

Modelling the performance of the financial market

OLENA MASLIHAN

Department of Tourism and Geography
Mukachev State University
Mukachevo, UKRAINE

NATALIA LIBA

Accounting, Taxation and Marketing Department, Faculty of economics, management and engineering
Mukachev State University
Mukachevo, UKRAINE

OKSANA KOROLOVYCH

Accounting, Taxation and Marketing Department, Accounting, Taxation and Marketing Department, Faculty of economics, management and engineering
Mukachev State University
Mukachevo, UKRAINE

MARYNA HORDIENKO

Faculty of Engineering and Economics, Department of Social and General Technical Disciplines
Admiral Makarov National University of Shipbuilding
Mukachevo, UKRAINE

Abstract: The intensification of globalization processes, the desire to integrate into the European financial and economic system and the merger of national markets into one international financial system create preconditions for the emergence and intensification of processes and phenomena negatively affecting the level of development of the country's financial system and the national financial market, where the mechanism of redistribution of capital between creditors and its suppliers functions on the basis of indicators of supply and demand. Effective organization of the financial market contributes to the stability of the financial system and meeting the needs of the economy in investment resources through the accumulation of temporarily free financial resources. The purpose of the research lies in analysing the effectiveness of the financial market of Ukraine and identifying the impact of indicators of banking, insurance and securities markets on its importance. The method of economic analysis, synthesis, comparison, analogies, classification, systematization, generalization and method of modelling the effectiveness of the financial market based on the construction of equations of dynamic programming has been used in the research. As for the results of the study of modelling the performance of the financial market, it has been established that the results of the banking, insurance and stock markets have a decisive influence on the analysed indicator. During 2017-2020, the number of banks in Ukraine has significantly decreased (by 10,98%), including the number of banks with foreign capital by 13,16% and the volume of loans provided to customers (by 7,63% in 2019 and 13,87% in 2020 compared to 2018), which proves a decrease in customers' confidence in the banking system. At the same time, the activity of the market of banking services is assessed as effective. As for the market of insurance services, in the period under review, the decrease in the number of insurance companies by 28,57% is observed and there is an instability of its functioning. The results of the activities of securities' market also show instability, in particular, in 2020 the number of shares decreased by 88,23% compared to their volume in 2017. It has been substantiated that the modelling changes in the performance indicator of the financial market should be carried out by establishing interdependencies between its structural components, and the dominant influence of managerial actions and decisions made regarding financial resources has been proved.

Key-Words: financial market, banking services market, insurance services market, securities (stock) market.

Received: June 16, 2021. Revised: June 27, 2022. Accepted: July 21, 2022. Published: September 27, 2022.

1 Introduction

The effective functioning of the economy and ensuring stable social-economic development depends on the financial system of the state, which is designed to rationally redistribute financial resources in the economy, forasmuch as it is responsible for the development of a full-fledged market competitive environment, as well as controls the indicators of dynamic changes in the financial sector. The formation of the financial system of Ukraine is taking place under the influence of structural transformations, a systemic financial, economic and political crisis, which has led to the emergence of significant gaps in the development of its individual sectors, significant imbalances, financial destabilization; along with this, the large-scale use of Internet technologies has accelerated the action of negative processes and phenomena. It becomes obvious that under such conditions the problems of functioning of the national financial market arise and deepen, which, in comparison with highly developed countries, has significant shortcomings. Therefore, the problem of forming an efficient and competitive financial market, able to ensure the rapid conversion of free cash into investment capital, is of paramount importance.

2 Objectives

The purpose of the research lies in analyzing the effectiveness of the financial market of Ukraine and identifying the impact of indicators of banking, insurance and stock markets on its importance.

The object of the research. The financial market of Ukraine and its structural components: banking services market, insurance services market, and securities (stock) market.

3. Materials and methods

The following methods have been used in the research, namely: the method of economic analysis and synthesis in the study of the theoretical and methodological fundamentals for determining the effectiveness of the financial market; methods of comparison and analogies in the analysis and evaluation of indicators, method of classification in determining the features of the functioning of the financial market, its functions, structure and performance; a method for modelling the performance of the financial market based on the construction of dynamic programming equations in determining the influence of financial market indicators on its performance; method of systematization and generalization in order to

formulate the conclusions and results of the research.

The financial market of Ukraine was chosen to conduct the research.

The information base of the research is based on the reports for 2017–2020 as follows: Key performance indicators of banks, Review of the non-banking financial sector, Annual report of the National Commission on Securities and Stock Market, Results of insurance companies' activities.

4. Literature review

1. The essence of the financial market and features of its functioning in Ukraine.

In the context of globalization, the country's financial market is the most important component of the financial system, an indicator of the national economy's development level, a determining factor in the strategic directions of social-economic development and a powerful source of investment resources. A developed financial market, which is integrated into the world financial system, is able to ensure the growth of economic stability of the country. The current stage of Ukraine's economy development is characterized by significant structural deformations and the emergence of destabilizing factors.

Characterizing the state of the financial market of countries with a transitional economy, a steady tendency towards a tangible shortage of financial resources is observed and there is fierce competition for access to them. Therewith, the advantages are given to those countries that offer the best conditions for attracting investment, which is confirmed by the high level of financial market development, its efficiency, stability, technological equipment and a wide range of financial instruments and services. F. Allen (Allen & Gale, 2009) argues that the effectiveness and efficiency of the financial market depends not only on the efficiency of overcoming the crisis in it, but also on the effectiveness of the entire financial system.

As evidenced by the results of studies of macroeconomic indicators in Ukraine, the issue of ensuring macroeconomic stability has been present throughout the entire period of the country's existence as an independent state. Along with this, it periodically escalates under the influence of global financial and economic crises and internal social-economic and political shocks, indicating the vulnerability of the financial system to the challenges and threats of the external environment. In order to level the negative impact of destabilizing factors on the financial market, it is necessary to

specify the degree of their influence on the performance indicators. In the context outlined, it is important to determine such influence depending on the structural components of the financial market, namely: (1) banking services market; (2) insurance services market and (3) securities (stock) market.

At the same time, addressing the outlined problems presupposes a clear understanding of the essence of the financial market, the functions it performs, as well as its role for the development of the economy and the society.

It should be noted that N. Tatarin, N. Goranska and N. Saranchuk (Tatarin et al., 2020) define the financial market as a set of interconnected subsystems complementing each other and influencing the development of the country's economy. Along with this, at the international level, special attention is paid to ensuring the competitiveness of the financial market (Yokoi-Arai & Yoshino, 2006) in such a way as to provide the coordinated and complementary activities of all its components.

O. Vasylyk (Vasylyk, 2003) argues that the financial market is a mechanism redistributing financial resources between its subjects. Sharing the opinion of O. Vasylyk on the essence of the financial market, V. Oparin, T. Paetko and V. Fedosov (Oparin et al., 2013) in their scientific works, argue that the financial market should be considered through the prism of exchange and redistributive relations, which are connected with the purchase and sale of financial resources necessary for the production and financial activities.

Herewith, I. Rekunenko (Rekunenko, 2013) interprets the financial market as an autonomous system of interconnected elements regulating relations on the circulation and issue of financial assets, their redistribution and monitoring.

Complementing scientific investigations, I. Rekunenko, J. Garbar (Garbar, 2015) proves that an effective system of analysis and forecasting of its state becomes of paramount importance in the system of studying the features of the financial market.

M. Iorgachova, A. Kovaleva and G. Kotsyurubenko (Iorgachova et al., 2021) adhere to the position that the financial market should be considered as a set of various economic relations between government regulators and suppliers and consumers of financial resources, as well as between financial intermediaries, auxiliary and other financial corporations for proper conducting their activities in the financial sector. In addition, scientists argue that directions for improving the financial market of Ukraine should be developed and implemented taking into account the individual interests of each financial market's participant separately. Within such conditions, it becomes necessary to attract innovations in the financial market, which can be achieved by creating and popularizing qualitatively new financial instruments, institutions and technologies (Tufano et al., 2003).

According to the viewpoint of V. Khodakivska and V. Belyaev (Khodakivska & Belyaev, 2002) the essence of the financial market and its role in the financial system of the country is most accurately revealed through the functions that should be systematized in Figure 1. It should be noted that N. Tatarin, N. Goranska and N. Saranchuk (Tatarin et al., 2020) are of the similar opinion; however, along with this, the scholars structure the financial market into banking, insurance and securities market, arguing that the effectiveness of the financial market depends on the effectiveness of its structural components.

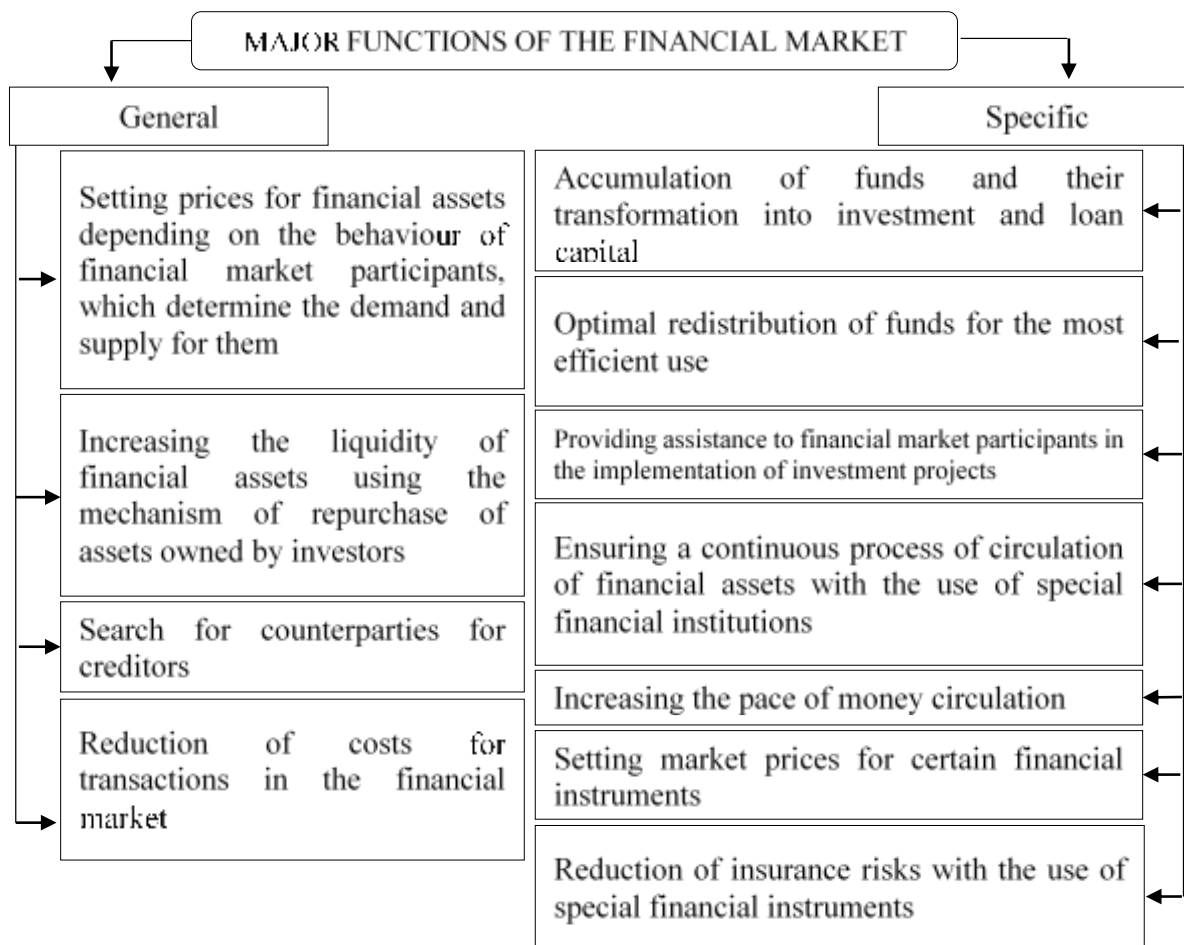


Fig. 1. List of major functions of the financial market of Ukraine

Source: Author’s development

A noteworthy detail is that the most active participants in the financial market, accumulating the largest share of financial resources and the most significant impact on the social-economic development of the country and the investment climate, are as follows: (1) commercial banks; (2) insurance companies and (3) stock markets. In view of this, we consider it quite reasonable to direct the empirical research on modelling the performance of the financial market towards assessing the effectiveness of its structural components, namely: banking, insurance and stock markets.

5. Results

1. Assessing the performance of the banking services market, the securities market and the insurance market.
 It has been established that the banking market is a specific financial institution; its main objective lies in ensuring continuous, stable and efficient

circulation of monetary funds and capital. In Ukraine, the banking market is characterized by such a feature as the union in the economic and organizational-legal system – that is, the national banking system. In order to determine the state of functioning of the banking market, it is necessary to analyze the dynamic changes occurring in the banking system according to specific indicators. The tendencies in changing the number of banks during 2017–2020 are reflected in Figure 2, indicating a steady trend towards a decrease in the number of banking institutions from 82 in 2017 to 73 in 2020 (the rate of change is 10,98%). Along with this, a gradual decrease in the number of banks with foreign capital by 13,16% is observed, and the relative stability of the number of banks with 100% foreign capital - 23 banks.

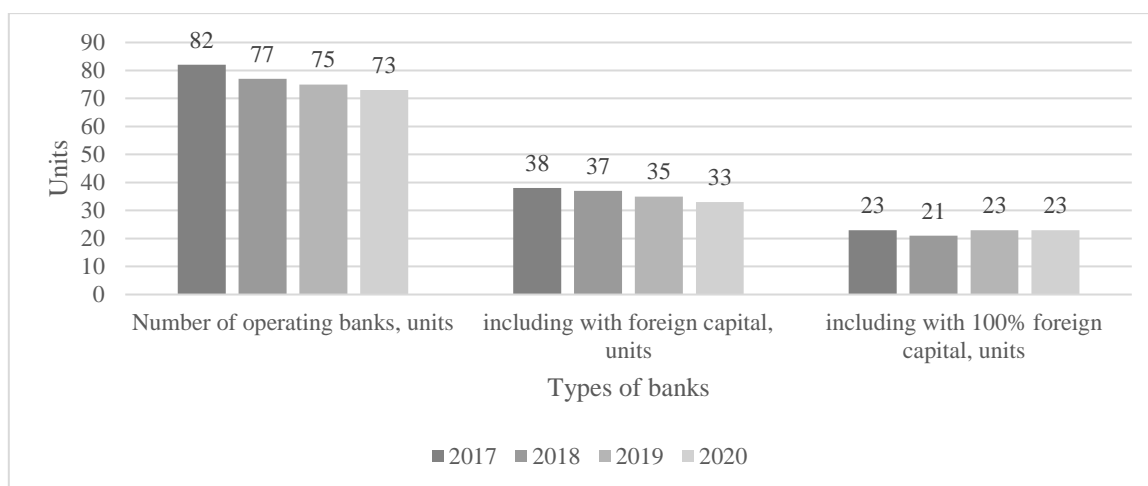


Fig. 2. Dynamics of the number of Ukrainian banks in 2017–2020, units

Source: Calculated based on: The main indicators of banks, 2017–2020; Indicators of the banking system, 2017–2020

Despite the reduction in the number of banks registered in Ukraine, a significant increase in their assets is observed (Figure 3) to 182 2814 million

UAH in 2020, which is 21,97% more than in 2019 and 36,66% more compared to 2017.

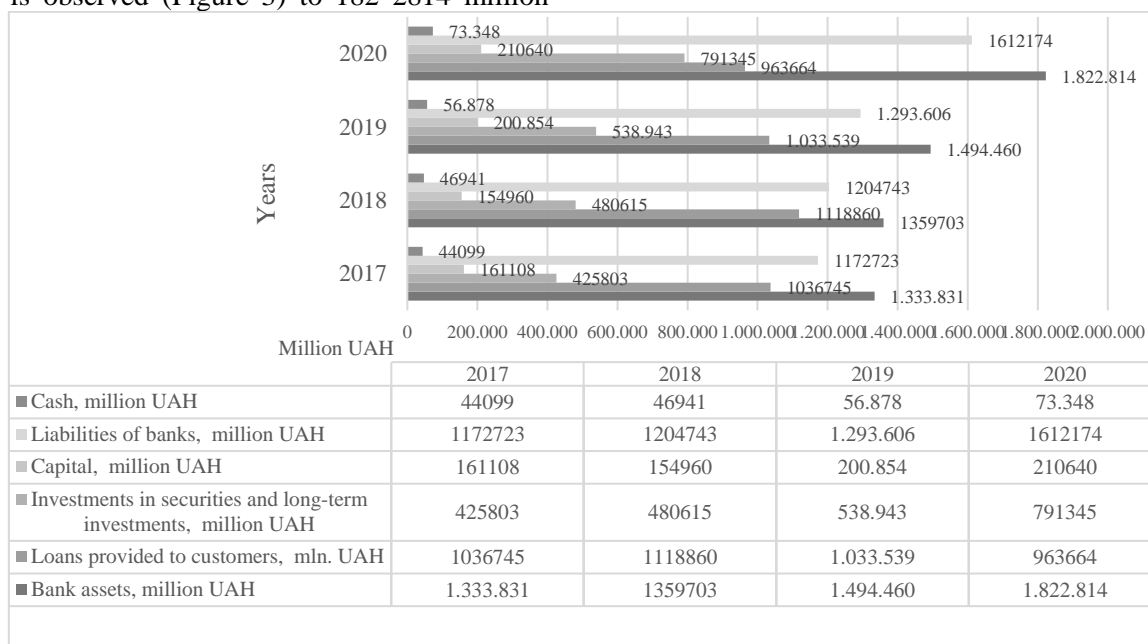


Fig. 3. Dynamics of performance indicators of Ukrainian banks, 2017–2020, UAH million

Source: Calculated based on: The main indicators of banks, 2017–2020; Indicators of the banking system, 2017–2020

Along with this, during 2019–2020, a decrease in the volume of loans granted to customers by 7,63% in 2019 and 13,87% in 2020 compared to 2018 is observed; this confirms the negative impact of the coronavirus crisis and the decline in customers' confidence in the banking system, as well as it is explained by a decrease in the performance of business entities due to quarantine restrictions and their inability to pay off their obligations on time. At the same time, a stable growth trend has been formed during the analyzed period in relation to the

liabilities of banks, the amount of which in 2020 has reached the level of 1 612 174 million UAH.

The positive result of the banking system significantly depends on the sufficient and optimal amount of bank capital and the growth of the level of capitalization of banking institutions. As evidenced by the results of the assessment, the annual capitals of banks are growing steadily. In general, assessing the performance of the banking market, one can assert its effectiveness and efficiency of measures in order to overcome the crisis caused by the COVID-19 pandemic.

Along with this, despite the fact that the share of the non-banking segment in the structure of the financial market remains insignificant (Figure 4), it also has an impact on the performance of the financial market. Consequently, when modelling the effectiveness of the financial market, this fact should also be taken into account.

Conducted assessments of the performance of non-banking financial and credit institutions during

2017–2020 give evidence of a decrease in the number of credit unions from 378 in 2017 to 289 in 2020, pawnshops from 415 in 2017 to 283 in 2020 and non-state pension funds from 64 in 2017 to 60 in 2020. Positive dynamics was observed only in relation to the number of financial companies (Figure 4).

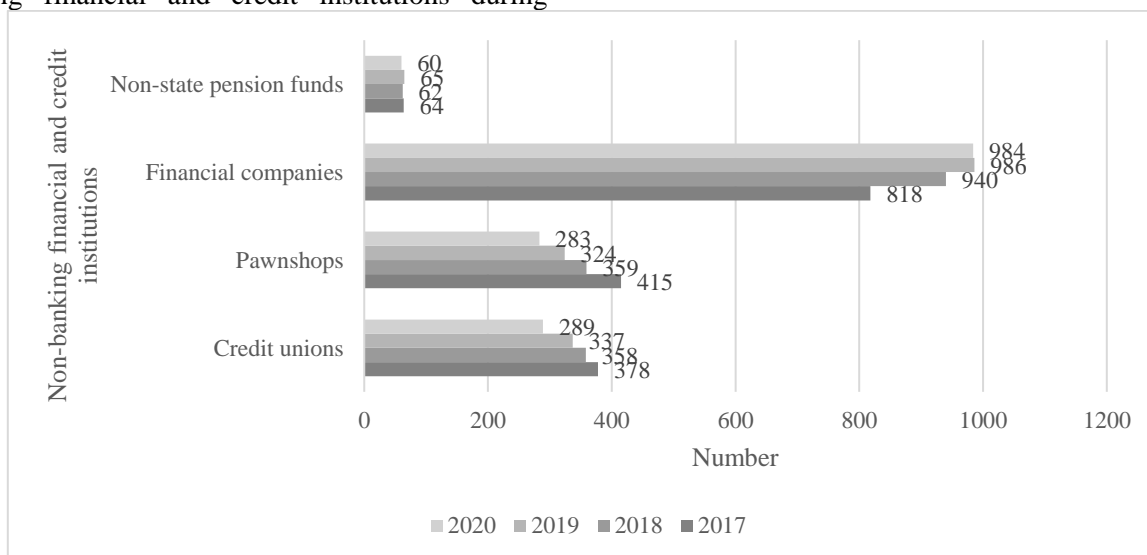


Fig. 4. Dynamics of the number of non-banking financial and credit institutions of Ukraine in 2017–2020
 Source: Calculated based on: Official site of the National Commission, which carries out state regulation in the field of financial services markets, 2017–2020

The results of the analysis of the main performance indicators of non-banking financial institutions for the period from 2017 to 2020, which has been conducted by studying the performance indicators of credit unions, pawnshops, non-state pension funds and financial companies of Ukraine, give grounds to argue about low customers’ confidence and insufficient efficiency of the non-banking financial and credit market.

The assessment of credit unions’ performance (Figure 5) indicates a gradual increase in their total assets during 2017–2019 from 2 169, 8 million UAH to 2 368, 9 million UAH. However, in 2020, the amount of assets has decreased by 58,8 million UAH (2,48%). As for the indicators of the capital of credit unions, its value ranged from 1 080,3 million UAH up to 668,1 million UAH. Herewith, the rate of change was -8,04% in 2018; +10,56% in 2019; -38.16% in 2020, compared to the previous year. A stable upward trend throughout the analyzed period

was observed by an increase in the volume of loans provided to members of credit unions (by 24,73% in 2020 compared to 2017) and the size of contributions by members of credit unions to deposit accounts from 937 million UAH in 2017 up to 1 918, 2 million UAH in 2020.

The specified tendencies give grounds to assert that the role of credit unions in the formation of the financial market is rather insignificant and not leading, forasmuch as credit unions mainly specialize in mutual lending of citizens; it is very difficult to achieve high indicators of financial and economic activity in this case.

Analysis of the activities of pawnshops (Figure 6), which are in high demand in Ukraine due to increasing macroeconomic instability and deteriorating living standards, shows a decrease in loans secured by collateral in 2019 to 9 051,9 million UAH with growing trends in asset value and equity.

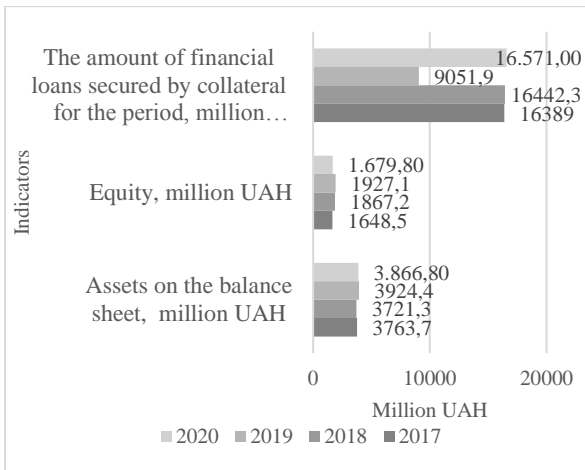


Fig. 5. Dynamics of the major indicators of Ukraine's credit unions, 2017-2020

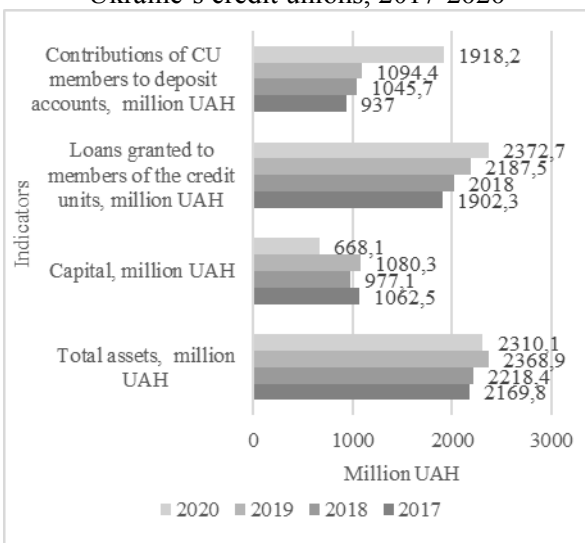


Fig. 6. Dynamics of the major indicators pawnshops' activities of Ukraine, 2017–2020.

Source: Calculated based on: Official site of the National Commission, which carries out state regulation in the field of financial services markets, 2017–2020

The activity of non-state pension funds (Figure 7) is characterized by the relative stability of their number and the growth of all indicators, indicating the improvement of the financial situation in the market of private pension provision, its slow but stable development.

At the same time, financial companies in the non-banking financial market occupy a dominant position, as evidenced by the steady growth of their number, assets and equity (Figure 8). Analyzing the performance indicators of financial companies, it is difficult to trace a steady tendency towards unequivocally positive changes. In particular, the volume of financial services provided during 2017-2019 decreased steadily and significantly, however, in 2020, there was a rapid increase to 187 866,40 million UAH. A similar situation is observed with

regard to the indicator of providing guarantees and sureties. When analyzing the provision of factoring services, their significant growth in 2018 has been revealed to 47 856,9 million UAH, however, subsequent periods are characterized by a downtrend.

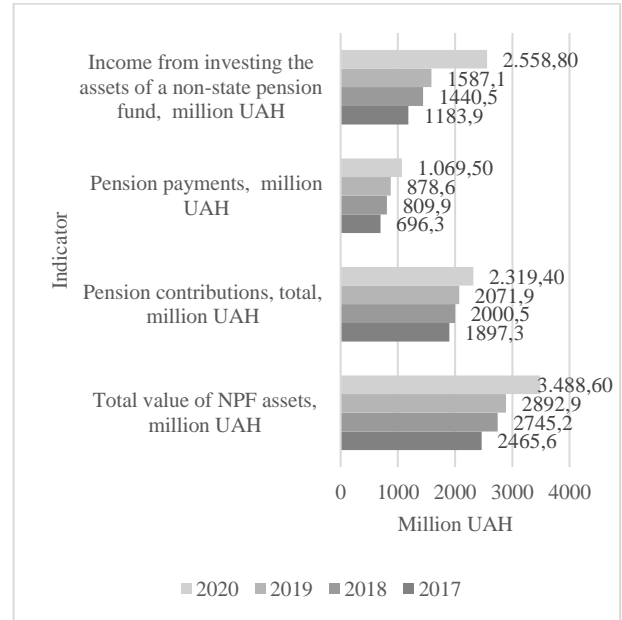


Fig. 7. Dynamics of the major indicators of non-state pension funds of Ukraine, 2017–2020

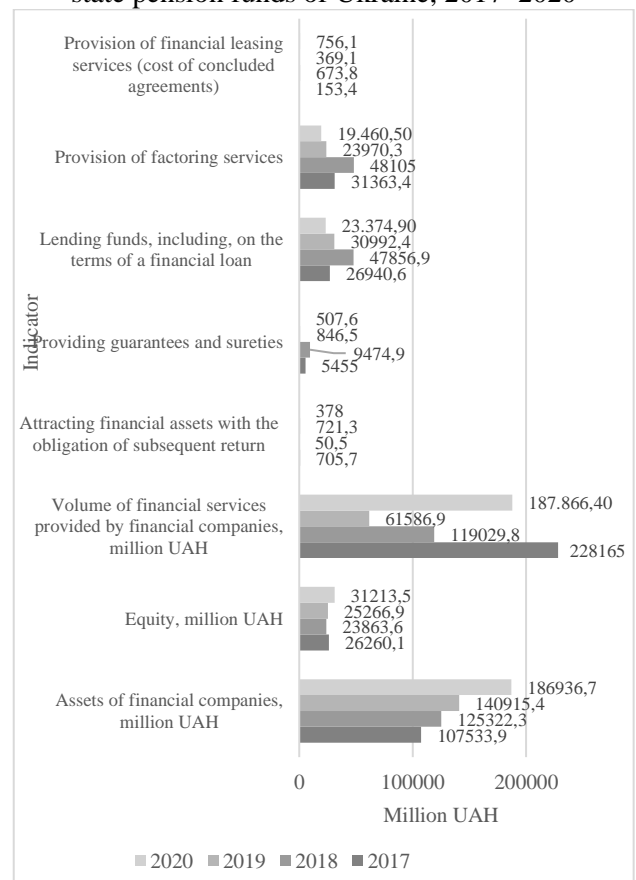


Fig. 8. Dynamics of the major indicators of financial companies in Ukraine, 2017-2020

Source: Calculated based on: Official site of the National Commission, which carries out state regulation in the field of financial services markets, 2017–2020

When assessing the activity of the non-banking financial market as a whole and taking into account that financial companies occupy the largest share in it, the situation is somewhat unstable and the performance indicators decrease.

The study of the insurance market confirms the decrease in the number of insurance companies from 294 in 2017 to 201 in 2020 (by 28,57%) (Figure 9), indicating the presence of fierce competition in the insurance market. At the same time, the decrease in both the share of “non-Life” companies - by 27,20% in 2020 compared to 2017, and the share of “Life” companies - by 39,39% is observed. Along with this, during the period 2017-2019, the analysis of insurance premiums (Figure 10) shows a stable growth, however, in 2020, a decrease in this indicator has been observed. Similar trends are revealed with regard to insurance payments. Accordingly, the level of gross payments in 2017 was 24,3%, in 2018 – 26,1%, in 2019 – 27,1%, and in 2020 – 32,5%. As for the indicator of the level of net payments, it has also gradually increased from 36,0% in 2017 to 37,8% in 2020.

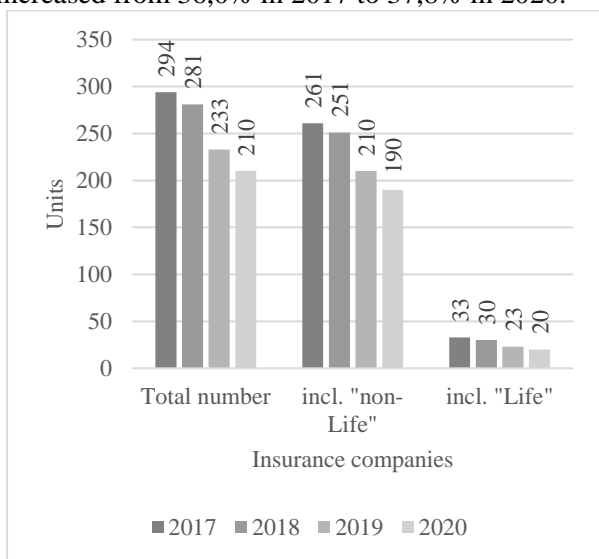


Fig. 9. Dynamics of the number of insurance companies in Ukraine, 2017–2020, units

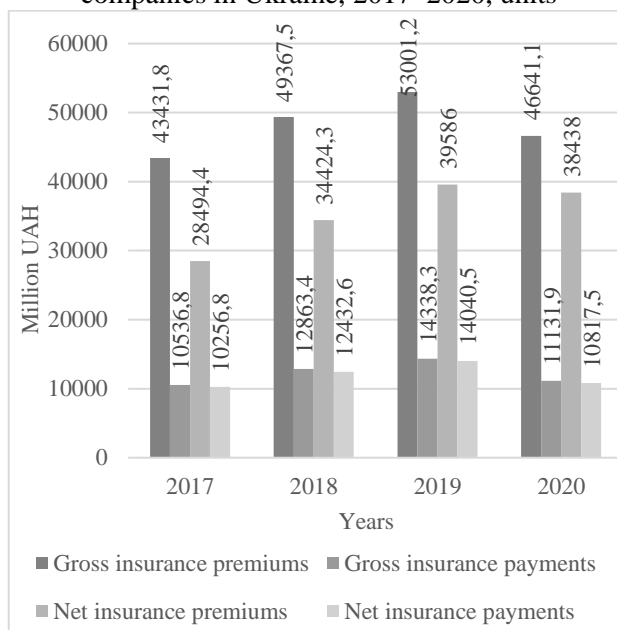


Fig. 10. Dynamics of insurance performance indicators in Ukraine, 2017–2020, million UAH

Source: Calculated based on: Forenschurer. Statistics of the insurance market of Ukraine, 2017–2020

Taking into consideration the fact that the stock market is one of the structural components of the financial market (Kalyuga, 2017), the results of its activities are important for assessing the effectiveness of the financial market. The role of the stock market lies in promoting the development of investment processes, increasing investors’ confidence and capital efficiency. The conducted studies of trade volumes in securities in the financial market (Figure 11) testify to instability in the stock market which is in a phase of dynamic development and incomplete formation. According to the results of activities in 2020, a significant decrease in almost all indicators has been recorded in the stock market, confirming the decrease in the effectiveness of its activities. Only government bonds, domestic bonds, corporate bonds and stocks showed upward trends.

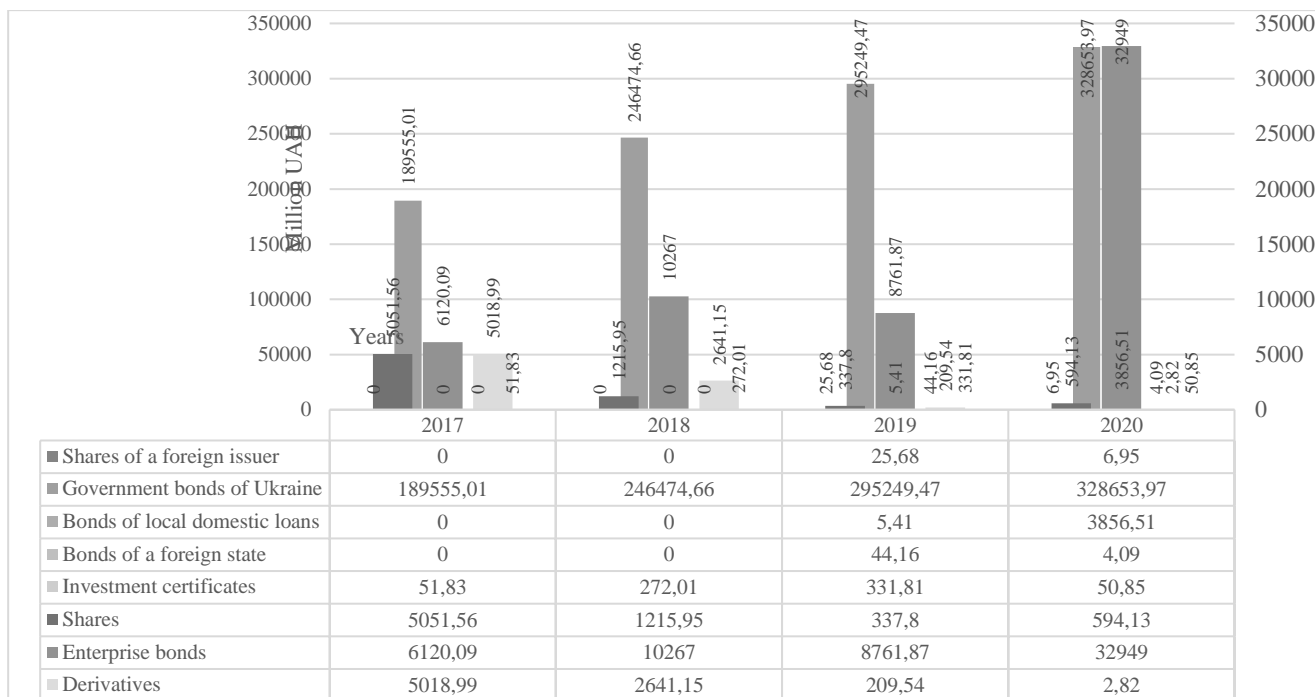


Fig. 11. Dynamics of stock market performance indicators of Ukraine, 2017–2020, UAH million

Source: Calculated based on: Official site of the National Commission of securities and stock market, 2017–2020

Thus, as evidenced by the results of studying the performance indicators of the banking, insurance and securities markets, the financial market is not stable despite the slight increase in the performance of the banking sector. All the outlined provides a solution to a number of problems as follows:

- improvement and harmonization of the legislative and regulatory framework for regulating processes in the financial market;

- strengthening the competitiveness of the financial market (Yokoi-Arai & Yoshino, 2006);

- advanced training of personnel supporting the activities of the financial market;

- increase the capitalization and competitiveness of financial institutions;

- reviewing the price of services and balancing supply and demand;

- increasing the level of public confidence in financial institutions;

- strengthening the mechanism of state regulation and supervision over intermediaries in the financial market.

Therefore, ensuring the reliability, stability and efficiency of the financial market depends on the effectiveness of reforming the country’s financial system and the search for new sources of funding.

The performance of the financial market depends on the period of time, and its measurement is in the plane of specific dynamic programmable models reproducing the process of change in terms of structure and properties. Performance, as an

objective function, is characterized by nonlinear dependencies; consequently, multiple differential equations, which are also called equations of dynamic programming, constitute the basis of reproduction of models. As a result, the constructed model reproduces the effectiveness of transactions in the financial market, and multiple differential equations provide their distribution. It is assumed that the distribution will continue until the moment in which the minimum and maximum values of the Bellman function are reached (Kravchyshyn et al., 2016). In this respect, this method was tested by Carter (Carter et al., 2019) and Hongley H. Hamilton (Hamilton, 2009), the results of which has made it possible to address the issue of modelling the performance of the financial market based on the construction of dynamic programming equations with variables reflecting the number of players and possible options for effective investments.

Modelling the performance of the financial market.

It is advisable to carry out modelling changes in the performance of the financial market on the basis of establishing the interdependence between its functional variables, namely: the banking, insurance and securities markets. Hereinafter, we highlight the basic content of classical dynamic programming models, namely: (1) each step of simulating a change in performance will take into account the consequences of a change in future periods; (2) individually for each step (except the last one), it is

necessary to choose a change of control, which should be represented as an artificial derivative reflecting the parameters of the change of the object (Andreytsev et al., 2020). Subsequently, it is necessary to formulate the modelling objective, which provides for obtaining the most accurate simulation of changes in the entire set of management decisions contributing to improving the performance of the financial market in all its structural components, maximizing this indicator as much as possible. The solution to this objective is possible by parametrizing the performance of the financial market in the direction of multiplicity, individuality, evolution, predictability, adaptability, variability and determinism, which will allow acquiring models of imitation traits, testing various schemes and responding to changes in the information environment.

It should be noted that the formation of the basis, in addition to all the above, requires consideration of the equation of state, iteration of the equation of state to the Bellman function, which will ensure the achievement of the principle of the aftereffect absence. After all, the modelling process itself presupposes an adjustment according to the content of the optimal control function of its state in the equations of state, which are the principal ones, and in the distribution equations, which are auxiliary.

The initial stage assumes that the conditions of distribution of derivatives for each component are set by the set of available assets (xi), according to which the conditions for reproduction of the step process of asset rotation are simulated, and the results of their behaviour are reflected in the financial market (f1), determining the effectiveness of the structural component of the financial market at the k-th step. In this case, the control action u^k will pass from the state ε^{k-1} to the state ε^k and provide a search for optimality within the equations of states (Mikhalychynets, 2021; Handy, 2017). The modeling involves illustrating the processes of options for possible redistribution of monetary funds' flows for each structural component of the financial market (provided that the initial amount of free funds is known as ε^0).

The initial algorithmic form of equations of state and distribution equations (formula 1, 2) makes it possible to form only static models, in which the efficiency reflects the basic equation of state, and the equation of distribution reflects the distribution of monetary funds' flows. Such equations cannot be considered deterministic, and their values reflect a specific point in time.

$$\varepsilon^k = T_k(\varepsilon^{k-1}, u^k), \quad k = 1, \dots, n \quad (1)$$

$$a^k = T_k(x_{k-1} + y_{k-1} = a_k - kx_k + ky_{k1}, u^k), \quad k = 1, \dots, n \quad (2)$$

where: ε^{k-1} та ε^k – the initial and final state by sets; u^k – management action; $k=1, \dots, n$ – step; a^k – the amount of free funds.

The equation of state and the distribution equation are based on the re-application of mathematical operations in order to determine ε^k and a^k and the maximum approximation during integration to the optimal value. At the same time, it is necessary to note and take into account the fact that a^k is also determined by the balance of funds received in the previous period, that is, in the period of $k^{(-1)}$. This statement is important for optimal distribution management and will affect the optimal management in the existing models.

Therefore, the transformed algorithm for iteration of state and distribution equations will be able to form dynamic models, which will reflect the changes of the simulated objects in time lags. Formulas 3, 4 reflect the transformed form of the equations of state and distribution.

$$F_n = (\varepsilon^{n-1}) = \max_{u^k} [f_n(\varepsilon^{n-1}, u^n)] \quad (3)$$

$$F_n = (a^{n-1}) = \max_{u^k} [f_n(a^{n-1}, u^n)] \quad (4)$$

where: ε^{n-1} equation of state based on the front iteration; u^k – initial change of management; u^n – changing management for iteration; a^{n-1} – redistribution equation by iteration.

Transformation of these equations will make it possible to obtain reproduction of n - step process of the changes moving towards a conditional maximum. In this way we get the opportunity to distribute free funds in such a way as to ensure the maximum value of efficiency (conditional maximum - the inflow of funds).

The obtained results of such modeling will allow determining:

indicators characterizing the minimum and maximum values of financial market performance, which, according to the equation of state, will depend on the dependence of state ε^k on management u^k , and on the equation of redistribution - on the dependence of $F_{k+1}(\varepsilon^k)$ from u^k ;

indicators of the minimum and maximum amount of return of funds, which, according to the equation of state, will depend on a^k based on the management indicators u^k , and the equation of redistribution will determine their dependence $F_k(a_k)$ from u^k .

Therefore, it can be argued that such values are, in fact, the Bellman equation. Along with this, it has been proved that the decisive role in the process of improving the efficiency of the financial market is

played by management actions and decisions. Thus, under such conditions, the issue of regulating Ukraine's financial market acquires particular importance in order to solve the problems outlined for ensuring its effective functioning.

6. Discussion

The results of the studies conducted make it possible to state the existence of significant problems in the functioning of the financial market, which are related to systemic financial, economic and political instability in Ukraine, increasing the negative factors of the COVID-19 pandemic, as well as internal banking, insurance and securities markets.

Herewith, the basic destabilizing factors of development and functioning of the banking services market are as follows:

- 1) decrease in the activity of credit transactions, due to the population's distrust of the banking system of Ukraine and the low level of protection of customers' deposits;
- 2) low level of the financial mechanism efficiency in the context of stabilizing the banking system in conditions of instability;
- 3) decrease in the number of existing banks and non-banking financial institutions (except financial companies) due to the inability to respond to challenges, threats and risks;
- 4) low level of profitability, investment activity and capitalization of the banking system;
- 5) unregulated legislative and regulatory support of issues related to the capitalization of banking institutions.

From among the negative factors in the development and functioning of the insurance market, the following ones should be highlighted, namely:

- 1) low level of competitiveness of insurance companies;
- 2) low level of investment attractiveness of insurance companies (Denisenko & Tokacheva, 2018);
- 3) limited investment instruments attractive to insurers;
- 4) low demand for insurance services due to imperfect insurance rules;
- 5) insufficient capitalization of insurance companies;
- 6) imperfect legislation in the field of regulation and supervision of the activities and market behaviour of insurance companies;
- 7) insufficient level of infrastructure development of the insurance market (Shloyko, 2018) and long-term insurance;
- 8) fraudulent actions on the part of insurers.

The main factors destabilizing the securities market are as follows:

- 1) low level of transparency in the securities market;
- 2) imperfection of the system for regulating the movement of financial resources;
- 3) insignificant volume of the stock market;
- 4) low quality of issuers that are represented in the market, leading to a low level of capitalization and liquidity;
- 5) monopolization of large blocks of shares;

a small share of derivative securities in the securities market (Ruda, 2015), indicating the actual absence of the domestic derivatives market.

7. Conclusions

Thus, on the basis of studies conducted it can be concluded that the financial market is a system of relations regulating the economic and legal principles of issuance and circulation of financial instruments, stimulating the accumulation of financial resources and helping increase the level of social-economic development. Ensuring the performance of the financial market significantly depends on supporting the transparency of its activities, on the level of investors' protection, on the level of liquidity support and solvency of financial market instruments, as well as on the effectiveness of management decisions and actions regarding financial resources. The existing model of financial market regulation needs to be improved, which, in current conditions, does not promote competition; it does not take into account the level of development of institutional investors, as well as creates risks of excessive pressure on non-banking financial institutions.

References:

- [1] Allen, F. & Gale D. (2009). *Comparing Financial System*. MA: Cambridge MJT Press, 2009, 520
- [2] Andreytsev, A.Yu., Vyala, Yu.E., Geylik, A.V., Kletska, T.S., Klindukhova, V.M., Kryukov, M.M., Lyashko, O.V. & Chabak, L.M. (2020). *Research of operations in transport systems: a textbook*. K.: DUIT, 136
- [3] Carter, M.W., Price, C.C. & Rabadi, G. (2019). *Operations research: a practical approach*, Boca Raton: CRC Press, 471
- [4] Denisenko, M.P. & Tokacheva, A.V. (2018). *Investment activity of an insurance company: problems and directions of activation*. Efficient economy, 10. Available at:

- http://www.economy.nayka.com.ua/pdf/10_2018/11.pdf
- [5] Forenschurer. Statistics of the insurance market of Ukraine. Available at: <https://forinsurer.com/stat>
- [6] Garbar, J.W. (2015). Financial market: monograph. K.: KNEU 455
- [7] Handy, A. Taha, 2017. Operations Research An: Introduction, Boston: Pearson
- [8] Honglei, X. Hamilton, Zaidon, Z. & Wei, W. (2009). Jacobi-Bellman equations on time scales. *Mathematical and Computer Modelling*, 2019–2028.
- [9] Indicators of the banking system. Official site of the National Bank of Ukraine. Available at: <https://monetary-policy-debates.bank.gov.ua/ua/supervision>.
- [10] Iorgachova, M.I., Kovaleva, O.M., & Kotsyurubenko, G.M. (2021). The financial market of Ukraine: the current state of the main segments. *Efficient economy*, 2. Available at: DOI: 10.32702/2307-2105-2021.2.90
- [11] Kalyuga, O.O. (2017). The stock market as an element of the financial market. *Theory and practice of public administration*, 1 (56), 1–5
- [12] Khodakivska, V.P. & Belyaev, V.V. (2002). Financial services market: theory and practice: a textbook. K.: CUL, 616
- [13] Kravchyshyn, V., Medikovsky, M. & Melnyk, R. (2016). Modification of the dynamic programming method. *JCPEE*, 6 (2), 83–90
- [14] Mikhalchynets, G.T. (2021). Modeling of sectoral performance of the financial market. *Agrosvit*, 11, 65–72
- [15] Official site of the National Commission of securities and stock market. Available at: <https://www.nssmc.gov.ua/news/insights/>
- [16] Official site of the National Commission, which carries out state regulation in the field of financial services markets. Available at: www.nfp.gov.ua
- [17] Oparin, V.M., Paietko, T.V. & Fedosov, V.M. (2013). Innovations in the financial sector. Kyiv: KNEU, 444
- [18] Rekunenko, I.I. (2013) Infrastructure of the financial market of Ukraine: current status and prospects: monograph. Sumy: SHEI «UABS NBU», 411
- [19] Ruda, O.L. (2015). Functioning of the stock market of Ukraine: problems and prospects of development. *Bulletin of the Nikolaev National University named after V.O. Sukhomlinsky*, 6, 794–798
- [20] Shloyko, A. (2018). Liability insurance market in Ukraine and its infrastructure. *Economics and Finance*, 2, 112–120
- [21] Sitnik, N.S. & Kravtsova, O.V. (2019). Assessment of financial security of the insurance market in modern conditions. *Businessinform*, 10, 219–228
- [22] Sviridovskaya, A.O. (2016). Investment activity of non-state pension funds in Ukraine. *Scientific works of NDFI*, 4 (77), 148–157
- [23] Tatarin, N.B., Goranska, N.V. & Saranchuk, N.D. (2020). Current trends in the functioning of the financial market of Ukraine. *A young scientist*, 6 (82), 211–216. Available at: DOI: <https://doi.org/10.32839/2304-5809/2020-6-82-44>
- [24] The main indicators of banks in 2017–2020. Official site of the Ministry of Finance. Available at: <https://index.minfin.com.ua/ua/banks/stat/>
- [25] Tufano, P., Constantines, G., Harris, M. & Stutz, R. (2003). *Financial Innovation: Handbook of the Economics of Finance*. Amsterdam: Elsevier, 307–336
- [26] Vasylyk, O.D. (2003) *Theory of Finance*. Kyiv: Nios, 416
- [27] Vyhovska, N., Polchanov, A. & Vyhovskiy, V. (2018). Modeling the impact of banking institutions on the development of insurance companies. *Black Sea Economic Studies*, 28-2, 97–100
- [28] Yokoi-Arai, M. & Yoshino, N. (2006). Concept of competitiveness in the financial sector. *Financial Research and Training Center Discussion Paper Series*, 24, 36. Available at: <https://www.fsa.go.jp/frtc/seika/discussion/2006/20061020.pdf>