicago Press, 33-62. Retrieved from <https://www.nber.org/system/files/chapters/c6246/c6246.pdf>
 12. Eich F., Gust C., and Soto M. (2012), «Reforming the Public Pension System in the Russian Federation», IMF Working Paper, Washington DC. Retrieved from <https://www.elibrary.imf.org/view/journals/001/2012/201/article-A001-en.xml>
 13. Emily Andrews. 2001. Social Protection Discussion Paper Series: Kazakhstan: An Ambitious Pension Reform. World Bank, Washington D.C <http://siteresources.worldbank.org/SOCIALPROTECTION/Resources/SP-Discussion-papers/Pensions-DP/0104.pdf>
 14. European Central Bank (2021), Retrieved from https://www.ecb.europa.eu/pub/economic-bulletin/articles/2020/html/ecb.ebart202007_03~5ead7cb1dc.en.html

15. Franco, D. (2002). Italy: a never-ending pension reform. In *Social security pension reform in Europe*. Chicago: University of Chicago Press, 211-262. Retrieved from <https://core.ac.uk/download/pdf/6852246.pdf>
16. Gerard, M., 2019, "Reform Options for Mature Defined Benefit Pension Plans: The Case of the Netherlands," IMF Working Paper, WP/19/22, International Monetary Fund. Retrieved from file:///C:/Users/Admin/Downloads/wp1922.pdf
17. Holzmann, R. (1997). Pension reform, financial market development, and economic growth: preliminary evidence from Chile. *Staff Papers*, 44(2), 149-178. Retrieved from <https://www.elibrary.imf.org/view/journals/001/1996/094/001.1996.issue-094-en.xml>
18. Hughes, G., & Stewart, J. (Eds.). (2000). *Pensions in the EU: Adapting to economic and social change*. Boston: Kluwer. Retrieved from <https://www.worldcat.org/title/pensions-in-the-european-union-adapting-to-economic-and-social-change/oclc/247254811>
19. Hughes, G. & Stewart, J. (2011). Public and Private Provision of Pensions and the Ideal Pension System for Ireland. In Muir, D.M. and J.A. Turner (eds.), *Imagining the Ideal Pension System: International Perspectives*. Michigan: W.E. Upjohn Institute for Employment Research, 77-112. Retrieved from https://research.upjohn.org/up_bookchapters/798/
20. JSC «Unified Accumulative Pension Fund» (2021). Retrieved from <https://www.enpf.kz/en/indicators/pa/current.php>
21. Law of the Republic of Kazakhstan "On Pension Provision in the Republic of Kazakhstan" (2021) [Zakon Respubliki Kazakhstan O pensionnom obespecheniy v Respublike Kazakhstan] Retrieved from https://online.zakon.kz/document/?doc_id=31408637
22. Law of the Republic of Kazakhstan dated July 4, 2003 N 474 On state regulation, control and supervision of the financial market and financial organizations (2003) [Zakon Respubliki Kazakhstan ot 4 iulya 2003 goda №474 O gosudarstvennom regulirovaniy,

- kontrole I nadzora finansovih organizacij] Retrieved from https://adilet.zan.kz/rus/docs/Z030000474_
23. Federal Law No. 350-FZ of 03.10.2018 "On Amendments to Certain Legislative Acts of the Russian Federation on the Issues of Appointment and Payment of Pensions" (2018). [Federalniy zakon ot 03.10.2018 №350-FZ O vneceniy izmeneniy v otdelnye zakonodatelnye akty Rossiyskoi Federaciy po voprosam naznacheniya I vyplaty pensiy] Retrieved from <http://publication.pravo.gov.ru/Document/View/0001201810030028>
24. Monroe, P. (1897), An American System of Labor Pensions and Insurance, *American Journal of Sociology*, 2(4): 501-514. Retrieved from <https://www.jstor.org/stable/i328528>
25. Merton, R., 1983, On consumption indexed public pension plans, in: Z. Bodie and J.B. Shoven, eds., *Financial Aspects of the United States Pension System* (University of Chicago Press), 259-290. Retrieved from <https://core.ac.uk/download/pdf/6871735.pdf>
26. Merton, R. C. & Bodie, Z.V. (1995). A Conceptual Framework for Analyzing the Financial Environment. In Crane D.B. et al. (ed.). 'The global financial system: A functional perspective'. Boston, MA: Harvard Business School Press, pp. 3. Retrieved from <https://robertcmerton.com/publication/a-conceptual-framework-for-analyzing-the-financial-environment-2/>
27. Mesa, A.A. & Mesa-Lago, C. (2006). The structural pension reform in Chile: Effects, comparisons with other Latin American reforms, and lessons. *Oxford Review of Economic Policy*, 22(1), 149- 167. Retrieved from <https://ideas.repec.org/a/oup/oxford/v22y2006i1p149-167.html>
28. Nimwegen, van, N. (2012). Actief ouder worden in Nederland. *Nederlands Interdisciplinair Demografisch Instituut*, book 86, Amsterdam. Retrieved from <https://publ.nidi.nl/demos/2012/demos-28-08.pdf>

29. Parlevliet, J., 2017, "What drives public acceptance of reforms? Longitudinal evidence from a Dutch pension reform" *Public Choice*, Vol. 173, No. 1, pp. 1–23. Retrieved from <https://link.springer.com/article/10.1007/s11127-017-0447-7>
30. Rudolph H., and Holtzer P. (2010), "Challenges of the Mandatory Funded Pension System in the Russian Federation", *World Bank Policy Research Working Paper 5514*, Washington DC. Retrieved from <https://issuu.com/worldbank-russia/docs/wps5514>
31. Sinjavaskaya, O. (2004), "Pension Reform in Russia: A Challenge of Low Pension Age", *Project in International Equity (PIE)*, Discussion Paper No. 267, Hitotsubashi University, Tokyo, Japan. Retrieved from <https://cis.ier.hit-u.ac.jp/Common/pdf/dp/2004/dp267.pdf>
32. Srinivas, P.S., E. Whitehouse and J. Yermo (2000). 'Regulating Private Pension Funds' *Structure, Performance, and Investments: Cross-country Evidence*. World Bank Pension Reform Primer July). Retrieved from <https://mpr.ub.uni-muenchen.de/14753/1/0113.pdf>
33. Vail, M.I. (1999). *The Better Part of Valour: The Politics of French Welfare Reform*. *Journal of European Social Policy*, 9(4), 311-329. Retrieved from <https://scholar.google.com/citations?user=xFUwSBsAAAAJ&hl=en>
34. Verbon, H. (2009). *Drie economische redenen om de AOW-leeftijd niet te verhogen*. *Economische Statistische berichten*, 94, pp. 550-553. Retrieved from https://www.harrieverbon.nl/wp-content/uploads/2014/11/AOWleeftijd_ESBsep09.pdf
35. Wang, P.; Zhang, M.; Shand, R.; Howell, K.E. *Retirement, Pension Systems and Models of Pension Systems*. *Economics Working Paper No. 1402*. 2014. Retrieved from https://www.plymouth.ac.uk/uploads/production/document/path/8/8845/models_of_pension_systems_wp.pdf
36. Wills Tower Watson, 2018, "Evaluatie Wet Aanspasing Financieel Toetsingskader". Retrieved from file:///C:/Users/Admin/Downloads/Evaluatie_Wet_aanpassing_financieel_toetsingskader.pdf

37. Yermo, J. (2012), “The Role of Funded Pensions in Retirement Income Systems: Issues for the Russian Federation”, OECD Working Papers on Finance, Insurance and Private Pensions, No. 27, OECD Publishing, Paris. Retrieved from <https://ideas.repec.org/p/oec/dafaad/27-en.html>

Appendix

Hypothesis-1

```

=====
                        OLS Regression Results
=====
Dep. Variable:          Q("The replenishment of the pension fund")  R-squared:
0.166
Model:                  OLS  Adj. R-squared:

0.134
Method:                 Least Squares  F-statistic:
5.122
Date:                   Tue, 26 Apr 2022  Prob
(F-statistic):          0.00277
Time:                   14:19:06  Log-Likelihood:
-1667.9
No. Observations:      81  AIC:
3344.
Df Residuals:          77  BIC:
3353.
Df Model:               3
Covariance Type:      nonrobust  Активна

                                coef  std err  t
P>|t|  [0.025  0.975]
-----
Intercept                0.0262    0.072    0.365
0.716   -0.117    0.169
Q("Able-bodied active pop")  -15.8870    15.626   -1.017
0.312   -47.002    15.228
Q("Av salary")           4589.7122    1.26e+04    0.365
0.716  -2.05e+04    2.97e+04
Q("(Able-bodied active pop) * (Av salary)")  -0.0001    0.001   -0.083
0.934   -0.003    0.003
=====
Omnibus:                 5.311  Durbin-Watson:           0.870
Prob(Omnibus):           0.070  Jarque-Bera (JB):       2.665
Skew:                    0.169  Prob(JB):                0.264
Kurtosis:                2.178  Cond. No.                1.05e+15
=====

```

Hypothesis-2

OLS Regression Results

```

=====
=====
Dep. Variable:    Q("Pension payments (Y)")    R-squared:
0.186
Model:           OLS    Adj. R-squared:
0.176
Method:          Least Squares    F-statistic:
18.04
Date:            Tue, 26 Apr 2022    Prob (F-statistic):
5.85e-05
Time:           20:51:53    Log-Likelihood:
-1542.2
No. Observations:    81    AIC:
3088.
Df Residuals:       79    BIC:
3093.

Df Model:          1
Covariance Type:    nonrobust
=====
=====
                                coef    std err          t
P>|t|    [0.025    0.975]
-----
Intercept                -2.788e+08    8.78e+07    -3.175
0.002    -4.54e+08    -1.04e+08
Q("Number of people of retirement age")    178.7124    42.074    4.248
0.000    94.967    262.458
=====
Omnibus:                1.120    Durbin-Watson:                0.788
Prob(Omnibus):          0.571    Jarque-Bera (JB):                1.035
Skew:                   0.092    Prob(JB):                0.596
Kurtosis:               2.478    Cond. No.                3.63e+07
=====

```

Hypothesis-3

OLS Regression Results

```

=====
==
Dep. Variable:      Q("Investment Income")  R-squared:
0.216
Model:              OLS  Adj. R-squared:
0.206
Method:            Least Squares  F-statistic:
21.79
Date:              Wed, 27 Apr 2022  Prob (F-statistic):
1.22e-05
Time:              00:04:28  Log-Likelihood:
-1665.4
No. Observations:      81  AIC:
3335.
Df Residuals:          79  BIC:
3340.
Df Model:              1
Covariance Type:      nonrobust
=====

```

```

=====
====
              coef      std err          t      P>|t|      [0.025
0.975]
-----
-----
Intercept      -2.212e+08   1.32e+08   -1.675   0.098   -4.84e+08
4.17e+07
Q("SNP500 (X*)")  2.453e+05   5.26e+04   4.668   0.000   1.41e+05
3.5e+05
=====
Omnibus:              4.395  Durbin-Watson:      0.903
Prob(Omnibus):        0.111  Jarque-Bera (JB):   2.395
Skew:                 0.161  Prob(JB):           0.302
Kurtosis:             2.221  Cond. No.           1.43e+04
=====

```

OLS Regression Results

```

=====
Dep. Variable:      Q("SNP500 (X*)")  R-squared:      0.597
Model:              OLS  Adj. R-squared:  0.592
Method:            Least Squares  F-statistic:    117.0
Date:              Wed, 27 Apr 2022  Prob (F-statistic):  2.98e-17
Time:              00:03:13  Log-Likelihood:  -571.20
No. Observations:      81  AIC:            1146.
Df Residuals:          79  BIC:            1151.
Df Model:              1
Covariance Type:      nonrobust
=====
              coef      std err          t      P>|t|      [0.025      0.975]
-----
-----
Intercept      1113.1479   129.660     8.585   0.000     855.066    1371.230
Q("USDKZT")    4.3009     0.398    10.816   0.000     3.509      5.092
=====
Omnibus:              5.089  Durbin-Watson:      0.251
Prob(Omnibus):        0.079  Jarque-Bera (JB):   5.049
Skew:                 -0.606  Prob(JB):           0.0801
Kurtosis:             2.843  Cond. No.           1.34e+03
=====

```