

ENSURING FINANCIAL SECURITY OF NON-GOVERNMENTAL PENSION FUNDS IN UKRAINE

The paper investigates the process of providing financial security of non-governmental pension funds by the example of Ukraine. The theoretical basis of the research contains a review of existing approaches including the governmental methodology of Ukraine in ensuring the financial security of the funds. By conducting diagnosis of financial security of non-governmental pension funds in Ukraine, as empirical results, a methodical approach to the evaluation was formed. It was offered four groups of indicators (yield and profitability; investment risks; solvency and liquidity; funds development) implementation of which will help to improve risk system management of the non-governmental pension funds and accomplish risk-based prudential supervision.

JEL: G20; G23; G28; G31; G32

1. Introduction

Conditions of environmental changes, which non-governmental pension funds (hereinafter – NPF) carry out activities in, increase funds vulnerability to domestic and external negative influences that can lead to failure of the financial interests of their members. To prevent this scenario, it becomes increasingly more important issues of NPF financial security.

The implementation of prudential supervision of NPFs presented in The concept of introducing prudential supervision of nonbank financial institutions and development program prudential supervision of nonbank financial institutions (2010) needs to find the most informative diagnostics instruments of NPF financial security for its support.

The realities of the present, which carry out the activities of national NPF in Ukraine characterized by socio-economic and political instability, lack of advances in the financial market that negatively affects the financial security of the funds and determine the necessity of developing measures for its ensuring.

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Rapidly changing and unpredictable market environment, which carry out activities of NPFs increase the vulnerability to internal and external negative influences that can lead to infringement of financial interests of their members.

It has increasing importance to identify the key threats and risks that affect the state of the NPF financial security in order to avoid this scenario.

The article aims to develop the theoretical principles of NPF financial security, review the features to ensure the financial security of NPFs on the example of Ukraine.

To achieve the designated purpose in the work there were set and resolved following tasks: to determine the features to ensure the financial security of NPFs; examine the governmental approach to ensure financial security NPF in Ukraine; develop a methodical approach to diagnosing NPF financial security and make it tested.

The object of the research is the process of providing financial security of NPFs.

The subject of the study is theoretical, methodological and practical aspects of the mechanism to ensure the financial security of NPFs.

The main contribution of this paper is the formation of a methodical approach to the evaluation of ensuring the financial security of NPFs which includes four groups of indicators. The advantages of this approach are the following: the proposed list of indicators includes the most informative indicators of evaluation which gives a full description of the state of NPF financial security; it does not require experts to calculate the indicators; it is easy to implement and does not require any specialized software. This is a useful contribution because given methodical approach intends to improve risk system management of NPF and accomplish risk-based prudential supervision of the NPF.

The remainder of the paper is structured as follows.

In Section 2, author positions the paper in the related existing literature including governmental approach in Ukraine.

In Section 3 it was given an explanation of the methodological approach improved by the author.

In Section 4, presents the evaluation of the financial security of NPFs by the example of Ukraine using data of three selected funds and the results of this approbation.

Section 5 summarizes the paper's main findings.

2. Literature Review

A variety of problems connected with non-governmental pension provision is a topic for discussion for foreign scientists and series of researches are devoted to ensuring the financial security of NPFs. For example, Miller and Funston (2014), Leisering (2004) and Mabbett (2009) examined the state regulation of private provision in different countries (USA, Germany, Sweden and UK) they offer solutions on how to improve the performance

of NPFs; Ellison (2012) held a global survey on EU pension policy and protection of NPFs' customers in particular, and so on.

The current state of non-governmental pension provision in Ukraine and ensuring the financial security of NPFs were described in the studies of domestic researchers which consider the following.

NPFs play an important role in the system of pension provision. Parfonova and Bikinina (2013) discovered that there is a slight increase in the number of private pension funds and growing amount of pension benefits.

Despite this pension system attracts big volumes of financial resources and contains numerous risks. That is why the government policy in this sphere has to be directed at using special approaches and methods of defining pension system's risks and adequate reaction at their negative demonstration.

The conditions of a volatile and unpredictable market environment in which NPFs operate, increase the vulnerability of funds to internal and external negative influences, which can lead to distress of the financial interests of their participants. In order to prevent such developments, issues of identifying key threats and risks that affect the financial security of the NPF become increasingly important.

It should be noted that according to the Law of Ukraine "On non-governmental pension provision" (2003), the NPF is a legal entity that has the status of a non-profit organization (non-entrepreneurial society), conducts activities solely for the purpose of accumulation of pension contributions in favor of members of the pension fund with the subsequent management of retirement assets, as well as carries out pension payments to the participants of the said fund in the manner prescribed by law. In economic literature, the definition of "financial security" is used quite often.

However, it should be noted that the only interpretation of its essence is absent. O. Baranovsky points out that "the concept of financial security is as wide as an interpretation of finance, and all existing formulations of" financial security "reflect only some aspects of this comprehensive category and cannot claim its unambiguous interpretation" (Baranovsky, 2010)

In the financial and economic dictionary, financial security is defined as "the protection of financial interests of economic entities at all levels of financial relations, the provision of households, enterprises, organizations and institutions with financial resources sufficient to meet their needs and fulfil their financial obligations" (Zagorodniy, Voznyuk, 2007).

Another approach is offered by A. Chupis, who explains financial security as a "set of financial and economic mechanisms that ensure the firm's resilience to natural and economic risks, sufficient level of creditworthiness and investment attractiveness, as well as positive return on invested capital."

I. Blank considers financial security as "a quantitatively and qualitatively determined level of its financial standing, which ensures the stable protection of its priority balanced financial interests from the identified real and potential threats of external and internal character, the parameters of which are determined on the basis of its financial philosophy

and create the necessary preconditions of financial support for its steady growth in the current and prospective periods" (Blank, 2004).

However, the peculiarity of the financial security of the NPF is that the financial condition of the fund reflects mainly the results of the asset management company, while the protection of the financial interests of NPF participants is a common result of several financial security entities – the fund's board, administrator, company asset management and custodian bank, so interpreting the financial security of the NPF as a deterministic level of the financial state of the fund will only partially disclose the content of this concept.

It should be noted that Y. Vitka interprets the NPF as: firstly, "the aggregate of assets representing the participants' cash flows are drawn up in the form of contributions to pension accounts and invested to increase the value of assets in order to pay pensions to participants"; and secondly, "a legal entity that collects and invests funds intended to pay pensions to fund members who have reached the retirement age" (Vitka, 2005).

Considering NPF as a "set of assets", the author specifies: the source of the formation of assets; directions of asset utilization; the purpose. At the same time, Y. Vitka notes that the assets of the NPF "represent the funds of the participants". Indeed, according to Ukrainian legislation, NPF assets are the property of the participants.

According to the second approach to the definition of the nature of the NPF, noted by Y. Vitka, the author highlights the main tasks of the NPF, such as the collection of contributions, investment of assets and payment of pensions.

However, the author includes the definition of such a basis for receiving pension benefits from the NPF, as the retirement age. This is not entirely accurate, since pension contract can mention several reasons, such as: in particular, the retirement age of the NPF member, the recognition of the invalid, the deterioration of health, death, etc. (Vitka, 2005).

When interpreting the essence of the NPF first of all it's important to take into account the purpose and main objectives of the fund, since their wording is expressed by those for which the NPF is created, what is their purpose, than the NPF differ from other financial institutions. Thus, the purpose of NPF activity is to provide an additional source of income for fund participants after retirement.

The main tasks of NPF activities, aimed at achieving this goal, are the collection and accumulation of pension contributions; formation of pension assets by placing accumulated pension contributions on the financial market; pension payments.

At the same time, in an unstable economic situation, it is important to ensure the reliability of the source of income of NPF participants, which is achieved through the provision of pension funds from the negative impact of risks and threats.

Thus, according to the author, the financial security of NPFs is a level of its financial standing and efficient organization of investment policy that ensures stable protection of the priority financial interests of NPF members from identified real and potential threats to the external and internal environment, which creates the necessary prerequisites for financial support for sustainable growth in current and prospective periods.

The state of NPFs financial security effect negatively, on the one hand, the threat, which is defined as a set of destructive and destabilizing factors in the environment, and on the other hand, the risk implications of the NPFs, which depend on business decisions regarding management of NPF activity (Tsikanovska, 2013).

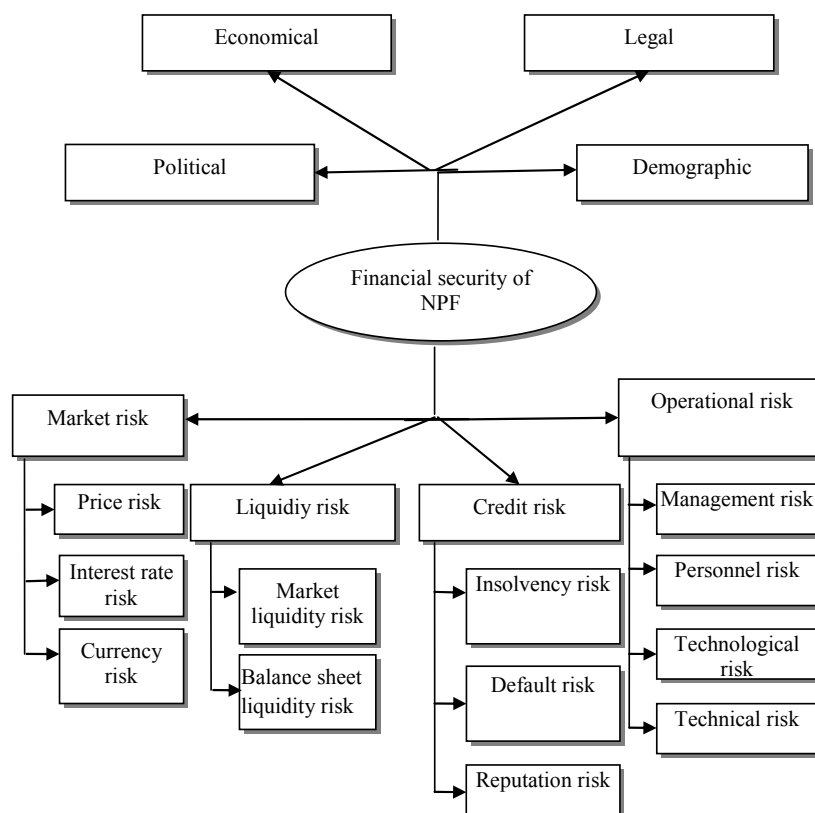
It should be noted that NPFs do not have an opportunity to influence political, economic, legal and demographic threats to the financial security; this is the sphere of competence of public authorities. In an unstable financial market conditions when the periods of dynamic development permanently change to a cyclical recession, the threats composition does not remain constant.

There are new threats, the impact of some threats have become extremely urgent matter, others – graded. Therefore, to ensure NPF financial security it is important for business management of the NPFs to be able to adapt activity of the fund to changing environmental conditions.

Regarding the risks of NPFs, the most important risks, such as market, liquidity risk, credit and operational, should be distinguished among their diversity (Figure 1).

Figure 1

Key threats and risks as a source of negative impact on the financial security of the NPF



As shown in Fig. 1 threats included: political, economic, legal and demographic.

Political threats play a particularly important role in emerging market economies, as the political systems of these countries are characterized by instability. The aggravation of the domestic political situation in the country may occur as a result of political measures such as a referendum or election, a change in the political course conducted by the state, which may lead to local conflicts, overthrows of the authorities, including hostilities, which adversely affects the general macroeconomic conditions of NPF activity.

The impact of economic threats depends on the general state of the economy, the phase of the economic cycle of the country. Unfavourable changes in the economic situation are negatively reflected in the rates of economic growth, solvency of economic entities, inflation, unemployment, household incomes, exchange rate of the national currency, etc. The state and conditions of the financial markets, in particular, the supply and demand of financial instruments, their yield and liquidity, the volatility of interest rates, etc., depend on financial stability. During the emergence of the crisis in the economy and financial sector, it becomes rather problematic to attract new NPF depositors, and existing depositors may temporarily suspend payment of contributions.

There are fewer options for investing pension funds NPF, the possibility of obtaining an acceptable investment income is limited, and the probability of non-fulfilment of obligations by counterparties NPF is increasing.

All this negatively affects the financial security of the NPF and the prospects for their further development.

The impact of legal threats may be caused by the imperfection of the legal system, in particular, the lack of regulation of legal issues, the existence of contradictions in legislation, its frequent change, incorrect application of separate legislative norms, the resolution of certain disputed issues of legislation through the courts, etc. The imperfection of the legislation on non-governmental pension provision may create administrative barriers to NPF activity.

Demographic threats are characterized by adverse changes in the demographic situation, such as a reduction in the general population, a decline in fertility, a high level of premature mortality, resulting in a simple reproduction of the population. All this affects the age structure of NPF participants in order to increase the number of participants in retirement age, which should be taken into account during the formation of the investment strategy of the NPF.

Another important concept that needs to be addressed is the definition of risk.

Risk should be understood as the uncertainty of the final result of the choice among existing alternatives, which can lead to both positive and negative consequences, the probability of occurrence of which can be estimated.

In order to minimize the negative impact, it is necessary to identify the key risks inherent in NPF activities.

With regard to the risks of NPFs, among their diversity, the most important risks, such as market, liquidity risk, credit and operational, should be distinguished.

Market risk is the risk of occurrence of financial losses of NPFs as a result of changes in the market value of financial instruments in the composition of the investment portfolio formed by the asset management company during the management of pension funds.

Market risk is actualized when the stages of the economic cycle of the country's development or the cyclical cycles of financial market development change as the demand / supply ratio changes, as well as the level of prices for financial instruments both in the financial market as a whole and in its separate segments.

Within the framework of market risk, there are currency, interest and price risks.

Currency risk or exchange rate risk inherent in the activity of the NPF when the legislation allows investing part of funds in financial instruments denominated in foreign currency. Currency risk is realized during the unfavourable change in the foreign exchange rate, in which NPF assets are nominated, in relation to the national currency, which records the liabilities of the NPF.

In turn, the interest rate risk is related to the sensitivity of the current value of fixed-rate debt instruments to changes in market interest rates. Price risk is manifested in the volatility of prices for financial instruments in the securities market.

Liquidity risk is realized in case of impossibility of quick transfer of pension assets into their monetary equivalent without significant loss of value. The existence of liquidity risk is explained by the fact that the demand for certain financial instruments may change over time, including disappearing at all for a certain time. In addition, it is necessary to take into account the difficulty of realizing the asset over a short period of time at a price that suits the seller, since it takes longer to find the best counter-offers from potential buyers.

Liquidity risk includes components such as market and balance sheet liquidity risks.

The risk of market liquidity is the risk of the inability to realize a retirement asset in the financial market at certain times without significant losses.

The balance sheet liquidity risk is the risk that an NPF will become insolvent and will not be able to meet its obligations to participants and counterparties.

Credit risk is the risk of losses associated with the non-fulfilment or improper performance of obligations by the NPF to its counterparty (custodian, asset management company, administrator of the NPF, etc.) or the issuer of securities in which NPF funds are invested.

The components of credit risk are:

insolvency risk;

default risk (bankruptcy);

the risk of reputation, which is considered as the risk of deliberate default, which is not due to the deterioration of the financial and economic condition.

Realization of credit risk can lead not only to financial losses of NPF participants, but also to decrease their trust in the fund, transfer of pension savings to another NPF, problems with the attraction of new depositors funds, etc.

Operational risk is the risk of loss as a result of shortcomings or mistakes in the implementation of internal processes committed by employees, the operation of information systems or technologies.

Operational risk includes risks: managerial, personnel, technological and technical.

Management risk is a risk arising from wrong management decisions, implemented with the insufficient competence of managers in matters of retirement, management or personnel policy.

The personnel risk is related to conscious or unconscious mistakes in the work of the staff caused by the employee's dishonesty or negligence, their incompetence, insufficiency, or instability of the staff or criminal violations.

The technological risk is the risk associated with the technologies. Technology is considered as the technological processes in the NPF (from paper workflow to the use of software). Risk can be realized during the conclusion of a contract on non-governmental pension provision, receipt and registration of contributions, placement of funds, calculation of investment income, accrual and payment of pensions, etc.

Technical risk is the risk of losses associated with the imperfection or malfunction in the work of computer or telecommunication systems, software.

Since all or a part of these risks can be realized in the NPF at the same time, we can speak of the existence of a cumulative risk of NPFs.

At the same time, not least to ensure NPF financial security is effective risk management of the fund. Given the fact that several subjects of management of NPF (Fund council, administrator, asset manager and custodian bank), the cumulative risk of NPF depends on decisions taken at each of the marked subjects, so risk management of the NPFs must be layered.

Therefore, monitoring of current threats and risk management are essential elements of a mechanism to ensure NPF financial security, which also includes other tasks to protect the financial interests of the funds and the methods, instruments, leverages and types of provisions, the use of which in the aggregate subjects management of NPF allows to create a reliable source of additional income of the fund participants following their retirement.

NPFs, life-insurance companies and banks ensure non-governmental pension provision. In addition to these entities, a number of other agents delivering services to the key “players” in the non-governmental pension market such as administrators, asset management companies, custodian banks, auditors and other infrastructure entities carry out activities in the non-governmental pension provision sphere. Some of these entities have already existed in the Ukrainian economic area and conducted their activities in the financial market pursuant to the existing regulations (Romanenko, 2016).

Life insurance companies have been included as a party to the mandatory accumulation system and non-governmental pension provision system. Lashko (2016) noticed that people in Ukraine prefer NPFs as the most reliable financial institutions connected with pension savings. The current situation is based on the strong governmental lobby of the NPFs and totally reflects world tendencies.

Gorbunova (2014) investigated that in previous years, the government of Ukraine has taken various measures to solve the problems of financial security pensions, but they were not sufficient because they were not systematic and did not bring effective results. During the whole period from the beginning of economic reforms, the government has failed to formulate a holistic approach to the regulation of pension provision.

The examined works built a theoretical framework for the research but there are still remained insufficiently developed questions to ensure NPF financial security and this confirms the relevance and practical significance of the topic.

2.1. Governmental approach to ensure the financial security of NPFs in Ukraine

The social importance of private pension causes a constant attention of state authorities to the activities of the NPF, as the loss of retirement savings could exacerbate the distrust of the population to pension reform and cause social resonance.

The main tasks of state supervision to ensure NPF financial security are: administrative regulation; monitoring compliance with laws and regulations; introduction of risk-based prudential supervision.

The instruments of administrative regulation of the NPF are: register, license, verifier, certificate, standards, requirements and recommendations.

The levers of administrative regulation of the NPF include: requirements for the amount of share capital, equity capital, reserve fund, limiting tariffs and others.

Thus, the bodies of state supervision of NPF claim: standards of administrative services; licensing conditions: implementation of the administration business of NPF contain the requirements of the share capital, equity capital, reserve fund of the NPF administrator in particular; implementation of the professional activity on the stock market – asset management performance and depositary services, which establish the requirements to the size of the share capital, equity capital and reserve fund, staffing, technical, software and so on, support of asset management companies, custodian banks; requirements to: qualifications of NPF board members and experts on NPF administration; technical assistance and information systems for personified accounting of NPF members; entities engaged in professional asset management business regarding the composition and structure of NPF assets that they manage; recommendations about: NPF net asset value assessment; action sequences and organizational measures that need to be implemented during the termination of the NPF; provision of compensation to provide asset management services of NPF, arrangement of tariffs calculation for custody services and their limit, maximum tariffs for the services on NPF administration (On approval of licensing activity of the administration of private pension funds, 2003).

The urgent task of the bodies of state supervision is the introduction of risk-based prudential supervision of the NPF and the institutions that serve its activities. This task involves the establishment of prudential standards and requirements of the NPF and its management subjects about:

- presence of the efficient risk management system in the asset management companies;
- diversification, asset quality and liquidity, in which can be invested pension assets;
- prohibition of the transactions with the fund's assets with related parties;
- criteria for the investment objects selection;
- calculation of indicators characterizing investment performance and net value of pension assets;
- information disclosure about the results of investment performance, pension assets and the risks inherent in those assets and others by fund councils.
- use of early warning tests;
- creating risk profiles of asset management companies based on which will be formed integrated risk assessment and decision will be taken to change the features of mode supervision of companies with different levels of risk and others (On approval of licensing activity of the administration of private pension funds, 2003).

According to the definition of NPF given in the Law of Ukraine (On non-governmental pension provision, 2003), we can conclude that:

firstly, the NPF is a nonprofit organization that does not aim at making a profit for its subsequent distribution among the founders of the fund. All profits earned by NPF should be distributed between the participants, making it impossible to use the funds for business purposes of its founders;

secondly, NPF carries out activities solely to the accumulation of pension contributions. Proceedings NPF of other activity is prohibited to protect retirement savings fund of its participants from their diversion for purposes not related to the private pension system.

To ensure its activity NPF uses the services of administrator, custodian bank and asset management company. This organization of the NPF activity provides transparency of financial transactions with facilities of funds and increasing control over the targeted use of pension savings.

It should be noted, that one of the strangest instrument of state control of business management professional readiness of NPF to work with pension savings of citizens have licensing requirements (On approval of licensing activity of the administration of private pension funds, 2003; On approval of the Administration business of private pension funds, 2004). Thus, the requirements for the share capital for asset management companies and pension fund administrators and the levels which should support equity and create reserves established to provide such entities with financial resources sufficient for professional work, and guarantee responsibility for the fulfilment of obligations to the NPF. In addition,

the need for investing significant resources in establishing administrator or asset management companies greatly reduces the attractiveness of private pensions to "financial schemes."

More details on how was varying the approaches to the application of the certain elements of the legal regulation of pension fund administrators and asset management companies of NPF are given in Table 1 based on the following instructions: On approval of maximum tariffs for the services of private pension fund administration (2004), On approval of licensing activity of the administration of private pension funds (2003), Approval of the peculiarities of the asset management of institutional investors (2013), On approval of the Administration business of private pension fund (2004), On the National Commission on Securities and Stock Market of Ukraine (2011) and Law of Ukraine (On non-governmental pension provision, 2003).

Table 1

Some elements of the legal regulation of activity of professional administrators and asset management companies of NPF in Ukraine

Elements of the system	2004 – 2010 years	2011 – 2015 years
Share capital of the professional administrator	The authorized capital shall be not less than the amount equivalent to 300 thous. euro	Specified the amount of authorized capital – not less than 2.5 mln. USD.
Equity capital of professional administrator	The size of the equity capital must be maintained at no less than an amount equivalent to 200 thous. euro	Specified the amount of equity capital – not less than the amount of registered capital
The share capital of the asset management company of NPF	The authorized capital shall be not less than the amount equivalent to 300 thous. euro	Specified the amount of authorized capital – not less than 7 mln. USD.
Equity capital of asset management company of NPF	The size of the equity capital must be maintained at no less than an amount equivalent to 200 thous. euro	Specified the amount of equity capital – not less than 25 mln. USD.
The reserve fund of professional administrator, asset management company of NPF	Must be maintained in the amount of not less than 25 % of the authorized capital. The amount of annual deductions to the reserve fund may not be less than 5% of the net profit	
Boundary tariffs for services on NPF administration	Marginal rate for open NPF is set at 6 % for corporate and professional NPF – 5% of the amount of pension contributions paid to the fund members during the year	The size of the tariffs for the services of the pension fund administration defined by the agreement of pension fund administration
The total remuneration of the asset management company of NPF	The total remuneration shall not exceed 0.35% of the arithmetic mean value of net asset value of NPF per month or 4.2 % per year	Specified the marginal rate NPF for any kind of 4.2% of NPF net asset value per year.

The results of data analysis in Table 1 show that from the beginning of the entry into force of the Law of Ukraine "On non-governmental pension provision" (2003) by bodies of state administration it was applied the instruments of legal regulation for the activity of administrators and asset management companies of NPF. In order to strengthen the financial capacity of institutions that serve the funds activity in 2011 it was updated requirements for the size of the share and equity of administrators and asset management companies of NPF.

It should be noted, that the amount of pension assets under management of these institutions, and the level of requirements to share and equity capital is sufficient, on the one hand, to ensure the protection of the financial interests of NPF, on the other hand, does not restrict competition between institutions engaged in fund management.

Law of Ukraine "On non-governmental pension provision" (2003) also limited the types of pension schemes that allowed to use for NPF. In particular, it does not provide the schemes with a defined benefit. This prevents the default of NPF in the case of insufficient retirement savings for the payment of pension fund to its participants.

In addition, NPFs are not allowed to offer pension schemes with paying lifetime pensions. Such a prohibition aims to protect NPF funds against the risk of "long life" persons who are appointed and paid lifelong pensions. Such restrictions to facilitate the planning of financial flows of NPF, which allow to create an investment portfolio with sufficient liquidity and contributes the fund to fulfil commitments to stakeholders on time.

Law of Ukraine (2003) and the Regulation on requirements for persons engaged in professional asset management of institutional investors (asset management) on concerning the composition and structure of NPFs that they manage (2012) established investment restrictions for the composition of assets in the investment portfolio of NPF. Percentages of different types of assets and asset quality requirements aimed at ensuring the diversification of investments funds (Table 2).

As can be seen from the Table 2 the types of assets such as: cash, bank deposit accounts, securities, settlement and acquisition of income for them are guaranteed by the Cabinet of Ministers of Ukraine, is the least risky for the allocation of funds, as they found the largest portion of the investment portfolio of NPF.

For NPF assets have not reached 500 thous. UAH, set several different investment requirements, but for not more than 18 months after inclusion the fund to the State Register of Financial Institutions (On approval of requirements for persons engaged in professional asset management of institutional investors (asset management) about the composition and structure of private pension funds that they manage, 2012; On non- governmental pension provision, 2003).

Table 2

The legal requirements for asset structure of NPF

Types of assets	Regulatory requirements to invest pension assets (shares of assets in the investment portfolio of NPF), %
Money on bank deposit accounts, savings certificates of banks	No more than 50
Securities of one issuer (other than securities, repayment and receipt of income guaranteed by the Cabinet of Ministers of Ukraine)	No more than 5
Securities, repayment and receipt of income guaranteed by the Cabinet of Ministers of Ukraine	No more than 50
Securities, repayment and receipt of income guaranteed by the Council of Ministers of the ARC	No more than 20
Shares of Ukrainian issuers	No more than 40
Securities of foreign issuers	No more than 20
Real estate objects	No more than 10
Banking metals	No more than 10
Other assets	No more than 5
Obligations of one legal entity	No more than 10
Securities (corporate rights) of one issuer	No more than 10

Asset management companies of NPF are not allowed: to form the pension assets at the expense of borrowed (credit) funds; to provide property guarantee secured pension assets, or any credits (loans) at the expense of pension assets; to conclude agreements of sale or barter of pension assets mandatory with condition of repurchase; to issue any debt and derivative securities. Pension assets may not include: securities that have not been listed on stock exchange; securities issued by a collective investment; bills; derivatives, etc. (On approval of requirements for persons engaged in professional asset management of institutional investors (asset management) about the composition and structure of private pension funds that they manage, 2012; On non- governmental provision, 2003).

In order to prevent the transformation of the NPFs, which are institutional investors in strategic investors, introduced the requirement to purchase no more than 10% of securities (corporate rights) of one issuer (On non-governmental pension provision, 2003).

The role of government regulation in ensuring the financial security of NPF is to create legal, administrative and economic conditions of assets acceptable to protect the financial interests of funds.

However, the task of ensuring financial security relies on Council of fund and institution that govern it – the administrator, the asset management company and the custodian as supporting the development of private pensions in general, the state does not provide special advantages for business NPF, thus supporting competition between NPFs, insurance companies and commercial banks.

Monitor the impact of regulatory measures applied by the bodies of state supervision in relation to the NPF and institutions that manage them allow the diagnostics of NPF financial security.

3. Methodology

In the solution of the tasks in the study used a set of general and specific research methods, techniques abstraction, generalization, induction, deduction, analysis, synthesis – when determining the characteristics to ensure financial security of NPF; systematic and functional approaches – for the development of methodical approach to diagnose the NPF financial security.

Information base of the study were laws and regulations which governing the activities of NPF official statistics, annual reports, financial controllers, accounting of the NPF.

3.1. Diagnosis of NPF financial security

Diagnosis is an integral part of the mechanism to ensure the financial security that provides for recognition of an object of research for certain characteristics. In case if there are signs of deterioration, it helps to determine the main factors that led to these features and also to develop the measures for rehabilitation and prevention development of negative trends in the future and so on.

To form the aggregate of indicators of NPF financial security to develop methodological approach, including the set of indicators proposed in the method (Analytical Reference on the development of private pensions, 2009; Methods of analysis and evaluation of pension funds and asset managers of private pension funds, 2006; Baranovsky et al., 2010); the author selected such that: calculate according to public financial statements; have established normative values; inform about the threat of the financial interests of the fund participants in the event of deviation from normative values.

Also for comprehensive diagnostics of NPF financial security, it was distinguished five groups of indicators characterizing: yield and profitability; investment risks; solvency, liquidity; fund development.

Using the hierarchy analysis method of T. Saati, which is a tool of system analysis and is based on the use of expert opinions, priority has been given to groups of indicators for the diagnosis of financial security of + NPFs. Experts came from academics and specialists in the field of NPF activity. The value of the index of coherence is less than 0.1, which indicates the consensus of expert opinions.

Hierarchy analysis method by T. Saati built on a gradual process of setting priorities and is systemic. The intensity of the interaction of the components of the hierarchy is estimated on the scale by T. Saati.

Priority group of indicators for the diagnosis of NPF's financial security is shown in Table 3.

Table 3

Priority group of indicators for the diagnosis of NPF's financial security

Groups of indicators	Criteria			Global priorities
	Calculated according to public financial statements	Have set normative values	Inform about the threat to the financial interests of fund participants in case of deviation from normative values	
	0,79	0,14	0,07	
Indicators of yield and profitability	0,63	0,21	0,10	0,530
Indicators of riskiness of investments	0,09	0,09	0,57	0,123
Solvency indicators	0,03	0,03	0,04	0,035
Liquidity indicators	0,22	0,64	0,27	0,285
Indicators of development of the fund	0,03	0,03	0,03	0,027

It is determined (Table 3) that, according to the calculations, the highest priority group for the diagnosis of financial security NPF is a group of indicators of yield and profitability (0.53). Other groups of indicators have less priority, therefore, according to the author, are less important for the diagnosis of financial security. It is a group of indicators that characterizes yield and profits forming a methodical approach to the diagnosis of NPF's financial security.

Author proposed financial safety indicators characterizing yield and profitability of NPFs shown in Table 4.

Table 4

Indicators of financial security that characterize the yield and profitability of NPF

Indicator name, calculation formula	Criterion	Interpretation of indicator
Income-cost ratio $I\text{E}_{ratio} = \frac{I}{E},$ where: E – the total amount of costs (expenses) recoverable from pension assets; I – the investment income earned on pension assets for the period.	≤ 1	The indicator reflects the portion of the resulting investment income goes to cover the cost of the pension fund. Investment income exceeds total costs of services by pension assets
	> 1	The resulting investment income amount does not cover the cost of servicing the pension fund. It is necessary to audit expenses

Indicator name, calculation formula	Criterion	Interpretation of indicator
		and may take measures to reduce
	< 0	The resulting investment loss. Pension fund costs should be covered by the implementation of pension assets
The level of nominal income $LNian = \left(\frac{NUV_i}{NUV_{i-1}} - 1 \right) \times \frac{365}{N} \times 100, \%$ where: NUV- the net value of pension unit as of the last business day of the accounting period; NUV _i – the net value of pension unit as of the last business day of the previous accounting period; N – number of days in the accounting period.	> 0	Investing pension fund gives a nominal profit in the accounting period
	< 0	The resulting loss on the pension fund's accounting periods
	= 0	The net value of pension unit remains unchanged from its value as of the last business day of the previous accounting period
The level of real income $RIRan = \left(\frac{NUV_i \times I}{NUV_{i-1}} - 1 \right) \times \frac{365}{N} \times 100, \%$ where: NUV ₁ – the net value of pension unit as of the last business day of the accounting period; NUV _{i-1} – the net value of pension unit as of the last business day of the previous accounting period; and I – the core consumer price index (inflation) in Ukraine in the accounting period, %; N – number of days in the accounting period.	≥ 0	Investing pension fund in the accounting period ensures the preservation of pension funds participants (the resulting level of investment income is greater than or equal to the inflation rate)
	< 0	Investing pension fund in the accounting period does not ensure the preservation of pension funds participants (pension funds devalued as a result of inflation)
Instant solvency ratio $R_{is} = \frac{C}{CL}$ where: C – cash and cash equivalents; CL – current liabilities.	≥ 0,8	Responsibility index your criteria NPF shows the ability to settle its current liabilities in the near future
	< 0,8	Holding current calculations can be problematic because of insufficient funds on current account
Quick liquidity ratio $R_{ql} = \frac{A_1 + A_2}{L_1 + L_2}$ where: A ₁ – the amount of the most liquid assets; A ₂ – the amount of assets sold quickly (receivables-hovanist); L ₁ – the most urgent (immediate) liabilities (accounts-ness debts for goods, services, current liabilities for	≥ 1	NPF is able to meet its current liabilities, provided timely settlements with debtors

Indicator name, calculation formula	Criterion	Interpretation of indicator
calculation); L ₂ – short-term liabilities (other current liabilities).		
Overall liquidity ratio $R_{ol} = \frac{A_1 + A_2 + A_3}{L_1 + L_2}$ where: A ₃ – the amount of assets sold slowly (inventories, other current assets).	≥ 2	NPF is able to meet its current liabilities by converting current assets in money (NPF describes the ability to avoid insolvency in the short term)
The ratio of pension contributions and pension payments $R_c = \frac{C}{PP}$ where: C – the amount of pension contributions and the amount of pension funds transferred to the NPF from another fund; PP – the amount of pension payments of NPF, their heirs, spouses in case of divorce, and the amount of pension money fund participants transferred to another NPF (insurer, bank) in the accounting period.	> 1	The Fund is in the growth phase and collects contributions
	< 1	The Fund is in the phase of payments. There is the possibility of termination of the NPF in future periods
Extensive growth ratio $R_E = \frac{C}{NAV}$ where: NAV – the net asset value.	Increase	Effective NPF to attract pension contributions (new customers)
	Decrease	The slowdown or stagnation of NPF

The proposed list of indicators (Table. 4) includes the most informative indicators of evaluation which allows to fully describe the state of the NPF financial security. The methods of calculating indicators do not require experts to calculate the indexes. It is easy to implement and does not require any specialized software.

4. Empirical Results

To test the proposed methodological approach, including financial security indicators characterizing yield and yield of NPF it was conducted diagnostics of NPF financial security according to based on data for 2015 year.

To calculate the indicators it were selected NPFs "Social standard", NPF "Pershyy naftohazovyy", NPF "ARTA", which are different in terms of their activities. The diagnostics results are given in Table 5.

Table 5

Indicators of financial security of selected NPFs for 2015

Indicators	Normative values	"Social standard"		"Pershyy naftohazovyy"		"ARTA"	
		Actual value	Security situation	Actual value	Security situation	Actual value	Security situation
Nominal income level, %	≥ 0	0.00	+	8.10	+	3.64	+
Real income level	≥ 0	-1.19	-	6.89	+	2.44	+
Income-cost ratio	[0; 1]	0.86	+	0.35	+	0.48	+
Instant solvency ratio	≥ 0.8	56.99	+	34.42	+	17.04	+
Quick liquidity ratio	≥ 1	211.13	+	34.93	+	18.15	+
Overall liquidity ratio	≥ 2	211.13	+	34.93	+	18.15	+
Pension contributions and pension payments ratio	> 1	3.51	+	0.79	-	8.00	+
Extensive growth ratio	growth	0.03	-	0.01	-	0.01	+

According to the data of Table 5 the following conclusions are:

firstly, NPF "Social standards" unlike other funds, not received income from the investment of pension assets. This is because the asset management company of the fund implements an active investment strategy to benefit from increased profitability in the long term. Due to the fact that the share of equities in the investment portfolio of NPF "Pershyy naftohazovyy" is high enough (as of 2015 – 38,28 %, against 10,65 % in the NPF "Pershyy naftohazovyy" and 11,72 % in NPF "ARTA"), the yield of pension assets of the fund is characterized by increased volatility.

Because the investment strategies of the asset management companies of the last two funds were more conservative, it allowed them to get not only the nominal, but the real return on investment of pension assets, so using this strategy appeared justified in the post-crisis financial market conditions;

secondly, a common characteristic of financial security of all three funds is a significant excess of criterion coefficients of instant solvency, quick and overall liquidity, due to, on the one hand, a high share in total assets of the funds placed in bank deposits and current accounts (45,17 % of NPF "Pershyy naftohazovyy", 38,83 % in the NPF "ARTA" and 27,48 % in the NPF "Social standard"), on the other hand, the fact that these funds have not yet reached the stage of maturity, so the volume of their current obligations is small;

thirdly, the lack of growth values of the extensive growth of NPF "Social Standard" and NPF "Pershyy naftohazovyy" and very weak positive changes in the values of this ratio for

the NPF "ARTA" informs about the difficulties of the funds to attract pension contributions as a result of development slows down. In addition, the low ratio of pension contributions and pension payments of the NPF "Pershyy naftohazovyy" indicates the probability of transition of this fund from the development stage to the stage of maturity.

Thus, the financial interests of the participants are better protected in the NPF "ARTA" as meaning of the all evaluated indicators of the financial safety of the fund, characterized positively.

To summarize, we note that financial security diagnostics of NPF allows to evaluate the performance of the fund in terms of the protection of the financial interests of its members. Auditing the effectiveness of measures to ensure NPF financial security allows to conduct monitoring of the fund's activities, which is making by government supervision.

5. Concluding remarks

1. To the question of provision of NPF financial security paid more and more attention, due to the specific activity of funds as specialized financial institutions, the main purpose of which is to provide an additional source of income fund participants following their retirement, which is achieved by securing retirement savings from negative exposure risks and threats in the process of accumulating pension contributions of pension assets and pension payments.
2. It is determined that the financial security of NPFs is a level of its financial standing and efficient organization of investment policy that ensures the stable protection of the priority financial interests of NPF members from identified real and potential threats to the external and internal environment, which creates the necessary prerequisites for financial support for sustainable growth in the current and prospective periods.
3. Governmental approach to ensure the financial security of NPFs in Ukraine is to create legal, administrative and economic conditions of funds activity to protect the financial interests of their members. However, supporting the development of private pensions in general, the state does not provide the special advantages for NPF activity, thus supporting the NPF competition between insurance companies and banks.
4. Diagnosis of the NPF financial security offered to perform on the basis of evaluation of five groups of indicators (forming a methodical approach to assessment) which describe: yield and profitability; investment risks; solvency, liquidity; funds development. Implementation of proper indicators evaluation of risky investments and liquidity and solvency of NPF will help to improve risk system management of NPF and accomplish risk-based prudential supervision of the NPF.

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