THE RISKS OF THE PENSION INSURANCE SYSTEM

Summary: The article is devoted to the identification and analysis of the risks of pension insurance in Ukraine. The article distinguishes the main types of pension insurance risks.

Key words: pension fund of Ukraine, pension, pension insurance, pension risk.

Urgency of research. Pension systems of different countries were formed depending on their specific economic, political and socio-cultural factors, but together with all, they are characterized by common principles of organization and regulation, as well as certain risks.

In times of crisis, when the need to save accumulated contributions becomes of paramount importance for maintaining the stability of the pension system. The main condition for the implementation of state policy in the social sphere is the accounting of the principle of interrelation with social and economic risks. In modern scientific literature, the concept of "social risk" is considered as a danger that causes social deformations and disproportions in the development of man, society, and state. The need for social protection arises in the presence of certain risks that have a different nature of occurrence.

Actual scientific researches and issues analysis. Domestic scientists, in particular I.F. Gnibidenko, E.M. Libanova, O.V. Martjakova, B.O. Nadtociy, A.F. Novikova, I.M., paid great attention to research of problems and perspectives of development of the system of pension insurance of Ukraine. Prybytkova, DV Polozenko. At the same time, little attention has been paid to the issue of pension insurance risks.

Definition of uninvestigated parts of general matters. The process of reforming the pension insurance system in Ukraine continues, therefore, the question of identifying and analyzing the risks of pension insurance remains relevant.

The purpose of the article. The purpose of the article is to identify and analyze the risks of the pension insurance system in Ukraine.

The statement of basic materials. The most commonly used method of risk management is pension insurance as a type of social insurance that deals with protection against a specific type of socio-economic growth - disability as a result of retirement age, disability or loss of breadwinner. Therefore, the main task of the pension system is to accumulate social and economic risks through their insurance and depreciation. However, it should be borne in mind that with the help of insurance it is possible to deprecate only part of the risks, as they are difficult to prevent (disability, loss of breadwinner). The pension system should be adequate to the medium of the transformational economy, which should be based on the consent of the social partners (state, enterprises, individuals) and the creation of an effective mechanism for providing financial security to certain segments of the population (pensioners, disabled people, survivors).

The most commonly used method of risk management is pension insurance as a type of social insurance that deals with protection against a specific type of socio-economic growth - disability as a result of retirement age, disability or loss of breadwinner. Therefore, the main task of the pension system is to accumulate social and economic risks through their insurance and depreciation. However, it should be borne in mind that with the help of insurance it is possible to deprecate only part of the risks, as they are difficult to prevent (disability, loss of breadwinner). The pension system should be adequate to the medium of the transformational economy, which should be based on the consent of the social partners (state, enterprises, individuals) and the creation of an effective mechanism for providing financial security to certain segments of the population (pensioners, disabled people, survivors).

Direct methods of social risk management (social insurance and social security) organize a process of redistribution of costs in order to cover social risks. The method of social insurance involves the redistribution of risks between its carriers on the basis of the redundancy of part of the additional cost in the insurance social fund (target financial fund). The method of social
security is based on redistribution between the participants in the production process, the redistribution of the state budget mechanism belongs.

At the stage of consumption of the recovery process there is an additional cost of consumption. One form of consumption is social risk coverage. Considered alternative methods of social risk management use alternative technologies to cover social risk. The method of social insurance involves individual measurements and accounting for the level of social risk, caused by the individual qualities of its carrier (labor productivity, qualifications of the employee).

The social security method provides for a comparable procedure for measuring and recording the level of social risk, which is based on the assumption that for each carrier of social risk it is inherent in practically the same degree.

As seen in Fig. 2, Pension insurance risks are grouped into four groups: the risks of the pension insurance system, the risks of pension insurance institutions and the risks of pensioners. Pension insurance management is a special place in the management of pension insurance. Methods of managing pension risks depend on the type of pension risk. The risks of the pension insurance system are difficult to manage and depend on the social policy pursued in the country, and the risks of the institutions and the risks of the participants are manageable and to a large extent dependent on the particular subjects of the pension insurance.
In tabl. 1 generalized influence of the main risks on the distribution and accumulation systems, which will balance long-term pension risks.

**Table 1**

<table>
<thead>
<tr>
<th>Risks</th>
<th>Distribution systems</th>
<th>Accumulating systems</th>
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<tbody>
<tr>
<td><strong>Macroeconomic risks</strong></td>
<td></td>
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<tr>
<td>Unemployment rate</td>
<td>Reduction of contributions to the budget of the Pension Fund, possibility of mitigating the consequences for citizens.</td>
<td>There are no financial implications, but program participants will receive lower retirement benefits in the future</td>
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<tr>
<td>Low growth rate of wages</td>
<td>Reduction of contributions to the budget of the Pension Fund, possibility of mitigating the consequences for citizens.</td>
<td>There are no consequences for funding and current level of retirement benefits</td>
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<tr>
<td>Financial crisis (economic depression, war, hyperinflation, natural disaster)</td>
<td>Probable decrease in contributions to the Pension Fund budget. Ability to mitigate revenues for citizens.</td>
<td>Reduction or loss of savings</td>
</tr>
<tr>
<td><strong>Demographic risks</strong></td>
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<tr>
<td>Increased demographic load</td>
<td>Pension Fund budget deficit, reduction of retirement benefits</td>
<td>There are no direct consequences for financing and retirement benefits</td>
</tr>
<tr>
<td>Shortage of labor</td>
<td>Wage increases and future retirement benefits</td>
<td>Reduced yield and level of future retirement benefits</td>
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<tr>
<td><strong>Political risks</strong></td>
<td></td>
<td></td>
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<tr>
<td>Changing the provisions of the contract</td>
<td>Make it easy</td>
<td>It is difficult to accomplish</td>
</tr>
<tr>
<td>Depending on the short-term and long-term budget</td>
<td>High</td>
<td>Low</td>
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**Fig. 2 Classification of Retirement Insurance Risks**

- The risks of the pension insurance system
  - The risks that can create an effective pension system
  - The risk of insecurity of financial stability
  - Risks of narrowing the possibilities of financial markets

- The risks of pension insurance institutions
  - Risks of administrative management
  - Interest rate risk
  - The risk of insecurity of financial stability

- The risks of retirees
  - Incomplete and untimely reception of pensions
  - Reducing the replacement rate
  - Reducing the amount of retirement benefits
At this stage in Ukraine there is no developed infrastructure of financial and stock markets and still there are no basic elements necessary for implementation and support of a multi-level pension system. Of course, the state implementing the pension reform compensates for the weakness of the financial sector by limiting primary investment, mainly government securities. In view of this, it is necessary to ensure that the amount of funds the Pension Fund invests in bonds has increased in line with the general government debt management strategy and that interest on bonds earned on retirement funds is paid at market rates.

The modern Ukrainian pension insurance model is constantly criticized for its low efficiency. The effectiveness of the pension system can be measured by two commonly accepted indicators of the pension system. The first indicator is a high replacement rate. The second is the profitability of pension resources, which totally exceeds inflation.

The risk is the quintessence of the pension insurance system. Pension risks in their composition are multifaceted and heterogeneous, are complex, are at the junction of different spheres of life, do not have clearly defined limits.

Pension risks at the same time relate to social, demographic, economic, and financial risks. The identification of pension risks allows them to be divided, first and foremost, into exogenous and endogenous ones. Exogenous risks include macroeconomic risks, endogenous - directly the risks of the pension system. Retirement risks are a rather specific group of risks, which for different subjects (population, pension fund) can have both adverse and favorable outcome (survival to retirement age, increase in life expectancy, etc.). Retirement risks are also associated with an assessment of the income and standard of living of pensioners and economically active population (Fig. 3).

In the conditions of constantly changing socio-economic, demographic processes there is a natural problem of objective assessment of pension risks for timely response, forecasting and making sound decisions. It seems that today, based on the theory of risk and actuarial valuation, it is advisable not political but economic and mathematical methods of management based on reforming the system of pension insurance in Ukraine.

An analysis of the methods for assessing pension contributions showed that sufficient methodological basis for actuarial assessment has been formed. Existing techniques differ in the set of indicators and the advantages of individual risks and threats to Ukrainian pension insurance. The disadvantage of the methodological updating of actuarial evaluation is the lack of a methodological unity of political, economic and social approaches in the assessment of the pension system.

The algorithm for full actuarial assessment of pension risks is divided into stages (Fig. 4).
Several methodological approaches are used to assess the risks in theory and practice:
- statistical method of evaluation;
- method of expert assessments;
- use of analogues;
- combined method.

The best and most accurate statistical method, with the application of the theory of probability and mathematical statistics, the risk is estimated through the variance index, standard deviation, coefficient of variation, correlation.

In the framework of the dissertation research, we will evaluate the pension risks that are most significant for the world and Ukrainian pension insurance system.

First and foremost, this is an increase in the number and proportion of pensioners. As of 01.01.2018, 11.96 million people are registered with the Pension Fund of Ukraine, of which about 83% receive a retirement pension (Fig. 5).

![Fig. 5. The structure of pensions of Ukraine, 2017 [4]](image-url)
The risk of an increase in the number of pensioners relates to demographic processes: aging population, negative dynamics of fertility, the growth of life expectancy. In 2017, an absolute record for the entire history of Ukraine was beaten: the average life expectancy has reached 71.9 years (women - 76.78, men - 67.02), increased from 0.95 times in 2003.

However, the continuing threat to the stability of the pension system is not the growth of the number of pensioners, but the faster growth of the number and proportion of pensioners compared with the economically active population (Table 2).

### Table 2

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<tbody>
<tr>
<td>Number of manpower</td>
<td>20,22</td>
<td>20,25</td>
<td>20,39</td>
<td>20,48</td>
<td>19,03</td>
<td>17,39</td>
<td>17,30</td>
<td>17,19</td>
</tr>
<tr>
<td>The number of people employed in the economy</td>
<td>20,63</td>
<td>20,63</td>
<td>19,63</td>
<td>19,63</td>
<td>18,61</td>
<td>16,64</td>
<td>16,63</td>
<td>16,62</td>
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<tr>
<td>Number of unemployed</td>
<td>17,84</td>
<td>17,31</td>
<td>16,56</td>
<td>15,76</td>
<td>18,47</td>
<td>16,54</td>
<td>16,77</td>
<td>16,97</td>
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<tr>
<td>The number of retirees</td>
<td>13,72</td>
<td>13,74</td>
<td>13,82</td>
<td>13,64</td>
<td>13,53</td>
<td>12,15</td>
<td>12,3</td>
<td>11,96</td>
</tr>
<tr>
<td>The share of pensioners from the labor force,%</td>
<td>67,85</td>
<td>67,85</td>
<td>67,78</td>
<td>66,60</td>
<td>71,09</td>
<td>69,87</td>
<td>71,09</td>
<td>69,57</td>
</tr>
<tr>
<td>The share of pensioners in employment in the economy,%</td>
<td>66,50</td>
<td>66,60</td>
<td>70,40</td>
<td>69,48</td>
<td>72,70</td>
<td>73,02</td>
<td>73,96</td>
<td>71,96</td>
</tr>
</tbody>
</table>

The primary analysis has shown that the positive dynamics of the number and proportion of pensioners in Ukraine is not yet a critical rate of growth in the number of pensioners, which slightly exceeds the changes in the size of the labor force and the population employed in the economy.

Aging problems are primarily reflected in the financial performance and financial sustainability of the pension system. Obviously, an increase in life expectancy and aging will lead to a reduction in pensions and a replacement rate (Table 3).

According to Convention 102 of the International Labor Organization [1], the replacement rate must be at least 40% of the average wage. In Ukraine, in 2017, it was 29% (Table 3).

### Table 3

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<tbody>
<tr>
<td>Replacement rate,%</td>
<td>46</td>
<td>44</td>
<td>45</td>
<td>49</td>
<td>44</td>
<td>38</td>
<td>33</td>
<td>29</td>
</tr>
<tr>
<td>The ratio of the pension to the living wage,%</td>
<td>118,01</td>
<td>120,87</td>
<td>114,46</td>
<td>125,06</td>
<td>129,77</td>
<td>118,91</td>
<td>110,07</td>
<td>107,55</td>
</tr>
</tbody>
</table>

The easiest way to solve the problems of aging populations is to increase funding for the pension system. We will evaluate the financial risks and financial capabilities of the Pension Fund of Ukraine (Fig. 6).

![Fig. 6. Revenues, expenditures, deficit of the Pension Fund of Ukraine, UAH billions. [3]](image-url)
The analysis of revenues and expenditures of PFCs showed that for the investigated period from 2010 to 2014, it decreased by UAH 48.39 billion, after which it began to grow rapidly. Equally important for assessing the financial stability of the pension insurance system is the question of the ratio of sources of income to the pension fund. The inflow of PFCs is formed by contributions and transfers from the State Budget (Fig. 7).

In the period of 2010-2017, the ratio of these sources changed: in 2016, the State Budget funds of Ukraine significantly exceeded their own revenues.

Today, one of the main directions of state policy in Ukraine is "reforming the institute of the accumulation component of the pension system". The results of the analysis and assessment of accumulation risks have allowed us to conclude that the development of the accumulation component in the system of state mandatory pension insurance in Ukraine is at an initial stage. So according to the PFU in 2017, only 840.8 thousand people are recipients of payments from pension accumulation funds. The average amount of the accumulation pension in 2017 was 790.95 UAH. An insignificant result has objective and subjective reasons. Objective - the accumulation component was introduced only in 2004, subjective - limited choice of accumulation tools, low incomes and low financial culture.

**Conclusion**

Consequently, the main risks posing a serious threat to the Ukrainian pension system are:

- demographic risks (aging population, growth of life expectancy);
- financial risks (financial stability of PFCs);
- macroeconomic risks of lowering incomes, high share of shadow economy).

It should be noted that in general, the pension system of Ukraine and the financial situation of PFCs are currently far from being in critical condition and have a significant financial allocation.

**References:**

1. Social security (minimum standards) convention (No. 102), 1952.